

# Product Catalog

RESIDENTIAL & COMMERCIAL IRRIGATION | *Built on Innovation®*

VOLUME 40

**Hunter®**



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# PARTNERING FOR SUCCESS

## Helping You Grow Is Our Mission

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At Hunter Industries, our main objective is to deliver the irrigation solutions you need most to grow your business. We're grateful to you, our customers, for your partnership and trust over the past four decades. Your support continues to drive our passion for providing industry-leading products, comprehensive educational programs, and exceptional customer service.

Recent investments in our manufacturing operations have allowed us to expand our production capacities and launch innovative new products that deliver high-level performance, increased water and energy savings, and greater system flexibility — all of which strengthen your business.

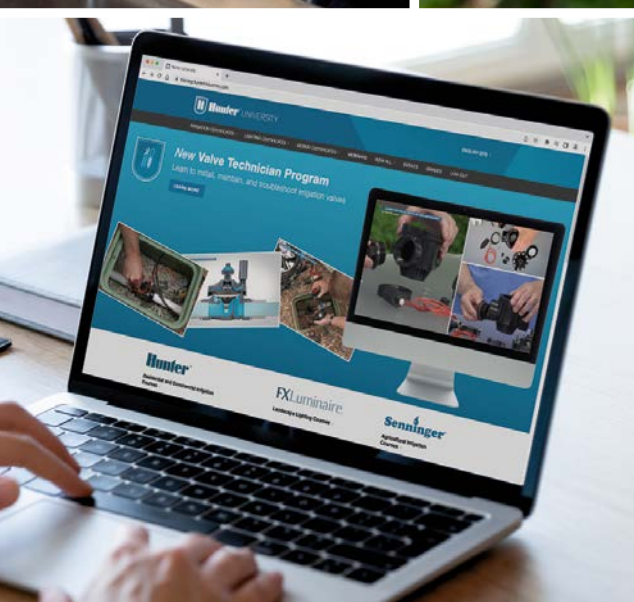
Educating your team on our products and industry best practices is key to our mutual success. We've launched many new online courses focusing on irrigation system fundamentals, added time-saving tools to our free business applications, and updated our state-of-the-art customer training center at our corporate headquarters to engage with industry professionals through popular hands-on workshops.

Along with products and education, we continue to invest in the latest technologies that enable us to respond to your needs as quickly as possible. Our world-class customer support and technical support teams are ready to help you the moment you need it.

We're proud to be your partner, and we thank you for choosing Hunter Industries.





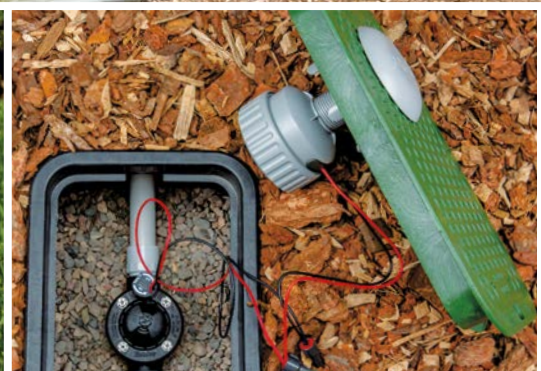
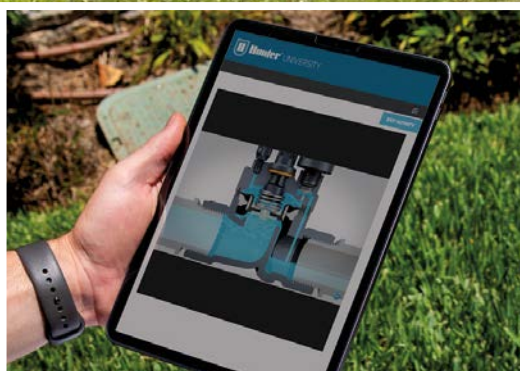




# ADVANCING THE INDUSTRY

## Through Innovation

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Everything we do at Hunter Industries is rooted in innovation. From small residential installations to fully automated smart cities, our teams continually develop solutions to help you deliver water as efficiently and sustainably as possible.

That's why we're excited to introduce the latest additions to our cutting-edge lineup: the new Wireless Valve Link (page 118) and the updated Pro-C® Controller (page 109).

As we continue to explore new ways to innovate, you can expect us to deliver even more industry-leading products, services, and tools in the future to help your business grow.





## Leading the Way Toward Greater Sustainability

As the industry's sustainability leader, we're committed to supporting and improving the communities where we live, work, and play.

We develop products and technologies that enable the efficient use of our natural resources and reduce our environmental footprint.

We believe in the triple bottom line, which focuses on People, Planet, and Profit.

Scan to learn more about our commitment to sustainability!







**ROTORS**

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# ROTORS

## ADVANCED FEATURES

### RELIABLE STRENGTH & DURABILITY

#### PRESSURE-REGULATED BODY



Reduce high incoming pressure to prevent misting and allow nozzles to operate at peak efficiency. Lower pressure produces larger water droplets that fight the effects of wind.

PGP® Ultra Shrub and 4", I-20 Shrub, 4" and 6"



#### STAINLESS STEEL RISER

For unforgiving soil conditions, unpredictable climates, or heavy foot traffic, stainless steel is the best choice.

Standard on I-40, I-80  
Optional on I-20 and I-25



#### DRAIN CHECK VALVE

The Drain Check Valve keeps lines from draining when the system is shut off. This saves water, reduces liability, and prolongs system life.

PGJ, PGP Ultra, I-20, I-25, I-40, I-80, I-90

### EASY IN-THE-FIELD IDENTIFICATION

#### OPTIONAL RECLAIMED WATER ID



Purple caps indicate where non-potable irrigation water is being used.

PGJ, PGP Ultra, I-20, I-25, I-40, I-80, I-90

#### COLOR-CODED NOZZLES

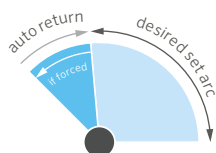


Nozzles are easier to differentiate in the field for simple installation and quick organization.

I-25, I-40, I-80, I-90

### EASY AS-NEEDED ADJUSTMENTS

#### AUTOMATIC ARC RETURN & NON-STRIPPABLE DRIVE



This patented feature returns the turret to the original arc regardless of where it is turned. The non-strippable drive mechanism is protected from damage, ensuring protection from vandalism.

PGP Ultra, I-20, I-25, I-40

### VALUE-ADDED OPTIONS



#### OPPOSING NOZZLE 360° MODEL

The opposing nozzle design offers excellent water distribution. With primary and secondary nozzles on opposing sides of the turret, streams arc in opposite directions as the sprinkler rotates for outstanding midrange and close-in watering.

I-40, I-80, I-90

#### FLOSTOP® CONTROL



FloStop® Technology stops the flow of water from individual sprinkler heads while the system is running. This is ideal for changing nozzles or turning off specific heads during maintenance and construction.

I-20

#### HEADED AND SLOTTED SETSCREW



Use a slotted screwdriver or the Hunter Wrench for easier and simpler adjustments as needed.

PGJ, PGP Ultra, I-20



## ROTOR COMPARISON CHART

| QUICK SPECS                                     |     | PGJ        | SRM        | PGP-ADJ    | PGP ULTRA   | I-20        | I-25          | I-40          | I-40-ON       | I-80          | I-90          |
|-------------------------------------------------|-----|------------|------------|------------|-------------|-------------|---------------|---------------|---------------|---------------|---------------|
| INLET SIZE                                      |     | ½"         | ½"         | ¾"         | ¾"          | ¾"          | 1"            | 1"            | 1"            | 1½"           | 1½"           |
| RADIUS                                          | ft. | 15' - 37'  | 15' - 30'  | 22' - 52'  | 17' - 46'   | 17' - 46'   | 40' - 71'     | 44' - 69'     | 52' - 76'     | 63' - 97'     | 66' - 103'    |
| FLOW                                            | GPM | 0.64 - 5.3 | 0.42 - 3.4 | 0.5 - 14.1 | 0.36 - 14.8 | 0.36 - 14.8 | 3.8 - 31.5    | 7.6 - 29.5    | 13.0 - 33.7   | 20.2-58.5     | 29.5 - 83.8   |
| FEATURES                                        |     |            |            |            |             |             |               |               |               |               |               |
| RECOMMENDED PRESSURE RANGE                      | PSI | 30 - 50    | 30 - 50    | 25 - 70    | 25 - 70     | 25 - 70     | 40 - 100      | 40 - 100      | 40 - 100      | 50-100        | 80 - 120      |
| OPERATING PRESSURE RANGE                        | PSI | 20 - 100   | 20 - 100   | 20 - 100   | 20 - 100    | 20 - 100    | 40 - 100      | 40 - 100      | 40 - 100      | 50 - 100      | 80 - 120      |
| NOZZLE TRAJECTORY                               |     | 15°        | 15°        | 25°        | 25°         | 25°         | 25°           | 25°           | 25°           | 22.5°         | 22.5°         |
| SPECIFIC NOZZLES                                |     | ---        | ---        | ---        | Optional    | Optional    | Pre-Installed | Pre-Installed | Pre-Installed | Pre-Installed | Pre-Installed |
| NOZZLE OPTIONS                                  |     | 8          | 6          | 27         | 34          | 34          | 11            | 6             | 6             | 7             | 8             |
| WARRANTY                                        |     | 2 Years    | 1 Year     | 2 Years    | 5 Years     | 5 Years     | 5 Years       | 5 Years       | 5 Years       | 5 Years       | 5 Years       |
| ADVANCED FEATURES                               |     |            |            |            |             |             |               |               |               |               |               |
| LOW-ANGLE NOZZLE CHOICES                        |     |            |            | ●          | ●           | ●           |               |               |               |               |               |
| AUTOMATIC ARC RETURN                            |     |            |            |            | ●           | ●           | ●             | ●             |               |               |               |
| NON-STRIPPABLE DRIVE                            |     |            |            |            | ●           | ●           | ●             | ●             |               |               |               |
| PART- AND FULL-CIRCLE IN ONE MODEL              |     |            |            |            | ●           | ●           | ●             | ●             |               | ●             |               |
| HEADED AND SLOTTED SETSCREW                     |     | ●          |            |            | ●           | ●           |               |               |               |               |               |
| RECLAIMED WATER ID                              |     | ●          |            |            | ●           | ●           | ●             | ●             | ●             | ●             | ●             |
| AVAILABLE SHORT RADIUS NOZZLES                  |     |            |            |            | ●           | ●           |               |               |               |               |               |
| FLOSTOP® CONTROL                                |     |            |            |            |             | ●           |               |               |               |               |               |
| OPPOSING NOZZLE                                 |     |            |            |            |             |             |               |               | ●             | ●             | ●             |
| STAINLESS STEEL RISER OPTION                    |     |            |            |            |             | ●           | ●             | ●             | ●             | ●             |               |
| OPTIONAL PRESSURE-REGULATED BODY                |     |            |            |            | ●           | ●           |               |               |               |               |               |
| OPTIONAL OR FACTORY-INSTALLED DRAIN CHECK VALVE |     | ●<br>(7')  |            |            | ●<br>(7')   | ●<br>(7')   | ●<br>(10')    | ●<br>(15')    | ●<br>(15')    | ●<br>(5')     | ●<br>(9')     |



# PGJ

Radius: **15' to 34'**  
Flow: **0.42 to 4.3 GPM**

The highly durable PGJ offers all the benefits of a large rotor in a compact, spray-sized package, with water-efficient nozzles and easy arc adjustment.

## KEY BENEFITS

- Headed and slotted setscrew allows radius adjustment with a Hunter Wrench or flat-blade screwdriver
- Adjustable arc from 40° to 360° to keep water in the appropriate areas
- Standard factory-installed 2.0 nozzle speeds installation
- QuickCheck™ Arc Mechanism for fast arc adjustment

## OPERATING SPECIFICATIONS

- Nozzle choices: 8
- Radius: 15' to 34'
- Flow: 0.42 to 4.3 GPM
- Recommended pressure range: 30 to 50 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rate: 0.6 in/hr approximately
- Nozzle trajectory: 14° approximately
- Warranty period: 2 years

## FACTORY-INSTALLED OPTIONS

- Drain Check Valve (up to 7' of elevation) excluding PGJ-00
- Reclaimed water ID

## USER-INSTALLED OPTIONS

- Drain Check Valve (up to 7' of elevation) excluding PGJ-00 (P/N 462078SP)
- HC-50F-50M Check Valve (up to 32' of elevation)



### PGJ Reclaimed

Available as a factory-installed option on all models

## PGJ - SPECIFICATION BUILDER: ORDER 1 + 2 + 3

| 1 | Model               | 2                                  | Standard Features | 3       | Feature Options                          |
|---|---------------------|------------------------------------|-------------------|---------|------------------------------------------|
|   | PGJ-00 = Shrub      | Adjustable arc, 8 standard nozzles |                   | (blank) | No option                                |
|   | PGJ-04 = 4" pop-up  |                                    |                   | V       | Drain Check Valve                        |
|   | PGJ-06 = 6" pop-up  |                                    |                   | R       | Drain Check Valve and reclaimed water ID |
|   | PGJ-12 = 12" pop-up |                                    |                   |         |                                          |

### Examples:

PGJ-04 = 4" pop-up, adjustable arc

PGJ-06-V = 6" pop-up, adjustable arc, with drain Check Valve

PGJ-12-R = 12" pop-up, adjustable arc, with drain Check Valve and reclaimed water ID

Compatible with:



1/2" Swing Joints  
Page 60



Hunter FlexSG  
Page 60



### PGJ-00

Overall height: 7"  
Exposed diameter: 1 1/8"  
Inlet size: 1/2"



### PGJ-04

Overall height: 7 1/8"  
Pop-up height: 4"  
Exposed diameter: 1 1/8"  
Inlet size: 1/2"



### PGJ-06

Overall height: 9 1/8"  
Pop-up height: 6"  
Exposed diameter: 1 1/8"  
Inlet size: 1/2"



### PGJ-12

Overall height: 16 3/8"  
Pop-up height: 12"  
Exposed diameter: 1 1/8"  
Inlet size: 1/2"

## PGJ PERFORMANCE DATA

| Nozzle | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
|--------|-----------------|---------------|-------------|---------------------|------|
| 0.50   | 30              | 14            | 0.42        | 0.41                | 0.48 |
|        | 40              | 15            | 0.50        | 0.43                | 0.49 |
|        | 50              | 16            | 0.58        | 0.44                | 0.50 |
| 0.75   | 30              | 15            | 0.64        | 0.55                | 0.63 |
|        | 40              | 16            | 0.75        | 0.56                | 0.65 |
|        | 50              | 17            | 0.85        | 0.57                | 0.65 |
| 1.0    | 30              | 18            | 0.85        | 0.51                | 0.58 |
|        | 40              | 19            | 1.0         | 0.51                | 0.59 |
|        | 50              | 19            | 1.1         | 0.57                | 0.66 |
| 1.5    | 30              | 21            | 1.3         | 0.57                | 0.66 |
|        | 40              | 22            | 1.5         | 0.60                | 0.69 |
|        | 50              | 22            | 1.7         | 0.67                | 0.77 |
| 2.0    | 30              | 24            | 1.7         | 0.55                | 0.64 |
|        | 40              | 25            | 2.0         | 0.62                | 0.71 |
|        | 50              | 25            | 2.3         | 0.71                | 0.82 |
| 2.5    | 30              | 27            | 2.2         | 0.58                | 0.67 |
|        | 40              | 28            | 2.5         | 0.60                | 0.69 |
|        | 50              | 28            | 2.8         | 0.68                | 0.79 |
| 3.0    | 30              | 30            | 2.5         | 0.53                | 0.62 |
|        | 40              | 31            | 3.0         | 0.60                | 0.69 |
|        | 50              | 31            | 3.4         | 0.68                | 0.79 |
| 4.0    | 30              | 33            | 3.7         | 0.65                | 0.76 |
|        | 40              | 33            | 4.0         | 0.71                | 0.82 |
|        | 50              | 34            | 4.3         | 0.72                | 0.83 |

## PGJ NOZZLES



### Note:

All precipitation rates calculated for 180° operation. For the precipitation rate for a 360° sprinkler, divide by 2.



# SRM

The SRM is an economical short-range rotor that offers a convenient and efficient alternative to spray heads.

## KEY BENEFITS

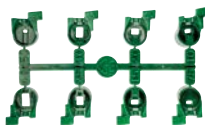
- Adjustable arc from 40° to 360° to keep water in the appropriate areas
- Standard factory-installed 2.0 nozzle speeds installation
- Through-the-top arc adjustment for easy installation
- QuickCheck™ Arc Mechanism for fast arc adjustment

## OPERATING SPECIFICATIONS

- Nozzle choices: 8
- Radius: 15' to 34'
- Flow: 0.42 to 4.3 GPM
- Recommended pressure range: 30 to 50 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rate: 0.6 in/hr approximately
- Nozzle trajectory: 14° approximately
- Warranty period: 1 year

## USER-INSTALLED OPTIONS

- Drain Check Valve (up to 7' of elevation) (P/N 462078SP)

| SRM    |                                               | SRM NOZZLES                                                                         |
|--------|-----------------------------------------------|-------------------------------------------------------------------------------------|
| Model  | Description                                   |                                                                                     |
| SRM-04 | 4" pop-up, adjustable arc, 8 standard nozzles |  |

SRM



Radius: **15' to 34'**  
Flow: **0.42 to 4.3 GPM**



### SRM-04

Overall height: 7½"  
Pop-up height: 4"  
Exposed diameter: 1½"  
Inlet size: ½"

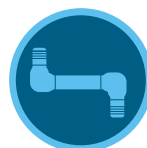
## SRM-04 PERFORMANCE DATA

| Nozzle | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr |      |
|--------|-----------------|---------------|-------------|--------------|------|
|        |                 |               |             | ■            | ▲    |
| 0.50   | 30              | 14            | 0.42        | 0.41         | 0.48 |
|        | 40              | 15            | 0.50        | 0.43         | 0.49 |
|        | 50              | 16            | 0.58        | 0.44         | 0.50 |
| 0.75   | 30              | 15            | 0.64        | 0.55         | 0.63 |
|        | 40              | 16            | 0.75        | 0.56         | 0.65 |
|        | 50              | 17            | 0.85        | 0.57         | 0.65 |
| 1.0    | 30              | 18            | 0.85        | 0.51         | 0.58 |
|        | 40              | 19            | 1.0         | 0.51         | 0.59 |
|        | 50              | 19            | 1.1         | 0.57         | 0.66 |
| 1.5    | 30              | 21            | 1.3         | 0.57         | 0.66 |
|        | 40              | 22            | 1.5         | 0.60         | 0.69 |
|        | 50              | 22            | 1.7         | 0.67         | 0.77 |
| 2.0    | 30              | 24            | 1.7         | 0.55         | 0.64 |
|        | 40              | 25            | 2.0         | 0.62         | 0.71 |
|        | 50              | 25            | 2.3         | 0.71         | 0.82 |
| 2.5    | 30              | 27            | 2.2         | 0.58         | 0.67 |
|        | 40              | 28            | 2.5         | 0.60         | 0.69 |
|        | 50              | 28            | 2.8         | 0.68         | 0.79 |
| 3.0    | 30              | 30            | 2.5         | 0.53         | 0.62 |
|        | 40              | 31            | 3.0         | 0.60         | 0.69 |
|        | 50              | 31            | 3.4         | 0.68         | 0.79 |
| 4.0    | 30              | 33            | 3.7         | 0.65         | 0.76 |
|        | 40              | 33            | 4.0         | 0.71         | 0.82 |
|        | 50              | 34            | 4.3         | 0.72         | 0.83 |

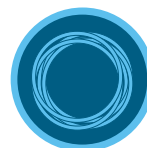
### Note:

All precipitation rates calculated for 180° operation. For the precipitation rate for a 360° sprinkler, divide by 2.

Compatible with:



½" Swing Joints  
Page 60



Hunter FlexSG  
Page 60



# PGP-ADJ

Radius: **22' to 52'**  
Flow: **0.5 to 14.1 GPM**

As Hunter's original rotor, the PGP-ADJ delivers unsurpassed reliability, durability, versatility, and value, keeping it the professional's choice year after year.

## KEY BENEFITS

- Three types of nozzles available for various landscapes: red standard, blue standard, gray low-angle
- Adjustable arc from 40° to 360° to keep water in the appropriate areas
- Factory-installed rubber cover for safety
- Through-the-top arc adjustment for easy installation
- QuickCheck™ Arc Mechanism for fast arc adjustment

## OPERATING SPECIFICATIONS

- Nozzle choices: 27
- Radius: 22' to 52'
- Flow: 0.5 to 14.1 GPM
- Recommended pressure range: 25 to 70 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rate: 0.4 in/hr approximately
- Nozzle trajectory: standard = 25°, low-angle = 13°
- Warranty period: 2 years

## FACTORY-INSTALLED OPTIONS

- Red 5 to 8 Nozzles, Blue 1.5 to 4.0 Nozzles

## USER-INSTALLED OPTIONS

- Drain Check Valve (up to 3' of elevation) (P/N 142300SP)

### PGP-ADJ - SPECIFICATION BUILDER: ORDER 1 + 2 + 3

| 1 | Model                 | 2 | Standard Features                    | 3 | Feature Options                                          |
|---|-----------------------|---|--------------------------------------|---|----------------------------------------------------------|
|   | PGP-ADJ-B = 4" pop-up |   | Adjustable arc with blue nozzle rack |   | <b>1.5 to 4.0</b> = Factory-installed blue nozzle number |
|   | PGP-ADJ = 4" pop-up   |   | Adjustable arc with red nozzle rack  |   | <b>5 to 8</b> = Factory-installed red nozzle number      |

#### Examples:

PGP-ADJ = 4" pop-up, adjustable arc

PGP-ADJ-B-3.0 = 4" pop-up, adjustable arc, and Blue 3.0 Nozzle

PGP-ADJ-07 = 4" pop-up, adjustable arc, and Red 7 Nozzle

PGP-ADJ Red Nozzle



### PGP-ADJ

Overall height: 7 $\frac{3}{8}$ "

Pop-up height: 4"

Exposed diameter: 1 $\frac{3}{4}$ "

Inlet size:  $\frac{3}{4}$ "

### PGP-ADJ GRAY LOW-ANGLE NOZZLE PERFORMANCE DATA

| Nozzle         | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
|----------------|-----------------|---------------|-------------|---------------------|------|
| 4LA ●<br>Gray  | 30              | 22            | 1.4         | 0.56                | 0.64 |
|                | 40              | 24            | 1.7         | 0.57                | 0.66 |
|                | 50              | 26            | 1.8         | 0.51                | 0.59 |
|                | 60              | 28            | 2.0         | 0.49                | 0.57 |
| 5LA ●<br>Gray  | 30              | 25            | 1.6         | 0.49                | 0.57 |
|                | 40              | 27            | 1.9         | 0.50                | 0.58 |
|                | 50              | 28            | 2.1         | 0.52                | 0.60 |
|                | 60              | 30            | 2.3         | 0.49                | 0.57 |
| 6LA ●<br>Gray  | 30              | 27            | 2.1         | 0.55                | 0.64 |
|                | 40              | 30            | 2.5         | 0.53                | 0.62 |
|                | 50              | 33            | 2.8         | 0.49                | 0.57 |
|                | 60              | 35            | 3.0         | 0.47                | 0.54 |
| 7LA ●<br>Gray  | 30              | 29            | 2.8         | 0.64                | 0.74 |
|                | 40              | 32            | 3.1         | 0.58                | 0.67 |
|                | 50              | 35            | 3.5         | 0.55                | 0.64 |
|                | 60              | 37            | 3.8         | 0.53                | 0.62 |
| 8LA ●<br>Gray  | 30              | 31            | 3.4         | 0.68                | 0.79 |
|                | 40              | 34            | 3.9         | 0.65                | 0.75 |
|                | 50              | 37            | 4.4         | 0.62                | 0.71 |
|                | 60              | 38            | 4.7         | 0.63                | 0.72 |
| 9LA ●<br>Gray  | 30              | 33            | 4.3         | 0.76                | 0.88 |
|                | 40              | 37            | 5.0         | 0.70                | 0.81 |
|                | 50              | 40            | 5.6         | 0.67                | 0.78 |
|                | 60              | 42            | 6.1         | 0.67                | 0.77 |
| 10LA ●<br>Gray | 40              | 38            | 6.5         | 0.87                | 1.00 |
|                | 50              | 40            | 7.3         | 0.88                | 1.01 |
|                | 60              | 42            | 8.0         | 0.87                | 1.01 |
|                | 70              | 44            | 8.6         | 0.86                | 0.99 |

**Bold** = Recommended pressure

#### Note:

All precipitation rates calculated for 180° operation. For the precipitation rate for a 360° sprinkler, divide by 2.



## PGP-ADJ RED NOZZLE PERFORMANCE DATA

| Nozzle             | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |             |
|--------------------|-----------------|---------------|-------------|---------------------|-------------|
| <b>1</b> ●<br>Red  | 30              | 28            | 0.5         | 0.12                | 0.14        |
|                    | 40              | 29            | 0.6         | 0.14                | 0.16        |
|                    | <b>50</b>       | <b>29</b>     | <b>0.7</b>  | <b>0.16</b>         | <b>0.19</b> |
|                    | 60              | 30            | 0.8         | 0.17                | 0.20        |
| <b>2</b> ●<br>Red  | 30              | 29            | 0.7         | 0.16                | 0.19        |
|                    | 40              | 30            | 0.8         | 0.17                | 0.20        |
|                    | <b>50</b>       | <b>30</b>     | <b>0.9</b>  | <b>0.19</b>         | <b>0.22</b> |
|                    | 60              | 31            | 1.0         | 0.20                | 0.23        |
| <b>3</b> ●<br>Red  | 30              | 30            | 0.9         | 0.19                | 0.22        |
|                    | 40              | 31            | 1.0         | 0.20                | 0.23        |
|                    | <b>50</b>       | <b>31</b>     | <b>1.2</b>  | <b>0.24</b>         | <b>0.28</b> |
|                    | 60              | 32            | 1.3         | 0.24                | 0.28        |
| <b>4</b> ●<br>Red  | 30              | 32            | 1.2         | 0.23                | 0.26        |
|                    | 40              | 33            | 1.4         | 0.25                | 0.29        |
|                    | <b>50</b>       | <b>34</b>     | <b>1.6</b>  | <b>0.27</b>         | <b>0.31</b> |
|                    | 60              | 34            | 1.8         | 0.30                | 0.35        |
| <b>5</b> ●<br>Red  | 30              | 32            | 1.6         | 0.30                | 0.35        |
|                    | 40              | 36            | 1.8         | 0.27                | 0.31        |
|                    | <b>50</b>       | <b>38</b>     | <b>2.0</b>  | <b>0.27</b>         | <b>0.31</b> |
|                    | 60              | 38            | 2.2         | 0.29                | 0.34        |
| <b>6</b> ●<br>Red  | 30              | 34            | 2.0         | 0.33                | 0.38        |
|                    | 40              | 36            | 2.4         | 0.36                | 0.41        |
|                    | <b>50</b>       | <b>38</b>     | <b>2.7</b>  | <b>0.36</b>         | <b>0.42</b> |
|                    | 60              | 38            | 2.9         | 0.39                | 0.45        |
| <b>7</b> ●<br>Red  | 30              | 34            | 2.6         | 0.43                | 0.50        |
|                    | 40              | 38            | 3.0         | 0.40                | 0.46        |
|                    | <b>50</b>       | <b>40</b>     | <b>3.4</b>  | <b>0.41</b>         | <b>0.47</b> |
|                    | 60              | 40            | 3.7         | 0.45                | 0.51        |
| <b>8</b> ●<br>Red  | 30              | 37            | 3.2         | 0.45                | 0.52        |
|                    | 40              | 39            | 3.7         | 0.47                | 0.54        |
|                    | <b>50</b>       | <b>41</b>     | <b>3.9</b>  | <b>0.45</b>         | <b>0.52</b> |
|                    | 60              | 42            | 4.6         | 0.50                | 0.58        |
| <b>9</b> ●<br>Red  | 30              | 38            | 3.6         | 0.48                | 0.55        |
|                    | 40              | 41            | 4.3         | 0.49                | 0.57        |
|                    | <b>50</b>       | <b>44</b>     | <b>5.2</b>  | <b>0.52</b>         | <b>0.60</b> |
|                    | 60              | 45            | 5.5         | 0.52                | 0.60        |
| <b>10</b> ●<br>Red | 40              | 44            | 6.0         | 0.60                | 0.69        |
|                    | <b>50</b>       | <b>46</b>     | <b>6.8</b>  | <b>0.62</b>         | <b>0.71</b> |
|                    | 60              | 47            | 7.6         | 0.66                | 0.76        |
|                    | 70              | 49            | 8.2         | 0.66                | 0.76        |
| <b>11</b> ●<br>Red | 40              | 46            | 8.0         | 0.73                | 0.84        |
|                    | <b>50</b>       | <b>48</b>     | <b>8.9</b>  | <b>0.74</b>         | <b>0.86</b> |
|                    | 60              | 50            | 9.8         | 0.75                | 0.87        |
|                    | 70              | 51            | 10.5        | 0.78                | 0.90        |
| <b>12</b> ●<br>Red | 40              | 46            | 10.5        | 0.96                | 1.10        |
|                    | <b>50</b>       | <b>48</b>     | <b>11.9</b> | <b>0.99</b>         | <b>1.15</b> |
|                    | 60              | 50            | 12.7        | 0.98                | 1.13        |
|                    | 70              | 52            | 14.1        | 1.00                | 1.16        |

**Bold** = Recommended pressure

**Note:**

All precipitation rates calculated for 180° operation. For the precipitation rate for a 360° sprinkler, divide by 2.

## PGP-ADJ BLUE NOZZLE PERFORMANCE DATA

| Nozzle               | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |             |
|----------------------|-----------------|---------------|-------------|---------------------|-------------|
| <b>1.5</b> ●<br>Blue | 25              | 29            | 1.2         | 0.27                | 0.32        |
|                      | 35              | 31            | 1.4         | 0.28                | 0.32        |
|                      | <b>45</b>       | <b>31</b>     | <b>1.5</b>  | <b>0.30</b>         | <b>0.35</b> |
|                      | 55              | 32            | 1.8         | 0.34                | 0.39        |
| <b>2.0</b> ●<br>Blue | 25              | 33            | 1.4         | 0.25                | 0.29        |
|                      | 35              | 33            | 1.7         | 0.30                | 0.35        |
|                      | <b>45</b>       | <b>34</b>     | <b>2.0</b>  | <b>0.33</b>         | <b>0.38</b> |
|                      | 55              | 34            | 2.1         | 0.35                | 0.40        |
| <b>2.5</b> ●<br>Blue | 25              | 33            | 1.7         | 0.30                | 0.35        |
|                      | 35              | 35            | 2.1         | 0.33                | 0.38        |
|                      | <b>45</b>       | <b>35</b>     | <b>2.5</b>  | <b>0.39</b>         | <b>0.45</b> |
|                      | 55              | 35            | 2.6         | 0.41                | 0.47        |
| <b>3.0</b> ●<br>Blue | 25              | 35            | 2.2         | 0.35                | 0.40        |
|                      | 35              | 36            | 2.7         | 0.40                | 0.46        |
|                      | <b>45</b>       | <b>38</b>     | <b>3.0</b>  | <b>0.40</b>         | <b>0.46</b> |
|                      | 55              | 39            | 3.4         | 0.43                | 0.50        |
| <b>4.0</b> ●<br>Blue | 25              | 37            | 3.0         | 0.42                | 0.49        |
|                      | 35              | 39            | 3.5         | 0.44                | 0.51        |
|                      | <b>45</b>       | <b>40</b>     | <b>4.0</b>  | <b>0.48</b>         | <b>0.56</b> |
|                      | 55              | 41            | 4.5         | 0.52                | 0.60        |
| <b>5.0</b> ●<br>Blue | 25              | 37            | 3.7         | 0.52                | 0.60        |
|                      | 35              | 39            | 4.5         | 0.57                | 0.66        |
|                      | <b>45</b>       | <b>42</b>     | <b>5.0</b>  | <b>0.55</b>         | <b>0.63</b> |
|                      | 55              | 42            | 5.7         | 0.62                | 0.72        |
| <b>6.0</b> ●<br>Blue | 25              | 38            | 4.3         | 0.57                | 0.66        |
|                      | 35              | 40            | 5.6         | 0.67                | 0.78        |
|                      | <b>45</b>       | <b>43</b>     | <b>6.0</b>  | <b>0.62</b>         | <b>0.72</b> |
|                      | 55              | 44            | 6.7         | 0.67                | 0.77        |
| <b>8.0</b> ●<br>Blue | 25              | 37            | 6.0         | 0.84                | 0.97        |
|                      | 35              | 41            | 7.0         | 0.80                | 0.93        |
|                      | <b>45</b>       | <b>44</b>     | <b>8.0</b>  | <b>0.80</b>         | <b>0.92</b> |
|                      | 55              | 46            | 9.0         | 0.82                | 0.95        |
|                      | 65              | 46            | 9.8         | 0.89                | 1.03        |

## PGP NOZZLES



Red (P/N 130900)



Blue (P/N 665300)



Gray (P/N 233200)



## PGP-ADJ

Easy arc and radius adjustment

# PGP® ULTRA

Radius: **17' to 46'**  
Flow: **0.36 to 14.8 GPM**

The PGP Ultra raises the bar for rotor technology with powerful features developed over three decades of research, customer feedback, and lab testing.

## KEY BENEFITS

- Patented automatic arc return feature returns the turret back to the original arc pattern if vandalized; adjustable arc from 50° to 360°
- Non-strippable drive mechanism is protected from damage if turned in the opposite direction of travel
- Part- and full-circle in one model for flexibility across landscapes and reduced inventory
- Headed and slotted setscrew allows radius adjustment with a Hunter Wrench or flat-blade screwdriver
- Flat-top nozzles allow fast, easy insertion
- QuickCheck™ Arc Mechanism for fast arc adjustment

## OPERATING SPECIFICATIONS

- Nozzle choices: 34
- Radius: 17' to 46'
- Flow: 0.36 to 14.8 GPM
- Recommended pressure range: 25 to 70 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rate: 0.4 in/hr approximately
- Nozzle trajectory: standard = 25°, low-angle = 13°
- Nozzle racks: Blue 1.5 to 8.0, Gray Low-Angle 2.0 to 4.5, Black 0.50 to 3.0, Green 6.0 to 13.0, MPR-25, MPR-30, MPR-35
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- Drain Check Valve (up to 10' of elevation)
- Reclaimed water ID
- Blue 1.5 to 4.0 Nozzles

## USER-INSTALLED OPTIONS

- Drain Check Valve (up to 3' of elevation) PGP 4" / 6" only (P/N 142300SP)
- HSJ-0 prefabricated ¾" PVC Swing Joint



### PGP Ultra Reclaimed

Available as a factory-installed option on all models



### PGP Ultra

Easy arc and radius adjustment



### PGP-00

Overall height: 7½"  
Exposed diameter: 1¾"  
Inlet size: ¾"



### PGP-04

Overall height: 7½"  
Pop-up height: 4"  
Exposed diameter: 1¾"  
Inlet size: ¾"



### PGP-06

Overall height: 9⅞"  
Pop-up height: 6"  
Exposed diameter: 1¾"  
Inlet size: ¾"



### PGP-12

Overall height: 17"  
Pop-up height: 12"  
Exposed diameter: 1¾"  
Inlet size: ¾"

## PGP-ULTRA – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                                                                                       | 2 Standard Features                                                        | 3 Feature Options                                                                                                     | 4 Nozzle Options                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PGP-00</b> = Shrub<br><b>PGP-04</b> = 4" pop-up<br><b>PGP-06</b> = 6" pop-up<br><b>PGP-12</b> = 12" pop-up | Adjustable arc, plastic riser, 8 standard nozzles, and 4 low-angle nozzles | <b>(blank)</b> = No option<br><b>CV</b> = Drain Check Valve<br><b>CV-R</b> = Drain Check Valve and reclaimed water ID | <b>Blue 1.5 to 8.0</b><br><b>Gray low-angle</b><br><b>Black short-radius</b><br><b>Green high-flow</b><br><b>MPR-25-Q, T, H, F</b><br><b>MPR-30-Q, T, H, F</b><br><b>MPR-35-Q, T, H, F</b><br><b>1.5 to 4.0</b> = Only nozzles 1.5 to 4.0 can be factory-installed |

### Examples:

PGP-04 = 4" pop-up, adjustable arc

PGP-04-2.5 = 4" pop-up, adjustable arc, and 2.5 nozzle

PGP-12-CV-R-4.0 = 12" pop-up, adjustable arc, with drain check valve and reclaimed water ID, and 4.0 nozzle



# I-20

Radius: **17' to 46'**  
Flow: **0.36 to 14.8 GPM**

The I-20 is loaded with upgraded features such as FloStop® Technology, check valves, and efficient nozzles that make it the perfect choice in a range of applications.

## KEY BENEFITS

- Patented automatic arc return feature returns the turret back to the original arc pattern if vandalized; adjustable arc from 50° to 360°
- Non-strippable drive mechanism is protected from damage if turned in the opposite direction of travel
- Part- and full-circle in one model for flexibility across landscapes and reduced inventory
- Headed and slotted setscrew allows radius adjustment with a Hunter Wrench or flat-blade screwdriver
- FloStop Technology stops the flow of water from individual sprinklers to change the nozzle or perform repairs
- Flat-top nozzles allow fast, easy insertion
- QuickCheck™ Arc Mechanism for fast arc adjustment
- Available stainless steel riser for extra durability
- Drain Check Valve prevents low-head drainage (up to 10' of elevation)

## OPERATING SPECIFICATIONS

- Nozzle choices: 34
- Radius: 17' to 46'
- Flow: 0.36 to 14.8 GPM
- Recommended pressure range: 25 to 70 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rate: 0.4 in/hr approximately
- Nozzle trajectory: standard = 25°, low-angle = 13°
- Nozzle racks: Blue 1.5 to 8.0, Gray Low-Angle 2.0 to 4.5, Black 0.50 to 3.0, Green 6.0 to 13.0, MPR-25, MPR-30, MPR-35
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- No drain Check Valve (NCV models)
- Reclaimed water ID
- Blue 1.5 to 4.0 Nozzles

## USER-INSTALLED OPTIONS

- HSJ-0 prefabricated ¾" PVC Swing Joint

### I-20 (PLASTIC) – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                                                                                           | 2 Standard Features                                                                     | 3 Feature Options                                                                                                                                          | 4 Nozzle Options                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>I-20-00</b> = Shrub<br><b>I-20-04</b> = 4" pop-up<br><b>I-20-06</b> = 6" pop-up<br><b>I-20-12</b> = 12" pop-up | Adjustable arc, plastic riser, check valve, 8 standard nozzles, and 4 low-angle nozzles | <b>(blank)</b> = No option<br><br><b>NCV</b> = Without Check Valve (only available on 4" model)<br><br><b>R</b> = Drain Check Valve and reclaimed water ID | <b>Blue 1.5 to 8.0</b><br><b>Gray low-angle</b><br><b>Black short-radius</b><br><b>Green high-flow</b><br><b>MPR-25-Q, T, H, F</b><br><b>MPR-30-Q, T, H, F</b><br><b>MPR-35-Q, T, H, F</b><br><b>1.5 to 4.0</b> = Only nozzles 1.5 to 4.0 can be factory-installed |

### I-20 (STAINLESS STEEL) – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                                        | 2 Standard Features                                                                             | 3 Feature Options                                                                                                                                          | 4 Nozzle Options                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>I-20-04-SS</b> = 4" pop-up<br><b>I-20-06-SS</b> = 6" pop-up | Adjustable arc, stainless steel riser, check valve, 8 standard nozzles, and 4 low-angle nozzles | <b>(blank)</b> = No option<br><br><b>NCV</b> = Without Check Valve (only available on 4" model)<br><br><b>R</b> = Drain Check Valve and reclaimed water ID | <b>Blue 1.5 to 8.0</b><br><b>Gray low-angle</b><br><b>Black short-radius</b><br><b>Green high-flow</b><br><b>MPR-25-Q, T, H, F</b><br><b>MPR-30-Q, T, H, F</b><br><b>MPR-35-Q, T, H, F</b><br><b>1.5 to 4.0</b> = Only nozzles 1.5 to 4.0 can be factory-installed |

Example:

I-20-12-R-4.0 = 12" pop-up, adjustable arc, with reclaimed water ID, and 4.0 nozzle



#### I-20-00

Overall height: 7¾"  
Exposed diameter: 1¾"  
Inlet size: ¾"



#### I-20-04

Overall height: 7½"  
Pop-up height: 4"  
Exposed diameter: 1¾"  
Inlet size: ¾"



#### I-20-06

Overall height: 9½"  
Pop-up height: 6"  
Exposed diameter: 1¾"  
Inlet size: ¾"



#### I-20-12

Overall height: 17"  
Pop-up height: 12"  
Exposed diameter: 1¾"  
Inlet size: ¾"



#### I-20 Reclaimed

Available as a factory-installed option on all models

# PGP® ULTRA & I-20 PRB

Radius: **17' to 46'**  
Flow: **0.36 to 9.8 GPM**

The PGP Ultra and I-20 PRB Rotors are built to thrive in applications where high water pressure could otherwise lead to inefficient nozzle operation.

## KEY BENEFITS

- Pressure-regulated body (45 PSI) reduces high incoming pressure to increase nozzle efficiency (requires dynamic pressure differential: 15 PSI)
- Patented automatic arc return feature returns the turret back to the original arc pattern if vandalized; adjustable arc from 50° to 360°
- Non-strippable drive mechanism is protected from damage if turned in the opposite direction of travel
- Part- and full-circle in one model for flexibility across landscapes and reduced inventory
- Headed and slotted setscrew allows radius adjustment with a Hunter Wrench or flat-blade screwdriver
- FloStop® Technology stops the flow of water from individual sprinklers, to change the nozzle or perform repairs (I-20 only)
- Flat-top nozzles allow fast, easy insertion
- QuickCheck™ Arc Mechanism for fast arc adjustment
- Available stainless steel riser for extra durability
- Drain Check Valve prevents low-head drainage (up to 10' of elevation)

## OPERATING SPECIFICATIONS

- Nozzle choices: 30
- Radius: 17' to 46'
- Flow: 0.36 to 9.8 GPM
- Nozzle discharge pressure: 45 PSI
- Operating pressure range: 60 to 100 PSI
- Precipitation rate: 0.4 in/hr approximately
- Nozzle trajectory: standard = 25°, low-angle = 13°
- Nozzle racks: Blue 1.5 to 8.0, Gray Low-Angle 2.0 to 4.5, Black 0.50 to 3.0, Green 6.0 to 13.0, MPR-25, MPR-30, MPR-35
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- Reclaimed water ID
- Blue 1.5 to 4.0 Nozzles

## USER-INSTALLED OPTIONS

- HSJ-0 prefabricated ¾" PVC Swing Joint



### PGP-00-PRB

Overall height: 8½"  
Exposed diameter: 1¼"  
Inlet size: ¾"

### PGP-04-PRB

Overall height: 8¼"  
Pop-up height: 4"  
Exposed diameter: 1¼"  
Inlet size: ¾"



### I-20-00-PRB

Overall height: 8½"  
Exposed diameter: 1¼"  
Inlet size: ¾"

### I-20-04-PRB

Overall height: 8¼"  
Pop-up height: 4"  
Exposed diameter: 1¼"  
Inlet size: ¾"



### I-20-06-PRB

Overall height: 10½"  
Pop-up height: 6"  
Exposed diameter: 1¼"  
Inlet size: ¾"

## PGP-ULTRA & I-20 PRB – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                                                                        | 2 Standard Features                                                                                         | 3 Feature Options                                                                                                                   | 4 Nozzle Options                                                                                           |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>PGP-00-PRB</b> = Riser mount<br><b>PGP-04-PRB</b> = 4" pop-up                               | Adjustable arc, plastic riser, pressure-regulated body, 8 standard nozzles, and 4 low-angle nozzles         | <b>(blank)</b> = No option<br><b>CV</b> = Drain Check Valve (PGP-04 only)<br><b>CV-R</b> = Drain Check Valve and reclaimed water ID | <b>Blue 1.5 to 8.0</b> = Gray low-angle<br><b>Black short-radius</b><br><b>MPR-25, 30, 35 - Q, T, H, F</b> |
| <b>I-20-00-PRB</b> = Shrub<br><b>I-20-04-PRB</b> = 4" pop-up<br><b>I-20-06-PRB</b> = 6" pop-up | Adjustable arc, plastic riser, pressure-regulated body, 8 standard nozzles, and 4 low-angle nozzles         | <b>(blank)</b> = No option<br><b>R</b> = Drain Check Valve and reclaimed water ID                                                   | <b>Blue 1.5 to 8.0</b> = Gray low-angle<br><b>Black short-radius</b><br><b>MPR-25, 30, 35 - Q, T, H, F</b> |
| <b>I-20-04-SS-PRB</b> = 4" pop-up<br><b>I-20-06-SS-PRB</b> = 6" pop-up                         | Adjustable arc, stainless steel riser, pressure-regulated body, 8 standard nozzles, and 4 low-angle nozzles | <b>(blank)</b> = No option<br><b>R</b> = Drain Check Valve and reclaimed water ID                                                   | <b>Blue 1.5 to 8.0</b> = Gray low-angle<br><b>Black short-radius</b><br><b>MPR-25, 30, 35 - Q, T, H, F</b> |

### Examples:

**PGP-04-PRB** = 4" pop-up, adjustable arc, plastic riser with no factory installed-nozzle  
**I-20-04-PRB-3.0-2.5** = 4" pop-up, adjustable arc, plastic riser with 3.0 nozzle  
**I-20-06-SS-PRB-R-MPR-25H** = 6" pop-up, adjustable arc, stainless steel riser with MPR-25H



### PGP ULTRA / I-20 / PRB BLUE STANDARD NOZZLE PERFORMANCE DATA

| Nozzle               | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |             |
|----------------------|-----------------|---------------|-------------|---------------------|-------------|
| <b>1.5</b> ●<br>Blue | 25              | 29            | 1.2         | 0.27                | 0.32        |
|                      | 35              | 31            | 1.4         | 0.28                | 0.32        |
|                      | <b>45</b>       | <b>31</b>     | <b>1.5</b>  | <b>0.30</b>         | <b>0.35</b> |
|                      | 55              | 32            | 1.8         | 0.34                | 0.39        |
|                      | 65              | 32            | 1.9         | 0.36                | 0.41        |
| <b>2.0</b> ●<br>Blue | 25              | 33            | 1.4         | 0.25                | 0.29        |
|                      | 35              | 33            | 1.7         | 0.30                | 0.35        |
|                      | <b>45</b>       | <b>34</b>     | <b>2.0</b>  | <b>0.33</b>         | <b>0.38</b> |
|                      | 55              | 34            | 2.1         | 0.35                | 0.40        |
|                      | 65              | 32            | 2.3         | 0.43                | 0.50        |
| <b>2.5</b> ●<br>Blue | 25              | 33            | 1.7         | 0.30                | 0.35        |
|                      | 35              | 35            | 2.1         | 0.33                | 0.38        |
|                      | <b>45</b>       | <b>35</b>     | <b>2.5</b>  | <b>0.39</b>         | <b>0.45</b> |
|                      | 55              | 35            | 2.6         | 0.41                | 0.47        |
|                      | 65              | 35            | 2.9         | 0.46                | 0.53        |
| <b>3.0</b> ●<br>Blue | 25              | 35            | 2.2         | 0.35                | 0.40        |
|                      | 35              | 36            | 2.7         | 0.40                | 0.46        |
|                      | <b>45</b>       | <b>38</b>     | <b>3.0</b>  | <b>0.40</b>         | <b>0.46</b> |
|                      | 55              | 39            | 3.4         | 0.43                | 0.50        |
|                      | 65              | 39            | 3.7         | 0.47                | 0.54        |
| <b>4.0</b> ●<br>Blue | 25              | 37            | 3.0         | 0.42                | 0.49        |
|                      | 35              | 39            | 3.5         | 0.44                | 0.51        |
|                      | <b>45</b>       | <b>40</b>     | <b>4.0</b>  | <b>0.48</b>         | <b>0.56</b> |
|                      | 55              | 41            | 4.5         | 0.52                | 0.60        |
|                      | 65              | 41            | 4.8         | 0.55                | 0.63        |
| <b>5.0</b> ●<br>Blue | 25              | 37            | 3.7         | 0.52                | 0.60        |
|                      | 35              | 39            | 4.5         | 0.57                | 0.66        |
|                      | <b>45</b>       | <b>42</b>     | <b>5.0</b>  | <b>0.55</b>         | <b>0.63</b> |
|                      | 55              | 42            | 5.7         | 0.62                | 0.72        |
|                      | 65              | 42            | 6.2         | 0.68                | 0.78        |
| <b>6.0</b> ●<br>Blue | 25              | 38            | 4.3         | 0.57                | 0.66        |
|                      | 35              | 40            | 5.6         | 0.67                | 0.78        |
|                      | <b>45</b>       | <b>43</b>     | <b>6.0</b>  | <b>0.62</b>         | <b>0.72</b> |
|                      | 55              | 44            | 6.7         | 0.67                | 0.77        |
|                      | 65              | 44            | 7.3         | 0.73                | 0.84        |
| <b>8.0</b> ●<br>Blue | 25              | 37            | 6.0         | 0.84                | 0.97        |
|                      | 35              | 41            | 7.0         | 0.80                | 0.93        |
|                      | <b>45</b>       | <b>44</b>     | <b>8.0</b>  | <b>0.80</b>         | <b>0.92</b> |
|                      | 55              | 46            | 9.0         | 0.82                | 0.95        |
|                      | 65              | 46            | 9.8         | 0.89                | 1.03        |

### PGP ULTRA / I-20 / PRB GRAY LOW-ANGLE NOZZLE PERFORMANCE DATA

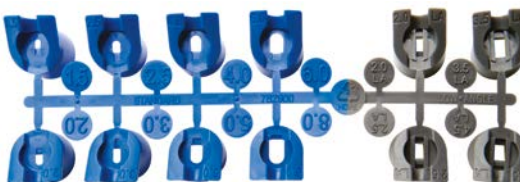
| Nozzle             | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |             |
|--------------------|-----------------|---------------|-------------|---------------------|-------------|
| <b>2.0</b> ●<br>LA | 30              | 25            | 1.6         | 0.49                | 0.57        |
|                    | 40              | 27            | 1.9         | 0.50                | 0.58        |
|                    | <b>50</b>       | <b>28</b>     | <b>2.1</b>  | <b>0.52</b>         | <b>0.60</b> |
|                    | Gray            | 60            | 3.0         | 0.49                | 0.57        |
| <b>2.5</b> ●<br>LA | 30              | 27            | 2.1         | 0.55                | 0.64        |
|                    | 40              | 30            | 2.5         | 0.53                | 0.62        |
|                    | <b>50</b>       | <b>33</b>     | <b>2.8</b>  | <b>0.49</b>         | <b>0.57</b> |
|                    | Gray            | 60            | 3.5         | 0.47                | 0.54        |
| <b>3.5</b> ●<br>LA | 30              | 29            | 2.8         | 0.64                | 0.74        |
|                    | 40              | 32            | 3.1         | 0.58                | 0.67        |
|                    | <b>50</b>       | <b>35</b>     | <b>3.5</b>  | <b>0.55</b>         | <b>0.64</b> |
|                    | Gray            | 60            | 3.7         | 0.53                | 0.62        |
| <b>4.5</b> ●<br>LA | 30              | 29            | 3.4         | 0.78                | 0.90        |
|                    | 40              | 32            | 3.9         | 0.73                | 0.85        |
|                    | <b>50</b>       | <b>35</b>     | <b>4.4</b>  | <b>0.69</b>         | <b>0.80</b> |
|                    | Gray            | 60            | 3.7         | 0.66                | 0.76        |

**Bold** = Recommended pressure

#### Note:

All precipitation rates calculated for 180° operation.  
For the precipitation rate for a 360° sprinkler, divide by 2.

#### Convenient Nozzle Rack



### PGP ULTRA / I-20 / PRB NOZZLES



Blue Standard / Gray  
Low-Angle  
(P/N 782900)

Flat-top nozzle for easy insertion coupled with a headed slotted adjustment screw for quick radius adjustment with a Hunter Wrench or a flat-blade screwdriver.



Flat-front nozzle allows easy alignment during installation

#### I-20-04 Rotor with PRB Body



#### Pressure Regulation

Continual operating pressure of 45 PSI



#### PR-075

Overall height: 2¼"  
Inlet/outlet size: ¾"  
For use under all models  
¾" inlet sprinklers,  
regulates to 45 PSI

**PGP ULTRA / I-20 GREEN HIGH-FLOW NOZZLE  
PERFORMANCE DATA**

| Nozzle                    | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |             |
|---------------------------|-----------------|---------------|-------------|---------------------|-------------|
| <b>10</b> ●<br>Dk. Green  | 40              | 42            | 8.4         | 0.92                | 1.06        |
|                           | 50              | 43            | 9.5         | 0.99                | 1.14        |
|                           | <b>60</b>       | <b>45</b>     | <b>10.5</b> | <b>1.00</b>         | <b>1.15</b> |
|                           | 70              | 47            | 11.4        | 0.99                | 1.15        |
| <b>13</b> ●<br>Dk. Green  | 40              | 43            | 10.9        | 1.13                | 1.31        |
|                           | 50              | 44            | 12.3        | 1.22                | 1.41        |
|                           | <b>60</b>       | <b>45</b>     | <b>13.6</b> | <b>1.29</b>         | <b>1.49</b> |
|                           | 70              | 47            | 14.8        | 1.29                | 1.49        |
| <b>6.0</b> ●<br><b>LA</b> | 30              | 31            | 4.2         | 0.84                | 0.97        |
|                           | 40              | 35            | 5.0         | 0.79                | 0.91        |
|                           | <b>50</b>       | <b>37</b>     | <b>5.8</b>  | <b>0.82</b>         | <b>0.94</b> |
|                           | Dk. Green 60    | 39            | 6.3         | 0.80                | 0.92        |
| <b>8.0</b> ●<br><b>LA</b> | 40              | 37            | 6.7         | 0.94                | 1.09        |
|                           | 50              | 39            | 7.7         | 0.97                | 1.13        |
|                           | <b>60</b>       | <b>41</b>     | <b>8.5</b>  | <b>0.97</b>         | <b>1.12</b> |
|                           | Dk. Green 70    | 41            | 9.2         | 1.05                | 1.22        |

I-20 Rotor with Blue Standard Nozzle



**PGP ULTRA / I-20 / PRB BLACK SHORT-RADIUS  
NOZZLE PERFORMANCE DATA (18' / 25')**

| Nozzle                     | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |             |
|----------------------------|-----------------|---------------|-------------|---------------------|-------------|
| <b>0.50</b> ●<br><b>SR</b> | 30              | 17            | 0.36        | 0.24                | 0.28        |
|                            | 40              | 17            | 0.43        | 0.29                | 0.33        |
|                            | <b>50</b>       | <b>18</b>     | <b>0.50</b> | <b>0.30</b>         | <b>0.34</b> |
|                            | Black 60        | 19            | 0.57        | 0.30                | 0.35        |
| <b>1.0</b> ●<br><b>SR</b>  | 30              | 17            | 0.78        | 0.52                | 0.60        |
|                            | 40              | 17            | 0.90        | 0.60                | 0.69        |
|                            | <b>50</b>       | <b>18</b>     | <b>1.00</b> | <b>0.59</b>         | <b>0.69</b> |
|                            | Black 60        | 19            | 1.10        | 0.59                | 0.68        |
| <b>2.0</b> ●<br><b>SR</b>  | 30              | 17            | 1.40        | 0.93                | 1.08        |
|                            | 40              | 17            | 1.70        | 1.13                | 1.31        |
|                            | <b>50</b>       | <b>18</b>     | <b>2.00</b> | <b>1.19</b>         | <b>1.37</b> |
|                            | Black 60        | 19            | 2.20        | 1.17                | 1.35        |
| <b>0.75</b> ●<br><b>SR</b> | 30              | 23            | 0.58        | 0.21                | 0.24        |
|                            | 40              | 24            | 0.68        | 0.23                | 0.26        |
|                            | <b>50</b>       | <b>25</b>     | <b>0.75</b> | <b>0.23</b>         | <b>0.27</b> |
|                            | Black 60        | 26            | 0.83        | 0.24                | 0.27        |
| <b>1.5</b> ●<br><b>SR</b>  | 30              | 23            | 1.10        | 0.40                | 0.46        |
|                            | 40              | 24            | 1.30        | 0.43                | 0.50        |
|                            | <b>50</b>       | <b>25</b>     | <b>1.50</b> | <b>0.46</b>         | <b>0.53</b> |
|                            | Black 60        | 26            | 1.60        | 0.46                | 0.53        |
| <b>3.0</b> ●<br><b>SR</b>  | 30              | 23            | 2.50        | 0.91                | 1.05        |
|                            | 40              | 24            | 2.70        | 0.90                | 1.04        |
|                            | <b>50</b>       | <b>25</b>     | <b>3.00</b> | <b>0.92</b>         | <b>1.07</b> |
|                            | Black 60        | 26            | 3.10        | 0.88                | 1.02        |

**Bold** = Recommended pressure

**Note:**

All precipitation rates calculated for 180° operation. For the precipitation rate for a 360° sprinkler, divide by 2.

**PGP ULTRA / I-20 /  
PRB NOZZLES**



Dk. Green High-Flow  
(P/N 444800)



Black Short-Radius  
(P/N 466100)



**PGP® ULTRA / I-20 / PRB MPR-25 NOZZLE  
PERFORMANCE DATA**

| Nozzle                                                                                    | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
|-------------------------------------------------------------------------------------------|-----------------|---------------|-------------|---------------------|------|
| 90°<br>  | 25              | 23            | 0.74        | 0.54                | 0.62 |
|                                                                                           | 35              | 24            | 0.88        | 0.59                | 0.68 |
|                                                                                           | 45              | 25            | 1.00        | 0.62                | 0.71 |
|                                                                                           | 55              | 25            | 1.11        | 0.68                | 0.79 |
|                                                                                           | 65              | 25            | 1.21        | 0.75                | 0.86 |
| 120°<br> | 25              | 23            | 1.00        | 0.55                | 0.63 |
|                                                                                           | 35              | 24            | 1.21        | 0.61                | 0.70 |
|                                                                                           | 45              | 25            | 1.38        | 0.64                | 0.74 |
|                                                                                           | 55              | 25            | 1.53        | 0.71                | 0.82 |
|                                                                                           | 65              | 25            | 1.67        | 0.77                | 0.89 |
| 180°<br> | 25              | 23            | 1.44        | 0.52                | 0.61 |
|                                                                                           | 35              | 24            | 1.73        | 0.58                | 0.67 |
|                                                                                           | 45              | 25            | 1.98        | 0.61                | 0.70 |
|                                                                                           | 55              | 25            | 2.21        | 0.68                | 0.79 |
|                                                                                           | 65              | 25            | 2.41        | 0.74                | 0.86 |
| 360°<br> | 25              | 23            | 2.78        | 0.51                | 0.58 |
|                                                                                           | 35              | 24            | 3.34        | 0.56                | 0.64 |
|                                                                                           | 45              | 25            | 3.82        | 0.59                | 0.68 |
|                                                                                           | 55              | 25            | 4.25        | 0.65                | 0.76 |
|                                                                                           | 65              | 25            | 4.63        | 0.71                | 0.82 |

**MPR-25  
NOZZLE**

**PGP ULTRA / I-20 / PRB MPR-35 NOZZLE  
PERFORMANCE DATA**

| Nozzle                                                                                    | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
|-------------------------------------------------------------------------------------------|-----------------|---------------|-------------|---------------------|------|
| 90°<br>  | 25              | 32            | 1.40        | 0.53                | 0.61 |
|                                                                                           | 35              | 34            | 1.67        | 0.56                | 0.64 |
|                                                                                           | 45              | 35            | 1.92        | 0.60                | 0.70 |
|                                                                                           | 55              | 35            | 2.13        | 0.67                | 0.77 |
|                                                                                           | 65              | 35            | 2.31        | 0.73                | 0.84 |
| 120°<br> | 25              | 32            | 1.77        | 0.50                | 0.58 |
|                                                                                           | 35              | 34            | 2.15        | 0.54                | 0.62 |
|                                                                                           | 45              | 35            | 2.46        | 0.58                | 0.67 |
|                                                                                           | 55              | 35            | 2.74        | 0.65                | 0.75 |
|                                                                                           | 65              | 35            | 2.99        | 0.70                | 0.81 |
| 180°<br> | 25              | 32            | 2.75        | 0.52                | 0.60 |
|                                                                                           | 35              | 34            | 3.33        | 0.55                | 0.64 |
|                                                                                           | 45              | 35            | 3.81        | 0.60                | 0.69 |
|                                                                                           | 55              | 35            | 4.23        | 0.66                | 0.77 |
|                                                                                           | 65              | 35            | 4.62        | 0.73                | 0.84 |
| 360°<br> | 25              | 32            | 5.36        | 0.50                | 0.58 |
|                                                                                           | 35              | 34            | 6.62        | 0.55                | 0.64 |
|                                                                                           | 45              | 35            | 7.58        | 0.60                | 0.69 |
|                                                                                           | 55              | 35            | 8.43        | 0.66                | 0.76 |
|                                                                                           | 65              | 35            | 9.18        | 0.72                | 0.83 |


**PGP ULTRA / I-20 / PRB MPR-30 NOZZLE  
PERFORMANCE DATA**

| Nozzle                                                                                      | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
|---------------------------------------------------------------------------------------------|-----------------|---------------|-------------|---------------------|------|
| 90°<br>  | 25              | 29            | 1.03        | 0.47                | 0.54 |
|                                                                                             | 35              | 30            | 1.23        | 0.53                | 0.61 |
|                                                                                             | 45              | 30            | 1.40        | 0.60                | 0.69 |
|                                                                                             | 55              | 30            | 1.56        | 0.67                | 0.77 |
|                                                                                             | 65              | 30            | 1.69        | 0.72                | 0.83 |
| 120°<br> | 25              | 29            | 1.34        | 0.46                | 0.53 |
|                                                                                             | 35              | 30            | 1.62        | 0.52                | 0.60 |
|                                                                                             | 45              | 30            | 1.85        | 0.59                | 0.69 |
|                                                                                             | 55              | 30            | 2.06        | 0.66                | 0.76 |
|                                                                                             | 65              | 30            | 2.24        | 0.72                | 0.83 |
| 180°<br> | 25              | 29            | 2.15        | 0.49                | 0.57 |
|                                                                                             | 35              | 30            | 2.59        | 0.55                | 0.64 |
|                                                                                             | 45              | 30            | 2.96        | 0.63                | 0.73 |
|                                                                                             | 55              | 30            | 3.30        | 0.71                | 0.82 |
|                                                                                             | 65              | 30            | 3.60        | 0.77                | 0.89 |
| 360°<br> | 25              | 29            | 4.24        | 0.49                | 0.56 |
|                                                                                             | 35              | 30            | 5.08        | 0.54                | 0.63 |
|                                                                                             | 45              | 30            | 5.78        | 0.62                | 0.71 |
|                                                                                             | 55              | 30            | 6.39        | 0.68                | 0.79 |
|                                                                                             | 65              | 30            | 6.92        | 0.74                | 0.85 |

**MPR-30  
NOZZLE**


PGP-04 Ultra Rotor with MPR-30 Nozzle



# I-25

Radius: **37' to 71'**  
Flow: **3.8 to 31.5 GPM**

The reliable, durable, and versatile I-25 Rotor offers an expansive nozzle selection that makes it the perfect choice for large turf applications.

## KEY BENEFITS

- Patented automatic arc return feature returns the turret back to the original arc pattern if vandalized; adjustable arc from 50° to 360°
- Non-strippable drive mechanism is protected from damage if turned in the opposite direction of travel
- Part- and full-circle in one model for installation flexibility and reduced inventory
- Color-coded nozzles make identification easy
- QuickCheck™ Arc Mechanism for fast arc adjustment
- Available stainless steel riser for extra durability
- Drain Check Valve prevents low-head drainage (up to 10' of elevation)

## OPERATING SPECIFICATIONS

- Nozzle choices: 11
- Radius: 37' to 71'
- Flow: 3.8 to 31.5 GPM
- Recommended pressure range: 40 to 100 PSI
- Operating pressure range: 40 to 100 PSI
- Precipitation rates: 0.4 in/hr approximately
- Nozzle trajectory: standard = 25°
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- Reclaimed water ID
- High-speed rotations

## USER-INSTALLED OPTIONS

- HSJ-1 prefabricated 1" PVC Swing Joint



### I-25-04

Overall height: 7⅞"  
Pop-up height: 4"  
Exposed diameter: 1⅜"  
Inlet size: 1"



### I-25-06

Overall height: 10¼"  
Pop-up height: 6"  
Exposed diameter: 1⅜"  
Inlet size: 1"



### I-25 Reclaimed

Available as a factory-installed option on all models



### I-25 High-Speed

Available as a factory-installed option on stainless steel models

## I-25 (PLASTIC) - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                                  | 2 Standard Features                                       | 3 Feature Options                                           | 4 Nozzle Options                                 |
|----------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------|
| <b>I-25-04</b> = 4" pop-up<br><b>I-25-06</b> = 6" pop-up | Adjustable arc, plastic riser, check valve, and 5 nozzles | <b>(blank)</b> = No option<br><b>R</b> = Reclaimed water ID | <b>4 to 28</b> = Factory-installed nozzle number |

## I-25 (STAINLESS STEEL) - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                                        | 2 Standard Features                                               | 3 Feature Options                                                                                                                        | 4 Nozzle Options                                 |
|----------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| <b>I-25-04-SS</b> = 4" pop-up<br><b>I-25-06-SS</b> = 6" pop-up | Adjustable arc, stainless steel riser, check valve, and 5 nozzles | <b>(blank)</b> = No option<br><b>R</b> = Reclaimed water ID<br><b>HS</b> = High-speed<br><b>HS-R</b> = High-speed and reclaimed water ID | <b>4 to 28</b> = Factory-installed nozzle number |

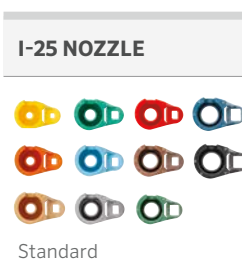
### Examples:

**I-25-04** = 4" pop-up, adjustable arc  
**I-25-04-SS-R-18** = 4" pop-up, adjustable arc, stainless steel riser, reclaimed water ID, and 18 nozzle  
**I-25-06-SS** = 6" pop-up, adjustable arc, stainless steel riser



| I-25 STANDARD NOZZLE PERFORMANCE DATA |                 |               |             |                     |      |
|---------------------------------------|-----------------|---------------|-------------|---------------------|------|
| Nozzle                                | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
| <b>04</b> ●<br>Yellow                 | 40              | 40            | 3.8         | 0.46                | 0.53 |
|                                       | 50              | 41            | 4.3         | 0.49                | 0.57 |
|                                       | 60              | 42            | 4.7         | 0.51                | 0.59 |
|                                       | 70              | 43            | 5.1         | 0.53                | 0.61 |
| <b>07</b> ●<br>Orange*                | 40              | 45            | 6.6         | 0.63                | 0.72 |
|                                       | 50              | 47            | 7.0         | 0.61                | 0.70 |
|                                       | 60              | 48            | 7.5         | 0.63                | 0.72 |
|                                       | 70              | 49            | 7.9         | 0.63                | 0.73 |
| <b>08</b> ●<br>Lt. Brown              | 40              | 47            | 7.7         | 0.67                | 0.77 |
|                                       | 50              | 49            | 8.3         | 0.67                | 0.77 |
|                                       | 60              | 50            | 9.2         | 0.71                | 0.82 |
|                                       | 70              | 51            | 9.9         | 0.73                | 0.85 |
| <b>10</b> ●<br>Lt. Green*             | 50              | 51            | 10.1        | 0.75                | 0.86 |
|                                       | 60              | 52            | 11.1        | 0.79                | 0.91 |
|                                       | 70              | 53            | 12.1        | 0.83                | 0.96 |
|                                       | 80              | 54            | 12.9        | 0.85                | 0.98 |
| <b>13</b> ●<br>Lt. Blue               | 50              | 53            | 11.2        | 0.77                | 0.89 |
|                                       | 60              | 54            | 12.3        | 0.81                | 0.94 |
|                                       | 70              | 55            | 13.3        | 0.85                | 0.98 |
|                                       | 80              | 55            | 14.3        | 0.91                | 1.05 |
| <b>15</b> ●<br>Gray*                  | 50              | 56            | 13.4        | 0.82                | 0.95 |
|                                       | 60              | 57            | 14.3        | 0.85                | 0.98 |
|                                       | 70              | 57            | 15.2        | 0.90                | 1.04 |
|                                       | 80              | 58            | 16.4        | 0.94                | 1.08 |
| <b>18</b> ●<br>Red                    | 50              | 58            | 14.5        | 0.83                | 0.96 |
|                                       | 60              | 59            | 15.7        | 0.87                | 1.00 |
|                                       | 70              | 62            | 16.9        | 0.85                | 0.98 |
|                                       | 80              | 63            | 18.2        | 0.88                | 1.02 |
| <b>20</b> ●<br>Dk. Brown*             | 60              | 62            | 17.8        | 0.89                | 1.03 |
|                                       | 70              | 63            | 19.2        | 0.93                | 1.08 |
|                                       | 80              | 64            | 20.5        | 0.96                | 1.11 |
|                                       | 90              | 65            | 21.8        | 0.99                | 1.15 |
| <b>23</b> ●<br>Dk. Green              | 60              | 64            | 21.9        | 1.03                | 1.19 |
|                                       | 70              | 65            | 23.6        | 1.08                | 1.24 |
|                                       | 80              | 66            | 25.6        | 1.13                | 1.31 |
|                                       | 90              | 67            | 27.0        | 1.16                | 1.34 |
| <b>25</b> ●<br>Dk. Blue*              | 60              | 66            | 23.5        | 1.04                | 1.20 |
|                                       | 70              | 68            | 25.5        | 1.06                | 1.23 |
|                                       | 80              | 69            | 28.0        | 1.13                | 1.31 |
|                                       | 90              | 70            | 29.5        | 1.16                | 1.34 |
| <b>28</b> ●<br>Black                  | 70              | 68            | 26.9        | 1.12                | 1.29 |
|                                       | 80              | 70            | 28.7        | 1.13                | 1.30 |
|                                       | 90              | 71            | 30.6        | 1.17                | 1.35 |
|                                       | 100             | 71            | 31.5        | 1.20                | 1.39 |

| I-25 HIGH-SPEED NOZZLE PERFORMANCE DATA |                 |               |             |                     |      |
|-----------------------------------------|-----------------|---------------|-------------|---------------------|------|
| Nozzle                                  | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
| <b>04</b> ●<br>Yellow                   | 40              | 37            | 3.8         | 0.53                | 0.62 |
|                                         | 50              | 38            | 4.3         | 0.57                | 0.66 |
|                                         | 60              | 38            | 4.7         | 0.63                | 0.72 |
|                                         | 70              | 39            | 5.1         | 0.65                | 0.75 |
| <b>07</b> ●<br>Orange*                  | 40              | 40            | 6.6         | 0.79                | 0.92 |
|                                         | 50              | 41            | 7.0         | 0.80                | 0.93 |
|                                         | 60              | 42            | 7.5         | 0.82                | 0.95 |
|                                         | 70              | 44            | 7.9         | 0.79                | 0.91 |
| <b>08</b> ●<br>Lt. Brown                | 40              | 42            | 7.7         | 0.84                | 0.97 |
|                                         | 50              | 43            | 8.3         | 0.86                | 1.00 |
|                                         | 60              | 44            | 9.2         | 0.91                | 1.06 |
|                                         | 70              | 45            | 9.9         | 0.94                | 1.09 |
| <b>10</b> ●<br>Lt. Green*               | 50              | 46            | 10.1        | 0.92                | 1.06 |
|                                         | 60              | 48            | 11.1        | 0.93                | 1.07 |
|                                         | 70              | 49            | 12.1        | 0.97                | 1.12 |
|                                         | 80              | 50            | 12.9        | 0.99                | 1.15 |
| <b>13</b> ●<br>Lt. Blue                 | 50              | 48            | 11.2        | 0.94                | 1.08 |
|                                         | 60              | 49            | 12.3        | 0.99                | 1.14 |
|                                         | 70              | 51            | 13.3        | 0.98                | 1.14 |
|                                         | 80              | 51            | 14.3        | 1.06                | 1.22 |
| <b>15</b> ●<br>Gray*                    | 50              | 49            | 13.4        | 1.07                | 1.24 |
|                                         | 60              | 51            | 14.3        | 1.06                | 1.22 |
|                                         | 70              | 53            | 15.2        | 1.04                | 1.20 |
|                                         | 80              | 54            | 16.4        | 1.08                | 1.25 |
| <b>18</b> ●<br>Red                      | 50              | 50            | 14.5        | 1.12                | 1.29 |
|                                         | 60              | 53            | 15.7        | 1.08                | 1.24 |
|                                         | 70              | 55            | 16.9        | 1.08                | 1.24 |
|                                         | 80              | 57            | 18.2        | 1.08                | 1.25 |
| <b>20</b> ●<br>Dk. Brown*               | 60              | 53            | 17.8        | 1.22                | 1.41 |
|                                         | 70              | 56            | 19.2        | 1.18                | 1.36 |
|                                         | 80              | 58            | 20.5        | 1.17                | 1.35 |
|                                         | 90              | 59            | 21.8        | 1.21                | 1.39 |
| <b>23</b> ●<br>Dk. Green                | 60              | 56            | 21.9        | 1.34                | 1.55 |
|                                         | 70              | 58            | 23.6        | 1.35                | 1.56 |
|                                         | 80              | 60            | 25.6        | 1.37                | 1.58 |
|                                         | 90              | 61            | 27.0        | 1.40                | 1.61 |
| <b>25</b> ●<br>Dk. Blue*                | 60              | 58            | 23.5        | 1.34                | 1.55 |
|                                         | 70              | 62            | 25.5        | 1.28                | 1.47 |
|                                         | 80              | 64            | 28.0        | 1.32                | 1.52 |
|                                         | 90              | 66            | 29.5        | 1.30                | 1.51 |
| <b>28</b> ●<br>Black                    | 70              | 60            | 26.9        | 1.44                | 1.66 |
|                                         | 80              | 62            | 28.7        | 1.44                | 1.66 |
|                                         | 90              | 65            | 30.6        | 1.39                | 1.61 |
|                                         | 100             | 67            | 31.5        | 1.35                | 1.56 |



\* Five standard nozzles included with each sprinkler.

#### Note:

All precipitation rates calculated for 180° operation. For the precipitation rate for a 360° sprinkler, divide by 2.

# I-40

Radius: **44' to 76'**  
Flow: **7.6 to 33.7 GPM**

The I-40 Rotor has a comprehensive list of upgraded features that make it the top choice for demanding, large turf projects.

## KEY BENEFITS

- Patented automatic arc return feature returns the turret back to the original arc pattern if vandalized; adjustable arc from 50° to 360°
- Non-strippable drive mechanism is protected from damage if turned in the opposite direction of travel
- Part- and full-circle in one model for flexibility across landscapes and reduced inventory
- Color-coded nozzles make identification easy
- Available opposing nozzle model for even watering in full-circle applications (I-40-ON model)
- Drain Check Valve prevents low-head drainage (up to 15' of elevation)

## OPERATING SPECIFICATIONS

- Nozzle choices: 12
- Radius I-40: 44' to 69'
- Radius I-40-ON: 52' to 76'
- Flow I-40: 7.6 to 29.5 GPM
- Flow I-40-ON: 13.0 to 33.7 GPM
- Recommended pressure range: 40 to 100 PSI
- Operating pressure range: 40 to 100 PSI
- Precipitation rate: 0.4 in/hr approximately
- Nozzle trajectory: standard = 25°
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- Reclaimed water ID
- High-speed rotations

## USER-INSTALLED OPTIONS

- HSJ-1 prefabricated 1" PVC Swing Joint



### I-40-04

Overall height: 7⅞"  
Pop-up height: 4"  
Exposed diameter: 2"  
Inlet size: 1"



### I-40-06

Overall height: 10¼"  
Pop-up height: 6"  
Exposed diameter: 2"  
Inlet size: 1"



### I-40 Reclaimed

Available as a factory-installed option on all models



### I-40 High-Speed

Available as a factory-installed option on all models

## I-40 - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                          | 2 Standard Features                                               | 3 Feature Options                                                                                            | 4 Nozzle Options                          |
|--------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| I-40-04-SS = 4" pop-up<br>I-40-06-SS = 6" pop-up | Adjustable arc, stainless steel riser, check valve, and 6 nozzles | (blank) = No option<br>HS = High-speed<br>HS-R = High-speed and reclaimed water ID<br>R = Reclaimed water ID | 8 to 25 = Factory-installed nozzle number |

## I-40-ON - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Opposing Nozzle Model                                | 2 Standard Features                                                             | 3 Feature Options                                                                                            | 4 Nozzle Options                           |
|--------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| I-40-04-SS-ON = 4" pop-up<br>I-40-06-SS-ON = 6" pop-up | Full-circle, opposing nozzle, stainless steel riser, check valve, and 6 nozzles | (blank) = No option<br>HS = High-speed<br>HS-R = High-speed and reclaimed water ID<br>R = Reclaimed water ID | 15 to 28 = Factory-installed nozzle number |

### Examples:

I-40-04-SS = 4" pop-up, adjustable arc, stainless steel riser, with check valve

I-40-04-SS-ON-R-23 = 4" pop-up, adjustable arc, stainless steel riser, with check valve, and reclaimed water ID and 23 nozzle

I-40-06-SS-15 = 6" pop-up, adjustable arc, stainless steel riser, with check valve and 15 nozzle



## I-40 NOZZLE PERFORMANCE DATA

| Nozzle                   | Pressure<br>PSI | Radius<br>ft | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
|--------------------------|-----------------|--------------|-------------|---------------------|------|
| <b>08</b> ●<br>Lt. Brown | 40              | 44           | 7.6         | 0.76                | 0.87 |
|                          | 50              | 45           | 8.4         | 0.80                | 0.92 |
|                          | 60              | 46           | 9.2         | 0.84                | 0.97 |
| <b>10</b> ●<br>Lt. Green | 50              | 49           | 10.3        | 0.83                | 0.95 |
|                          | 60              | 50           | 11.3        | 0.87                | 1.00 |
|                          | 70              | 51           | 12.2        | 0.90                | 1.04 |
| <b>13</b> ●<br>Lt. Blue  | 80              | 51           | 13.0        | 0.96                | 1.11 |
|                          | 50              | 50           | 11.1        | 0.85                | 0.99 |
|                          | 60              | 51           | 12.3        | 0.91                | 1.05 |
| <b>15</b> ●<br>Gray      | 70              | 52           | 13.3        | 0.95                | 1.08 |
|                          | 80              | 53           | 14.2        | 0.97                | 1.12 |
|                          | 50              | 54           | 13.8        | 0.91                | 1.05 |
| <b>23</b> ●<br>Dk. Green | 60              | 55           | 15.7        | 1.00                | 1.15 |
|                          | 70              | 57           | 16.6        | 0.98                | 1.14 |
|                          | 80              | 59           | 18.3        | 1.01                | 1.17 |
| <b>25</b> ●<br>Dk. Blue  | 60              | 62           | 21.3        | 1.07                | 1.23 |
|                          | 70              | 64           | 23.0        | 1.08                | 1.25 |
|                          | 80              | 65           | 24.5        | 1.12                | 1.29 |
|                          | 90              | 66           | 25.9        | 1.14                | 1.32 |
|                          | 60              | 66           | 23.9        | 1.06                | 1.22 |
|                          | 70              | 67           | 25.8        | 1.11                | 1.28 |
|                          | 80              | 68           | 27.7        | 1.15                | 1.33 |
|                          | 90              | 69           | 29.5        | 1.19                | 1.38 |

## I-40 HIGH-SPEED NOZZLE PERFORMANCE DATA

| Nozzle                   | Pressure<br>PSI | Radius<br>ft | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
|--------------------------|-----------------|--------------|-------------|---------------------|------|
| <b>08</b> ●<br>Lt. Brown | 40              | 41           | 7.6         | 0.87                | 1.00 |
|                          | 50              | 41           | 8.4         | 0.96                | 1.11 |
|                          | 60              | 42           | 9.2         | 1.00                | 1.16 |
| <b>10</b> ●<br>Lt. Green | 50              | 45           | 10.3        | 0.98                | 1.13 |
|                          | 60              | 46           | 11.3        | 1.03                | 1.19 |
|                          | 70              | 47           | 12.2        | 1.06                | 1.23 |
| <b>13</b> ●<br>Lt. Blue  | 80              | 47           | 13.0        | 1.13                | 1.31 |
|                          | 50              | 46           | 11.1        | 1.01                | 1.17 |
|                          | 60              | 47           | 12.3        | 1.07                | 1.24 |
| <b>15</b> ●<br>Gray      | 70              | 48           | 13.3        | 1.11                | 1.28 |
|                          | 80              | 49           | 14.2        | 1.14                | 1.31 |
|                          | 50              | 51           | 13.8        | 1.02                | 1.18 |
| <b>23</b> ●<br>Dk. Green | 60              | 52           | 15.7        | 1.12                | 1.29 |
|                          | 70              | 53           | 16.6        | 1.14                | 1.31 |
|                          | 80              | 54           | 18.3        | 1.21                | 1.40 |
| <b>25</b> ●<br>Dk. Blue  | 60              | 58           | 21.3        | 1.22                | 1.41 |
|                          | 70              | 59           | 23.0        | 1.27                | 1.47 |
|                          | 80              | 60           | 24.5        | 1.31                | 1.51 |
|                          | 90              | 61           | 25.9        | 1.34                | 1.55 |
|                          | 60              | 59           | 23.9        | 1.32                | 1.53 |
|                          | 70              | 61           | 25.8        | 1.33                | 1.54 |
|                          | 80              | 62           | 27.7        | 1.39                | 1.60 |
|                          | 90              | 63           | 29.5        | 1.43                | 1.65 |

## I-40 NOZZLES



Standard/High-Speed



## I-40 Opposing Nozzle 360° Model



## I-40 Turf Cup Kit Option

Available as a field-installed option on all models  
P/N TURFCUPKITI40

## I-40 DUAL OPPOSING NOZZLE PERFORMANCE DATA

| Nozzle                   | Pressure<br>PSI | Radius<br>ft | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
|--------------------------|-----------------|--------------|-------------|---------------------|------|
| <b>15</b> ●<br>Gray      | 50              | 52           | 13.0        | 0.46                | 0.53 |
|                          | 60              | 54           | 13.2        | 0.44                | 0.50 |
|                          | 70              | 56           | 14.4        | 0.44                | 0.51 |
|                          | 80              | 57           | 15.5        | 0.46                | 0.53 |
| <b>18</b> ●<br>Red       | 50              | 58           | 13.7        | 0.39                | 0.45 |
|                          | 60              | 59           | 15.2        | 0.42                | 0.49 |
|                          | 70              | 60           | 16.6        | 0.44                | 0.51 |
|                          | 80              | 62           | 17.8        | 0.45                | 0.51 |
| <b>20</b> ●<br>Dk. Brown | 60              | 63           | 19.1        | 0.46                | 0.53 |
|                          | 70              | 64           | 20.9        | 0.49                | 0.57 |
|                          | 80              | 66           | 22.3        | 0.49                | 0.57 |
|                          | 90              | 66           | 23.9        | 0.53                | 0.61 |
| <b>23</b> ●<br>Dk. Green | 60              | 65           | 20.4        | 0.46                | 0.54 |
|                          | 70              | 66           | 22.3        | 0.49                | 0.57 |
|                          | 80              | 67           | 24.0        | 0.51                | 0.59 |
|                          | 90              | 68           | 25.6        | 0.53                | 0.62 |
| <b>25</b> ●<br>Dk. Blue  | 60              | 66           | 22.0        | 0.49                | 0.56 |
|                          | 70              | 68           | 24.0        | 0.50                | 0.58 |
|                          | 80              | 69           | 25.9        | 0.52                | 0.60 |
|                          | 90              | 70           | 27.2        | 0.53                | 0.62 |
| <b>28</b> ●<br>Black     | 70              | 70           | 28.9        | 0.57                | 0.66 |
|                          | 80              | 72           | 30.9        | 0.57                | 0.66 |
|                          | 90              | 74           | 32.9        | 0.58                | 0.67 |
|                          | 100             | 76           | 33.7        | 0.56                | 0.65 |

## Notes:

All precipitation rates calculated for 180° operation.  
For the precipitation rate for a 360° sprinkler, divide by 2.  
Precipitation rates for the ON Opposing Nozzle model are calculated at 360°.

## I-40 NOZZLES



Opposing

Front



Back



# I-80

Radius: **63' to 97'**  
Flow: **20.2 to 59.6 GPM**

The highly versatile and efficient I-80 Rotor is the first commercial sports turf rotor with no-dig Total-Top-Serviceability.

## KEY BENEFITS

- Exclusive Total-Top-Service (TTS) design provides convenient no-dig servicing
- Exclusive PressurePort™ Technology creates exceptional nozzle uniformity
- Forward-facing triple nozzles (I-80) or opposing triple nozzles (I-80-ON) create uniform nozzle profiles in part and full-circle applications
- QuickCheck™ Arc Mechanism (I-80) for fast arc adjustment and review of the arc setting
- QuickSet-360 Arc Mechanism (I-80) converts adjustable arc rotor to full-circle in an instant
- Part- and full-circle in one model provides flexible installation options and reduces inventory (I-80)
- Ratcheting stainless steel riser allows setting of right-side fixed arc alignment to the landscape without rotor disassembly
- Drain Check Valve prevents low-head drainage (up to 5' of elevation)

## OPERATING SPECIFICATIONS

- I-80
  - Standard 22.5° nozzle choices: 7
  - Radius: 65' to 94'
  - Flow: 20.2 to 59.6 GPM
  - Pressure range: 50 to 100 PSI
- I-80-ON
  - Standard 22.5° nozzle choices: 7
  - Radius: 63' to 97'
  - Flow: 21.6 to 58.5 GPM
  - Pressure range: 65 to 100 PSI
- All I-80 Rotors are pressure-rated at 150 PSI
- Precipitation rates: 0.45 in/hr approximately
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- Exclusive Turf Cup option for an aesthetically clean and safe installation:
  - No-dig servicing of riser assembly
  - No-dig arc adjustments
  - Quick-release turf cup assembly
  - Threads in cup lock/retain the turf

## USER-INSTALLED OPTIONS

- Rubber Cover Kit: P/N 959300SP
- Turf Cup Kit: P/N 959400SP
- HSJ prefabricated PVC Swing Joints
- Reclaimed water ID: P/N 450105



**I-80-04-SS Pop-Up**  
**I-80-04-SS-ON Pop-Up**

Overall height: 9¾"  
Pop-up height: 3¾"  
Exposed diameter: 4⅜"  
Inlet size: 1½"



**I-80-04-SS-TC Turf Cup**  
**I-80-04-SS-ON-TC Turf Cup**

Overall height: 11½"  
Pop-up height: 3¾"  
Exposed diameter: 3½"  
Inlet size: 1½"



**I-80 Turf Cup Kit**  
P/N 959400SP



**I-80 Rubber Cover Kit**  
P/N 959300SP

## I-80 - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                           | 2 Standard Features                                                                                                 | 3 Nozzle Options                                                  |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>I-80-04-SS</b> = 4" pop-up                     | Adjustable arc, stainless steel riser, check valve, and 15 nozzle options                                           | <b>23 to 53</b> = Factory-installed nozzle number, no nozzle pack |
| <b>I-80-04-SS-TC</b> = 4" pop-up with turf cup    | Adjustable arc, stainless steel riser, check valve, factory-installed turf cup, and 15 nozzle options               |                                                                   |
| <b>I-80-04-SS-ON</b> = 4" pop-up                  | Full-circle, opposing nozzle, stainless steel riser, check valve, and 15 nozzle options                             | <b>23 to 53</b> = Factory-installed nozzle number, no nozzle pack |
| <b>I-80-04-SS-ON-TC</b> = 4" pop-up with turf cup | Full-circle, opposing nozzle, stainless steel riser, check valve, factory-installed turf cup, and 15 nozzle options |                                                                   |

### Examples:

**I-80-04-SS-25** = 4" pop-up, adjustable arc, stainless steel riser, check valve, and factory-installed 25 nozzle

**I-80-04-SS-ON-38** = 4" pop-up, stainless steel riser, check valve, opposing nozzle full-circle, and factory-installed 38 nozzle

**I-80-04-SS-ON-TC-48** = 4" pop-up, stainless steel riser, check valve, opposing nozzle full-circle, factory-installed turf cup, and factory-installed 48 nozzle



## I-80 NOZZLE PERFORMANCE DATA\*

| Nozzle Set |                                                                                     |           | Pressure | Radius | Flow | Precip in/hr |      |
|------------|-------------------------------------------------------------------------------------|-----------|----------|--------|------|--------------|------|
|            |                                                                                     |           | PSI      | ft.    | GPM  | ■            | ▲    |
| Orange     |    | Lt. Green | 50       | 65     | 20.2 | 0.46         | 0.53 |
| 803603     | <b>23</b>                                                                           | 315313    | 60       | 66     | 22.1 | 0.49         | 0.56 |
|            |                                                                                     |           | 65       | 67     | 23.9 | 0.51         | 0.59 |
|            |                                                                                     |           | 70       | 67     | 24.2 | 0.52         | 0.60 |
|            |                                                                                     |           | 80       | 69     | 25.9 | 0.52         | 0.60 |
| Orange     |    | Lt. Green | 65       | 71     | 28.3 | 0.54         | 0.62 |
| 803603     | <b>25</b>                                                                           | 315313    | 70       | 72     | 29.3 | 0.54         | 0.63 |
|            |                                                                                     |           | 80       | 73     | 31.5 | 0.57         | 0.66 |
|            |                                                                                     |           | 90       | 74     | 33.4 | 0.59         | 0.68 |
|            |                                                                                     |           | 100      | 75     | 35.4 | 0.61         | 0.70 |
| Orange     |    | Lt. Green | 65       | 72     | 30.6 | 0.57         | 0.66 |
| 803603     | <b>33</b>                                                                           | 315313    | 70       | 73     | 31.6 | 0.57         | 0.66 |
|            |                                                                                     |           | 80       | 75     | 33.9 | 0.58         | 0.67 |
|            |                                                                                     |           | 90       | 77     | 35.8 | 0.58         | 0.67 |
|            |                                                                                     |           | 100      | 79     | 37.9 | 0.58         | 0.67 |
| Orange     |    | Lt. Green | 65       | 76     | 34.9 | 0.58         | 0.67 |
| 803603     | <b>38</b>                                                                           | 315313    | 70       | 78     | 36.2 | 0.57         | 0.66 |
|            |                                                                                     |           | 80       | 80     | 39.1 | 0.59         | 0.68 |
|            |                                                                                     |           | 90       | 82     | 41.2 | 0.59         | 0.68 |
|            |                                                                                     |           | 100      | 84     | 43.5 | 0.59         | 0.69 |
| Orange     |    | Lt. Green | -        | -      | -    | -            | -    |
| 803603     | <b>43</b>                                                                           | 315313    | 70       | 81     | 41.2 | 0.60         | 0.70 |
|            |                                                                                     |           | 80       | 83     | 43.5 | 0.61         | 0.70 |
|            |                                                                                     |           | 90       | 86     | 46.2 | 0.60         | 0.69 |
|            |                                                                                     |           | 100      | 89     | 48.7 | 0.59         | 0.68 |
| Orange     |   | Lt. Green | -        | -      | -    | -            | -    |
| 803603     | <b>48</b>                                                                           | 315313    | 70       | 83     | 46.3 | 0.65         | 0.75 |
|            |                                                                                     |           | 80       | 85     | 48.4 | 0.64         | 0.74 |
|            |                                                                                     |           | 90       | 89     | 51.7 | 0.63         | 0.73 |
|            |                                                                                     |           | 100      | 91     | 54.5 | 0.63         | 0.73 |
| Orange     |  | Lt. Green | -        | -      | -    | -            | -    |
| 803603     | <b>53</b>                                                                           | 315313    | 70       | 87     | 50.7 | 0.64         | 0.74 |
|            |                                                                                     |           | 80       | 89     | 53.1 | 0.65         | 0.75 |
|            |                                                                                     |           | 90       | 92     | 56.4 | 0.64         | 0.74 |
|            |                                                                                     |           | 100      | 94     | 59.6 | 0.65         | 0.75 |

● = Nozzle plug P/N 315300 installed in the back side of the nozzle housing.

\* Complies to ASAE standard. All precipitation rates calculated for 360° operation. All triangular rates are equilateral.

## I-80 NOZZLES



## I-80-ON NOZZLE PERFORMANCE DATA\*

| Nozzle Set |                                                                                      |        | Pressure | Radius | Flow | Precip in/hr |      |
|------------|--------------------------------------------------------------------------------------|--------|----------|--------|------|--------------|------|
|            |                                                                                      |        | PSI      | ft.    | GPM  | ■            | ▲    |
| ●          |    | ●      | 50       | 63     | 21.6 | 0.52         | 0.60 |
| 803611     | <b>23</b>                                                                            | 315311 | 60       | 65     | 23.0 | 0.52         | 0.61 |
|            |                                                                                      |        | 65       | 66     | 24.0 | 0.53         | 0.61 |
|            |                                                                                      |        | 70       | 67     | 24.9 | 0.53         | 0.62 |
|            |                                                                                      |        | 80       | 68     | 26.6 | 0.55         | 0.64 |
| ●          |    | ●      | 65       | 71     | 28.6 | 0.55         | 0.63 |
| 803611     | <b>25</b>                                                                            | 315311 | 70       | 73     | 29.7 | 0.54         | 0.62 |
|            |                                                                                      |        | 80       | 74     | 31.7 | 0.56         | 0.64 |
|            |                                                                                      |        | 90       | 75     | 33.7 | 0.58         | 0.67 |
|            |                                                                                      |        | 100      | 77     | 35.8 | 0.58         | 0.67 |
| ●          |    | ●      | 65       | 74     | 30.9 | 0.54         | 0.63 |
| 803611     | <b>33</b>                                                                            | 315311 | 70       | 75     | 32.0 | 0.55         | 0.63 |
|            |                                                                                      |        | 80       | 77     | 34.2 | 0.56         | 0.64 |
|            |                                                                                      |        | 90       | 79     | 36.2 | 0.56         | 0.64 |
|            |                                                                                      |        | 100      | 81     | 38.2 | 0.56         | 0.65 |
| ●          |    | ●      | 65       | 77     | 35.1 | 0.57         | 0.66 |
| 803611     | <b>38</b>                                                                            | 315311 | 70       | 79     | 36.6 | 0.56         | 0.65 |
|            |                                                                                      |        | 80       | 82     | 38.9 | 0.56         | 0.64 |
|            |                                                                                      |        | 90       | 84     | 41.3 | 0.56         | 0.65 |
|            |                                                                                      |        | 100      | 87     | 43.6 | 0.55         | 0.64 |
| ●          |    | ●      | -        | -      | -    | -            | -    |
| 803611     | <b>43</b>                                                                            | 315311 | 70       | 83     | 41.3 | 0.58         | 0.67 |
|            |                                                                                      |        | 80       | 85     | 43.6 | 0.58         | 0.67 |
|            |                                                                                      |        | 90       | 87     | 46.3 | 0.59         | 0.68 |
|            |                                                                                      |        | 100      | 89     | 48.8 | 0.59         | 0.68 |
| ●          |   | ●      | -        | -      | -    | -            | -    |
| 803611     | <b>48</b>                                                                            | 315311 | 70       | 90     | 46.9 | 0.56         | 0.64 |
|            |                                                                                      |        | 80       | 92     | 48.9 | 0.56         | 0.64 |
|            |                                                                                      |        | 90       | 94     | 50.5 | 0.55         | 0.63 |
|            |                                                                                      |        | 100      | 96     | 53.5 | 0.56         | 0.65 |
| ●          |  | ●      | -        | -      | -    | -            | -    |
| 803611     | <b>53</b>                                                                            | 315311 | 70       | 91     | 49.8 | 0.58         | 0.67 |
|            |                                                                                      |        | 80       | 93     | 52.2 | 0.58         | 0.67 |
|            |                                                                                      |        | 90       | 95     | 55.5 | 0.59         | 0.68 |
|            |                                                                                      |        | 100      | 97     | 58.5 | 0.60         | 0.69 |

● = Nozzle plug P/N 315300 installed in the front side of the nozzle housing.

# I-90

Radius: **66' to 103'**  
Flow: **29.5 to 83.8 GPM**

The robust I-90 Rotor is built for long-distance natural turf applications in large parks, open spaces, and sports fields.

## KEY BENEFITS

- Exclusive PressurePort™ Technology creates exceptional nozzle uniformity
- Forward-facing triple nozzles (I-90), opposing triple nozzles (I-90-ON) create uniform nozzle profiles in part- and full-circle applications
- QuickCheck™ Arc Mechanism for fast arc adjustment and review of the arc setting
- Part- and full-circle in one model provides flexible installation options and decreases inventory (I-90)
- Drain Check Valve prevents low-head drainage (up to 9' of elevation)

## OPERATING SPECIFICATIONS

- I-90 nozzle choices: 8
- Radius I-90 ADV: 66' to 97'
- Radius I-90 36V: 73' to 103'
- Flow I-90 ADV: 30.5 to 83.3 GPM
- Flow I-90 36V: 14.2 to 58.5 GPM
- Recommended pressure range: 80 to 120 PSI
- Operating pressure range: 80 to 120 PSI
- Precipitation rate: 0.75 in/hr approximately
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- Reclaimed water ID

## USER-INSTALLED OPTIONS

- Rubber Cover Kit: P/N 234200
- Turf Cup Kit: P/N 467955
- HSJ prefabricated PVC 1½" Swing Joints



### I-90

Overall height: ADV/36V: 11"  
Pop-up height: 3"  
Exposed diameter: 3½"  
Inlet size: 1½"



**Turf Cup Kit**  
P/N 467955



**Rubber Cover Kit**  
P/N 234200



### I-90 Reclaimed

Available as a factory-installed option on all models

## I-90 - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model          | 2 Standard Features                       | 3 Feature Options                                                                                                                                                                                     | 4 Nozzle Options                                  |
|------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| I-90 = 3" pop-up | Plastic riser, check valve, and 8 nozzles | <b>ADV</b> = Adjustable arc<br><b>ARV</b> = Adjustable arc and reclaimed water ID<br><b>36V</b> = Full-circle, opposing nozzles<br><b>3RV</b> = Full-circle, opposing nozzles, and reclaimed water ID | <b>25 to 73</b> = Factory-installed nozzle number |

### Examples:

I-90-ADV = 3" pop-up, adjustable arc

I-90-36V-43 = 3" pop-up, full-circle, opposing nozzles, and 43 nozzle

I-90-3RV-63 = 3" pop-up, full-circle, opposing nozzles, reclaimed water ID, and 63 nozzle



| I-90-ADV NOZZLE PERFORMANCE DATA |                 |               |             |                     |      |
|----------------------------------|-----------------|---------------|-------------|---------------------|------|
| Nozzle                           | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
| <b>25</b> ●<br>Lt. Blue          | 80              | 66            | 29.5        | 1.30                | 1.51 |
|                                  | 90              | 67            | 31.5        | 1.35                | 1.56 |
|                                  | 100             | 68            | 33.2        | 1.38                | 1.60 |
|                                  | 110             | 69            | 35.6        | 1.44                | 1.66 |
| <b>33</b> ●<br>Gray              | 80              | 68            | 36.2        | 1.51                | 1.74 |
|                                  | 90              | 69            | 38.2        | 1.54                | 1.78 |
|                                  | 100             | 70            | 40.4        | 1.59                | 1.83 |
|                                  | 110             | 71            | 42.6        | 1.63                | 1.88 |
| <b>38</b> ●<br>Red               | 80              | 72            | 40.6        | 1.51                | 1.74 |
|                                  | 90              | 73            | 43.0        | 1.55                | 1.79 |
|                                  | 100             | 75            | 45.4        | 1.55                | 1.79 |
|                                  | 110             | 76            | 47.6        | 1.59                | 1.83 |
| <b>43</b> ●<br>Dk. Brown         | 80              | 74            | 46.1        | 1.62                | 1.87 |
|                                  | 90              | 74            | 48.5        | 1.70                | 1.97 |
|                                  | 100             | 75            | 50.7        | 1.74                | 2.00 |
|                                  | 110             | 77            | 53.4        | 1.73                | 2.00 |
| <b>48</b> ●<br>Dk. Green         | 80              | 77            | 50.2        | 1.63                | 1.88 |
|                                  | 90              | 79            | 52.6        | 1.62                | 1.87 |
|                                  | 100             | 81            | 55.1        | 1.62                | 1.87 |
|                                  | 110             | 82            | 57.5        | 1.65                | 1.90 |
| <b>53</b> ●<br>Dk. Blue*         | 80              | 81            | 54.9        | 1.61                | 1.86 |
|                                  | 90              | 84            | 57.2        | 1.56                | 1.80 |
|                                  | 100             | 86            | 59.5        | 1.55                | 1.79 |
|                                  | 110             | 87            | 62.1        | 1.58                | 1.82 |
|                                  | 120             | 88            | 64.4        | 1.60                | 1.85 |
| <b>63</b> ●<br>Black             | 80              | 86            | 62.3        | 1.62                | 1.87 |
|                                  | 90              | 88            | 65.5        | 1.63                | 1.88 |
|                                  | 100             | 90            | 69.0        | 1.64                | 1.89 |
|                                  | 110             | 91            | 71.9        | 1.67                | 1.93 |
|                                  | 120             | 92            | 74.7        | 1.70                | 1.96 |
| <b>73</b> ●<br>Orange            | 80              | 89            | 72.7        | 1.77                | 2.04 |
|                                  | 90              | 91            | 75.4        | 1.75                | 2.02 |
|                                  | 100             | 93            | 78.1        | 1.74                | 2.01 |
|                                  | 110             | 95            | 80.9        | 1.73                | 1.99 |
|                                  | 120             | 97            | 83.8        | 1.71                | 1.98 |

\* Factory-installed nozzle

#### Notes:

Precipitation rates for ADV models are calculated for 180° operation. Precipitation rates for 36V models are calculated for 360° operation. All triangular rates are equilateral. Complies to ASAE standard.

| I-90-36V NOZZLE PERFORMANCE DATA |                 |               |             |                     |      |
|----------------------------------|-----------------|---------------|-------------|---------------------|------|
| Nozzle                           | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
| <b>25</b> ●<br>Lt. Blue          | 80              | 73            | 30.5        | 0.55                | 0.64 |
|                                  | 90              | 75            | 32.4        | 0.55                | 0.64 |
|                                  | 100             | 76            | 34.3        | 0.57                | 0.66 |
|                                  | 110             | 78            | 36.5        | 0.58                | 0.67 |
| <b>33</b> ●<br>Gray              | 80              | 77            | 36.3        | 0.59                | 0.68 |
|                                  | 90              | 78            | 38.4        | 0.61                | 0.70 |
|                                  | 100             | 80            | 40.6        | 0.61                | 0.71 |
|                                  | 110             | 81            | 42.7        | 0.63                | 0.72 |
| <b>38</b> ●<br>Red               | 80              | 80            | 40.6        | 0.61                | 0.71 |
|                                  | 90              | 82            | 42.9        | 0.61                | 0.71 |
|                                  | 100             | 83            | 45.3        | 0.63                | 0.73 |
|                                  | 110             | 85            | 47.7        | 0.64                | 0.73 |
| <b>43</b> ●<br>Dk. Brown         | 80              | 83            | 46.2        | 0.65                | 0.75 |
|                                  | 90              | 84            | 48.6        | 0.66                | 0.77 |
|                                  | 100             | 85            | 50.9        | 0.68                | 0.78 |
|                                  | 110             | 86            | 53.4        | 0.69                | 0.80 |
| <b>48</b> ●<br>Dk. Green         | 80              | 86            | 49.6        | 0.65                | 0.75 |
|                                  | 90              | 89            | 52.5        | 0.64                | 0.74 |
|                                  | 100             | 90            | 54.8        | 0.65                | 0.75 |
|                                  | 110             | 91            | 57.3        | 0.67                | 0.77 |
| <b>53</b> ●<br>Dk. Blue*         | 80              | 89            | 54.2        | 0.66                | 0.76 |
|                                  | 90              | 90            | 56.7        | 0.67                | 0.78 |
|                                  | 100             | 92            | 59.2        | 0.67                | 0.78 |
|                                  | 110             | 93            | 61.7        | 0.69                | 0.79 |
|                                  | 120             | 94            | 64.2        | 0.70                | 0.81 |
| <b>63</b> ●<br>Black             | 80              | 92            | 63.2        | 0.72                | 0.83 |
|                                  | 90              | 94            | 65.9        | 0.72                | 0.83 |
|                                  | 100             | 96            | 69.4        | 0.72                | 0.84 |
|                                  | 110             | 97            | 72.0        | 0.74                | 0.85 |
|                                  | 120             | 98            | 74.9        | 0.75                | 0.87 |
| <b>73</b> ●<br>Orange            | 80              | 96            | 72.1        | 0.75                | 0.87 |
|                                  | 90              | 98            | 75.0        | 0.75                | 0.87 |
|                                  | 100             | 99            | 77.8        | 0.76                | 0.88 |
|                                  | 110             | 102           | 80.5        | 0.74                | 0.86 |
|                                  | 120             | 103           | 83.3        | 0.76                | 0.87 |

#### I-90 NOZZLES



ADV & 36V

#### I-90



# HSJ SWING JOINTS

With swivel ells on both ends, HSJ Swing Joints easily adjust sprinklers to proper height and position in any configuration.

## KEY BENEFITS

- Strength, longevity, and contamination resistance
  - Prefabricated PVC design with O-ring seals
- Configurations to meet every installation requirement
  - Available in all popular inlet and outlet configurations
  - Choose from 8", 12", or 18" lay arm lengths
  - Single top-out or triple top-out designs

### Swing Joints

HSJ-0 = Model ¾"  
 HSJ-1 = Model 1"  
 HSJ-2 = Model 1¼"  
 HSJ-3 = Model 1½"



## HSJ SWING JOINT – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                                                                                                                                                        | 2 Inlet Type (from pipe fitting)                                                                                                                                                                                                                                                                                                                                          | 3 Outlet Type (to sprinkler inlet)                                                                       | 4 Outlet Style                                                                                                                                                                                                                        | 5 Lay Length                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HSJ-0</b> = ¾" commercial Swing Joint<br><b>HSJ-1</b> = 1" heavy-duty Swing Joint<br><b>HSJ-2</b> = 1¼" heavy-duty Swing Joint<br><b>HSJ-3</b> = 1½" heavy-duty Swing Joint | <b>2</b> = Spigot, short<br><br><b>3</b> = Male NPT<br><br><b>7</b> = Spigot, 4" long*<br><br>* Not available HSJ-0 | <b>2</b> = Male NPT<br> | <b>2</b> = Single top-out<br><br><b>4</b> = Triple top-out<br> | <b>08</b> = 8" lay arm*<br><br><b>12</b> = 12" lay arm<br><br><b>18</b> = 18" lay arm<br><br>* HSJ-0 only |

### Example:

HSJ-1-3-2-2-12 = HSJ 1" heavy-duty Swing Joint, 1" NPT inlet, 1" male NPT single top-out outlet, 12" lay arm length

# HCV CHECK VALVES

Eliminate low-head drainage for both rotor and spray shrub systems with the adjustable HCV Check Valves.

## KEY BENEFITS

- Adjustment access through top of valve
- Adjusts to compensate for elevational changes up to 32'
- Variety of inlet and outlet options reduces need for additional fittings
- Meets schedule 80 specifications for durability under high pressure
- Pressure loss charts for HCV products on **page 201**

### HCV CHECK VALVES

| Model      | Description                        |
|------------|------------------------------------|
| HC-50F-50F | ½" female inlet x ½" female outlet |
| HC-50F-50M | ½" female inlet x ½" male outlet   |
| HC-75F-75M | ¾" female inlet x ¾" male outlet   |



**HCV Check Valves**  
 Overall height: 3"

# SNAPLOK™ COMBO KITS

These kits are designed for applications that demand sturdy installation due to frequent quick coupler use.

## KEY BENEFITS

- Highly effective solution for quick-coupler stabilization
- SnapLok design includes:
  - Heavy-duty PVC and brass outlet construction
  - Anti-rotation coupler locking feature
  - Accommodates both rebar and pipe stabilization
- Solves common quick-coupler stabilization and unthreading concerns
  - Unique SnapLok outlet with integrated brass thread outlet
- See the HSJ Swing Joints on **page 33**



| SNAPLOK COMBO KITS – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 |                                                                                                            |                                                                                                                                                                                                                                                                |                                                                                                                    |                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 Model                                                         | 2 Inlet Type (from pipe fitting)                                                                           | 3 Outlet Type (to sprinkler inlet)                                                                                                                                                                                                                             | 4 Outlet Style                                                                                                     | 5 Lay Length                                                                                                                                                                                                                         |
| <b>HSJ-1</b> = 1" heavy-duty Swing Joint                        | <b>3</b> = Male NPT<br> | <b>S</b> = Male 1" brass NPT SnapLok<br><br><b>T</b> = Male ¾" brass NPT/BSP SnapLok<br> | <b>2</b> = Single top-out<br> | <b>12</b> = 12" lay arm<br><br><b>18</b> = 18" lay arm<br> |

SnapLok is a trademark of LASCO Fittings Inc.





# **ST SYSTEMS**

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# ST-90

The ST-90 Synthetic Turf Rotor is designed for installation in natural turf adjacent to the playing surface — the perfect solution for small and midsize fields.

## KEY BENEFITS

- Arc setting: 40° to 360°
- QuickCheck™ Arc Mechanism
- Through-the-top arc adjustment
- Water-lubricated gear drive
- Factory-installed rubber logo cap
- Nozzle trajectory: 22.5°

## OPERATING SPECIFICATIONS

- Radius: 103' to 120'
- Flow: 74.5 to 92.0 GPM
- Operating pressure range: 100 to 120 PSI
- Precipitation rate: 1.25 in/hr approximately
- Warranty period: 5 years for component parts

## USER-INSTALLED OPTIONS

- Rubber Cover Kit ST-90: P/N 234200SP

| ST ROTOR |                                                                                                            |
|----------|------------------------------------------------------------------------------------------------------------|
| Model    | Description                                                                                                |
| ST-90-XX | 3" pop-up, jar-top cap, adjustable arc, plastic riser, and NPT inlet threads, 73 or 83 preinstalled nozzle |



**ST-90\***  
 Overall height: 11½"  
 Pop-up height: 3"  
 Diameter: 5½"  
 Inlet size: 1½" NPT

\*Not for use with the ST Vault

## ST-90 NOZZLE PERFORMANCE DATA

| Nozzle | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr |      |
|--------|-----------------|---------------|-------------|--------------|------|
|        |                 |               |             | ■            | ▲    |
| 73 ●   | 100             | 103           | 74.5        | 1.35         | 1.56 |
|        | 110             | 109           | 77.0        | 1.25         | 1.44 |
|        | 120             | 115           | 79.6        | 1.16         | 1.34 |
| 83 ●   | 100             | 112           | 84.2        | 1.29         | 1.49 |
|        | 110             | 116           | 88.1        | 1.26         | 1.46 |
|        | 120             | 120           | 92.0        | 1.23         | 1.42 |

### Notes:

All precipitation rates are calculated for 180° operation.  
 For the precipitation rate of a 360° sprinkler, divide by 2.

# HIGH-FLOW SWING JOINTS

These durable Swing Joints are easy to position and ensure correct rotor installation height.

## KEY BENEFITS

- Heavy-duty, high-flow Swing Joints with O-ring seals
- HSJ-4 for high-flow I-90 and ST-90 Rotors with 1½" inlets

**High-Flow Swing Joints**  
 HSJ-4 = 2" model



## HSJ HIGH-FLOW SWING JOINT – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                           | 2 Inlet Type (from pipe fitting)            | 3 Outlet Type (to sprinkler inlet) | 4 Outlet Style     | 5 Lay Length     |
|-----------------------------------|---------------------------------------------|------------------------------------|--------------------|------------------|
| HSJ-4 = 2" heavy-duty Swing Joint | 3 = 2" male NPT, horizontal side connection | 7 = 1½" male NPT                   | 2 = Single top-out | 12 = 12" lay arm |

### Example:

HSJ-4-37-212 = HSJ 2" heavy-duty Swing Joint, 2" male NPT horizontal side connection to piping, 1½" male NPT outlet to sprinkler, single top-out, and 12" lay arm

# ST-1200-BR

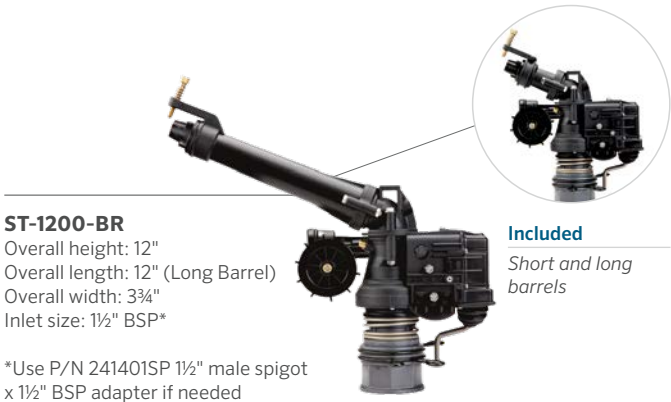
The cost-effective ST-1200-BR Rotor is the ideal riser-mounted solution for pastures, corrals, arenas, dust control, and wash-down watering.

### KEY BENEFITS

- Nozzle choices: 5 (included)
- Standard nozzle: 12
- Nozzle range: 10 to 18
- Nozzle trajectory: 22.5°
- Isolated, grease-lubricated gear drive
- Nozzle barrels: short and long (included)
- Movable stops (left and right) arc adjustment
- Arc setting: 40° to non-reversing 360°
- Ratcheting nozzle turret

### OPERATING SPECIFICATIONS

- Radius: 67' to 115'
- Flow: 27.0 to 131.0 GPM
- Pressure range: 30 to 85 PSI



| ST-1200-BR NOZZLE PERFORMANCE DATA |                 |               |             |                     |      |
|------------------------------------|-----------------|---------------|-------------|---------------------|------|
| Nozzle                             | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
| 10 ●<br>Black                      | 30              | 67            | 27.0        | 1.16                | 1.34 |
|                                    | 45              | 75            | 32.8        | 1.12                | 1.30 |
|                                    | 60              | 85            | 38.1        | 1.02                | 1.17 |
|                                    | 75              | 90            | 43.5        | 1.03                | 1.19 |
| 12 ●<br>Black                      | 30              | 68            | 33.6        | 1.40                | 1.62 |
|                                    | 45              | 78            | 41.2        | 1.30                | 1.51 |
|                                    | 60              | 88            | 47.6        | 1.18                | 1.37 |
|                                    | 75              | 98            | 53.1        | 1.06                | 1.23 |
| 14 ●<br>Black                      | 30              | 70            | 45.7        | 1.80                | 2.07 |
|                                    | 45              | 86            | 56.0        | 1.46                | 1.68 |
|                                    | 60              | 100           | 64.7        | 1.25                | 1.44 |
|                                    | 75              | 110           | 72.5        | 1.15                | 1.33 |
| 16 ●<br>Black                      | 30              | 72            | 59.5        | 2.21                | 2.55 |
|                                    | 45              | 93            | 73.0        | 1.62                | 1.88 |
|                                    | 60              | 103           | 84.3        | 1.53                | 1.77 |
|                                    | 75              | 116           | 80.9        | 1.16                | 1.34 |
| 18 ●<br>Black                      | 30              | 95            | 92.5        | 1.97                | 2.28 |
|                                    | 45              | 104           | 107.0       | 1.90                | 2.20 |
|                                    | 60              | 111           | 119.5       | 1.87                | 2.16 |
|                                    | 75              | 115           | 131.0       | 1.91                | 2.20 |

ST-1200-BR Rotor Installed





# ST-1600-HS-BR

*In addition to synthetic turf, this heavy-duty rotor is designed for irrigating pastures, horse arenas, dust control, and natural turf areas.*

## KEY BENEFITS

- Nozzle choices: 6 (included)
- Standard nozzle: 20
- Nozzle range: 16 to 26
- Nozzle trajectory: 25°
- Isolated, grease-lubricated gear drive
- Movable stops with left and right arc adjustment
- Arc setting 40° to non-reversing 360°
- Ratcheting nozzle turret

## OPERATING SPECIFICATIONS

- Radius: 107' to 165'
- Flow: 96.2 to 326.8 GPM

### ST-1600 NOZZLE PERFORMANCE DATA\*

| Nozzle               | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |
|----------------------|-----------------|---------------|-------------|---------------------|------|
| <b>16</b> ●<br>Black | 60              | 107           | 96.2        | 1.63                | 1.88 |
|                      | 70              | 115           | 107.3       | 1.57                | 1.81 |
|                      | 90              | 121           | 117.8       | 1.54                | 1.78 |
|                      | 100             | 128           | 127.3       | 1.50                | 1.73 |
|                      | 115             | 135           | 137.4       | 1.46                | 1.69 |
| <b>18</b> ●<br>Black | 60              | 112           | 107.0       | 1.66                | 1.91 |
|                      | 70              | 121           | 119.4       | 1.56                | 1.80 |
|                      | 90              | 128           | 131.0       | 1.54                | 1.78 |
|                      | 100             | 133           | 141.3       | 1.54                | 1.78 |
|                      | 115             | 141           | 153.2       | 1.48                | 1.71 |
| <b>20</b> ●<br>Black | 60              | 115           | 144.0       | 2.10                | 2.43 |
|                      | 70              | 128           | 160.9       | 1.89                | 2.18 |
|                      | 90              | 141           | 176.5       | 1.71                | 1.97 |
|                      | 100             | 144           | 190.5       | 1.76                | 2.03 |
|                      | 115             | 148           | 204.2       | 1.80                | 2.08 |
| <b>22</b> ●<br>Black | 60              | 118           | 171.5       | 2.37                | 2.73 |
|                      | 70              | 130           | 191.8       | 2.20                | 2.54 |
|                      | 90              | 144           | 210.0       | 1.94                | 2.24 |
|                      | 100             | 151           | 226.9       | 1.84                | 2.12 |
|                      | 115             | 157           | 243.1       | 1.89                | 2.18 |
| <b>24</b> ●<br>Black | 60              | 121           | 202.1       | 2.64                | 3.05 |
|                      | 70              | 133           | 225.9       | 2.46                | 2.84 |
|                      | 90              | 148           | 247.6       | 2.19                | 2.52 |
|                      | 100             | 156           | 267.4       | 2.12                | 2.45 |
|                      | 115             | 160           | 286.4       | 2.16                | 2.49 |
| <b>26</b> ●<br>Black | 60              | 126           | 233.2       | 2.83                | 3.27 |
|                      | 70              | 136           | 260.4       | 2.71                | 3.13 |
|                      | 90              | 151           | 284.5       | 2.40                | 2.77 |
|                      | 100             | 160           | 307.0       | 2.31                | 2.67 |
|                      | 115             | 165           | 326.8       | 2.32                | 2.68 |

#### Note:

All precipitation rates are calculated for 180° operation.  
For the precipitation rate of a 360° sprinkler, divide by 2.

\* All radius measurements are taken at standard rotation speeds.  
Slowing rotation to the minimum rotation speed will add 10+ feet to the radius.



### ST-1600-HS-BR

Overall height: 8¾"  
Diameter: 8¼"  
Inlet size: 2" BSP\*

\*Use P/N 241400SP 2" male spigot  
x 2" male BSP adapter if needed

ST-1600-HS-BR Rotor Installed



# ST-1600-KIT / ST-1600-HS-B

*This all-in-one solution offers unmatched cleaning, cooling, and flushing capabilities to prepare synthetic sports fields for play.*

## KEY BENEFITS

- Nozzle choices: 6 (included)
- Standard nozzle: 20
- Nozzle range: 16 to 26
- Nozzle trajectory: 25°
- Isolated, grease-lubricated gear drive
- Movable stops (left and right) arc adjustment
- Arc setting: 40° to non-reversing 360°
- Ratcheting nozzle turret
- Adjustable speed of rotation: 0 to 65 seconds (high-speed models, 180° at 120 PSI)
- Warranty period: 5 years for component parts

## OPERATING SPECIFICATIONS

- Radius: 107' to 165'
- Flow: 96.2 to 326.8 GPM
- Operating pressure range: 60 to 120 PSI
- Precipitation rate: 2.25 in/hr approximately

## USER-INSTALLED OPTIONS

- Simulated concrete cover for attachment to the top of the flattened Infill Barrier System (used with vault): P/N ST-FRP-1600
- ST-approved adhesive for attaching artificial turf, track, or simulated concrete (ST-FRP-1600) to Infill Barrier System: P/N ST-ADH-K
- ST-1600 Short-Radius Nozzle Kit: P/N 959900
- Adapter (if needed), 2" male spigot x 2" male BSP: P/N 241400SP (Not for use with kit)
- DC-Latching Solenoid Kit: P/N ST-LSA



### ST-1600-HS-B (High-Speed)

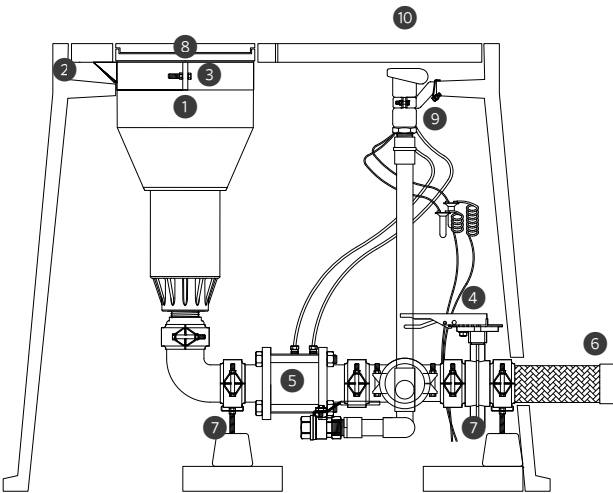
Overall height: 22½"  
Pop-up height: 5"  
Diameter: 14"  
Inlet size: 2" BSP\*



### ST-1600 Tool

P/N 517600SP  
For gear-drive installation and removal

## ST-1600-KIT



### ST-1600-KIT COMPONENTS

| Figure | Components   | Qty | Description                                                                                                                  |
|--------|--------------|-----|------------------------------------------------------------------------------------------------------------------------------|
| 1      | ST-1600-HS-B | 1   | High-speed pop-up, adjustable arc (40° to 360°), 2" BSP inlet                                                                |
| 2      | ST-243636-B  | 1   | Composite vault                                                                                                              |
| 3      | ST-BKT-1600  | 1   | Rotor vault hanger and grade adjustment bracket for ST-1600-HS-B Rotor                                                       |
| 4      | ST-BVF30-K   | 1   | Manifold butterfly valve and Victaulic® coupling fitting kit (includes galvanized, grooved x male BSP rotor adapter fitting) |
| 5      | ST-V30-KV    | 1   | 3" metal control valve, 3" grooved Victaulic inlet/outlet fittings, solenoid, and on-off-auto selector manifold              |
| 6      | ST-H30-K     | 1   | Stainless steel inlet hose, 3" NPT inlet                                                                                     |
| 7      | ST-SPT-K     | 2   | Adjustable manifold support stand; two required per vault                                                                    |
| 8      | ST-IBS-1600  | 1   | Infill Barrier System Rubber Cover Kit for ST-1600-HS-B Rotor                                                                |
| 9      | ST-BKT-QCV   | 1   | Hanger bracket for HQ-5-RC Quick Coupler                                                                                     |
| 10     | HQ-5-RC      | 1   | Quick Coupler, 1" NPT inlet, 1¼" outlet for key                                                                              |

*Victaulic is a trademark of Victaulic Company.*

## ST Infill Barrier System

**ST-IBS-1600**

Rubber Cover Kit with Infill Barrier System.

## ST Adjustable Hanger Bracket

**ST-BKT-1600**

This bracket supports the rotor within the vault and provides vertical elevation adjustments, allowing for a perfect surface transition.

## ST Manifold and Isolation Valve

**ST-BVF30-K**

Galvanized iron manifold, including 3" fitting, isolation valve, and drain valve.

## ST H-Block Manifold Supports

**ST-SPT-K**

Adjustable support stands include a large footprint base made from recycled tire rubber and a 2" vertically adjustable support rail (two required under manifold).



## ST Flexible Stainless Steel Inlet Hose

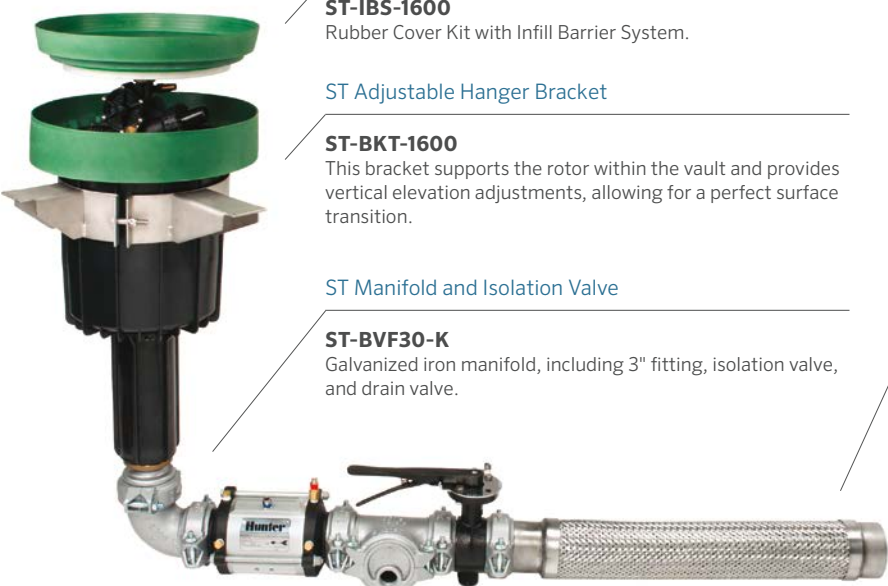
**ST-H30-K**

3" ultra-flexible, corrugated, stainless steel hose with stainless steel support braiding.

## ST Low-Loss, Slow-Opening Valve

**ST-V30-KV**

Heavy-duty 3" low-pressure-loss valve (2.2 PSI at 272 GPM). Includes on-off-auto selector and solenoid (not shown).

**ST-1600 NOZZLE PERFORMANCE DATA\***

| Nozzle               | Pressure<br>PSI | Radius<br>ft | Flow<br>GPM | Precip in/hr |      |
|----------------------|-----------------|--------------|-------------|--------------|------|
|                      |                 |              |             | ■            | ▲    |
| <b>16</b> ●<br>Black | 60              | 107          | 96.2        | 1.63         | 1.88 |
|                      | 70              | 115          | 107.3       | 1.57         | 1.81 |
|                      | 90              | 121          | 117.8       | 1.54         | 1.78 |
|                      | 100             | 128          | 127.3       | 1.50         | 1.73 |
|                      | 115             | 135          | 137.4       | 1.46         | 1.69 |
| <b>18</b> ●<br>Black | 60              | 112          | 107.0       | 1.66         | 1.91 |
|                      | 70              | 121          | 119.4       | 1.56         | 1.80 |
|                      | 90              | 128          | 131.0       | 1.54         | 1.78 |
|                      | 100             | 133          | 141.3       | 1.54         | 1.78 |
|                      | 115             | 141          | 153.2       | 1.48         | 1.71 |
| <b>20</b> ●<br>Black | 60              | 115          | 144.0       | 2.10         | 2.43 |
|                      | 70              | 128          | 160.9       | 1.89         | 2.18 |
|                      | 90              | 141          | 176.5       | 1.71         | 1.97 |
|                      | 100             | 144          | 190.5       | 1.76         | 2.03 |
|                      | 115             | 148          | 204.2       | 1.80         | 2.08 |
| <b>22</b> ●<br>Black | 60              | 118          | 171.5       | 2.37         | 2.73 |
|                      | 70              | 130          | 191.8       | 2.20         | 2.54 |
|                      | 90              | 144          | 210.0       | 1.94         | 2.24 |
|                      | 100             | 151          | 226.9       | 1.84         | 2.12 |
|                      | 115             | 157          | 243.1       | 1.89         | 2.18 |
| <b>24</b> ●<br>Black | 60              | 121          | 202.1       | 2.64         | 3.05 |
|                      | 70              | 133          | 225.9       | 2.46         | 2.84 |
|                      | 90              | 148          | 247.6       | 2.19         | 2.52 |
|                      | 100             | 156          | 267.4       | 2.12         | 2.45 |
|                      | 115             | 160          | 286.4       | 2.16         | 2.49 |
| <b>26</b> ●<br>Black | 60              | 126          | 233.2       | 2.83         | 3.27 |
|                      | 70              | 136          | 260.4       | 2.71         | 3.13 |
|                      | 90              | 151          | 284.5       | 2.40         | 2.77 |
|                      | 100             | 160          | 307.0       | 2.31         | 2.67 |
|                      | 115             | 165          | 326.8       | 2.32         | 2.68 |

**Note:**

All precipitation rates are calculated for 180° operation.  
For the precipitation rate of a 360° sprinkler, divide by 2.

\* All radius measurements are taken at standard rotation speeds. Slowing rotation to the minimum rotation speed will add 10+ feet to the radius.

**SEAMLESS INTEGRATION**

Blends in perfectly with the surrounding synthetic surface.

**ST VAULTS**

The heavy-duty, tapered fiberglass and polymer-concrete construction includes precast holes for the rotor, quick coupler valve, and remote manifold assembly.

Quick Couplers provide a convenient source of water for washing down spills and water-soluble paint. The integrated in-vault design eliminates the need for additional quick coupler enclosures.

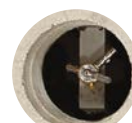
The ST-V30-KV Valve Kit includes a remotely located on-off-auto selector and solenoid manifold assembly. These convenient features bring valve manual control functions and solenoid splice connections closer to the surface for easy access.

**ST-243636-B:** Includes 3" thick, 4-piece PC cover set

**Main cover:** 24" x 36"  
**Overall height:** 36"  
**Body weight:** 170 lb  
**Total weight:** 320 lb  
**Base pad:** 42" x 48"  
**Quick-access ports:** 2



① Quick Coupler



② On-Off-Auto Selector





# STG-900-KIT / STG-900

This top-quality, long-range system is specially designed for synthetic turf sports field irrigation.

### KEY BENEFITS

- Arc setting: 40° to 360°
- QuickCheck™ Arc Mechanism
- Through-the-top arc adjustment
- Water-lubricated gear drive
- Factory-installed rubber logo cap
- Nozzle trajectory: 22.5°
- Warranty period: 5 years for component parts

### OPERATING SPECIFICATIONS

- Radius: 103' to 120'
- Flow: 74.5 to 92.0 GPM
- Operating pressure range: 100 to 120 PSI
- Precipitation rate: 1.25 in/hr approximately

### USER-INSTALLED OPTIONS

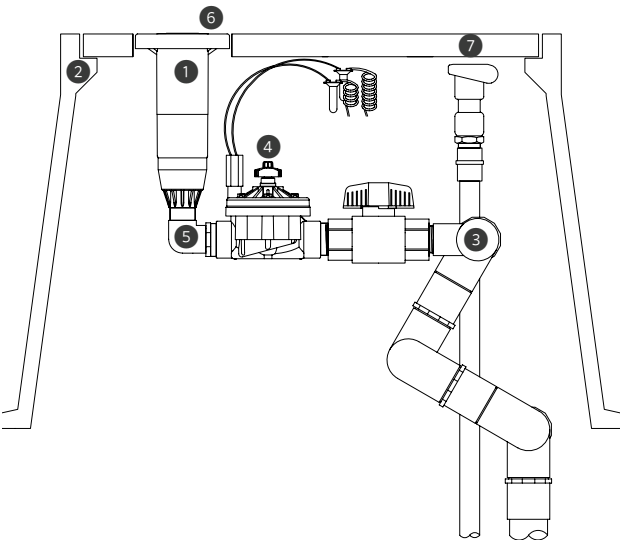
- Rubber Cover Kit STG-900: P/N 473900SP



**STG-900\***  
Overall height: 14"  
Pop-up height: 3"  
Diameter: 8"  
Inlet size: 1½" Acme

\*For use with the ST-173026-B Vault

### STG-900-KIT



### STG-900-KIT COMPONENTS

| FIGURE | COMPONENTS  | QTY | DESCRIPTION                                                                                          |
|--------|-------------|-----|------------------------------------------------------------------------------------------------------|
| 1      | STG-900-83  | 1   | Pop-up, top serviceable, adjustable arc (40°-360°), 1½" Acme inlet                                   |
| 2      | ST-173026-B | 1   | Composite vault, pre-cast hole for rotor and quick coupler                                           |
| 3      | ST-2008-VA  | 1   | Vertical alignment PVC swing joint, seven pivot points, 2" female slip inlet, 1½" female Acme outlet |
| 4      | ST-VBVF-K   | 1   | ICV-151G valve, manifold ball valve, 1½" Acme inlet, 1½" Acme outlet                                 |
| 5      | 239800      | 1   | 1½" elbow, female Acme to male Acme, connects STG-900 rotor to ST-VBVF-K                             |
| 6      | 473900SP    | 1   | STG-900 rubber cover kit                                                                             |
| 7      | HQ-5RC      | 1   | Quick coupler, 1" NPT inlet, 1¼" outlet for key                                                      |

## STG-900 Rotor



## STG-900 NOZZLE PERFORMANCE DATA

| Nozzle      | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr |      |
|-------------|-----------------|---------------|-------------|--------------|------|
|             |                 |               |             | ■            | ▲    |
| <b>73</b> ● | 100             | 103           | 74.5        | 1.35         | 1.56 |
| Orange      | 110             | 109           | 77.0        | 1.25         | 1.44 |
|             | 120             | 115           | 79.6        | 1.16         | 1.34 |
| <b>83</b> ● | 100             | 112           | 84.2        | 1.29         | 1.49 |
|             | 110             | 116           | 88.1        | 1.26         | 1.46 |
| Tan         | 120             | 120           | 92.0        | 1.23         | 1.42 |

**Notes:**

All precipitation rates are calculated for 180° operation.  
For the precipitation rate of a 360° sprinkler, divide by 2.

## ST SWING JOINTS

Multiaxis 315 PSI rated vertical alignment PVC swing joints with seven O-ring sealed pivot points allow the rotor to be perfectly placed within the ST Vault's cover set opening.

## ST-2008-VA: 2" for STG-900-KIT

**Inlet:** 2" female slip  
**Outlet:** 1½" female Acme

**Adapter fitting 239300**  
Connects 239800 elbow fitting to STG-900 Acme inlet rotor



## ST VALVE SETS

Heavy-duty control valves are configured to complement the ST Rotors and ST Vaults.

## ST-VBVF-K: for STG-900-KIT

**Valve:** 1½" NPT ICV  
**Ball valve:** 315 PSI rated  
**Inlet:** 1½" Acme  
**Outlet:** 1½" Acme  
**Low-pressure-loss design:** 9.8 PSI at 100 GPM  
**Includes:** 1½" connection fittings



## ST VAULTS

Heavy-duty tapered fiberglass and polymer-concrete construction with pre-cast holes for rotor and quick-coupler valve.

## ST-173026-B for STG-900-KIT includes 2" thick, 3-piece cover set

**Main cover:** 17" x 30"  
**Overall height:** 26"  
**Body weight:** 104 lbs.  
**Total weight:** 161 lbs.  
**Base pad:** 27" x 41"  
**Quick-access port:** 1



① Quick Coupler

All ST Vaults include convenient quick-access ports. Quick couplers provide a convenient source of water for washing down spills and water-soluble paint. The integrated in-vault design eliminates the need for additional quick-coupler enclosures.



A large, multi-story building with a curved facade and arched windows is in the background. Several palm trees are planted in front of the building. In the foreground, a green lawn is being watered by a rotating sprinkler system. The sprinkler head is visible at the bottom center, with multiple jets of water spraying outwards in a circular pattern. The water droplets are captured in mid-air, creating a misty effect. The overall scene is bright and sunny.

# **MP ROTATOR®**

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# ADVANCED FEATURES

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## AUTOMATIC MATCHED PRECIPITATION

MP Rotator Nozzles adjust the flow rate through the nozzle as the radius and arc are changed, resulting in the same matched precipitation rate regardless of the nozzle setting.

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## DOUBLE-POP FEATURE

MP Rotator Nozzles pop up from their protected position only after the riser is fully extended, providing superior defense against dirt and debris.



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## HIGH DISTRIBUTION UNIFORMITY

The multiple streams of the MP Rotator Nozzle target all areas of the landscape evenly, resulting in superior uniformity over traditional spray nozzles and better wind resistance.

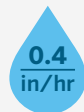
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## LOW PRECIPITATION RATE

Since the majority of soils have a water infiltration rate of less than 1.0 in/hr, irrigating at a low precipitation rate is essential to reduce runoff and increase efficiency.

The Standard MP Rotator Nozzle applies water at 0.4 in/hr, while the MP800 Nozzle has a precipitation rate of 0.8 in/hr. Either choice will avoid runoff, save water, and prevent erosion.

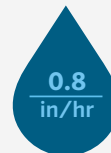
### STANDARD MP Rotator Nozzles



#### 8' to 35'

- Maximum water efficiency
- Slowest precipitation rate

### MP ROTATOR MP800 Nozzles



#### 6' to 16'

- Small spaces
- Tight water windows

### MP ROTATOR Strip Nozzles



#### 5' wide

- Rectangular spaces
- Pair with either option

# STANDARD MP ROTATOR®

The MP Rotator Nozzle is the most trusted high-efficiency solution on the market, offering up to 30% water savings over traditional spray nozzles.

Radius: 8' to 35'

0.4  
in/hr

## KEY BENEFITS

- Low precipitation rate of approximately 0.4 in/hr — lowest in the industry
- Automatic matched precipitation for simplified irrigation design and flexibility
- Double-pop feature protects the nozzle from external debris
- High distribution uniformity for a healthy landscape with maximum water efficiency

## ADDITIONAL FEATURES

- Wind-resistant, multi-stream technology prevents misting
- For vandal resistance, the arc is adjustable only when the MP Rotator Nozzle is running
- Removable filter screen prevents nozzle from clogging
- Color-coded for easy identification

## OPERATING SPECIFICATIONS

- Radius reduction up to approximately 25% on all models
- Recommended operating pressure: 40 PSI
- Minimum radius setting achieved at 30 PSI
- Warranty period: 3 years

## OPTIONS

- Pair with Pro-Spray® PRS40 Sprinkler Body for pressure regulation to 40 PSI for nominal radius settings
- Pair with Pro-Spray PRS30 Sprinkler Body for pressure regulation to 30 PSI for minimum radius settings

### MP ROTATOR – SPECIFICATION BUILDER: ORDER 1 + 2

| 1 Model                                                             | 2 Options                                                                                                   |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>MP1000-90</b> = 8' to 15' radius, adjustable from 90° to 210°    | <b>(blank)</b> = No option<br><br><b>HT</b> = Male threaded version<br>(Not available in 3500 and 1000-210) |
| <b>MP1000-210</b> = 8' to 15' radius, adjustable from 210° to 270°  |                                                                                                             |
| <b>MP1000-360</b> = 8' to 15' radius, 360°                          |                                                                                                             |
| <b>MP2000-90</b> = 13' to 21' radius, adjustable from 90° to 210°   |                                                                                                             |
| <b>MP2000-210</b> = 13' to 21' radius, adjustable from 210° to 270° |                                                                                                             |
| <b>MP2000-360</b> = 13' to 21' radius, 360°                         |                                                                                                             |
| <b>MP3000-90</b> = 22' to 30' radius, adjustable from 90° to 210°   |                                                                                                             |
| <b>MP3000-210</b> = 22' to 30' radius, adjustable from 210° to 270° |                                                                                                             |
| <b>MP3000-360</b> = 22' to 30' radius, 360°                         |                                                                                                             |
| <b>MP3500-90</b> = 31' to 35' radius, adjustable from 90° to 210°   |                                                                                                             |
| <b>MPLCS-515</b> = Left corner strip, 5' x 15'                      |                                                                                                             |
| <b>MPRCS-515</b> = Right corner strip, 5' x 15'                     |                                                                                                             |
| <b>MPSS-530</b> = Side strip, 5' x 30'                              |                                                                                                             |
| <b>MP-CORNER</b> = 8' to 15' radius, adjustable from 45° to 105°    |                                                                                                             |

### MP1000: 8' to 15' radius



**MP1000-90**  
90° to 210°



**MP1000-210**  
210° to 270°



**MP1000-360**  
360°

### MP2000: 13' to 21' radius



**MP2000-90**  
90° to 210°



**MP2000-210**  
210° to 270°



**MP2000-360**  
360°

### MP3000: 22' to 30' radius



**MP3000-90**  
90° to 210°



**MP3000-210**  
210° to 270°



**MP3000-360**  
360°

### MP3500: 31' to 35' radius



**MP3500-90**  
90° to 210°

## MP ROTATOR PERFORMANCE DATA

| MP1000<br>Radius: 8' to 15'<br>Adjustable Arc and Full-Circle<br>● Maroon: 90° to 210°<br>● Lt. Blue: 210° to 270°<br>● Olive: 360° |                 |               |             |             |                     |             | MP2000<br>Radius: 13' to 21'<br>Adjustable Arc and Full-Circle<br>● Black: 90° to 210°<br>● Green: 210° to 270°<br>● Red: 360° |             |             |                     |             | MP3000<br>Radius: 22' to 30'<br>Adjustable Arc and Full-Circle<br>● Blue: 90° to 210°<br>● Yellow: 210° to 270°<br>● Gray: 360° |             |              |                     |             |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|-------------|-------------|---------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|---------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------|-------------|--------------|---------------------|-------------|
| Arc                                                                                                                                 | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Flow<br>GPH | Precip in/hr<br>■ ▲ |             | Radius<br>ft.                                                                                                                  | Flow<br>GPM | Flow<br>GPH | Precip in/hr<br>■ ▲ |             | Radius<br>ft.                                                                                                                   | Flow<br>GPM | Flow<br>GPH  | Precip in/hr<br>■ ▲ |             |
| 90°<br>■                                                                                                                            | 30              | 12            | 0.17        | 10.2        | 0.45                | 0.52        | 18                                                                                                                             | 0.38        | 22.8        | 0.45                | 0.52        | 27                                                                                                                              | 0.76        | 45.6         | 0.40                | 0.46        |
|                                                                                                                                     | 35              | 13            | 0.19        | 11.4        | 0.43                | 0.50        | 19                                                                                                                             | 0.40        | 24.0        | 0.43                | 0.49        | 28                                                                                                                              | 0.82        | 49.2         | 0.40                | 0.46        |
|                                                                                                                                     | <b>40</b>       | <b>14</b>     | <b>0.21</b> | <b>12.6</b> | <b>0.41</b>         | <b>0.48</b> | <b>20</b>                                                                                                                      | <b>0.43</b> | <b>25.8</b> | <b>0.41</b>         | <b>0.48</b> | <b>30</b>                                                                                                                       | <b>0.86</b> | <b>51.6</b>  | <b>0.37</b>         | <b>0.42</b> |
|                                                                                                                                     | 45              | 14            | 0.23        | 13.8        | 0.45                | 0.52        | 21                                                                                                                             | 0.46        | 27.6        | 0.40                | 0.46        | 30                                                                                                                              | 0.90        | 54.0         | 0.39                | 0.44        |
|                                                                                                                                     | 50              | 15            | 0.25        | 15.0        | 0.43                | 0.49        | 21                                                                                                                             | 0.47        | 28.2        | 0.41                | 0.47        | 30                                                                                                                              | 0.95        | 57.0         | 0.41                | 0.47        |
| 180°<br>■                                                                                                                           | 55              | 15            | 0.27        | 16.2        | 0.46                | 0.53        | 21                                                                                                                             | 0.48        | 28.8        | 0.42                | 0.48        | 30                                                                                                                              | 1.01        | 60.6         | 0.43                | 0.50        |
|                                                                                                                                     | 30              | 12            | 0.34        | 20.4        | 0.45                | 0.52        | 17                                                                                                                             | 0.64        | 38.4        | 0.43                | 0.49        | 27                                                                                                                              | 1.58        | 94.8         | 0.42                | 0.48        |
|                                                                                                                                     | 35              | 13            | 0.38        | 22.8        | 0.43                | 0.50        | 18                                                                                                                             | 0.71        | 42.6        | 0.42                | 0.49        | 28                                                                                                                              | 1.70        | 102.0        | 0.42                | 0.48        |
|                                                                                                                                     | <b>40</b>       | <b>14</b>     | <b>0.42</b> | <b>25.2</b> | <b>0.41</b>         | <b>0.48</b> | <b>19</b>                                                                                                                      | <b>0.77</b> | <b>46.2</b> | <b>0.41</b>         | <b>0.47</b> | <b>30</b>                                                                                                                       | <b>1.82</b> | <b>109.2</b> | <b>0.39</b>         | <b>0.45</b> |
|                                                                                                                                     | 45              | 14            | 0.44        | 26.4        | 0.43                | 0.50        | 20                                                                                                                             | 0.85        | 51.0        | 0.41                | 0.47        | 30                                                                                                                              | 1.93        | 115.8        | 0.41                | 0.48        |
| 210°<br>■                                                                                                                           | 50              | 15            | 0.50        | 30.0        | 0.43                | 0.49        | 21                                                                                                                             | 0.91        | 54.6        | 0.40                | 0.46        | 30                                                                                                                              | 2.04        | 122.4        | 0.44                | 0.50        |
|                                                                                                                                     | 55              | 15            | 0.51        | 30.6        | 0.44                | 0.50        | 21                                                                                                                             | 0.95        | 57.0        | 0.41                | 0.48        | 30                                                                                                                              | 2.13        | 127.8        | 0.46                | 0.53        |
|                                                                                                                                     | 30              | 12            | 0.40        | 24.0        | 0.46                | 0.53        | 17                                                                                                                             | 0.75        | 45.0        | 0.43                | 0.49        | 27                                                                                                                              | 1.84        | 110.4        | 0.42                | 0.48        |
|                                                                                                                                     | 35              | 13            | 0.45        | 27.0        | 0.44                | 0.51        | 18                                                                                                                             | 0.81        | 48.6        | 0.41                | 0.48        | 28                                                                                                                              | 1.99        | 119.4        | 0.42                | 0.48        |
|                                                                                                                                     | <b>40</b>       | <b>14</b>     | <b>0.49</b> | <b>29.4</b> | <b>0.41</b>         | <b>0.48</b> | <b>19</b>                                                                                                                      | <b>0.86</b> | <b>51.6</b> | <b>0.39</b>         | <b>0.45</b> | <b>30</b>                                                                                                                       | <b>2.12</b> | <b>127.2</b> | <b>0.39</b>         | <b>0.45</b> |
| 270°<br>■                                                                                                                           | 45              | 14            | 0.51        | 30.6        | 0.43                | 0.50        | 20                                                                                                                             | 0.91        | 54.6        | 0.38                | 0.43        | 30                                                                                                                              | 2.25        | 135.0        | 0.41                | 0.48        |
|                                                                                                                                     | 50              | 15            | 0.57        | 34.2        | 0.42                | 0.48        | 21                                                                                                                             | 0.98        | 58.8        | 0.37                | 0.42        | 30                                                                                                                              | 2.37        | 142.2        | 0.43                | 0.50        |
|                                                                                                                                     | 55              | 15            | 0.59        | 35.4        | 0.43                | 0.50        | 21                                                                                                                             | 1.01        | 60.6        | 0.38                | 0.44        | 30                                                                                                                              | 2.49        | 149.4        | 0.46                | 0.53        |
|                                                                                                                                     | 30              | 12            | 0.48        | 28.8        | 0.43                | 0.49        | 17                                                                                                                             | 0.95        | 57.0        | 0.42                | 0.49        | 27                                                                                                                              | 2.37        | 142.2        | 0.42                | 0.48        |
|                                                                                                                                     | 35              | 13            | 0.53        | 31.8        | 0.40                | 0.46        | 18                                                                                                                             | 1.03        | 61.8        | 0.41                | 0.47        | 28                                                                                                                              | 2.55        | 153.0        | 0.42                | 0.48        |
| 360°<br>■                                                                                                                           | <b>40</b>       | <b>14</b>     | <b>0.63</b> | <b>37.8</b> | <b>0.41</b>         | <b>0.48</b> | <b>19</b>                                                                                                                      | <b>1.10</b> | <b>66.0</b> | <b>0.39</b>         | <b>0.45</b> | <b>30</b>                                                                                                                       | <b>2.73</b> | <b>163.8</b> | <b>0.39</b>         | <b>0.45</b> |
|                                                                                                                                     | 45              | 14            | 0.67        | 40.2        | 0.44                | 0.51        | 20                                                                                                                             | 1.17        | 70.2        | 0.38                | 0.43        | 30                                                                                                                              | 2.89        | 173.4        | 0.41                | 0.48        |
|                                                                                                                                     | 50              | 15            | 0.72        | 43.2        | 0.41                | 0.47        | 21                                                                                                                             | 1.23        | 73.8        | 0.36                | 0.41        | 30                                                                                                                              | 3.06        | 183.6        | 0.44                | 0.50        |
|                                                                                                                                     | 55              | 15            | 0.75        | 45.0        | 0.43                | 0.49        | 21                                                                                                                             | 1.30        | 78.0        | 0.38                | 0.44        | 30                                                                                                                              | 3.22        | 193.2        | 0.46                | 0.53        |
|                                                                                                                                     | 30              | 12            | 0.69        | 41.4        | 0.46                | 0.53        | 17                                                                                                                             | 1.28        | 76.8        | 0.43                | 0.49        | 27                                                                                                                              | 3.15        | 189.0        | 0.42                | 0.48        |
|                                                                                                                                     | 35              | 13            | 0.77        | 46.2        | 0.44                | 0.51        | 18                                                                                                                             | 1.37        | 82.2        | 0.41                | 0.47        | 28                                                                                                                              | 3.40        | 204.0        | 0.42                | 0.48        |
|                                                                                                                                     | <b>40</b>       | <b>14</b>     | <b>0.84</b> | <b>50.4</b> | <b>0.41</b>         | <b>0.48</b> | <b>19</b>                                                                                                                      | <b>1.48</b> | <b>88.8</b> | <b>0.39</b>         | <b>0.46</b> | <b>30</b>                                                                                                                       | <b>3.64</b> | <b>218.4</b> | <b>0.39</b>         | <b>0.45</b> |
|                                                                                                                                     | 45              | 14            | 0.88        | 52.8        | 0.43                | 0.50        | 20                                                                                                                             | 1.57        | 94.2        | 0.38                | 0.44        | 30                                                                                                                              | 3.86        | 231.6        | 0.41                | 0.48        |
|                                                                                                                                     | 50              | 15            | 0.98        | 58.8        | 0.42                | 0.48        | 21                                                                                                                             | 1.68        | 100.8       | 0.37                | 0.42        | 30                                                                                                                              | 4.07        | 244.2        | 0.44                | 0.50        |
|                                                                                                                                     | 55              | 15            | 1.01        | 60.6        | 0.43                | 0.50        | 21                                                                                                                             | 1.74        | 104.4       | 0.38                | 0.44        | 30                                                                                                                              | 4.27        | 256.2        | 0.46                | 0.53        |

**Bold** = Optimal pressure for the MP Rotator Nozzle is 40 PSI. This can easily be achieved by using it with the Hunter pressure-regulated Pro-Spray PRS40 Sprinkler Body at 40 PSI.

Works best with Pro-Spray PRS40



Compatible with:



Pro-Spray PRS40  
Page 58



## MP ROTATOR PERFORMANCE DATA

## MP3500

Radius: 31' to 35'

Adjustable Arc

● Light Brown: 90° to 210°

| Arc                                                                                       | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Flow<br>GPH  | Precip in/hr |             |
|-------------------------------------------------------------------------------------------|-----------------|---------------|-------------|--------------|--------------|-------------|
|                                                                                           |                 |               |             |              | ■            | ▲           |
| 90°<br>  | 30              | 34            | 1.13        | 67.8         | 0.38         | 0.43        |
|                                                                                           | 35              | 34            | 1.21        | 72.6         | 0.40         | 0.47        |
|                                                                                           | <b>40</b>       | <b>35</b>     | <b>1.28</b> | <b>76.8</b>  | <b>0.40</b>  | <b>0.46</b> |
|                                                                                           | 45              | 35            | 1.38        | 82.8         | 0.43         | 0.50        |
|                                                                                           | 50              | 35            | 1.43        | 85.8         | 0.45         | 0.52        |
|                                                                                           | 55              | 35            | 1.50        | 90.0         | 0.47         | 0.54        |
| 180°<br> | 30              | 34            | 2.24        | 134.4        | 0.37         | 0.43        |
|                                                                                           | 35              | 34            | 2.65        | 159.0        | 0.44         | 0.51        |
|                                                                                           | <b>40</b>       | <b>35</b>     | <b>2.86</b> | <b>171.6</b> | <b>0.45</b>  | <b>0.52</b> |
|                                                                                           | 45              | 35            | 3.10        | 186.0        | 0.49         | 0.56        |
|                                                                                           | 50              | 35            | 3.21        | 192.6        | 0.50         | 0.58        |
|                                                                                           | 55              | 35            | 3.28        | 196.8        | 0.52         | 0.60        |
| 210°<br> | 30              | 34            | 2.84        | 170.4        | 0.41         | 0.47        |
|                                                                                           | 35              | 34            | 3.08        | 184.8        | 0.44         | 0.51        |
|                                                                                           | <b>40</b>       | <b>35</b>     | <b>3.29</b> | <b>197.4</b> | <b>0.44</b>  | <b>0.51</b> |
|                                                                                           | 45              | 35            | 3.54        | 212.4        | 0.48         | 0.55        |
|                                                                                           | 50              | 35            | 3.76        | 225.6        | 0.51         | 0.59        |
|                                                                                           | 55              | 35            | 3.94        | 236.4        | 0.53         | 0.61        |

**Bold** = Optimal pressure for the MP Rotator Nozzle is 40 PSI.

This can easily be achieved by using it with the pressure-regulated Pro-Spray PRS40 Sprinkler Body at 40 PSI.

## MP3500



## MP ROTATOR PERFORMANCE DATA

- **MPLCS-515**: Ivory, MP Left Corner Strip
- **MPRCS-515**: Copper, MP Right Corner Strip
- **MPSS-530**: Brown, MP Side Strip

|                                                                                                                                 | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Flow<br>GPH | Precip in/hr |             |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|-------------|-------------|--------------|-------------|
|                                                                                                                                 |                 |               |             |             | ■            | ▲           |
| <b>MP Left<br/>Corner<br/>Strip</b><br>      | 30              | 4 x 14        | 0.17        | 10.2        | 1.17         | 0.58        |
|                                                                                                                                 | 35              | 5 x 15        | 0.18        | 10.8        | 0.92         | 0.46        |
|                                                                                                                                 | <b>40</b>       | <b>5 x 15</b> | <b>0.19</b> | <b>11.4</b> | <b>0.98</b>  | <b>0.49</b> |
|                                                                                                                                 | 45              | 5 x 15        | 0.21        | 12.6        | 1.08         | 0.54        |
|                                                                                                                                 | 50              | 5 x 16        | 0.23        | 13.8        | 1.11         | 0.55        |
|                                                                                                                                 | 55              | 6 x 16        | 0.24        | 14.4        | 0.96         | 0.48        |
| <b>MP<br/>Right<br/>Corner<br/>Strip</b><br> | 30              | 4 x 14        | 0.17        | 10.2        | 1.17         | 0.58        |
|                                                                                                                                 | 35              | 5 x 15        | 0.18        | 10.8        | 0.92         | 0.46        |
|                                                                                                                                 | <b>40</b>       | <b>5 x 15</b> | <b>0.19</b> | <b>11.4</b> | <b>0.98</b>  | <b>0.49</b> |
|                                                                                                                                 | 45              | 5 x 15        | 0.21        | 12.6        | 1.08         | 0.54        |
|                                                                                                                                 | 50              | 5 x 16        | 0.23        | 13.8        | 1.11         | 0.55        |
|                                                                                                                                 | 55              | 6 x 16        | 0.24        | 14.4        | 0.96         | 0.48        |
| <b>MP<br/>Side<br/>Strip</b><br>             | 30              | 4 x 28        | 0.33        | 19.8        | 1.13         | 0.57        |
|                                                                                                                                 | 35              | 5 x 29        | 0.36        | 21.6        | 0.96         | 0.48        |
|                                                                                                                                 | <b>40</b>       | <b>5 x 30</b> | <b>0.38</b> | <b>22.8</b> | <b>0.98</b>  | <b>0.49</b> |
|                                                                                                                                 | 45              | 5 x 31        | 0.41        | 24.6        | 1.02         | 0.51        |
|                                                                                                                                 | 50              | 6 x 32        | 0.44        | 26.4        | 0.88         | 0.44        |
|                                                                                                                                 | 55              | 6 x 33        | 0.47        | 28.4        | 0.92         | 0.46        |

## MP Rotator Strip Nozzles



**MPLCS-515**  
Left Corner Strip  
5' x 15'



**MPRCS-515**  
Right Corner Strip  
5' x 15'



**MPSS-530**  
Side Strip  
5' x 30'

**Bold** = Recommended pressure**Note:** To match the precipitation rate of Standard MP Rotator models, use single-row or triangular spacing. To match the precipitation rate of MP Rotator MP800 Nozzles, use rectangular spacing.See **page 186** for precipitation rate calculation.

## MP ROTATOR PERFORMANCE DATA

### MP Corner

Radius: 8' to 15'

Adjustable Arc

● Turquoise: 45° to 105°

| Arc                                                                                       | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Flow<br>GPH |
|-------------------------------------------------------------------------------------------|-----------------|---------------|-------------|-------------|
| 45°<br>  | 30              | 12            | 0.17        | 10.2        |
|                                                                                           | 35              | 13            | 0.18        | 10.8        |
|                                                                                           | <b>40</b>       | <b>14</b>     | <b>0.19</b> | <b>11.4</b> |
|                                                                                           | 45              | 14            | 0.21        | 12.6        |
|                                                                                           | 50              | 14            | 0.22        | 13.2        |
|                                                                                           | 55              | 15            | 0.23        | 13.8        |
| 90°<br>  | 30              | 12            | 0.34        | 20.4        |
|                                                                                           | 35              | 13            | 0.36        | 21.6        |
|                                                                                           | <b>40</b>       | <b>14</b>     | <b>0.39</b> | <b>23.4</b> |
|                                                                                           | 45              | 14            | 0.41        | 24.6        |
|                                                                                           | 50              | 15            | 0.43        | 25.8        |
|                                                                                           | 55              | 15            | 0.46        | 27.6        |
| 105°<br> | 30              | 12            | 0.39        | 23.4        |
|                                                                                           | 35              | 13            | 0.42        | 25.2        |
|                                                                                           | <b>40</b>       | <b>14</b>     | <b>0.45</b> | <b>27.0</b> |
|                                                                                           | 45              | 14            | 0.48        | 28.8        |
|                                                                                           | 50              | 15            | 0.51        | 30.6        |
|                                                                                           | 55              | 15            | 0.53        | 31.8        |

**Bold** = Recommended pressure

## MP Corner



### MP-CORNER

Corner  
8' to 15'

## Male Threaded



### MP-HT

Male Threaded

## MP Accessories



### MPTOOL

Adjusts all MP Rotator  
Nozzles



### MPSTICK

Snap onto any length of  
1" PVC to allow standing  
adjustment. *PVC pipe not  
included.*

## MP Corner



## MP Tool for easy adjustments



# MP ROTATOR® MP800

The MP800 offers a higher precipitation rate perfect for small spaces and spray retrofits.

Radius: 6' to 16'

0.8  
in/hr

## KEY BENEFITS

- Precipitation rate of approximately 0.8 in/hr for spray retrofit applications
- Automatic matched precipitation for simplified irrigation design and flexibility
- Double-pop feature protects the nozzle from external debris
- High distribution uniformity for a healthy landscape with maximum water efficiency

## ADDITIONAL FEATURES

- Wind-resistant, multi-stream technology prevents misting
- For vandal resistance, the arc is adjustable only when the MP Rotator Nozzle is running
- Removable filter screen prevents nozzle clogging
- Color-coded for easy identification

## OPERATING SPECIFICATIONS

- Radius reduction up to approximately 25% on all models
- Recommended operating pressure: 40 PSI
- Minimum radius setting achieved at 30 PSI
- Filtration recommended on dirty water applications
- Warranty period: 3 years

## OPTIONS

- Pair with Pro-Spray® PRS40 Sprinkler Body for pressure regulation to 40 PSI for nominal radius settings
- Pair with Pro-Spray PRS30 Sprinkler Body for pressure regulation to 30 PSI for minimum radius settings

### MP800SR: 6' to 12' radius



**MP800SR-90**  
90° to 210°



**MP800SR-360**  
360°

### MP815: 8' to 16' radius



**MP815-90**  
90° to 210°



**MP815-210**  
210° to 270°



**MP815-360**  
360°

Compatible with:



**HY Filter**  
Page 153



**PRS30 and PRS40**  
Page 56 and Page 58

MP800SR-90



MP815-90





## MP ROTATOR PERFORMANCE DATA

## MP800SR

Radius: 6' to 12'

Adjustable Arc and Full-Circle

● Orange and Gray: 90° to 210°

● Lime Green and Gray: 360°

| MAX RADIUS                                                                                  |                 |               |             |             |              |             | MIN RADIUS    |             |
|---------------------------------------------------------------------------------------------|-----------------|---------------|-------------|-------------|--------------|-------------|---------------|-------------|
| Arc                                                                                         | Pressure<br>PSI | Radius<br>ft. | Flow        |             | Precip in/hr |             | Radius<br>ft. | Flow<br>GPM |
|                                                                                             |                 |               | GPM         | GPH         | ■            | ▲           |               |             |
| 90°<br>    | 30              | 8             | 0.17        | 9.6         | 0.90         | 1.04        | 6             | 0.13        |
|                                                                                             | 35              | 9             | 0.21        | 11.4        | 0.89         | 1.03        | 7             | 0.15        |
|                                                                                             | <b>40</b>       | <b>10</b>     | <b>0.23</b> | <b>13.8</b> | <b>0.83</b>  | <b>0.96</b> | <b>8</b>      | <b>0.16</b> |
|                                                                                             | 45              | 11            | 0.25        | 15.0        | 0.80         | 0.92        | 8             | 0.18        |
|                                                                                             | 50              | 11            | 0.27        | 16.2        | 0.79         | 0.92        | 9             | 0.19        |
|                                                                                             | 55              | 12            | 0.28        | 16.8        | 0.80         | 0.93        | 10            | 0.20        |
| 180°<br>   | 30              | 8             | 0.33        | 19.2        | 0.88         | 1.02        | 6             | 0.26        |
|                                                                                             | 35              | 9             | 0.38        | 22.2        | 0.85         | 0.99        | 7             | 0.29        |
|                                                                                             | <b>40</b>       | <b>10</b>     | <b>0.42</b> | <b>25.2</b> | <b>0.81</b>  | <b>0.93</b> | <b>8</b>      | <b>0.32</b> |
|                                                                                             | 45              | 11            | 0.46        | 27.6        | 0.77         | 0.88        | 8             | 0.36        |
|                                                                                             | 50              | 11            | 0.48        | 28.8        | 0.76         | 0.88        | 9             | 0.38        |
|                                                                                             | 55              | 12            | 0.50        | 30.0        | 0.73         | 0.84        | 10            | 0.40        |
| 210°<br>   | 30              | 8             | 0.35        | 22.2        | 0.80         | 0.93        | 6             | 0.30        |
|                                                                                             | 35              | 9             | 0.38        | 26.4        | 0.77         | 0.89        | 7             | 0.34        |
|                                                                                             | <b>40</b>       | <b>10</b>     | <b>0.43</b> | <b>29.4</b> | <b>0.81</b>  | <b>0.91</b> | <b>8</b>      | <b>0.37</b> |
|                                                                                             | 45              | 10            | 0.45        | 31.8        | 0.82         | 0.95        | 8             | 0.42        |
|                                                                                             | 50              | 11            | 0.49        | 33.6        | 0.73         | 0.85        | 9             | 0.44        |
|                                                                                             | 55              | 12            | 0.56        | 34.8        | 0.70         | 0.81        | 10            | 0.47        |
| 360°<br> | 30              | 8             | 0.66        | 37.8        | 0.89         | 1.03        | 6             | 0.47        |
|                                                                                             | 35              | 9             | 0.71        | 42.0        | 0.80         | 0.92        | 7             | 0.52        |
|                                                                                             | <b>40</b>       | <b>10</b>     | <b>0.78</b> | <b>46.8</b> | <b>0.79</b>  | <b>0.91</b> | <b>8</b>      | <b>0.56</b> |
|                                                                                             | 45              | 10            | 0.85        | 51.0        | 0.78         | 0.90        | 8             | 0.59        |
|                                                                                             | 50              | 11            | 0.88        | 52.8        | 0.73         | 0.85        | 9             | 0.63        |
|                                                                                             | 55              | 12            | 0.98        | 58.8        | 0.70         | 0.81        | 10            | 0.70        |

**Bold** = Optimal pressure for the MP Rotator Nozzle is 40 PSI. This can easily be achieved by using it with the pressure-regulated Pro-Spray PRS40 Sprinkler Body at 40 PSI.

## MP ROTATOR PERFORMANCE DATA

## MP815

Radius: 8' to 16'

Adjustable Arc and Full-Circle

● Maroon and Gray: 90° to 210°

● Lt. Blue and Gray: 210° to 270°

● Olive and Gray: 360°

| Arc                                                                                         | Pressure<br>PSI | Radius<br>ft. | Flow        |              | Precip in/hr |             |
|---------------------------------------------------------------------------------------------|-----------------|---------------|-------------|--------------|--------------|-------------|
|                                                                                             |                 |               | GPM         | GPH          | ■            | ▲           |
| 90°<br>    | 30              | 14            | 0.42        | 25.2         | 0.83         | 0.95        |
|                                                                                             | 35              | 15            | 0.46        | 27.6         | 0.79         | 0.91        |
|                                                                                             | <b>40</b>       | <b>15</b>     | <b>0.49</b> | <b>29.4</b>  | <b>0.84</b>  | <b>0.97</b> |
|                                                                                             | 45              | 16            | 0.52        | 31.2         | 0.78         | 0.90        |
|                                                                                             | 50              | 16            | 0.55        | 33.0         | 0.83         | 0.96        |
|                                                                                             | 55              | 16            | 0.58        | 34.8         | 0.87         | 1.01        |
| 180°<br>   | 30              | 13            | 0.75        | 45.0         | 0.85         | 0.99        |
|                                                                                             | 35              | 14            | 0.86        | 51.6         | 0.84         | 0.98        |
|                                                                                             | <b>40</b>       | <b>15</b>     | <b>0.93</b> | <b>55.8</b>  | <b>0.80</b>  | <b>0.92</b> |
|                                                                                             | 45              | 15            | 0.96        | 57.6         | 0.82         | 0.95        |
|                                                                                             | 50              | 16            | 1.06        | 63.6         | 0.80         | 0.92        |
|                                                                                             | 55              | 16            | 1.11        | 66.6         | 0.83         | 0.96        |
| 210°<br>   | 30              | 13            | 0.88        | 52.8         | 0.86         | 0.99        |
|                                                                                             | 35              | 14            | 0.96        | 57.6         | 0.81         | 0.93        |
|                                                                                             | <b>40</b>       | <b>15</b>     | <b>1.10</b> | <b>66.0</b>  | <b>0.81</b>  | <b>0.93</b> |
|                                                                                             | 45              | 15            | 1.16        | 69.6         | 0.85         | 0.98        |
|                                                                                             | 50              | 16            | 1.24        | 74.4         | 0.80         | 0.92        |
|                                                                                             | 55              | 16            | 1.30        | 78.0         | 0.84         | 0.97        |
| 270°<br> | 30              | 13            | 1.14        | 68.4         | 0.87         | 1.00        |
|                                                                                             | 35              | 14            | 1.24        | 74.4         | 0.81         | 0.94        |
|                                                                                             | <b>40</b>       | <b>15</b>     | <b>1.40</b> | <b>84.0</b>  | <b>0.80</b>  | <b>0.92</b> |
|                                                                                             | 45              | 15            | 1.47        | 88.2         | 0.84         | 0.97        |
|                                                                                             | 50              | 16            | 1.54        | 92.4         | 0.77         | 0.89        |
|                                                                                             | 55              | 16            | 1.61        | 96.6         | 0.81         | 0.93        |
| 360°<br> | 30              | 13            | 1.52        | 91.2         | 0.87         | 1.00        |
|                                                                                             | 35              | 14            | 1.70        | 102.0        | 0.83         | 0.96        |
|                                                                                             | <b>40</b>       | <b>15</b>     | <b>1.87</b> | <b>112.2</b> | <b>0.80</b>  | <b>0.92</b> |
|                                                                                             | 45              | 15            | 2.00        | 120.0        | 0.86         | 0.99        |
|                                                                                             | 50              | 16            | 2.13        | 127.8        | 0.80         | 0.92        |
|                                                                                             | 55              | 16            | 2.26        | 135.6        | 0.85         | 0.98        |

# MP ROTATOR STAKE KIT

Models: **Standard and Pressure-Regulated Staking Kits**

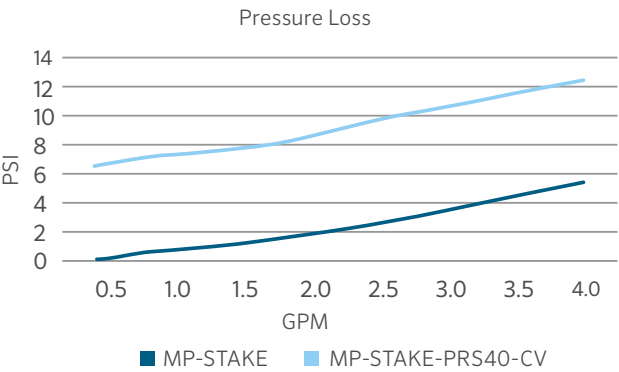
Designed for easy implementation with any water-efficient MP Rotator Nozzle, MP Stake Kits come preassembled for quick installation in the field.

## KEY BENEFITS

- Pair with any high-efficiency MP Rotator Nozzle to simplify temporary irrigation
- Preassembled for fast and easy installation in the field
- Standard kit includes a 26" stake, nozzle adapter, 0.345" tubing, and ½" threaded male fitting for quick connection
- For maximum water savings, upgrade to a 40 PSI pressure regulator and Hunter Check Valve

## OPERATING SPECIFICATIONS

- Operational pressure range: 30 to 70 PSI



**MP-STAKE**  
Total height: 28"  
Male threaded connection: ½"

**MP-STAKE-PRS40-CV**  
Total height: 34"  
Male threaded connection: ½"

Compatible with:



All MP Rotator Nozzles  
Page 42 and Page 46



Spray Nozzles  
Page 61

## MP-STAKE-PRS40-CV Installation



## MP-STAKE MODELS

| Model             | Description                                                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| MP-STAKE          | 26" stake, 0.345" tubing to ½" male fitting, PROS-00 shrub adapter (total height: 28")                                              |
| MP-STAKE-PRS40-CV | 26" stake, 0.345" tubing to ½" male fitting, Hunter Check Valve, PROS-00-PRS40 pressure-regulated shrub adapter (total height: 34") |



# **SPRAY SPRINKLER BODIES**

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# SPRAY SPRINKLER BODY

## ADVANCED FEATURES



### CO-MOLDED WIPER SEAL

Molded with two types of chemical- and chlorine-resistant materials, this multi-function wiper seal reduces flow-by, allowing more heads on one zone, and prevents debris from entering the seal, reducing riser stick-ups.

### FLOGUARD™ TECHNOLOGY



In the event of a missing nozzle, FloGuard Technology reduces the flow of water from the riser to a 0.5 GPM (10' tall) indicator stream, eliminating water waste and preventing landscape erosion while providing a visual indicator for repair.



### HEAVY-DUTY SPRING

The industry's strongest spring offers positive retraction under any conditions.



### CHECK VALVE

Optional field- or factory-installed check valves eliminate leaks and puddles at the lower heads, protecting landscapes from damage and erosion while reducing water waste.



### PRESSURE REGULATION

Pressure-regulated Pro-Spray® Sprinkler Bodies optimize the performance of the nozzle, reducing flow rates and preventing misting. The brown PRS30 model regulates pressures to 30 PSI for spray nozzles. The gray PRS40 model regulates pressures to 40 PSI when paired with the efficient MP Rotator Nozzle.

### INDUSTRY'S STRONGEST SPRAY BODY



The Pro-Spray line incorporates a heavy-duty ribbed body and durable cap engineered to withstand the harshest environments, including the rigors of foot traffic and the abuses of heavy machinery. In addition, the buttress thread design provides superior strength in cap-to-body gripping capacity, helping the head to withstand high inlet surge pressures.

### PRO-SPRAY



### COMPETITOR



### INNOVATIVE SEAL DESIGN

Pedestrian traffic, landscape equipment, temperature changes, and cycling pressures can cause body caps to loosen. Pro-Spray caps can withstand more than one full 360° turn and remain sealed at any pressure, preventing excess runoff.

**Pro-Spray:** Seal remains intact

**Competitor:** Significant leaking at the body cap

## SPRAY SPRINKLER BODY COMPARISON CHART

| QUICK SPECS                    |     |  PS ULTRA |  PRO-SPRAY® |  PRO-SPRAY PRS30 |  PRO-SPRAY PRS40 |
|--------------------------------|-----|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
|                                |     | Good                                                                                       | Better                                                                                       | Best for Spray Nozzles                                                                              | Best for MP Rotator® Nozzles                                                                        |
| POP-UP HEIGHT                  | in. | 2, 4, 6                                                                                    | Shrub, 2, 3, 4, 6, 12                                                                        | Shrub, 3, 4, 6, 12                                                                                  | Shrub, 3, 4, 6, 12                                                                                  |
| PRESSURE-REGULATED             | PSI | N/A                                                                                        | N/A                                                                                          | 30                                                                                                  | 40                                                                                                  |
| FEATURES                       |     |                                                                                            |                                                                                              |                                                                                                     |                                                                                                     |
| PREINSTALLED NOZZLE            |     | 5SS, 8A, 10A, 12A, 15A, 17A                                                                | N/A                                                                                          | N/A                                                                                                 | N/A                                                                                                 |
| CAP COLOR                      |     | Black                                                                                      | Black                                                                                        | Brown                                                                                               | Gray                                                                                                |
| CHECK VALVES                   |     | Field-Installed                                                                            | Field-Installed or Factory-Installed                                                         | Field-Installed or Factory-Installed                                                                | Field-Installed or Factory-Installed                                                                |
| WARRANTY                       |     | 2 Years                                                                                    | 5 Years                                                                                      | 5 Years                                                                                             | 5 Years                                                                                             |
| ADVANCED FEATURES              |     |                                                                                            |                                                                                              |                                                                                                     |                                                                                                     |
| BODY STYLE                     |     | Slim Line                                                                                  | Rugged Body                                                                                  | Rugged Body                                                                                         | Rugged Body                                                                                         |
| SPRING                         |     | Standard                                                                                   | Heavy-Duty                                                                                   | Heavy-Duty                                                                                          | Heavy-Duty                                                                                          |
| CO-MOLDED WIPER SEAL           |     |                                                                                            | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |
| RECLAIMED CAP                  |     |                                                                                            | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |
| PRESSURE REGULATION            |     |                                                                                            |                                                                                              | ●                                                                                                   | ●                                                                                                   |
| FLOGUARD™ TECHNOLOGY           |     |                                                                                            |                                                                                              | ●                                                                                                   | ●                                                                                                   |
| EPA WATERSENSE CERTIFIED       |     |                                                                                            |                                                                                              | ●                                                                                                   | ●                                                                                                   |
| APPLICATIONS                   |     |                                                                                            |                                                                                              |                                                                                                     |                                                                                                     |
| TURFGRASS                      |     | ●                                                                                          | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |
| TURFGRASS: TALL MOWING HEIGHT  |     | ●                                                                                          | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |
| SHRUBS: SPRINKLERS ON RISERS   |     |                                                                                            | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |
| SHRUBS: TALL POP-UP SPRINKLERS |     |                                                                                            | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |
| RESIDENTIAL                    |     | ●                                                                                          | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |
| COMMERCIAL/MUNICIPALITIES      |     |                                                                                            | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |
| HIGH-TRAFFIC AREAS             |     |                                                                                            | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |
| RECLAIMED WATER                |     |                                                                                            | ●                                                                                            | ●                                                                                                   | ●                                                                                                   |

# PS ULTRA

The PS Ultra is a compact, slim-line spray sprinkler with the option of preinstalled nozzles for faster installation.

## KEY BENEFITS

- Enhanced cap for more durability, easier handling, and extended riser seal life
- Large inlet filter screen for increased debris resistance
- Check valve option eliminates low-head drainage
- Heavy-duty spring for consistent riser retraction

## ADDITIONAL FEATURES

- Directional flush plug design for cleaner installation
- Two-piece ratcheting riser
- 2" and 4" models can retrofit into older style PS models
- Compatible with all female-threaded nozzles

## OPERATING SPECIFICATIONS

- Operational pressure range: 20 to 70 PSI
- Warranty period: 2 years

## FACTORY-INSTALLED OPTIONS

- Flush plug (large filter screen not included)
- Nozzles 8A, 10A, 12A, 15A, 5' x 30' side strip
- Large inlet filter screen included in 4" and 6" preinstalled nozzle models

## USER-INSTALLED OPTIONS

- Check valve installs in filter screen for 4" and 6" models (up to 7' of elevation; P/N 462237SP)
- Large inlet filter screen (P/N 162900SP)
- Shutoff nozzle (P/N 916400SP)



### PSU-02

Retracted height: 5"  
Pop-up height: 2"  
Exposed diameter: 1¼"  
Inlet size: ½"



### PSU-04

Retracted height: 7¼"  
Pop-up height: 4"  
Exposed diameter: 1¼"  
Inlet size: ½"



### PSU-06

Retracted height: 9½"  
Pop-up height: 6"  
Exposed diameter: 1¼"  
Inlet size: ½"

## PS ULTRA - SPECIFICATION BUILDER: ORDER 1 + 2

| 1 Model            | 2 Nozzles                                    |
|--------------------|----------------------------------------------|
| PSU-02 = 2" pop-up | (blank) = Flush plug, no large filter screen |
| PSU-04 = 4" pop-up | 8A = 8' adjustable nozzle                    |
| PSU-06 = 6" pop-up | 10A = 10' adjustable nozzle                  |
|                    | 12A = 12' adjustable nozzle                  |
|                    | 15A = 15' adjustable nozzle                  |
|                    | 17A = 17' adjustable nozzle                  |
|                    | 5SS = 5' x 30' side strip (2" and 4" only)   |

### Examples:

PSU-02 - 5SS = 2" pop-up, with a 5' x 30' side strip

PSU-06 - 10A = 6" pop-up, with a 10' adjustable nozzle

PSU-04 = 4" pop-up, with flush plug, large filter screen not included



## PS ULTRA STANDARD NOZZLES PERFORMANCE DATA

| Arc       | Pressure<br>PSI | 8A<br>8' radius<br>Adjustable from<br>0° to 360°<br>Trajectory: 15°<br>● Brown |             |                     | 10A<br>10' radius<br>Adjustable from<br>0° to 360°<br>Trajectory: 15°<br>● Red |             |                     | 12A<br>12' radius<br>Adjustable from<br>0° to 360°<br>Trajectory: 28°<br>● Green |             |                     |
|-----------|-----------------|--------------------------------------------------------------------------------|-------------|---------------------|--------------------------------------------------------------------------------|-------------|---------------------|----------------------------------------------------------------------------------|-------------|---------------------|
|           |                 | Radius<br>ft.                                                                  | Flow<br>GPM | Precip in/hr<br>■ ▲ | Radius<br>ft.                                                                  | Flow<br>GPM | Precip in/hr<br>■ ▲ | Radius<br>ft.                                                                    | Flow<br>GPM | Precip in/hr<br>■ ▲ |
| 45°<br>▶  | 20              | 7                                                                              | 0.18        | 2.83 3.27           | 9                                                                              | 0.20        | 1.90 2.20           | 11                                                                               | 0.25        | 1.59 1.84           |
|           | 25              | 8                                                                              | 0.20        | 2.74 3.16           | 10                                                                             | 0.23        | 1.92 2.22           | 12                                                                               | 0.28        | 1.60 1.85           |
|           | 30              | 8                                                                              | <b>0.22</b> | <b>2.65 3.06</b>    | 10                                                                             | <b>0.25</b> | <b>1.93 2.22</b>    | 12                                                                               | <b>0.32</b> | <b>1.68 1.95</b>    |
|           | 35              | 9                                                                              | 0.24        | 2.50 2.89           | 11                                                                             | 0.28        | 1.92 2.22           | 13                                                                               | 0.37        | 1.80 2.08           |
|           | 40              | 9                                                                              | 0.25        | 2.38 2.74           | 11                                                                             | 0.30        | 1.88 2.17           | 13                                                                               | 0.42        | 1.91 2.21           |
| 90°<br>◑  | 20              | 7                                                                              | 0.36        | 2.83 3.27           | 9                                                                              | 0.40        | 1.90 2.20           | 11                                                                               | 0.50        | 1.59 1.84           |
|           | 25              | 8                                                                              | 0.40        | 2.74 3.16           | 10                                                                             | 0.45        | 1.92 2.22           | 12                                                                               | 0.55        | 1.60 1.85           |
|           | 30              | 8                                                                              | <b>0.44</b> | <b>2.65 3.06</b>    | 10                                                                             | <b>0.50</b> | <b>1.93 2.22</b>    | 12                                                                               | <b>0.63</b> | <b>1.68 1.95</b>    |
|           | 35              | 9                                                                              | 0.47        | 2.50 2.89           | 11                                                                             | 0.55        | 1.92 2.22           | 13                                                                               | 0.73        | 1.80 2.08           |
|           | 40              | 9                                                                              | 0.50        | 2.38 2.74           | 11                                                                             | 0.59        | 1.88 2.17           | 13                                                                               | 0.84        | 1.91 2.21           |
| 120°<br>◐ | 20              | 7                                                                              | 0.48        | 2.83 3.27           | 9                                                                              | 0.53        | 1.90 2.20           | 11                                                                               | 0.67        | 1.59 1.84           |
|           | 25              | 8                                                                              | 0.53        | 2.74 3.16           | 10                                                                             | 0.60        | 1.92 2.22           | 12                                                                               | 0.73        | 1.60 1.85           |
|           | 30              | 8                                                                              | <b>0.59</b> | <b>2.65 3.06</b>    | 10                                                                             | <b>0.67</b> | <b>1.93 2.22</b>    | 12                                                                               | <b>0.84</b> | <b>1.68 1.95</b>    |
|           | 35              | 9                                                                              | 0.63        | 2.50 2.89           | 11                                                                             | 0.73        | 1.92 2.22           | 13                                                                               | 0.97        | 1.80 2.08           |
|           | 40              | 9                                                                              | 0.67        | 2.38 2.74           | 11                                                                             | 0.79        | 1.88 2.17           | 13                                                                               | 1.12        | 1.91 2.21           |
| 180°<br>◐ | 20              | 7                                                                              | 0.72        | 2.83 3.27           | 9                                                                              | 0.80        | 1.90 2.20           | 11                                                                               | 1.00        | 1.59 1.84           |
|           | 25              | 8                                                                              | 0.80        | 2.74 3.16           | 10                                                                             | 0.90        | 1.92 2.22           | 12                                                                               | 1.10        | 1.60 1.85           |
|           | 30              | 8                                                                              | <b>0.88</b> | <b>2.65 3.06</b>    | 10                                                                             | <b>1.00</b> | <b>1.93 2.22</b>    | 12                                                                               | <b>1.26</b> | <b>1.68 1.95</b>    |
|           | 35              | 9                                                                              | 0.94        | 2.50 2.89           | 11                                                                             | 1.10        | 1.92 2.22           | 13                                                                               | 1.46        | 1.80 2.08           |
|           | 40              | 9                                                                              | 1.00        | 2.38 2.74           | 11                                                                             | 1.18        | 1.88 2.17           | 13                                                                               | 1.68        | 1.91 2.21           |
| 240°<br>◑ | 20              | 7                                                                              | 0.96        | 2.83 3.27           | 9                                                                              | 1.07        | 1.90 2.20           | 11                                                                               | 1.33        | 1.59 1.84           |
|           | 25              | 8                                                                              | 1.07        | 2.74 3.16           | 10                                                                             | 1.20        | 1.92 2.22           | 12                                                                               | 1.47        | 1.60 1.85           |
|           | 30              | 8                                                                              | <b>1.17</b> | <b>2.65 3.06</b>    | 10                                                                             | <b>1.33</b> | <b>1.93 2.22</b>    | 12                                                                               | <b>1.68</b> | <b>1.68 1.95</b>    |
|           | 35              | 9                                                                              | 1.25        | 2.50 2.89           | 11                                                                             | 1.47        | 1.92 2.22           | 13                                                                               | 1.95        | 1.80 2.08           |
|           | 40              | 9                                                                              | 1.33        | 2.38 2.74           | 11                                                                             | 1.57        | 1.88 2.17           | 13                                                                               | 2.24        | 1.91 2.21           |
| 270°<br>◑ | 20              | 7                                                                              | 1.08        | 2.83 3.27           | 9                                                                              | 1.20        | 1.90 2.20           | 11                                                                               | 1.50        | 1.59 1.84           |
|           | 25              | 8                                                                              | 1.20        | 2.74 3.16           | 10                                                                             | 1.35        | 1.92 2.22           | 12                                                                               | 1.65        | 1.60 1.85           |
|           | 30              | 8                                                                              | <b>1.32</b> | <b>2.65 3.06</b>    | 10                                                                             | <b>1.50</b> | <b>1.93 2.22</b>    | 12                                                                               | <b>1.89</b> | <b>1.68 1.95</b>    |
|           | 35              | 9                                                                              | 1.41        | 2.50 2.89           | 11                                                                             | 1.65        | 1.92 2.22           | 13                                                                               | 2.19        | 1.80 2.08           |
|           | 40              | 9                                                                              | 1.50        | 2.38 2.74           | 11                                                                             | 1.77        | 1.88 2.17           | 13                                                                               | 2.52        | 1.91 2.21           |
| 360°<br>● | 20              | 7                                                                              | 1.44        | 2.83 3.27           | 9                                                                              | 1.60        | 1.90 2.20           | 11                                                                               | 2.00        | 1.59 1.84           |
|           | 25              | 8                                                                              | 1.60        | 2.74 3.16           | 10                                                                             | 1.80        | 1.92 2.22           | 12                                                                               | 2.20        | 1.60 1.85           |
|           | 30              | 8                                                                              | <b>1.76</b> | <b>2.65 3.06</b>    | 10                                                                             | <b>2.00</b> | <b>1.93 2.22</b>    | 12                                                                               | <b>2.52</b> | <b>1.68 1.95</b>    |
|           | 35              | 9                                                                              | 1.88        | 2.50 2.89           | 11                                                                             | 2.20        | 1.92 2.22           | 13                                                                               | 2.92        | 1.80 2.08           |
|           | 40              | 9                                                                              | 2.00        | 2.38 2.74           | 11                                                                             | 2.36        | 1.88 2.17           | 13                                                                               | 3.36        | 1.91 2.21           |

Bold = Recommended pressure

PS ULTRA STANDARD NOZZLES PERFORMANCE DATA

| 15A<br>15' radius<br>Adjustable from<br>0° to 360°<br>● Black<br>Trajectory: 28°            |                 |               |             |                     |      | 17A<br>17' radius<br>Adjustable from<br>0° to 360°<br>● Gray<br>Trajectory: 28° |             |                     |      |  |  |
|---------------------------------------------------------------------------------------------|-----------------|---------------|-------------|---------------------|------|---------------------------------------------------------------------------------|-------------|---------------------|------|--|--|
| Arc                                                                                         | Pressure<br>PSI | Radius<br>ft. | Flow<br>GPM | Precip in/hr<br>■ ▲ |      | Radius<br>ft.                                                                   | Flow<br>GPM | Precip in/hr<br>■ ▲ |      |  |  |
| 45°<br>    | 20              | 14            | 0.39        | 1.51                | 1.75 | 16                                                                              | 0.49        | 1.46                | 1.68 |  |  |
|                                                                                             | 25              | 15            | 0.43        | 1.57                | 1.82 | 17                                                                              | 0.57        | 1.60                | 1.85 |  |  |
|                                                                                             | 30              | 15            | 0.47        | 1.59                | 1.84 | 17                                                                              | 0.58        | 1.53                | 1.77 |  |  |
|                                                                                             | 35              | 16            | 0.52        | 1.55                | 1.79 | 18                                                                              | 0.63        | 1.49                | 1.72 |  |  |
|                                                                                             | 40              | 17            | 0.57        | 1.60                | 1.85 | 19                                                                              | 0.69        | 1.55                | 1.79 |  |  |
| 90°<br>    | 20              | 14            | 0.77        | 1.51                | 1.75 | 16                                                                              | 0.97        | 1.46                | 1.68 |  |  |
|                                                                                             | 25              | 15            | 0.86        | 1.57                | 1.82 | 17                                                                              | 1.13        | 1.60                | 1.85 |  |  |
|                                                                                             | 30              | 15            | 0.93        | 1.59                | 1.84 | 17                                                                              | 1.15        | 1.53                | 1.77 |  |  |
|                                                                                             | 35              | 16            | 1.03        | 1.55                | 1.79 | 18                                                                              | 1.25        | 1.49                | 1.72 |  |  |
|                                                                                             | 40              | 17            | 1.13        | 1.60                | 1.85 | 19                                                                              | 1.38        | 1.55                | 1.79 |  |  |
| 120°<br>   | 20              | 14            | 1.03        | 1.51                | 1.75 | 16                                                                              | 1.29        | 1.46                | 1.68 |  |  |
|                                                                                             | 25              | 15            | 1.15        | 1.57                | 1.82 | 17                                                                              | 1.51        | 1.51                | 1.74 |  |  |
|                                                                                             | 30              | 15            | 1.24        | 1.59                | 1.84 | 17                                                                              | 1.53        | 1.53                | 1.77 |  |  |
|                                                                                             | 35              | 16            | 1.37        | 1.55                | 1.79 | 18                                                                              | 1.67        | 1.49                | 1.72 |  |  |
|                                                                                             | 40              | 17            | 1.51        | 1.60                | 1.85 | 19                                                                              | 1.84        | 1.47                | 1.70 |  |  |
| 180°<br> | 20              | 14            | 1.54        | 1.51                | 1.75 | 16                                                                              | 1.94        | 1.46                | 1.68 |  |  |
|                                                                                             | 25              | 15            | 1.72        | 1.57                | 1.82 | 17                                                                              | 2.26        | 1.51                | 1.74 |  |  |
|                                                                                             | 30              | 15            | 1.86        | 1.59                | 1.84 | 17                                                                              | 2.30        | 1.53                | 1.77 |  |  |
|                                                                                             | 35              | 16            | 2.06        | 1.55                | 1.79 | 18                                                                              | 2.50        | 1.49                | 1.72 |  |  |
|                                                                                             | 40              | 17            | 2.26        | 1.60                | 1.85 | 19                                                                              | 2.76        | 1.47                | 1.70 |  |  |
| 240°<br> | 20              | 14            | 2.05        | 1.51                | 1.75 | 16                                                                              | 2.59        | 1.46                | 1.68 |  |  |
|                                                                                             | 25              | 15            | 2.29        | 1.57                | 1.82 | 17                                                                              | 3.01        | 1.51                | 1.74 |  |  |
|                                                                                             | 30              | 15            | 2.48        | 1.59                | 1.84 | 17                                                                              | 3.07        | 1.53                | 1.77 |  |  |
|                                                                                             | 35              | 16            | 2.75        | 1.55                | 1.79 | 18                                                                              | 3.33        | 1.49                | 1.72 |  |  |
|                                                                                             | 40              | 17            | 3.01        | 1.60                | 1.85 | 19                                                                              | 3.68        | 1.47                | 1.70 |  |  |
| 270°<br> | 20              | 14            | 2.31        | 1.51                | 1.75 | 16                                                                              | 2.91        | 1.46                | 1.68 |  |  |
|                                                                                             | 25              | 15            | 2.58        | 1.57                | 1.82 | 17                                                                              | 3.39        | 1.51                | 1.74 |  |  |
|                                                                                             | 30              | 15            | 2.79        | 1.59                | 1.84 | 17                                                                              | 3.45        | 1.53                | 1.77 |  |  |
|                                                                                             | 35              | 16            | 3.09        | 1.55                | 1.79 | 18                                                                              | 3.75        | 1.49                | 1.72 |  |  |
|                                                                                             | 40              | 17            | 3.39        | 1.60                | 1.85 | 19                                                                              | 4.14        | 1.47                | 1.70 |  |  |
| 360°<br> | 20              | 14            | 3.08        | 1.51                | 1.75 | 16                                                                              | 3.88        | 1.46                | 1.68 |  |  |
|                                                                                             | 25              | 15            | 3.44        | 1.57                | 1.82 | 17                                                                              | 4.52        | 1.51                | 1.74 |  |  |
|                                                                                             | 30              | 15            | 3.72        | 1.59                | 1.84 | 17                                                                              | 4.60        | 1.53                | 1.77 |  |  |
|                                                                                             | 35              | 16            | 4.12        | 1.55                | 1.79 | 18                                                                              | 5.00        | 1.49                | 1.72 |  |  |
|                                                                                             | 40              | 17            | 4.52        | 1.60                | 1.85 | 19                                                                              | 5.52        | 1.47                | 1.70 |  |  |

Bold = Recommended pressure

STRIP PATTERN NOZZLE PERFORMANCE DATA

| Model                                                                                               | Pressure<br>PSI | Width x Length<br>ft. | Flow<br>GPM |
|-----------------------------------------------------------------------------------------------------|-----------------|-----------------------|-------------|
| <b>SS-530</b><br> | 20              | 4 x 28                | 1.10        |
|                                                                                                     | 25              | 5 x 30                | 1.20        |
|                                                                                                     | <b>30</b>       | <b>5 x 30</b>         | <b>1.30</b> |
|                                                                                                     | 35              | 5 x 30                | 1.40        |
|                                                                                                     | 40              | 5 x 30                | 1.50        |

Bold = Recommended pressure

# PRO-SPRAY®

Meet the strongest, most versatile spray sprinkler body in the industry.

## KEY BENEFITS

- Industry's strongest spray body for years of reliable performance
- Co-molded wiper seal made from chemical- and chlorine-resistant materials
- Innovative seal design prevents cap-to-body leaks, even with a loose cap
- Heavy-duty spring for consistent riser retraction
- Check valve option eliminates low-head drainage

## ADDITIONAL FEATURES

- Directional flush plug design for cleaner installation
- Interchangeable components for easier servicing, retrofits, and upgrades
- Compatible with all female-threaded nozzles

## OPERATING SPECIFICATIONS

- Operational pressure range: 15 to 100 PSI
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- Check valve available for 4", 6", and 12" models (up to 10' of elevation)
- Reclaimed water ID cap

## USER-INSTALLED OPTIONS

- Drain check valve (up to 10' of elevation; P/N 437400SP)
- Reclaimed water ID cap (P/N 458520SP)
- Snap-on reclaimed cover (P/N PROS-RC-CAP-SP)
- Shutoff cap (P/N 213600SP)
- Shutoff nozzle (P/N 916400SP)



### Pro-Spray Reclaimed

Pro-Spray models include optional factory-installed purple reclaimed caps

## PRO-SPRAY - SPECIFICATION BUILDER: ORDER 1 + 2

| 1 Models                                    | 2 Options                                                                   |
|---------------------------------------------|-----------------------------------------------------------------------------|
| <b>PROS-00</b> = Shrub adapter              | <b>(blank)</b> = No option                                                  |
| <b>PROS-02</b> = 2" pop-up                  | <b>CV</b> = Factory-installed drain check valve<br>(Pop-up models only)     |
| <b>PROS-03</b> = 3" pop-up                  | <b>R</b> = Factory-installed reclaimed body cap<br>(Shrub molded in purple) |
| <b>PROS-04</b> = 4" pop-up                  |                                                                             |
| <b>PROS-06</b> = 6" pop-up (no side inlet)  |                                                                             |
| <b>PROS-12</b> = 12" pop-up (no side inlet) |                                                                             |

## PRO-SPRAY (SIDE INLET) MODELS

### Model

**PROS-06-SI** = 6" pop-up with side inlet

**PROS-12-SI** = 12" pop-up with side inlet

### Examples:

PROS-04 = 4" pop-up

PROS-06-CV = 6" pop-up, drain check valve

PROS-12-CV-R = 12" pop-up, drain check valve, reclaimed body cap



### PROS-00

Retracted height: 1½"  
Inlet size: ½"



### PROS-02

Retracted height: 4"  
Pop-up height: 2"  
Exposed diameter: 2¼"  
Inlet size: ½"



### PROS-03

Retracted height: 5"  
Pop-up height: 3"  
Exposed diameter: 2¼"  
Inlet size: ½"



### PROS-04

Retracted height: 5⅞"  
Pop-up height: 4"  
Exposed diameter: 2¼"  
Inlet size: ½"



### [A] PROS-06-SI

### [B] PROS-06

Retracted height: 8¾"  
Pop-up height: 6"  
Exposed diameter: 2¼"  
Inlet size: ½"



### [A] PROS-12-SI

### [B] PROS-12

Retracted height: 16⅞"  
Pop-up height: 12"  
Exposed diameter: 2¼"  
Inlet size: ½"



# PRO-SPRAY® PRS30

To maintain consistent performance and reduce water waste, the Pro-Spray PRS30 Sprinkler Body is pressure-regulated to an optimal pressure of 30 PSI.

## KEY BENEFITS

- Industry's strongest spray sprinkler body for years of reliable performance
- Pressure-regulated to 30 PSI for optimal nozzle performance
- Brown cap for easy field identification
- Co-molded wiper seal made from chemical- and chlorine-resistant materials
- Innovative seal design prevents cap-to-body leaks, even with a loose cap
- FloGuard™ Technology option eliminates water waste in the event of a missing nozzle

## ADDITIONAL FEATURES

- Directional flush plug design for cleaner installation
- Interchangeable components for easier servicing, retrofits, and upgrades
- Heavy-duty spring for consistent riser retraction
- Check valve option eliminates low-head drainage
- Compatible with all female-threaded nozzles

## OPERATING SPECIFICATIONS

- Operational pressure range: 15 to 100 PSI
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- Check valve available for 4", 6", and 12" models (up to 14' of elevation)
- Reclaimed water identification
- FloGuard Technology available for check valve models

## USER-INSTALLED OPTIONS

- Check valve: P/N 437400SP
  - Up to 10' of elevation for 3" model
  - Up to 14' of elevation for 4", 6", and 12" models
- Reclaimed water ID cap: P/N 458560SP
- Snap-on reclaimed cover: P/N PROS-RC-CAP-SP
- Shutoff cap: P/N 213600SP
- Shutoff nozzle: P/N 916400SP



### PRS30 Reclaimed

Optional factory-installed purple reclaimed water caps



### FloGuard Technology

Eliminate water waste in the event of a missing nozzle



### EPA WaterSense® Certified

Recognized as a responsible water-saving tool by the U.S. Environmental Protection Agency



### PROS-00-PRS30

Retracted height: 4½"  
Inlet size: ½"



### PROS-03-PRS30

Retracted height: 5"  
Pop-up height: 3"  
Exposed diameter: 2¼"  
Inlet size: ½"



### PROS-04-PRS30

Retracted height: 5⅞"  
Pop-up height: 4"  
Exposed diameter: 2¼"  
Inlet size: ½"



### [A] PROS-06-SI-PRS30

### [B] PROS-06-PRS30

Retracted height: 8¾"  
Pop-up height: 6"  
Exposed diameter: 2¼"  
Inlet size: ½"



### [A] PROS-12-SI-PRS30

### [B] PROS-12-PRS30

Retracted height: 16⅞"  
Pop-up height: 12"  
Exposed diameter: 2¼"  
Inlet size: ½"

**PRO-SPRAY PRS30 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3**

| 1 Model                                                                                                                                                                                                                                                                    | 2 Feature Options                                                                                           | 3 Specialty Options                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PROS-00-PRS30</b> = 30 PSI regulated shrub adapter<br><b>PROS-03-PRS30</b> = 30 PSI regulated 3" pop-up<br><b>PROS-04-PRS30</b> = 30 PSI regulated 4" pop-up<br><b>PROS-06-PRS30</b> = 30 PSI regulated 6" pop-up<br><b>PROS-12-PRS30</b> = 30 PSI regulated 12" pop-up | <b>(blank)</b> = No option<br><b>CV</b> = Factory-installed drain check valve (4", 6", and 12" models only) | <b>(blank)</b> = No option<br><b>R</b> = Factory-installed reclaimed body cap<br><b>F</b> = FloGuard Technology (4", 6", and 12" models only)<br><b>F-R</b> = FloGuard Technology with reclaimed body cap (4", 6", and 12" models only) |

**PRO-SPRAY PRS30 (SIDE INLET) MODELS**

**Model**

**PROS-06-SI-PRS30** = 30 PSI regulated 6" pop-up with side inlet

**PROS-12-SI-PRS30** = 30 PSI regulated 12" pop-up with side inlet

**Examples:**

**PROS-06-SI-PRS30** = 6" pop-up with side inlet regulated at 30 PSI

**PROS-06-PRS30-CV** = 6" pop-up regulated at 30 PSI, drain check valve

**PROS-12-PRS30-CV-F-R** = 12" pop-up regulated at 30 PSI, drain check valve, and FloGuard Technology with reclaimed body cap

*Compatible with:*



**Pro Adjustable Nozzles**

*Page 62*

**Pro Fixed Nozzles**

*Page 65*

# PRO-SPRAY® PRS40

To optimize MP Rotator® Nozzle performance, the Pro-Spray PRS40 Sprinkler Body is pressure-regulated to 40 PSI.

## KEY BENEFITS

- Industry's strongest spray sprinkler body for years of reliable performance
- Pressure-regulated to 40 PSI for the MP Rotator Nozzle
- Gray cap for easy field identification
- Co-molded wiper seal made from chemical- and chlorine-resistant materials
- Innovative seal design prevents cap-to-body leaks, even with a loose cap
- FloGuard™ Technology option eliminates water waste in the event of a missing nozzle

## ADDITIONAL FEATURES

- Directional flush plug design for cleaner installation
- Interchangeable components for easier servicing, retrofits, and upgrades
- Heavy-duty spring for consistent riser retraction
- Check valve option eliminates low-head drainage

## OPERATING SPECIFICATIONS

- Operational pressure range: 15 to 100 PSI
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- Check valve available for 4", 6", and 12" models (up to 14' of elevation)
- Reclaimed water identification
- FloGuard Technology available for pop-up models

## USER-INSTALLED OPTIONS

- Check valve: P/N 437400SP
  - Up to 10' of elevation for 3" model
  - Up to 14' of elevation for 4", 6", and 12" models
- Reclaimed water ID cap: P/N 458562SP
- Snap-on reclaimed cover: P/N PROS-RC-CAP-SP
- Shutoff cap: P/N 213600SP
- Shutoff nozzle: P/N 916400SP



### PRS40 Reclaimed

Optional factory-installed purple reclaimed water caps



### FloGuard Technology

Eliminate water waste in the event of a missing nozzle



### EPA WaterSense® Approved

Recognized as a responsible water-saving tool by the U.S. Environmental Protection Agency



### PROS-00-PRS40

Retracted height: 4½"  
Inlet size: ½"



### PROS-03-PRS40

Retracted height: 5"  
Pop-up height: 3"  
Exposed diameter: 2¼"  
Inlet size: ½"



### PROS-04-PRS40-CV

Retracted height: 5⅞"  
Pop-up height: 4"  
Exposed diameter: 2¼"  
Inlet size: ½"



### PROS-06-PRS40-CV

Retracted height: 8¾"  
Pop-up height: 6"  
Exposed diameter: 2¼"  
Inlet size: ½"



### PROS-12-PRS40-CV

Retracted height: 16⅞"  
Pop-up height: 12"  
Exposed diameter: 2¼"  
Inlet size: ½"



**PRO-SPRAY PRS40 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3**

| 1 Model                                                                                                                                                                                                                                                                    | 2 Feature Options                                                                                                     | 3 Specialty Options                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PROS-00-PRS40</b> = 40 PSI regulated shrub adapter<br><b>PROS-03-PRS40</b> = 40 PSI regulated 3" pop-up<br><b>PROS-04-PRS40</b> = 40 PSI regulated 4" pop-up<br><b>PROS-06-PRS40</b> = 40 PSI regulated 6" pop-up<br><b>PROS-12-PRS40</b> = 40 PSI regulated 12" pop-up | <b>(blank)</b> = No option<br><b>CV</b> = Factory-installed drain check valve<br><i>(4", 6", and 12" models only)</i> | <b>(blank)</b> = No option<br><b>R</b> = Factory-installed reclaimed body cap<br><b>F</b> = FloGuard Technology <i>(4", 6", and 12" models only)</i><br><b>F-R</b> = FloGuard Technology with reclaimed body cap<br><i>(4", 6", and 12" models only)</i> |

**PRO-SPRAY PRS40 (SIDE INLET) MODELS**

**Model**

**PROS-06-SI-PRS40** = 40 PSI regulated 6" pop-up with side inlet

**PROS-12-SI-PRS40** = 40 PSI regulated 12" pop-up with side inlet

**Examples:**

**PROS-06-SI-PRS40** = 6" pop-up with side inlet regulated at 40 PSI

**PROS-06-PRS40-CV** = 6" pop-up regulated at 40 PSI, drain check valve

**PROS-12-PRS40-CV-F-R** = 12" pop-up regulated at 40 PSI, drain check valve, and FloGuard Technology with reclaimed body cap

*Compatible with:*



**MP Rotator  
Nozzles**  
Page 40

# SPRAY ACCESSORIES

Spray accessories provide additional flexibility for installation and maintenance of spray systems.

## SJ SWING JOINTS

### Features

- Unique swivel ells on both ends for easy installation in any configuration
- Airtight connection points for long-term reliability

### Models

- SJ-506: ½" threaded x 6" length standard
- SJ-7506: ½" x ¾" threaded x 6" length
- SJ-706: ¾" threaded x 6" length
- SJ-512: ½" threaded x 12" length
- SJ-7512: ½" x ¾" threaded x 12" length
- SJ-712: ¾" threaded x 12" length

### Operating Specifications

- Pressure-rated to 150 PSI
- Warranty period: 2 years

## HUNTER SPIRAL BARB ELBOWS

### Features

- Improved bigger, stronger design
- Compatible with FlexSG Tubing and other brands for a customized swing joint
- Spiral-to-barb design for easier installation
- Acetal material for sharp barbs

### Models

- HSBE-050: ½" male thread x spiral barb elbow
- HSBE-075: ¾" male thread x spiral barb elbow

### Operating Specifications

- Operating pressure: Up to 80 PSI
- Warranty period: 2 years

## FLEXSG TUBING

### Features

- Engineered to resist kinking
- Textured for easy grip
- Linear low-density polyethylene material
- Meets ASTM D2104, D2239, D2737

### Models

- FLEXSG-100: 100' roll
- FLEXSG-18: 18" pre-cut lengths

### Operating Specifications

- Operating pressure: up to 80 PSI
- Warranty period: 2 years

## PRO-SPRAY SHUTOFF CAP

### Features

- Caps off the Pro-Spray Sprinkler Body for maintenance or drip conversions
- Maintains a clean look to the landscape

### Models

- P/N 213600SP

### Features

- Easy shutoff for spray systems
- Allows heads to pop-up for easy visibility
- Use with Pro-Spray and PS Ultra models

### Models

- P/N 916400SP

## SHUTOFF NOZZLE



**SJ Swing Joints**

6" and 12" links



**Spiral Barb Elbows**

P/N HSBE-050, P/N HSBE-075



**FlexSG Tubing**

100' and 18" precut lengths  
Inside diameter: 0.49"



**Pro-Spray Shutoff Cap**

P/N 213600SP



**Shutoff Nozzle**

P/N 916400SP

# NOZZLES

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# PRO ADJUSTABLE NOZZLES

Choose Pro Adjustable Nozzles for optimal landscape coverage in any setting.

## KEY BENEFITS

- Adjustable from 0° to 360° for maximum design flexibility
- Easy-grip top for simple adjustment
- Strong edges for a defined pattern with better wind resistance
- Large water droplets minimize misting with better uniformity

## ADDITIONAL FEATURES

- Matched precipitation rate on each nozzle from 8A to 17A
- Even distribution results in better coverage
- Color-coded for easy field identification

## OPERATING SPECIFICATIONS

- Recommended operating pressure: 30 PSI
- Pair with Pro-Spray PRS30 pop-up for pressure regulation to 30 PSI
- Warranty period: 2 years



**4A**  
Radius: 4'



**6A**  
Radius: 6'



**8A**  
Radius: 8'



**10A**  
Radius: 10'



**12A**  
Radius: 12'



**15A**  
Radius: 15'



**17A**  
Radius: 17'

Pro Adjustable Nozzle



# PRO ADJUSTABLE NOZZLES PERFORMANCE DATA


**4A**

● Lt. Green

4' radius  
Adjustable from  
0° to 360°  
Trajectory: 0°

**6A**

● Lt. Blue

6' radius  
Adjustable from  
0° to 360°  
Trajectory: 0°

**8A**

● Brown

8' radius  
Adjustable from  
0° to 360°  
Trajectory: 15°

**10A**

● Red

10' radius  
Adjustable from  
0° to 360°  
Trajectory: 15°

| Arc       | Pressure<br>PSI | Radius<br>ft | Flow<br>GPM | Precip in/hr |             | Radius<br>ft | Flow<br>GPM | Precip in/hr |             | Radius<br>ft | Flow<br>GPM | Precip in/hr |             | Radius<br>ft | Flow<br>GPM | Precip in/hr |             |
|-----------|-----------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|
|           |                 |              |             | ■            | ▲           |              |             | ■            | ▲           |              |             | ■            | ▲           |              |             | ■            | ▲           |
| 45°<br>▶  | 20              | 3            | 0.10        | 7.29         | 8.42        | 5            | 0.15        | 4.19         | 4.84        | 7            | 0.18        | 2.83         | 3.27        | 9            | 0.20        | 1.90         | 2.20        |
|           | 25              | 3            | 0.11        | 7.12         | 8.22        | 5            | 0.17        | 4.36         | 5.03        | 8            | 0.20        | 2.74         | 3.16        | 10           | 0.23        | 1.92         | 2.22        |
|           | <b>30</b>       | <b>4</b>     | <b>0.13</b> | <b>6.26</b>  | <b>7.22</b> | <b>6</b>     | <b>0.18</b> | <b>3.85</b>  | <b>4.45</b> | <b>8</b>     | <b>0.22</b> | <b>2.65</b>  | <b>3.06</b> | <b>10</b>    | <b>0.25</b> | <b>1.93</b>  | <b>2.22</b> |
|           | 35              | 4            | 0.14        | 6.11         | 7.06        | 6            | 0.18        | 3.55         | 4.10        | 9            | 0.24        | 2.50         | 2.89        | 11           | 0.28        | 1.92         | 2.22        |
|           | 40              | 4            | 0.16        | 6.36         | 7.35        | 6            | 0.19        | 3.57         | 4.12        | 9            | 0.25        | 2.38         | 2.74        | 11           | 0.30        | 1.88         | 2.17        |
| 90°<br>◑  | 20              | 3            | 0.19        | 6.93         | 8.00        | 5            | 0.30        | 4.19         | 4.84        | 7            | 0.36        | 2.83         | 3.27        | 9            | 0.40        | 1.90         | 2.20        |
|           | 25              | 3            | 0.20        | 6.47         | 7.47        | 5            | 0.34        | 4.49         | 5.18        | 8            | 0.40        | 2.74         | 3.16        | 10           | 0.45        | 1.92         | 2.22        |
|           | <b>30</b>       | <b>4</b>     | <b>0.22</b> | <b>5.29</b>  | <b>6.11</b> | <b>6</b>     | <b>0.37</b> | <b>3.96</b>  | <b>4.57</b> | <b>8</b>     | <b>0.44</b> | <b>2.65</b>  | <b>3.06</b> | <b>10</b>    | <b>0.50</b> | <b>1.93</b>  | <b>2.22</b> |
|           | 35              | 4            | 0.24        | 5.24         | 6.05        | 6            | 0.38        | 3.75         | 4.32        | 9            | 0.47        | 2.50         | 2.89        | 11           | 0.55        | 1.92         | 2.22        |
|           | 40              | 4            | 0.25        | 4.97         | 5.74        | 6            | 0.40        | 3.76         | 4.34        | 9            | 0.50        | 2.38         | 2.74        | 11           | 0.59        | 1.88         | 2.17        |
| 120°<br>◐ | 20              | 3            | 0.28        | 7.65         | 8.84        | 5            | 0.37        | 3.88         | 4.48        | 7            | 0.48        | 2.83         | 3.27        | 9            | 0.53        | 1.90         | 2.20        |
|           | 25              | 3            | 0.30        | 7.28         | 8.40        | 5            | 0.38        | 3.76         | 4.35        | 8            | 0.53        | 2.74         | 3.16        | 10           | 0.60        | 1.92         | 2.22        |
|           | <b>30</b>       | <b>4</b>     | <b>0.34</b> | <b>6.14</b>  | <b>7.09</b> | <b>6</b>     | <b>0.44</b> | <b>3.53</b>  | <b>4.08</b> | <b>8</b>     | <b>0.59</b> | <b>2.65</b>  | <b>3.06</b> | <b>10</b>    | <b>0.67</b> | <b>1.93</b>  | <b>2.22</b> |
|           | 35              | 4            | 0.36        | 5.81         | 6.71        | 6            | 0.46        | 3.40         | 3.93        | 9            | 0.63        | 2.50         | 2.89        | 11           | 0.73        | 1.92         | 2.22        |
|           | 40              | 4            | 0.37        | 5.52         | 6.37        | 6            | 0.48        | 3.38         | 3.91        | 9            | 0.67        | 2.38         | 2.74        | 11           | 0.79        | 1.88         | 2.17        |
| 180°<br>◓ | 20              | 3            | 0.34        | 6.20         | 7.16        | 5            | 0.50        | 3.49         | 4.03        | 7            | 0.72        | 2.83         | 3.27        | 9            | 0.80        | 1.90         | 2.20        |
|           | 25              | 3            | 0.38        | 6.15         | 7.10        | 5            | 0.54        | 3.56         | 4.12        | 8            | 0.80        | 2.74         | 3.16        | 10           | 0.90        | 1.92         | 2.22        |
|           | <b>30</b>       | <b>4</b>     | <b>0.45</b> | <b>5.41</b>  | <b>6.25</b> | <b>6</b>     | <b>0.60</b> | <b>3.21</b>  | <b>3.70</b> | <b>8</b>     | <b>0.88</b> | <b>2.65</b>  | <b>3.06</b> | <b>10</b>    | <b>1.00</b> | <b>1.93</b>  | <b>2.22</b> |
|           | 35              | 4            | 0.46        | 5.02         | 5.80        | 6            | 0.64        | 3.15         | 3.64        | 9            | 0.94        | 2.50         | 2.89        | 11           | 1.10        | 1.92         | 2.22        |
|           | 40              | 4            | 0.48        | 4.77         | 5.51        | 6            | 0.68        | 3.20         | 3.69        | 9            | 1.00        | 2.38         | 2.74        | 11           | 1.18        | 1.88         | 2.17        |
| 240°<br>◒ | 20              | 3            | 0.58        | 7.93         | 9.15        | 5            | 0.73        | 3.82         | 4.42        | 7            | 0.96        | 2.83         | 3.27        | 9            | 1.07        | 1.90         | 2.20        |
|           | 25              | 3            | 0.62        | 7.52         | 8.68        | 5            | 0.78        | 3.86         | 4.46        | 8            | 1.07        | 2.74         | 3.16        | 10           | 1.20        | 1.92         | 2.22        |
|           | <b>30</b>       | <b>4</b>     | <b>0.68</b> | <b>6.14</b>  | <b>7.09</b> | <b>6</b>     | <b>0.88</b> | <b>3.53</b>  | <b>4.08</b> | <b>8</b>     | <b>1.17</b> | <b>2.65</b>  | <b>3.06</b> | <b>10</b>    | <b>1.33</b> | <b>1.93</b>  | <b>2.22</b> |
|           | 35              | 4            | 0.74        | 6.06         | 6.99        | 6            | 0.92        | 3.40         | 3.93        | 9            | 1.25        | 2.50         | 2.89        | 11           | 1.47        | 1.92         | 2.22        |
|           | 40              | 4            | 0.80        | 5.97         | 6.89        | 6            | 1.02        | 3.60         | 4.15        | 9            | 1.33        | 2.38         | 2.74        | 11           | 1.57        | 1.88         | 2.17        |
| 270°<br>◑ | 20              | 3            | 0.62        | 7.53         | 8.70        | 5            | 0.88        | 4.10         | 4.73        | 7            | 1.08        | 2.83         | 3.27        | 9            | 1.20        | 1.90         | 2.20        |
|           | 25              | 3            | 0.66        | 7.12         | 8.22        | 5            | 0.98        | 4.31         | 4.98        | 8            | 1.20        | 2.74         | 3.16        | 10           | 1.35        | 1.92         | 2.22        |
|           | <b>30</b>       | <b>4</b>     | <b>0.73</b> | <b>5.86</b>  | <b>6.76</b> | <b>6</b>     | <b>1.10</b> | <b>3.92</b>  | <b>4.53</b> | <b>8</b>     | <b>1.32</b> | <b>2.65</b>  | <b>3.06</b> | <b>10</b>    | <b>1.50</b> | <b>1.93</b>  | <b>2.22</b> |
|           | 35              | 4            | 0.78        | 5.67         | 6.55        | 6            | 1.15        | 3.78         | 4.36        | 9            | 1.41        | 2.50         | 2.89        | 11           | 1.65        | 1.92         | 2.22        |
|           | 40              | 4            | 0.84        | 5.57         | 6.43        | 6            | 1.20        | 3.76         | 4.34        | 9            | 1.50        | 2.38         | 2.74        | 11           | 1.77        | 1.88         | 2.17        |
| 360°<br>● | 20              | 3            | 0.66        | 6.01         | 6.94        | 5            | 1.05        | 3.67         | 4.23        | 7            | 1.44        | 2.83         | 3.27        | 9            | 1.60        | 1.90         | 2.20        |
|           | 25              | 3            | 0.72        | 5.82         | 6.72        | 5            | 1.10        | 3.63         | 4.19        | 8            | 1.60        | 2.74         | 3.16        | 10           | 1.80        | 1.92         | 2.22        |
|           | <b>30</b>       | <b>4</b>     | <b>0.80</b> | <b>4.81</b>  | <b>5.56</b> | <b>6</b>     | <b>1.26</b> | <b>3.37</b>  | <b>3.89</b> | <b>8</b>     | <b>1.76</b> | <b>2.65</b>  | <b>3.06</b> | <b>10</b>    | <b>2.00</b> | <b>1.93</b>  | <b>2.22</b> |
|           | 35              | 4            | 0.86        | 4.69         | 5.42        | 6            | 1.30        | 3.20         | 3.70        | 9            | 1.88        | 2.50         | 2.89        | 11           | 2.20        | 1.92         | 2.22        |
|           | 40              | 4            | 0.90        | 4.47         | 5.17        | 6            | 1.40        | 3.29         | 3.80        | 9            | 2.00        | 2.38         | 2.74        | 11           | 2.36        | 1.88         | 2.17        |

**Bold** = Recommended pressure

**Note:** The Pro-Spray PRS30's built-in pressure regulator controls output to a maximum of 30 PSI. Adjusting the radius reduction screw may be required to achieve catalog radius and flow.

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA



**12A**

● Green

12' radius  
Adjustable from  
0° to 360°  
Trajectory: 28°



**15A**

● Black

15' radius  
Adjustable from  
0° to 360°  
Trajectory: 28°



**17A**

● Gray

17' radius  
Adjustable from  
0° to 360°  
Trajectory: 28°

| Arc       | Pressure<br>PSI | Radius<br>ft | Flow<br>GPM | Precip in/hr |             |  | Radius<br>ft | Flow<br>GPM | Precip in/hr |             |  | Radius<br>ft | Flow<br>GPM | Precip in/hr |             |  |
|-----------|-----------------|--------------|-------------|--------------|-------------|--|--------------|-------------|--------------|-------------|--|--------------|-------------|--------------|-------------|--|
|           |                 |              |             | ■            | ▲           |  |              |             | ■            | ▲           |  |              |             | ■            | ▲           |  |
| 45°<br>►  | 20              | 11           | 0.25        | 1.59         | 1.84        |  | 14           | 0.39        | 1.51         | 1.75        |  | 16           | 0.49        | 1.46         | 1.68        |  |
|           | 25              | 12           | 0.28        | 1.60         | 1.85        |  | 15           | 0.43        | 1.57         | 1.82        |  | 17           | 0.57        | 1.60         | 1.85        |  |
|           | <b>30</b>       | <b>12</b>    | <b>0.32</b> | <b>1.68</b>  | <b>1.95</b> |  | <b>15</b>    | <b>0.47</b> | <b>1.59</b>  | <b>1.84</b> |  | <b>17</b>    | <b>0.58</b> | <b>1.53</b>  | <b>1.77</b> |  |
|           | 35              | 13           | 0.37        | 1.80         | 2.08        |  | 16           | 0.52        | 1.55         | 1.79        |  | 18           | 0.63        | 1.49         | 1.72        |  |
|           | 40              | 13           | 0.42        | 1.91         | 2.21        |  | 17           | 0.57        | 1.60         | 1.85        |  | 19           | 0.69        | 1.55         | 1.79        |  |
| 90°<br>◐  | 20              | 11           | 0.50        | 1.59         | 1.84        |  | 14           | 0.77        | 1.51         | 1.75        |  | 16           | 0.97        | 1.46         | 1.68        |  |
|           | 25              | 12           | 0.55        | 1.60         | 1.85        |  | 15           | 0.86        | 1.57         | 1.82        |  | 17           | 1.13        | 1.60         | 1.85        |  |
|           | <b>30</b>       | <b>12</b>    | <b>0.63</b> | <b>1.68</b>  | <b>1.95</b> |  | <b>15</b>    | <b>0.93</b> | <b>1.59</b>  | <b>1.84</b> |  | <b>17</b>    | <b>1.15</b> | <b>1.53</b>  | <b>1.77</b> |  |
|           | 35              | 13           | 0.73        | 1.80         | 2.08        |  | 16           | 1.03        | 1.55         | 1.79        |  | 18           | 1.25        | 1.49         | 1.72        |  |
|           | 40              | 13           | 0.84        | 1.91         | 2.21        |  | 17           | 1.13        | 1.60         | 1.85        |  | 19           | 1.38        | 1.55         | 1.79        |  |
| 120°<br>◑ | 20              | 11           | 0.67        | 1.59         | 1.84        |  | 14           | 1.03        | 1.51         | 1.75        |  | 16           | 1.29        | 1.46         | 1.68        |  |
|           | 25              | 12           | 0.73        | 1.60         | 1.85        |  | 15           | 1.15        | 1.57         | 1.82        |  | 17           | 1.51        | 1.51         | 1.74        |  |
|           | <b>30</b>       | <b>12</b>    | <b>0.84</b> | <b>1.68</b>  | <b>1.95</b> |  | <b>15</b>    | <b>1.24</b> | <b>1.59</b>  | <b>1.84</b> |  | <b>17</b>    | <b>1.53</b> | <b>1.53</b>  | <b>1.77</b> |  |
|           | 35              | 13           | 0.97        | 1.80         | 2.08        |  | 16           | 1.37        | 1.55         | 1.79        |  | 18           | 1.67        | 1.49         | 1.72        |  |
|           | 40              | 13           | 1.12        | 1.91         | 2.21        |  | 17           | 1.51        | 1.60         | 1.85        |  | 19           | 1.84        | 1.47         | 1.70        |  |
| 180°<br>◒ | 20              | 11           | 1.00        | 1.59         | 1.84        |  | 14           | 1.54        | 1.51         | 1.75        |  | 16           | 1.94        | 1.46         | 1.68        |  |
|           | 25              | 12           | 1.10        | 1.60         | 1.85        |  | 15           | 1.72        | 1.57         | 1.82        |  | 17           | 2.26        | 1.51         | 1.74        |  |
|           | <b>30</b>       | <b>12</b>    | <b>1.26</b> | <b>1.68</b>  | <b>1.95</b> |  | <b>15</b>    | <b>1.86</b> | <b>1.59</b>  | <b>1.84</b> |  | <b>17</b>    | <b>2.30</b> | <b>1.53</b>  | <b>1.77</b> |  |
|           | 35              | 13           | 1.46        | 1.80         | 2.08        |  | 16           | 2.06        | 1.55         | 1.79        |  | 18           | 2.50        | 1.49         | 1.72        |  |
|           | 40              | 13           | 1.68        | 1.91         | 2.21        |  | 17           | 2.26        | 1.60         | 1.85        |  | 19           | 2.76        | 1.47         | 1.70        |  |
| 240°<br>◓ | 20              | 11           | 1.33        | 1.59         | 1.84        |  | 14           | 2.05        | 1.51         | 1.75        |  | 16           | 2.59        | 1.46         | 1.68        |  |
|           | 25              | 12           | 1.47        | 1.60         | 1.85        |  | 15           | 2.29        | 1.57         | 1.82        |  | 17           | 3.01        | 1.51         | 1.74        |  |
|           | <b>30</b>       | <b>12</b>    | <b>1.68</b> | <b>1.68</b>  | <b>1.95</b> |  | <b>15</b>    | <b>2.48</b> | <b>1.59</b>  | <b>1.84</b> |  | <b>17</b>    | <b>3.07</b> | <b>1.53</b>  | <b>1.77</b> |  |
|           | 35              | 13           | 1.95        | 1.80         | 2.08        |  | 16           | 2.75        | 1.55         | 1.79        |  | 18           | 3.33        | 1.49         | 1.72        |  |
|           | 40              | 13           | 2.24        | 1.91         | 2.21        |  | 17           | 3.01        | 1.60         | 1.85        |  | 19           | 3.68        | 1.47         | 1.70        |  |
| 270°<br>◔ | 20              | 11           | 1.50        | 1.59         | 1.84        |  | 14           | 2.31        | 1.51         | 1.75        |  | 16           | 2.91        | 1.46         | 1.68        |  |
|           | 25              | 12           | 1.65        | 1.60         | 1.85        |  | 15           | 2.58        | 1.57         | 1.82        |  | 17           | 3.39        | 1.51         | 1.74        |  |
|           | <b>30</b>       | <b>12</b>    | <b>1.89</b> | <b>1.68</b>  | <b>1.95</b> |  | <b>15</b>    | <b>2.79</b> | <b>1.59</b>  | <b>1.84</b> |  | <b>17</b>    | <b>3.45</b> | <b>1.53</b>  | <b>1.77</b> |  |
|           | 35              | 13           | 2.19        | 1.80         | 2.08        |  | 16           | 3.09        | 1.55         | 1.79        |  | 18           | 3.75        | 1.49         | 1.72        |  |
|           | 40              | 13           | 2.52        | 1.91         | 2.21        |  | 17           | 3.39        | 1.60         | 1.85        |  | 19           | 4.14        | 1.47         | 1.70        |  |
| 360°<br>● | 20              | 11           | 2.00        | 1.59         | 1.84        |  | 14           | 3.08        | 1.51         | 1.75        |  | 16           | 3.88        | 1.46         | 1.68        |  |
|           | 25              | 12           | 2.20        | 1.60         | 1.85        |  | 15           | 3.44        | 1.57         | 1.82        |  | 17           | 4.52        | 1.51         | 1.74        |  |
|           | <b>30</b>       | <b>12</b>    | <b>2.52</b> | <b>1.68</b>  | <b>1.95</b> |  | <b>15</b>    | <b>3.72</b> | <b>1.59</b>  | <b>1.84</b> |  | <b>17</b>    | <b>4.60</b> | <b>1.53</b>  | <b>1.77</b> |  |
|           | 35              | 13           | 2.92        | 1.80         | 2.08        |  | 16           | 4.12        | 1.55         | 1.79        |  | 18           | 5.00        | 1.49         | 1.72        |  |
|           | 40              | 13           | 3.36        | 1.91         | 2.21        |  | 17           | 4.52        | 1.60         | 1.85        |  | 19           | 5.52        | 1.47         | 1.70        |  |

**Bold** = Recommended pressure

**Note:** The Pro-Spray PRS30's built-in pressure regulator controls output to a maximum of 30 PSI. Adjusting the radius reduction screw may be required to achieve catalog radius and flow.



# PRO FIXED NOZZLES

*Pro Fixed Nozzles are designed for high accuracy within a variety of landscape shapes and sizes.*

## KEY BENEFITS

- Clean edges for a defined pattern with better wind resistance
- Large water droplets minimize misting with better uniformity
- Sturdy construction ensures reliable performance
- Color-coded for easy field identification

## OPERATING SPECIFICATIONS

- Recommended operating pressure: 30 PSI
- Pair with Pro-Spray® PRS30 Sprinkler Bodies for pressure regulation to 30 PSI
- Warranty period: 2 years

| PRO FIXED NOZZLES |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                      |
|-------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| ARC               | 5                                                                                   | 8                                                                                   | 10                                                                                  | 12                                                                                  | 15                                                                                  | 17                                                                                   |
| Q                 |    |    |    |    |    |    |
| T                 | Use 4A/6A Nozzle                                                                    |   |   |   |   | Use 17A Nozzle                                                                       |
| H                 |  |  |  |  |  |  |
| F                 |  |  |  |  |  | Use 17A Nozzle                                                                       |
|                   | 5'                                                                                  | 8'                                                                                  | 10'                                                                                 | 12'                                                                                 | 15'                                                                                 | 17'                                                                                  |

## PRO FIXED NOZZLES PERFORMANCE DATA



**5** 5' radius  
Fixed: ¼, ½, Full  
● Blue Trajectory: 0°

**8** 8' radius  
Fixed: ¼, ½, Full  
● Brown Trajectory: 15°

**10** 10' radius  
Fixed: ¼, ½, Full  
● Red Trajectory: 15°

| Arc                                                                                         | Position | Pressure<br>PSI | Radius<br>ft               | Flow<br>GPM | Precip in/hr |             | Radius<br>ft | Flow<br>GPM | Precip in/hr |             | Radius<br>ft | Flow<br>GPM | Precip in/hr |             |
|---------------------------------------------------------------------------------------------|----------|-----------------|----------------------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|
|                                                                                             |          |                 |                            |             | ■            | ▲           |              |             | ■            | ▲           |              |             | ■            | ▲           |
| 90°<br>    | Q        | 20              | 4                          | 0.09        | 2.25         | 2.60        | 7            | 0.20        | 1.54         | 1.78        | 9            | 0.34        | 1.63         | 1.88        |
|                                                                                             |          | 25              | 4                          | 0.11        | 2.54         | 2.94        | 8            | 0.22        | 1.33         | 1.53        | 10           | 0.39        | 1.48         | 1.71        |
|                                                                                             |          | <b>30</b>       | <b>5</b>                   | <b>0.12</b> | <b>1.80</b>  | <b>2.08</b> | <b>8</b>     | <b>0.24</b> | <b>1.46</b>  | <b>1.69</b> | <b>10</b>    | <b>0.42</b> | <b>1.63</b>  | <b>1.89</b> |
|                                                                                             |          | 35              | 6                          | 0.13        | 1.36         | 1.57        | 9            | 0.26        | 1.25         | 1.45        | 11           | 0.46        | 1.47         | 1.69        |
|                                                                                             |          | 40              | 6                          | 0.14        | 1.46         | 1.69        | 9            | 0.28        | 1.34         | 1.55        | 11           | 0.49        | 1.57         | 1.82        |
| 120°<br>   | T        | 20              | Use Hunter 4A or 6A Nozzle |             |              |             | 7            | 0.26        | 1.54         | 1.78        | 9            | 0.46        | 1.63         | 1.88        |
|                                                                                             |          | 25              |                            |             |              |             | 8            | 0.29        | 1.33         | 1.53        | 10           | 0.51        | 1.48         | 1.71        |
|                                                                                             |          | <b>30</b>       |                            |             |              |             | <b>8</b>     | <b>0.32</b> | <b>1.46</b>  | <b>1.69</b> | <b>10</b>    | <b>0.57</b> | <b>1.63</b>  | <b>1.89</b> |
|                                                                                             |          | 35              |                            |             |              |             | 9            | 0.35        | 1.25         | 1.45        | 11           | 0.61        | 1.47         | 1.69        |
|                                                                                             |          | 40              |                            |             |              |             | 9            | 0.38        | 1.34         | 1.55        | 11           | 0.66        | 1.57         | 1.82        |
| 180°<br>   | H        | 20              | 4                          | 0.19        | 2.25         | 2.60        | 7            | 0.38        | 1.49         | 1.72        | 9            | 0.70        | 1.67         | 1.92        |
|                                                                                             |          | 25              | 4                          | 0.21        | 2.54         | 2.94        | 8            | 0.43        | 1.28         | 1.48        | 10           | 0.79        | 1.53         | 1.76        |
|                                                                                             |          | <b>30</b>       | <b>5</b>                   | <b>0.23</b> | <b>1.80</b>  | <b>2.08</b> | <b>8</b>     | <b>0.47</b> | <b>1.41</b>  | <b>1.63</b> | <b>10</b>    | <b>0.88</b> | <b>1.69</b>  | <b>1.95</b> |
|                                                                                             |          | 35              | 6                          | 0.25        | 1.36         | 1.57        | 9            | 0.51        | 1.21         | 1.39        | 11           | 0.95        | 1.52         | 1.75        |
|                                                                                             |          | 40              | 6                          | 0.27        | 1.46         | 1.69        | 9            | 0.54        | 1.29         | 1.49        | 11           | 1.03        | 1.63         | 1.89        |
| 360°<br> | F        | 20              | 4                          | 0.37        | 2.25         | 2.60        | 7            | 0.78        | 1.54         | 1.78        | 9            | 1.29        | 1.53         | 1.77        |
|                                                                                             |          | 25              | 4                          | 0.42        | 2.54         | 2.94        | 8            | 0.88        | 1.33         | 1.53        | 10           | 1.45        | 1.39         | 1.61        |
|                                                                                             |          | <b>30</b>       | <b>5</b>                   | <b>0.47</b> | <b>1.80</b>  | <b>2.08</b> | <b>8</b>     | <b>0.97</b> | <b>1.46</b>  | <b>1.69</b> | <b>10</b>    | <b>1.59</b> | <b>1.53</b>  | <b>1.76</b> |
|                                                                                             |          | 35              | 6                          | 0.51        | 1.36         | 1.57        | 9            | 1.05        | 1.25         | 1.45        | 11           | 1.72        | 1.37         | 1.58        |
|                                                                                             |          | 40              | 6                          | 0.55        | 1.46         | 1.69        | 9            | 1.13        | 1.34         | 1.55        | 11           | 1.84        | 1.46         | 1.69        |

**Bold** = Recommended pressure

### Pro Fixed Nozzles



## PRO FIXED NOZZLES PERFORMANCE DATA

**12**
 12' radius  
 Fixed: ¼, ⅓, ½, ⅔, ¾, Full  
 Trajectory: 28°
**15**
 15' radius  
 Fixed: ¼, ⅓, ½, ⅔, ¾, Full  
 Trajectory: 28°
**17**
 17' radius  
 Fixed: ¼, ½  
 Trajectory: 28°


| Arc      | Position | Pressure<br>PSI | Radius<br>ft | Flow<br>GPM | Precip in/hr |             | Radius<br>ft | Flow<br>GPM | Precip in/hr |             | Radius<br>ft          | Flow<br>GPM | Precip in/hr |             |
|----------|----------|-----------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|-----------------------|-------------|--------------|-------------|
|          |          |                 |              |             | ■            | ▲           |              |             | ■            | ▲           |                       |             | ■            | ▲           |
| 90°<br>  | Q        | 20              | 11           | 0.54        | 1.71         | 1.98        | 14           | 0.78        | 1.53         | 1.77        | 16                    | 0.93        | 1.40         | 1.61        |
|          |          | 25              | 12           | 0.61        | 1.62         | 1.87        | 15           | 0.88        | 1.51         | 1.74        | 17                    | 1.05        | 1.39         | 1.61        |
|          |          | <b>30</b>       | <b>12</b>    | <b>0.67</b> | <b>1.78</b>  | <b>2.06</b> | <b>15</b>    | <b>0.97</b> | <b>1.67</b>  | <b>1.92</b> | <b>17</b>             | <b>1.15</b> | <b>1.54</b>  | <b>1.77</b> |
|          |          | 35              | 13           | 0.72        | 1.65         | 1.90        | 16           | 1.06        | 1.59         | 1.84        | 18                    | 1.25        | 1.49         | 1.72        |
|          |          | 40              | 13           | 0.78        | 1.77         | 2.04        | 17           | 1.14        | 1.52         | 1.75        | 19                    | 1.34        | 1.43         | 1.65        |
| 120°<br> | T        | 20              | 11           | 0.72        | 1.71         | 1.98        | 14           | 1.04        | 1.53         | 1.77        | Use Hunter 17A Nozzle |             |              |             |
|          |          | 25              | 12           | 0.81        | 1.62         | 1.87        | 15           | 1.17        | 1.51         | 1.74        |                       |             |              |             |
|          |          | <b>30</b>       | <b>12</b>    | <b>0.89</b> | <b>1.78</b>  | <b>2.06</b> | <b>15</b>    | <b>1.30</b> | <b>1.67</b>  | <b>1.92</b> |                       |             |              |             |
|          |          | 35              | 13           | 0.97        | 1.65         | 1.90        | 16           | 1.41        | 1.59         | 1.84        |                       |             |              |             |
|          |          | 40              | 13           | 1.04        | 1.77         | 2.04        | 17           | 1.52        | 1.52         | 1.75        |                       |             |              |             |
| 180°<br> | H        | 20              | 11           | 1.05        | 1.67         | 1.93        | 14           | 1.51        | 1.48         | 1.71        | 16                    | 1.91        | 1.43         | 1.66        |
|          |          | 25              | 12           | 1.18        | 1.58         | 1.83        | 15           | 1.69        | 1.45         | 1.67        | 17                    | 2.15        | 1.43         | 1.65        |
|          |          | <b>30</b>       | <b>12</b>    | <b>1.30</b> | <b>1.74</b>  | <b>2.01</b> | <b>15</b>    | <b>1.86</b> | <b>1.59</b>  | <b>1.84</b> | <b>17</b>             | <b>2.37</b> | <b>1.58</b>  | <b>1.82</b> |
|          |          | 35              | 13           | 1.42        | 1.61         | 1.86        | 16           | 2.02        | 1.52         | 1.75        | 18                    | 2.57        | 1.53         | 1.76        |
|          |          | 40              | 13           | 1.52        | 1.73         | 2.00        | 17           | 2.16        | 1.44         | 1.66        | 19                    | 2.76        | 1.47         | 1.70        |
| 360°<br> | F        | 20              | 11           | 2.17        | 1.72         | 1.99        | 14           | 3.04        | 1.49         | 1.72        | Use Hunter 17A Nozzle |             |              |             |
|          |          | 25              | 12           | 2.45        | 1.63         | 1.89        | 15           | 3.41        | 1.46         | 1.69        |                       |             |              |             |
|          |          | <b>30</b>       | <b>12</b>    | <b>2.70</b> | <b>1.80</b>  | <b>2.08</b> | <b>15</b>    | <b>3.75</b> | <b>1.61</b>  | <b>1.85</b> |                       |             |              |             |
|          |          | 35              | 13           | 2.93        | 1.67         | 1.93        | 16           | 4.07        | 1.53         | 1.76        |                       |             |              |             |
|          |          | 40              | 13           | 3.15        | 1.80         | 2.07        | 17           | 4.36        | 1.45         | 1.68        |                       |             |              |             |

**Bold** = Recommended pressure



# SHORT-RADIUS MICRO SPRAY NOZZLES

These highly accurate nozzles are perfect for small spaces and can support a robust micro spray system with Pro-Spray® pop-ups.

## KEY BENEFITS

- Low flow for controlled irrigation of tight spaces
- Meets micro spray requirement of 30 GPH max flow at 30 PSI
- Built to last for a robust overhead solution for small spaces

## OPERATING SPECIFICATIONS

- Recommended operating pressure: 30 PSI
- Pair with Pro-Spray PRS30 pop-up for pressure regulation to 30 PSI

### SHORT-RADIUS NOZZLES PERFORMANCE DATA

● Lt. Brown

| Arc                                                                                        | Pressure<br>PSI | Position | Radius<br>ft. | Flow        |             | *Precip<br>in/hr |
|--------------------------------------------------------------------------------------------|-----------------|----------|---------------|-------------|-------------|------------------|
|                                                                                            |                 |          |               | GPM         | GPH         |                  |
| 90°<br>   | 20              | 2Q       | 2             | 0.09        | 5.4         | 2.17             |
|                                                                                            | 25              |          | 2             | 0.10        | 6.0         | 2.41             |
|                                                                                            | 30              |          | 2             | <b>0.11</b> | <b>6.6</b>  | <b>2.65</b>      |
|                                                                                            | 35              |          | 2             | 0.13        | 7.8         | 3.13             |
|                                                                                            | 40              |          | 2             | 0.14        | 8.4         | 3.37             |
| 180°<br> | 20              | 2H       | 2             | 0.14        | 8.4         | 1.68             |
|                                                                                            | 25              |          | 2             | 0.15        | 9.0         | 1.80             |
|                                                                                            | 30              |          | 2             | <b>0.20</b> | <b>12.0</b> | <b>2.41</b>      |
|                                                                                            | 35              |          | 2             | 0.20        | 12.0        | 2.41             |
|                                                                                            | 40              |          | 2             | 0.21        | 12.6        | 2.53             |

### SHORT-RADIUS NOZZLES PERFORMANCE DATA

● Lt. Green

| Arc                                                                                         | Pressure<br>PSI | Position | Radius<br>ft. | Flow        |             | *Precip<br>in/hr |
|---------------------------------------------------------------------------------------------|-----------------|----------|---------------|-------------|-------------|------------------|
|                                                                                             |                 |          |               | GPM         | GPH         |                  |
| 90°<br>  | 20              | 4Q       | 4             | 0.18        | 10.8        | 1.08             |
|                                                                                             | 25              |          | 4             | 0.20        | 12.0        | 1.20             |
|                                                                                             | 30              |          | 4             | <b>0.20</b> | <b>12.0</b> | <b>1.20</b>      |
|                                                                                             | 35              |          | 4             | 0.22        | 13.2        | 1.32             |
|                                                                                             | 40              |          | 4             | 0.24        | 14.4        | 1.44             |
| 180°<br> | 20              | 4H       | 4             | 0.33        | 19.8        | 0.99             |
|                                                                                             | 25              |          | 4             | 0.34        | 20.4        | 1.02             |
|                                                                                             | 30              |          | 4             | <b>0.40</b> | <b>24.0</b> | <b>1.20</b>      |
|                                                                                             | 35              |          | 4             | 0.40        | 24.0        | 1.20             |
|                                                                                             | 40              |          | 4             | 0.44        | 26.4        | 1.32             |

### SHORT-RADIUS NOZZLES PERFORMANCE DATA

● Lt. Blue

| Arc                                                                                         | Pressure<br>PSI | Position | Radius<br>ft. | Flow        |             | *Precip<br>in/hr |
|---------------------------------------------------------------------------------------------|-----------------|----------|---------------|-------------|-------------|------------------|
|                                                                                             |                 |          |               | GPM         | GPH         |                  |
| 90°<br>  | 20              | 6Q       | 6             | 0.22        | 13.2        | 0.59             |
|                                                                                             | 25              |          | 6             | 0.24        | 14.4        | 0.64             |
|                                                                                             | 30              |          | 6             | <b>0.30</b> | <b>18.0</b> | <b>0.80</b>      |
|                                                                                             | 35              |          | 6             | 0.30        | 18.0        | 0.80             |
|                                                                                             | 40              |          | 6             | 0.30        | 18.0        | 0.80             |
| 180°<br> | 20              | 6H       | 6             | 0.40        | 24.0        | 0.53             |
|                                                                                             | 25              |          | 6             | 0.44        | 26.4        | 0.59             |
|                                                                                             | 30              |          | 6             | <b>0.50</b> | <b>30.0</b> | <b>0.67</b>      |
|                                                                                             | 35              |          | 6             | 0.52        | 31.2        | 0.70             |
|                                                                                             | 40              |          | 6             | 0.54        | 32.4        | 0.72             |

Bold = Recommended pressure

\*Precipitation rate shown without overlap



**2Q**  
Radius: 2'



**2H**  
Radius: 2'



**4Q**  
Radius: 4'



**4H**  
Radius: 4'

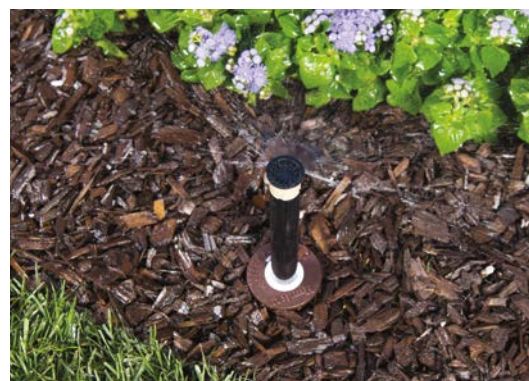


**6Q**  
Radius: 6'



**6H**  
Radius: 6'

Short-Radius Micro Spray Nozzle



# STRIP PATTERN NOZZLES

Irrigate narrow turf and planter areas accurately with fixed arc Strip Pattern Nozzles.

## KEY BENEFITS

- Designed for accurate coverage of strip areas
- Available in a variety of models for unique, rectangular spaces
- Built to last in harsh conditions

## OPERATING SPECIFICATIONS

- Recommended operating pressure: 30 PSI
- Pair with Pro-Spray® PRS30 pop-up for pressure regulation to 30 PSI
- Warranty period: 2 years

| STRIP PATTERN NOZZLE PERFORMANCE DATA                                                          |                 |                   |             |
|------------------------------------------------------------------------------------------------|-----------------|-------------------|-------------|
| Arc                                                                                            | Pressure<br>PSI | Width x<br>Length | Flow<br>GPM |
| LCS-515<br> | 20              | 4' x 14'          | 0.55        |
|                                                                                                | 25              | 5' x 15'          | 0.60        |
|                                                                                                | <b>30</b>       | <b>5' x 15'</b>   | <b>0.65</b> |
|                                                                                                | 35              | 5' x 15'          | 0.70        |
|                                                                                                | 40              | 5' x 15'          | 0.75        |
| RCS-515<br> | 20              | 4' x 14'          | 0.55        |
|                                                                                                | 25              | 5' x 15'          | 0.60        |
|                                                                                                | <b>30</b>       | <b>5' x 15'</b>   | <b>0.65</b> |
|                                                                                                | 35              | 5' x 15'          | 0.70        |
|                                                                                                | 40              | 5' x 15'          | 0.75        |
| SS-530<br>  | 20              | 4' x 28'          | 1.10        |
|                                                                                                | 25              | 5' x 30'          | 1.20        |
|                                                                                                | <b>30</b>       | <b>5' x 30'</b>   | <b>1.30</b> |
|                                                                                                | 35              | 5' x 30'          | 1.40        |
|                                                                                                | 40              | 5' x 30'          | 1.50        |
| SS-918<br>  | 20              | 8' x 17'          | 1.45        |
|                                                                                                | 25              | 9' x 18'          | 1.58        |
|                                                                                                | <b>30</b>       | <b>9' x 18'</b>   | <b>1.72</b> |
|                                                                                                | 35              | 9' x 18'          | 1.88        |
|                                                                                                | 40              | 9' x 18'          | 2.08        |
| CS-530<br>  | 20              | 4' x 28'          | 1.10        |
|                                                                                                | 25              | 5' x 30'          | 1.20        |
|                                                                                                | <b>30</b>       | <b>5' x 30'</b>   | <b>1.30</b> |
|                                                                                                | 35              | 5' x 30'          | 1.40        |
|                                                                                                | 40              | 5' x 30'          | 1.50        |
| ES-515<br>  | 20              | 4' x 14'          | 0.55        |
|                                                                                                | 25              | 5' x 15'          | 0.60        |
|                                                                                                | <b>30</b>       | <b>5' x 15'</b>   | <b>0.65</b> |
|                                                                                                | 35              | 5' x 15'          | 0.70        |
|                                                                                                | 40              | 5' x 15'          | 0.75        |

**Bold** = Recommended pressure

See [page 186](#) for precipitation rate calculation.



**Left Corner Strip**  
Rectangle: 5' x 15'



**Right Corner Strip**  
Rectangle: 5' x 15'



**Side Strip**  
Rectangle: 5' x 30'



**Side Strip**  
Rectangle: 9' x 18'



**Center Strip**  
Rectangle: 5' x 30'



**End Strip**  
Rectangle: 5' x 15'

RCS-515



# BUBBLER NOZZLES

Deliver a consistent flow regardless of inlet pressure with pressure-compensating Bubbler Nozzles.

## KEY BENEFITS

- Pressure-compensating for constant water flow at any pressure
- Designed for deep watering of planted areas
- Nozzle threaded for use with Pro-Spray® Sprinkler Bodies
- Warranty period: 2 years

### MULTI-STREAM BUBBLER PERFORMANCE DATA

| Arc                                                                               |                                                                                   | Model    | Flow GPM | Radius ft. |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------|----------|------------|
|  |  | MSBN-25Q | 0.25     | 1.0        |
|                                                                                   |  | MSBN-50Q | 0.50     | 1.5        |
|  |  | MSBN-50H | 0.50     | 1.0        |
|                                                                                   |  | MSBN-10H | 1.00     | 1.5        |
|  |  | MSBN-10F | 1.00     | 1.0        |
|                                                                                   |  | MSBN-20F | 2.00     | 1.5        |

#### Notes:

Typical spacing 2' to 4'. Flows shown for pressures between 15 and 70 PSI.



#### MSBN Installed on PROS-04

Combining Hunter Bubbler Nozzles with Pro-Spray Sprinkler Bodies provides the watering precision of pressure-compensating bubblers paired with the benefit of retracting the nozzle out of sight.

### Multi-Stream Bubbler



## MULTI-STREAM BUBBLER NOZZLES



**MSBN-25Q**  
Flow: 0.25 GPM



**MSBN-50Q/50H**  
Flow: 0.50 GPM



**MSBN-10H/10F**  
Flow: 1.0 GPM



**MSBN-20F**  
Flow: 2.0 GPM

### PCN PERFORMANCE DATA

|                                                                                     | Model                                                                                  | Flow GPM | Pattern Type |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------|--------------|
|  |  25 | 0.25     | Trickle      |
|                                                                                     |  50 | 0.50     | Trickle      |
|                                                                                     |  10 | 1.00     | Umbrella     |
|                                                                                     |  20 | 2.00     | Umbrella     |

#### Notes:

Typical spacing 2' to 4'. Flows shown for pressures between 15 and 70 PSI.

### PCN



## PCN BUBBLER NOZZLES



**PCN-25**  
Flow: 0.25 GPM



**PCN-50**  
Flow: 0.50 GPM



**PCN-10**  
Flow: 1.0 GPM



**PCN-20**  
Flow: 2.0 GPM

### 5-CST-B BUBBLER NOZZLE PERFORMANCE DATA

|                                                                                     | Pressure (PSI) | Radius (ft.) | Flow (GPM) |
|-------------------------------------------------------------------------------------|----------------|--------------|------------|
|  | 20             | 5            | 0.30       |
|                                                                                     | 25             | 5            | 0.32       |
|                                                                                     | 30             | 5            | 0.38       |
|                                                                                     | 35             | 5            | 0.40       |
|                                                                                     | 40             | 5            | 0.42       |

### 5-CST-B



## DUAL-STREAM BUBBLER NOZZLE



**5-CST-B**



# BUBBLERS

Ensure consistent flow regardless of pressure with above-ground, pressure-compensating Bubblers.

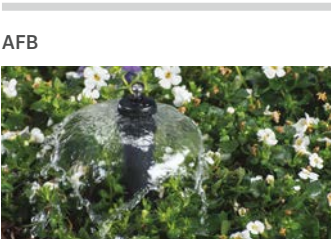
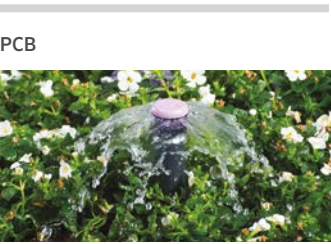
## KEY BENEFITS

- Pressure-compensating for constant water flow at any pressure
- Designed for deep watering of planted areas
- ½" threaded inlet for easy installation on a ½" riser
- Warranty period: 2 years

| PCB PERFORMANCE DATA                                                              |       |          |              |
|-----------------------------------------------------------------------------------|-------|----------|--------------|
|                                                                                   | Model | Flow GPM | Pattern Type |
|  | 25    | 0.25     | Trickle      |
|                                                                                   | 50    | 0.50     | Trickle      |
|                                                                                   | 10    | 1.00     | Umbrella     |
|                                                                                   | 20    | 2.00     | Umbrella     |

**Notes:**  
Typical spacing 2' to 4'. Flows shown for pressures between 15 and 70 PSI.

| AFB PERFORMANCE DATA                                                                |       |          |                      |
|-------------------------------------------------------------------------------------|-------|----------|----------------------|
|                                                                                     | Model | Flow GPM | Pattern Type         |
|  | AFB   | < 2.0    | Trickle/<br>Umbrella |







**VALVES**

## VALVE COMPARISON CHART

| QUICK SPECS                |     | 1" PGV & JAR-TOP | PGV            | ICV             | ICV FILTER SENTRY | IBV               |
|----------------------------|-----|------------------|----------------|-----------------|-------------------|-------------------|
| SIZE                       |     | 1"               | 1½", 2"        | 1", 1½", 2", 3" | 1", 1½", 2", 3"   | 1", 1½", 2", 3"   |
| FLOW                       | GPM | 0.2 to 40        | 20 to 150      | 0.1 to 300      | 0.1 to 300        | 0.1 to 300        |
| FEATURES                   |     |                  |                |                 |                   |                   |
| CAPTIVE BONNET BOLTS       |     | ●                | ●              | ●               | ●                 |                   |
| EPDM DIAPHRAGM AND SEAT    |     |                  |                | Standard        | Standard          | Standard          |
| WARRANTY                   |     | 2 Years          | 2 Years        | 5 Years         | 5 Years           | 5 Years           |
| ADVANCED FEATURES          |     |                  |                |                 |                   |                   |
| FLOW CONTROL               |     | Optional         | ●              | ●               | ●                 | ●                 |
| FILTER SENTRY® MECHANISM   |     |                  |                | User-Installed  | Factory-Installed | Factory-Installed |
| ACCU SYNC® CAPABLE         |     | ●                | ●              | ●               | ●                 | ●                 |
| RECLAIMED WATER ID HANDLE  |     | User-Installed   | User-Installed | User-Installed  | User-Installed    | User-Installed    |
| RECLAIMED WATER ID TAG     |     |                  |                | User-Installed  | User-Installed    | User-Installed    |
| APPLICATIONS               |     |                  |                |                 |                   |                   |
| RESIDENTIAL                |     | ●                | ●              | ●               |                   |                   |
| COMMERCIAL                 |     |                  | ●              | ●               | ●                 | ●                 |
| POTABLE WATER              |     | ●                | ●              | ●               | ●                 | ●                 |
| RECLAIMED WATER            |     |                  |                | ●               | ●                 | ●                 |
| SECONDARY WATER            |     |                  |                |                 | ●                 | ●                 |
| PRESSURE REGULATION        |     | ●                | ●              | ●               | ●                 | ●                 |
| HIGH-PRESSURE SYSTEMS      |     |                  |                | ●               | ●                 | ●                 |
| LOW-PRESSURE SYSTEMS       |     | ●                | ●              | ●               | ●                 | ●                 |
| HIGH-TEMPERATURE LOCATIONS |     |                  |                | ●               | ●                 | ●                 |
| USE AS MASTER VALVE        |     |                  | ●              | ●               | ●                 | ●                 |

### Advanced Features



#### ACCU SYNC PRESSURE REGULATORS

Available on:  
PGV, ICV, IBV

Avoid sprinkler over-pressure conditions and gain significant water savings with Hunter's Accu Sync Pressure Regulator. This option is available in adjustable or fixed pressure models.



#### FILTER SENTRY MECHANISM

For use with:  
ICV, IBV

The Filter Sentry Mechanism scours the filter clean twice during each valve cycle. Since it is attached to the diaphragm, the Filter Sentry feature can be easily added after a valve has been installed.



All Hunter valves are 100% water-tested to ensure reliable operation once installed. From residential to commercial

applications, high pressure to low pressure, and clean water to dirty water, Hunter valves keep systems running flawlessly day in and day out.



# 1" PGV AND PGV JAR-TOP



*These versatile and robust valves offer simple serviceability.*

## KEY BENEFITS

- External/internal manual bleed allows for quick and easy activation at the valve
- Double-beaded diaphragm seal design ensures leak-free performance
- Captive bonnet screws eliminate the possibility of lost parts during disassembly
- Triple-tool bonnet screws are compatible with standard or Phillips screwdrivers as well as a nut driver
- Jar-top models provide easy access without tools
- Encapsulated solenoid with captive plunger used on every Hunter valve provides hassle-free service
- Flow control maximizes efficiency and prolongs the life of the system

## USER-INSTALLED OPTIONS

- Accu Sync® Pressure Regulator at the valve\*
- DC-Latching Solenoid for battery-operated controllers (P/N 458200)
- Solenoid conduit cover (P/N 464322)

## FACTORY-INSTALLED OPTIONS

- LS: Valve without solenoid
- DC: DC-Latching Solenoid for battery-operated controllers; **see page 84**
- JT: Jar-top models

## OPERATING SPECIFICATIONS

- Flow: 0.2 to 40 GPM
- Recommended pressure range: 20 to 150 PSI
- Temperature rating: 150°F
- Warranty period: 2 years

## SOLENOID SPECIFICATIONS

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz
  - 370 mA inrush, 210 mA holding, 50 Hz

\* Accu Sync product information on **page 81**



### PGV-100G VALVE

Inlet diameter: 1"  
Height: 5"  
Length: 4½"  
Width: 2½"



### PGV-101G VALVE

Inlet diameter: 1"  
Height: 5"  
Length: 4½"  
Width: 2½"



### PGV-100JT-G VALVE

Inlet diameter: 1"  
Height: 5½"  
Length: 4½"  
Width: 3¼"



### PGV-101JT-G VALVE

Inlet diameter: 1"  
Height: 5½"  
Length: 4½"  
Width: 3¼"

### Double-Beaded Diaphragm



### Captive Bonnet Bolts



**PGV - SPECIFICATION BUILDER : ORDER 1 + 2 + 3 + 4 + 5**

| 1 Model               | 2 Standard Features                                      | 3 Feature Options                                                                                                                                                                                                                                    | 4 Options                                                         | 5 User-Installed Options                                                                                                                                            |
|-----------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PGV-100</b> = 1"   | Globe valve, without flow control, threaded inlet/outlet | <b>G</b> = Female threaded inlet/outlet                                                                                                                                                                                                              | <b>DC</b> = DC-Latching Solenoid for battery-operated controllers | <b>AS-ADJ</b> = Adjustable Accu Sync Pressure Regulator                                                                                                             |
| <b>PGV-101</b> = 1"   | Globe valve, with flow control, threaded inlet/outlet    | <b>G-S</b> = Slip inlet /outlet<br><br><b>MB</b> = Male NPT inlet/ 1" poly barb outlet<br><b>MB-075</b> = Male NPT inlet/ ¾" poly barb outlet<br><b>MB-125</b> = Male NPT inlet/ 1¼" poly barb outlet<br><b>MM</b> = Male NPT inlet/ Male NPT outlet | <b>LS</b> = Less solenoid<br><br><b>Blank</b> = No options        | <b>458200</b> = DC-Latching Solenoid for battery-operated controllers<br><br><b>269205</b> = Reclaimed flow control handle<br><br><b>LIT-700</b> = Reclaimed ID tag |
| <b>PGV-100-A</b> = 1" | Angle valve, without flow control, threaded inlet/outlet | <b>Blank</b> = No options                                                                                                                                                                                                                            | <b>Blank</b> = No options                                         |                                                                                                                                                                     |
| <b>PGV-101-A</b> = 1" | Angle valve, with flow control, threaded inlet/outlet    |                                                                                                                                                                                                                                                      |                                                                   |                                                                                                                                                                     |

**Example:**

PGV-101-MM = 1" PGV globe valve, with flow control, with male NPT inlet and outlet

**PGV JAR-TOP - SPECIFICATION BUILDER : ORDER 1 + 2 + 3 + 4 + 5**

| 1 Model                | 2 Standard Features                                      | 3 Feature Options                                                                                                                                                                                                                                   | 4 Options                                                         | 5 User-Installed Options                                                                                                                                            |
|------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PGV-100-JT</b> = 1" | Globe valve, without flow control, threaded inlet/outlet | <b>G</b> = Female threaded inlet/outlet                                                                                                                                                                                                             | <b>DC</b> = DC-Latching Solenoid for battery-operated controllers | <b>AS-ADJ</b> = Adjustable Accu Sync Pressure Regulator                                                                                                             |
| <b>PGV-101-JT</b> = 1" | Globe valve, with flow control, threaded inlet/outlet    | <b>G-S</b> = Slip inlet /outlet<br><br><b>MB</b> = Male NPT inlet/1" poly barb outlet<br><b>MB-075</b> = Male NPT inlet/ ¾" poly barb outlet<br><b>MB-125</b> = Male NPT inlet/ 1¼" poly barb outlet<br><b>MM</b> = Male NPT inlet/ Male NPT outlet | <b>LS</b> = Less solenoid                                         | <b>458200</b> = DC-Latching Solenoid for battery-operated controllers<br><br><b>269205</b> = Reclaimed flow control handle<br><br><b>LIT-700</b> = Reclaimed ID tag |

**Example:**

PGV-101-JT-MM = 1" PGV globe valve, with jar-top bonnet, with flow control, with male NPT inlet and outlet

**PGV PRESSURE LOSS IN PSI**

| GPM | Globe | Angle | Male x Male | Male x Barb |
|-----|-------|-------|-------------|-------------|
| 1   | 3     | 1     | 2           | 2           |
| 5   | 4     | 1     | 2           | 2           |
| 10  | 4     | 1     | 2           | 2           |
| 15  | 5     | 1     | 3           | 3           |
| 20  | 5     | 2     | 4           | 4           |
| 25  | 6     | 2     | 7           | 6           |
| 30  | 8     | 3     | 10          | 10          |
| 40  | 14    | 5     | 18          | 16          |

PGV-100G Valve Installed



Gain simple and trouble-free operation without the need for a separate backflow preventer.

## KEY BENEFITS

- External/internal manual bleed allows for quick and easy activation at the valve
- Double-beaded diaphragm seal design ensures leak-free performance
- Captive bonnet screws eliminate the possibility of lost parts during disassembly
- Triple-tool bonnet screws are compatible with standard or Phillips screwdrivers as well as a nut driver
- Removable anti-siphon cap for simple servicing
- Encapsulated solenoid with captive plunger used on every Hunter valve provides hassle-free service
- Flow control maximizes efficiency and prolongs the life of the system

## USER-INSTALLED OPTIONS

- Accu Sync® Pressure Regulator at the valve\*
- DC-Latching Solenoid for battery-operated controllers (P/N 458200)

## FACTORY-INSTALLED OPTIONS

- LS: Valve without solenoid
- DC: DC-Latching Solenoid for battery-operated controllers; **see page 84**

## OPERATING SPECIFICATIONS

- Flow: 0.2 to 40 GPM
- Recommended pressure range: 20 to 150 PSI
- Temperature rating: 150°F
- Warranty period: 2 years

\* Accu Sync product information on **page 81**



### PGV-075-ASV VALVE

Inlet diameter:  $\frac{3}{4}$ "  
Height: 5½"  
Length: 5¾"  
Width: 2½"



### PGV-101-ASV VALVE

Inlet diameter: 1"  
Height: 5½"  
Length: 6¼"  
Width: 2½"

### Double-Beaded Diaphragm



## PGV-ASV – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 | Model                                                 | 2 | Standard Features                                          | 3 | Feature Options                                                                   | 4 | User-Installed Options                                                                                             |
|---|-------------------------------------------------------|---|------------------------------------------------------------|---|-----------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------------------------------------------|
|   | PGV-075-ASV = $\frac{3}{4}$ "<br>PGV-101-ASV = 1"     |   | Anti-siphon valve with flow control, threaded inlet/outlet |   | (blank) = No option<br>DC = DC-Latching Solenoid for battery-operated controllers |   | AS-ADJ = Adjustable Accu Sync Pressure Regulator<br>458200 = DC-Latching Solenoid for battery-operated controllers |
|   | PGV-075-ASV-S = $\frac{3}{4}$ "<br>PGV-101-ASV-S = 1" |   | Anti-siphon valve with flow control, slip inlet/outlet     |   | LS = Less solenoid                                                                |   | 607105 = Reclaimed flow control handle<br>LIT-700 = Reclaimed ID tag                                               |

## PGV-ASV PRESSURE LOSS IN PSI

| Flow (GPM) | $\frac{3}{4}$ " | 1" |
|------------|-----------------|----|
| 1          | 1               | 1  |
| 5          | 2               | 2  |
| 10         | 2               | 2  |
| 15         | 3               | 3  |
| 20         | 6               | 6  |
| 25         |                 | 6  |
| 30         |                 | 9  |
| 35         |                 | 16 |
| 40         |                 | 20 |

Example:

PGV-101-ASV-S = 1" PGV anti-siphon valve with slip inlet and outlet





# 1½" AND 2" PGV

*These reliable valves provide long-lasting performance for larger systems.*

## KEY BENEFITS

- External/internal manual bleed allows for quick and easy activation at the valve
- Double-beaded diaphragm seal design ensures leak-free performance
- Captive bonnet screws eliminate the possibility of lost parts during disassembly
- Triple-tool bonnet screws are compatible with standard or Phillips screwdrivers as well as a nut driver
- Each valve available with globe or angle configuration for convenient placement
- Encapsulated solenoid with captive plunger used on every Hunter valve provides hassle-free service
- Flow control maximizes efficiency and prolongs the life of the system

## USER-INSTALLED OPTIONS

- Accu Sync® Pressure Regulator at the valve\*
- DC-Latching Solenoid for battery-operated controllers (P/N 458200)
- Solenoid conduit cover (P/N 464322)
- Reclaimed flow control handle (P/N 607105)

## FACTORY-INSTALLED OPTIONS

- LS: Valve without solenoid
- DC: DC-Latching Solenoid for battery-operated controllers; **see page 84**

## OPERATING SPECIFICATIONS

- Flow:
  - PGV-151: 20 to 120 GPM
  - PGV-201: 20 to 150 GPM
- Recommended pressure range: 20 to 150 PSI
- Temperature rating: 150°F
- Warranty period: 2 years

## SOLENOID SPECIFICATIONS

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz
  - 370 mA inrush, 210 mA holding, 50 Hz

\* Accu Sync product information on **page 81**



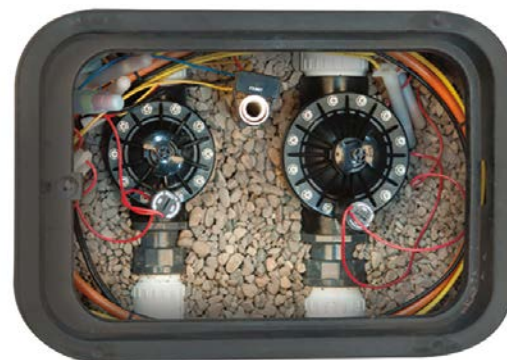
**PGV-151 VALVE**  
Inlet diameter: 1½"  
Height: 7½"  
Length: 5¾"  
Width: 4½"



**PGV-201 VALVE**  
Inlet diameter: 2"  
Height: 8"  
Length: 6¾"  
Width: 5¼"

VALVES

PGV Installed



### PGV-ASV – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 | Model                                       | 2 | Standard Features                   | 3 | Feature Options                                                                                                                  | 4 | User-Installed Options                                                                                                                                                                                                 |
|---|---------------------------------------------|---|-------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <b>PGV-151</b> = 1½"<br><b>PGV-201</b> = 2" |   | Globe/angle valve with flow control |   | <b>(blank)</b> = No option<br><b>DC</b> = DC-Latching Solenoid for battery-operated controllers<br><br><b>LS</b> = Less solenoid |   | <b>AS-ADJ</b> = Adjustable Accu Sync Pressure Regulator<br><b>458200</b> = DC-Latching Solenoid for battery-operated controllers<br><b>607105</b> = Reclaimed flow control handle<br><b>LIT-700</b> = Reclaimed ID tag |

Example:

**PGV-201-AS-ADJ** = 2" PGV globe/angle valve with flow control, user-installed adjustable Accu Sync Pressure Regulator

### PGV PRESSURE LOSS IN PSI

| Flow GPM | 1½" Globe | 1½" Angle | 2" Globe | 2" Angle |
|----------|-----------|-----------|----------|----------|
| 20       | 3         | 3         | 1        | 1        |
| 30       | 3         | 3         | 1        | 2        |
| 35       | 3         | 3         | 2        | 2        |
| 40       | 3         | 3         | 2        | 2        |
| 50       | 4         | 3.5       | 1        | 1        |
| 60       | 5         | 4         | 2        | 2        |
| 80       | 5.5       | 4.5       | 3        | 2        |
| 100      | 9         | 8         | 5        | 3        |
| 120      | 11.5      | 10.5      | 6        | 5        |
| 135      |           |           | 8        | 7        |
| 150      |           |           | 10       | 9        |

*This dependable valve works seamlessly with highly demanding systems.*

## KEY BENEFITS

- Optional Filter Sentry® Mechanism scours the filter screen in dirty water conditions
- External/internal manual bleed allows for quick and easy activation at the valve
- Glass-filled nylon construction provides high pressure rating and reliability
- Double-beaded diaphragm seal design ensures leak-free performance
- Fabric-reinforced EPDM diaphragm and seat ensure greater performance in all water conditions
- Captive bonnet screws eliminate the possibility of lost parts during disassembly
- Triple-tool bonnet screws are compatible with standard or Phillips screwdrivers as well as a nut driver
- Encapsulated solenoid with captive plunger used on every Hunter valve provides hassle-free service
- Flow control maximizes efficiency and prolongs the life of the system

## USER-INSTALLED OPTIONS

- Accu Sync® Pressure Regulator at the valve
- DC-Latching Solenoid for battery-operated controllers: P/N 458200
- Filter Sentry Mechanism easily added to an installed valve\*
- Solenoid conduit cover: P/N 464322

## FACTORY-INSTALLED OPTIONS

- LS: Valve without solenoid
- DC: DC-Latching Solenoid for battery-operated controllers; **see page 84**
- FS: Filter Sentry
- FS-R: Reclaimed option with Filter Sentry Mechanism, purple control knob, and purple, chlorine-resistant diaphragm (available only on 1½" and 2" models)

## OPERATING SPECIFICATIONS

- Flow:
  - ICV-101G: 0.1 to 40 GPM
  - ICV-151G: 0.1 to 150 GPM
  - ICV-201G: 0.1 to 200 GPM
  - ICV-301: 0.1 to 300 GPM
- Recommended pressure range: 20 to 220 PSI
- Temperature rating: 150°F
- Warranty period: 5 years

## SOLENOID SPECIFICATIONS

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz
  - 370 mA inrush, 210 mA holding, 50 Hz

\* Accu Sync product information on **page 81**



### ICV-101G VALVE

Inlet diameter: 1"  
Height: 5½"  
Length: 4¾"  
Width: 4"



### ICV-151G VALVE

Inlet diameter: 1½"  
Height: 7⅞"  
Length: 6⅞"  
Width: 5½"



### ICV-201G VALVE

Inlet diameter: 2"  
Height: 7⅞"  
Length: 6⅞"  
Width: 5½"



### ICV-301 VALVE

Inlet diameter: 3"  
Height: 10¾"  
Length: 9"  
Width: 7¾"



### ICV-R VALVE

Inlet diameter: 1", 1½", 2", and 3"  
Height: 7⅞"  
Length: 6⅞"  
Width: 5½"

**Double-Beaded Diaphragm**

**Filter Sentry Mechanism**



**ICV 1", 1½", 2", & 3" – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4**

| 1 | Model                                                                                        | 2 | Standard Features                                                              | 3 | Feature Options                                                                                                                                                                                                                                                                                | 4 | User-Installed Options                                                                                                                                                                                                                                |
|---|----------------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <b>ICV-101G</b> = 1"<br><b>ICV-151G</b> = 1½"<br><b>ICV-201G</b> = 2"<br><b>ICV-301</b> = 3" |   | Globe valve with flow control<br><br><br>Globe / Angle valve with flow control |   | <b>(blank)</b> = No option<br><br><b>FS</b> = Filter Sentry Mechanism<br><br><b>FS-R</b> = Purple reclaimed Filter Sentry Mechanism and ID tag (available only on 1½" and 2" models)<br><br><b>DC</b> = DC-Latching Solenoid for battery-operated controllers<br><br><b>LS</b> = Less solenoid |   | <b>AS-ADJ</b> = Adjustable Accu Sync Pressure Regulator<br><br><b>458200</b> = DC-Latching Solenoid for battery-operated controllers<br><br><b>561205</b> = Reclaimed flow control handle (1", 1½", 2" only)<br><br><b>LIT-700</b> = Reclaimed ID tag |

**Example:**

ICV-201G-AS-ADJ = 2" ICV globe valve with flow control, user-installed adjustable Accu Sync Pressure Regulator

**ICV PRESSURE LOSS  
(AT OPTIMAL FLOWS) IN PSI**

| Flow<br>(GPM) | 1"<br>Globe | 1½"<br>Globe | 2"<br>Globe | 3"<br>Globe | 3"<br>Angle |
|---------------|-------------|--------------|-------------|-------------|-------------|
| 0.1           | 2.0         |              |             |             |             |
| 0.5           | 2.0         |              |             |             |             |
| 1             | 2.0         |              |             |             |             |
| 5             | 2.5         |              |             |             |             |
| 10            | 3.0         |              |             |             |             |
| 15            | 3.0         |              |             |             |             |
| 20            | 3.0         | 1.5          |             |             |             |
| 30            | 9.0         | 1.5          |             |             |             |
| 40            | 20.0        | 1.7          | 0.8         |             |             |
| 50            |             | 2.2          | 1.2         |             |             |
| 60            |             | 3.0          | 1.7         |             |             |
| 75            |             | 3.9          | 2.4         |             |             |
| 90            |             | 5.5          | 3.2         |             |             |
| 100           |             | 7.0          | 4.2         |             |             |
| 120           |             | 10.9         | 6.5         |             |             |
| 135           |             | 12.7         | 7.9         |             |             |
| 150           |             | 16.2         | 9.8         | 2.5         | 1.9         |
| 175           |             |              | 13.3        | 3.0         | 2.4         |
| 200           |             |              | 17.7        | 4.1         | 3.3         |
| 225           |             |              |             | 5.3         | 4.3         |
| 250           |             |              |             | 6.7         | 5.5         |
| 275           |             |              |             | 8.3         | 6.9         |
| 300           |             |              |             | 10.1        | 8.5         |

**Double-Beaded  
Chlorine-Resistant  
Diaphragm**

**Filter Sentry Mechanism**
**Captive Bonnet Bolts**




Built of solid brass, this valve can power through the fiercest irrigation conditions.

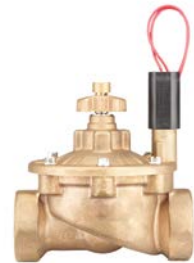
## KEY BENEFITS

- Factory-installed Filter Sentry® scours the filter screen in dirty water conditions
- External/internal manual bleed allows for quick and easy activation at the valve
- Heavy-duty brass construction provides high pressure rating and reliability
- Double-beaded diaphragm seal design ensures leak-free performance
- Fabric-reinforced EPDM diaphragm and seat ensure greater performance in all water conditions
- Triple-tool bonnet screws are compatible with standard or Phillips screwdrivers as well as a nut driver
- Encapsulated solenoid with captive plunger used on every Hunter valve provides hassle-free service
- Flow control maximizes efficiency and prolongs the life of the system



### IBV-101G-FS VALVE

Inlet diameter: 1"  
Height: 5¼"  
Length: 4½"  
Width: 3"



### IBV-151G-FS VALVE

Inlet diameter: 1½"  
Height: 6½"  
Length: 6"



### IBV-201G-FS VALVE

Inlet diameter: 2"  
Height: 7"  
Length: 6"  
Width: 5¼"



### IBV-301G-FS VALVE

Inlet diameter: 3"  
Height: 9"  
Length: 8½"  
Width: 7"

## USER-INSTALLED OPTIONS

- Accu Sync® Pressure Regulator at the valve\*
- DC-Latching Solenoid for battery-operated controllers (P/N 458200)
- Solenoid conduit cover (P/N 464322)

## FACTORY-INSTALLED OPTIONS

- DC: DC-Latching Solenoid for battery-operated controllers; **see page 84**

## OPERATING SPECIFICATIONS

- Flow:
  - IBV-101G: 0.1 to 40 GPM
  - IBV-151G: 0.1 to 150 GPM
  - IBV-201G: 0.1 to 200 GPM
  - IBV-301G: 0.1 to 300 GPM
- Recommended pressure range: 20 to 220 PSI
- Temperature rating: 150°F
- Warranty period: 5 years

## SOLENOID SPECIFICATIONS

- 24 VAC solenoid
- 350 mA inrush, 190 mA holding, 60 Hz
- 370 mA inrush, 210 mA holding, 50 Hz

\* Accu Sync product information on **page 81**

**Double-Beaded Diaphragm**



**Filter Sentry Mechanism**

### IBV PRESSURE LOSS (AT OPTIMAL FLOWS) IN PSI

| Flow GPM | 1" Globe | 1½" Globe | 2" Globe | 3" Globe |
|----------|----------|-----------|----------|----------|
| 0.1      | 2.0      |           |          |          |
| 0.5      | 2.0      |           |          |          |
| 1        | 2.0      |           |          |          |
| 5        | 2.5      |           |          |          |
| 10       | 3.0      |           |          |          |
| 15       | 3.0      |           |          |          |
| 20       | 3.0      | 1.5       |          |          |
| 30       | 4.0      | 1.5       |          |          |
| 40       | 7.0      | 1.7       | 0.8      |          |
| 50       |          | 2.2       | 1.2      |          |
| 60       |          | 3.0       | 1.7      |          |
| 75       |          | 3.9       | 2.4      |          |
| 90       |          | 5.5       | 3.2      |          |
| 100      |          | 7.0       | 4.2      |          |
| 120      |          | 10.9      | 6.5      |          |
| 135      |          | 12.7      | 7.9      |          |
| 150      |          | 16.2      | 9.8      | 2.5      |
| 175      |          |           | 13.3     | 3.0      |
| 200      |          |           | 17.7     | 4.1      |
| 225      |          |           |          | 5.3      |
| 250      |          |           |          | 6.7      |
| 275      |          |           |          | 8.3      |
| 300      |          |           |          | 10.1     |

### Note:

Charts based on full-open flow-control position

### IBV 1", 1½", 2" & 3" - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

| 1 Model                                                                                                   | 2 Standard Features                                          | 3 Feature Options                                                                                                                                                                                                                                | 4 User-Installed Options                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IBV-101G-FS</b> = 1"<br><b>IBV-151G-FS</b> = 1½"<br><b>IBV-201G-FS</b> = 2"<br><b>IBV-301G-FS</b> = 3" | Brass globe valve with flow control, Filter Sentry Mechanism | <b>(blank)</b> = No option<br><br><b>R</b> = Purple reclaimed Filter Sentry Mechanism and ID tag (available only on 1½" and 2" models)<br><br><b>DC</b> = DC-Latching Solenoid for battery-operated controllers<br><br><b>LS</b> = Less solenoid | <b>AS-ADJ</b> = Adjustable Accu Sync Pressure Regulator<br><br><b>458200</b> = DC-Latching Solenoid for battery-operated controllers<br><br><b>899605</b> = Reclaimed flow control handle<br><br><b>LIT-700</b> = Reclaimed ID tag |

### Examples:

**IBV-201G-FS-AS-ADJ** = 2" IBV brass globe valve with flow control, Filter Sentry Mechanism, user-installed adjustable Accu Sync Pressure Regulator

# ACCU SYNC® PRESSURE REGULATOR

*These robust solutions provide a simple way to achieve unparalleled pressure regulation for optimal performance.*

## OPERATING SPECIFICATIONS

- Regulation from 20 to 100 PSI
- Static pressure: 150 PSI
- Required dynamic pressure differential: 15 PSI
- Works with AC and DC-Latching Solenoids
- Works with any Hunter valve
- Warranty period: 2 years

### ACCU SYNC VALVE RECOMMENDED FLOW RANGE

| Valve       | Flow<br>GPM |
|-------------|-------------|
| PGV-100/101 | 15 to 40    |
| PGV-151     | 20 to 120   |
| PGV-201     | 40 to 150   |
| ICV-101     | 15 to 40    |
| ICV-151     | 20 to 150   |
| ICV-201     | 40 to 200   |
| ICV-301     | 150 to 300  |
| IBV-101     | 15 to 40    |
| IBV-151     | 20 to 150   |
| IBV-201     | 40 to 200   |
| IBV-301     | 150 to 300  |

### ACCU SYNC APPLICATIONS

- **Adjustable 20–100 PSI** For full customization, the adjustable Accu Sync can regulate pressure from 20 to 100 PSI

### ACCU SYNC PRESSURE REGULATOR – SPECIFICATION BUILDER: ORDER 1 + 2

| 1         | Model | 2   | Inlet/Outlet                               |
|-----------|-------|-----|--------------------------------------------|
| ACCU SYNC |       | ADJ | Adjustable Pressure Regulator (20–100 PSI) |

**Example:**  
ICV-201G-B-AS-ADJ = 2" ICV globe valve with flow control, user-installed adjustable Accu Sync Pressure Regulator

## ADJUSTABLE



**ACCUSYNC-ADJ  
PRESSURE REGULATOR**  
Height with solenoid: 3¼"

## ADAPTER



## SOLENOID ADAPTER



### AC Solenoid

P/N 606800: Includes one red (common) and one red (station) wire

# QUICK COUPLERS

The sturdy red brass and stainless steel construction of Quick Couplers strengthens any project.

## KEY BENEFITS

- 100% interchangeable with major brands
- Red brass and stainless steel construction
- Heavy-duty thermoplastic locking and non-locking covers
- Optional winged stabilization and Acme key connection
- Stainless steel lug on 1" and 1¼" keys
- Spring-loaded covers with stainless steel springs for positive closing and protection of valve's sealing components
- Warranty period: 5 years
- See the SnapLok combo kits on [page 31](#)



Quick Couplers

## QUICK COUPLER, KEY, AND HOSE SWIVEL CHARTS

| Model        | Inlet Threads | Slots | Body           | Color* | Locking | Key    | Swivels      |
|--------------|---------------|-------|----------------|--------|---------|--------|--------------|
| HQ-3-RC      | ¾"            | 2     | 1-piece        | Yellow | No      | HK-33  | HS-0         |
| HQ-33-DRC    | ¾"            | 2     | 2-piece        | Yellow | No      | HK-33  | HS-0         |
| HQ-33-DLRC   | ¾"            | 2     | 2-piece        | Yellow | Yes     | HK-33  | HS-0         |
| HQ-44-RC     | 1" NPT        | 1     | 2-piece        | Yellow | No      | HK-44  | HS-1 or HS-2 |
| HQ-44-LRC    | 1" NPT        | 1     | 2-piece        | Yellow | Yes     | HK-44  | HS-1 or HS-2 |
| HQ-44-RC-AW  | 1" NPT        | Acme  | 2-piece wing** | Yellow | No      | HK-44A | HS-1 or HS-2 |
| HQ-44-LRC-AW | 1" NPT        | Acme  | 2-piece wing** | Yellow | Yes     | HK-44A | HS-1 or HS-2 |
| HQ-5-RC      | 1" NPT        | 1     | 1-piece        | Yellow | No      | HK-55  | HS-1 or HS-2 |
| HQ-5-LRC     | 1" NPT        | 1     | 1-piece        | Yellow | Yes     | HK-55  | HS-1 or HS-2 |

### Notes:

\* All locking cover models are available with purple covers for reclaimed water applications.

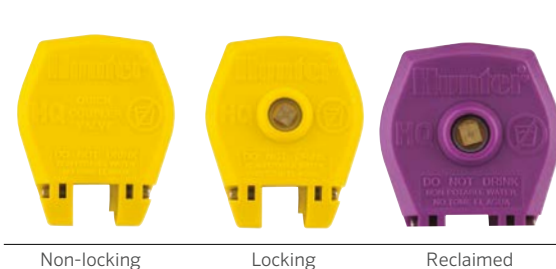
\*\* Anti-rotation stabilization wings.



HQ-3-RC HQ-5-RC HK-33



HQ-33-DLRC-R HQ-44-LRC HK-44



Non-locking Locking Reclaimed



HQ-44-LRC-AW-R HK-44A



HLK

### Reclaimed Water Option

All locking models have an optional purple cover for sites using reclaimed water.



**QUICK COUPLER - SPECIFICATION BUILDER:** ORDER 1 + 2 + 3

| 1 Model                                                                                                                                                                                                               | 2 Cover Options                                                                                                     | 3 Additional Options                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HQ-3</b> = ¾" inlet, 1-piece body, 2 slots<br><b>HQ-5</b> = 1" inlet, 1-piece body, 1 slot<br><b>HQ-33-D</b> = ¾" inlet, 2-piece body, 2 slots<br><b>HQ-44</b> = 1" inlet, 2-piece body, 1 slot or Acme key socket | <b>RC</b> = Yellow rubber cover<br><b>LRC</b> = Yellow locking rubber cover<br><i>(Not available for HQ-3 body)</i> | <b>(blank)</b> = No option<br><b>AW</b> = Acme key with anti-rotation wings<br><i>(Only available for HQ-44 body)</i><br><b>R</b> = Purple locking cover <i>(reclaimed water ID; only available for LRC models)</i> |

**Examples:**

HQ-3-RC = HQ-3 valve with rubber cover

HQ-44-LRC = HQ-44 valve with locking rubber cover

HQ-44-LRC-R = HQ-44 valve with locking rubber cover and reclaimed water ID

HQ-44-LRC-AW-R = HQ-44 valve, with locking rubber cover, Acme key socket with anti-rotation wings and reclaimed water ID

**KEYS**

| Model                             | Compatible Valve | Compatible Swivel |
|-----------------------------------|------------------|-------------------|
| HK-33 = ¾" valve, ¾" key inlet    | HQ-3, HQ-33      | HS-0              |
| HK-44 = 1" valve, 1" key inlet    | HQ-44            | HS-1, HS-2        |
| HK-44A = 1" valve, Acme key inlet | HQ-44-AW         | HS-1, HS-2        |
| HK-55 = 1" valve, 1¼" key inlet   | HQ-5             | HS-1, HS-2        |

**HS HOSE SWIVELS**

| Model                           | Compatible Key       |
|---------------------------------|----------------------|
| HS-0 = ¾" inlet, ¾" hose outlet | HK-33                |
| HS-1 = 1" inlet, ¾" hose outlet | HK-44, HK-44A, HK-55 |
| HS-2 = 1" inlet, 1" hose outlet | HK-44, HK-44A, HK-55 |

**HQ PRESSURE LOSS IN PSI**

| Flow (GPM) | HQ-3 | HQ-33 | HQ-44 | HQ-5 |
|------------|------|-------|-------|------|
| 5          | 0.8  | 1.0   |       |      |
| 10         | 1.8  | 2.0   |       |      |
| 15         | 4.1  | 4.3   | 2.2   |      |
| 20         | 7.2  | 7.6   | 4.4   | 1.0  |
| 30         |      |       | 11.5  | 3.0  |
| 40         |      |       |       | 6.3  |
| 50         |      |       |       | 9.2  |
| 60         |      |       |       | 13.0 |
| 70         |      |       |       | 19.8 |



# DC-LATCHING SOLENOID

*This versatile solenoid enables valve operation with battery-operated controllers.*

## KEY BENEFITS

- Compatible with all Hunter irrigation valves
- Compatible with NODE, NODE-BT, and XC Hybrid systems
- Captive plunger offers easy servicing of solenoid
- Manual quarter-turn on/off control

## OPERATING SPECIFICATIONS

- Minimum opening/operating voltage: 6 VDC
- Maximum recommended voltage: 9 VDC
- Coil resistance: 4.8 ohms nominal
- Pulse width: 250 milliseconds
- Wire leads: 22" of 18 AWG black/red UL-approved wire

**Note:** See battery-operated controller product pages for wiring distances



### DC-Latching Solenoid

P/N 458200: One black (common) wire and one red (station) wire

# AC SOLENOID

*The standard solenoid for all electric controllers.*

## KEY BENEFITS

- Compatible with all Hunter irrigation valves
- Captive plunger offers easy servicing of solenoid
- Manual quarter-turn on/off control
- Wire leads: 14" of 18 AWG red UL-approved wire

## OPERATING SPECIFICATIONS

- Minimum operating voltage: 20.5 VAC
- Maximum recommended voltage: 24 VAC
  - 350 mA inrush, 190 mA holding, 60 HZ
  - 370 mA inrush, 210 mA holding, 50 HZ
- Coil resistance: 23 to 28 ohms nominal



### AC Solenoid

P/N 606800: One red (common) and one red (station) wire



## HUNTER VALVES

### *BUILT TO THRIVE UNDER PRESSURE*

From residential to commercial applications, high pressure to low pressure, and clean water to dirty water, Hunter valves keep your system running flawlessly day in and day out.

#### ULTIMATE RELIABILITY

- Fewer parts means greater longevity and simple operation
- AC and DC models for flexibility
- Residential models handle up to 150 PSI
- Commercial models handle up to 220 PSI

#### SIMPLE PRESSURE REGULATION

- Regulating at the valve greatly enhances efficiency
- Accu Sync® Pressure Regulators provide simple regulation from 20 to 100 PSI





PRO-HC Wi-Fi

**Hunter®**

# **CONTROLLERS**

---



# CONTROLLER

# SELECTION GUIDE

## Platform

## AC-Powered Controllers

### STANDARD

Details on [page 90](#)

Dial-based controllers are standalone systems that offer water-saving features and convenient remote control operation for faster maintenance.

**X-Core®**  
Stations: 2, 4, 6, 8  
[page 91](#)



### HYDRAWISE®

Details on [page 94](#)

The Wi-Fi controller solution designed for contractors. The Hydrowise Irrigation Management Platform is simple to set up, easy to use, and packed with helpful remote irrigation management features. Built-in system monitoring and a suite of powerful tools make saving water and managing multiple sites easy.

**X2™**  
Stations: 4, 6, 8, 14  
[page 96](#)



**X2 with WAND**  
Stations: 4, 6, 8, 14  
[page 97](#)



**Pro-HC**  
Stations: 6, 12, 24  
[page 98](#)



**HPC**  
Stations: 4 to 32  
[page 99](#)



**HCC**  
Stations: 8 to 54  
[page 100](#)



### CENTRALUS™

Details on [page 104](#)

Gain cloud-based control and monitoring for Pro-C, ICC2, and ACC2 Controllers with the mobile-friendly Centralus Irrigation Management Platform.



**Pro-C®**  
Stations: 4 to 32  
[page 109](#)



**ICC2**  
Stations: 8 to 54  
[page 108](#)



**ACC2**  
Stations: 12 to 54 conventional, 1 to 225 with two-wire  
[page 106](#)





Use this guide to quickly compare Hunter controller power needs, station counts, and software platforms to ensure you choose the best controller for every installation.

## Platform

## Battery-Operated Controllers

### INDEPENDENT

Details on [page 111](#)

Battery-operated controllers allow automatic irrigation for power-restricted valve locations and areas where hardscape blocks the ability to run wire affordably.

**NODE**  
Stations: 1, 2, 4, 6  
[page 114](#)



**XC Hybrid**  
Stations: 6, 12  
[page 116](#)



### BLUETOOTH®

Details on [page 111](#)

Bluetooth-enabled, battery-operated controllers have all the benefits of independent battery controllers with convenient, on-site wireless control from a smartphone.

**BTT**  
Zones: 1, 2  
[page 113](#)



**NODE-BT**  
Stations: 1, 2, 4  
[page 115](#)



The Wireless Valve Link uses LoRa® Technology so you can connect valves without running costly wires or cutting into hardscape.



With the two-wire option, you can easily expand the system as needed after installation.

# STANDARD CONTROLLERS



# X-CORE®

*Perfect for tract homes and entry-level residential systems, this simple and intuitive controller provides basic irrigation capabilities with convenient add-on options for smart watering adjustments and remote operation.*

## KEY BENEFITS

- Number of stations:
  - 2, 4, 6, or 8 (fixed models)
  - Separate indoor and outdoor models for a variety of installation environments
- 3 automatic programs with 4 start times per program, and up to 4-hour run times per station
- Add a Solar Sync® Sensor to save water based on local weather conditions
- QuickCheck™ Technology provides simple diagnostics of faulty field wiring
- Hide Programs setting shows 1 program and 1 start time for simplification
- Short-circuit protection detects wiring faults and skips the station without system damage
- Easy Retrieve® Memory backs up the full irrigation schedule
- Delay Between Stations for slow-closing valves or pump recharge
- Cycle and Soak prevents water waste and runoff in areas with elevation changes or tight soils
- Seasonal adjustment for quicker schedule adjustments without changing run times

## OPERATING SPECIFICATIONS

- Transformer input: 120 VAC
- Transformer output (24 VAC): 1 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.28 A
- Sensor inputs: 1
- Approvals: Plastic IP54 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISED
- Warranty period: 2 years



### Plastic Indoor

Height: 6½"  
Width: 5¾"  
Depth: 2"



### Plastic Outdoor

Height: 8¾"  
Width: 7"  
Depth: 3¾"

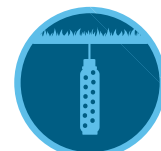
*Compatible with:*



**Solar Sync  
Sensor**  
Page 136



**ROAM Remote**  
Page 126  
**ROAM XL Remote**  
Page 127



**Soil-Clik  
Sensor**  
Page 137

| X-CORE  |                                                       |
|---------|-------------------------------------------------------|
| Model   | Description                                           |
| XC-200i | Fixed 2-station, plastic indoor wall mount            |
| XC-400i | Fixed 4-station, plastic indoor wall mount            |
| XC-400  | Fixed 4-station, plastic outdoor wall mount with plug |
| XC-600i | Fixed 6-station, plastic indoor wall mount            |
| XC-600  | Fixed 6-station, plastic outdoor wall mount with plug |
| XC-800i | Fixed 8-station, plastic indoor wall mount            |
| XC-800  | Fixed 8-station, plastic outdoor wall mount with plug |



### EPA WaterSense®

Recognized as a responsible water-saving tool when used with a Solar Sync Sensor





# HYDRAWISE<sup>®</sup> CONTROLLERS





A healthy, beautiful landscape needs just the right amount of water to thrive. The Hydrowise Irrigation Management Platform automatically adjusts your irrigation according to local weather. Choose from a complete lineup of Hydrowise-enabled controllers to maximize water and money savings in any setting.

## HYDRAWISE CONTROLLER COMPARISON CHART

| CONTROLLER MODELS | MAXIMUM STATIONS | SENSOR INPUTS | TWO-WIRE | REMOTE CONTROL                     | WEB ACCESS                           | FLOW                                 |
|-------------------|------------------|---------------|----------|------------------------------------|--------------------------------------|--------------------------------------|
| X2                | 14               | 1             | N/A      | ROAM,<br>ROAM XL,<br>Hydrowise App | Hydrowise:<br>Wi-Fi<br>(WAND Module) | N/A                                  |
| X2 with WAND      | 14               | 1             | N/A      | ROAM,<br>ROAM XL,<br>Hydrowise App | Hydrowise:<br>Wi-Fi                  | N/A                                  |
| PRO-HC            | 24               | 2             | N/A      | Hydrowise App                      | Hydrowise:<br>Wi-Fi                  | HC Flow Meter<br>(wired or wireless) |
| HPC               | 32               | 2             | EZDS     | ROAM,<br>ROAM XL,<br>Hydrowise App | Hydrowise:<br>Wi-Fi                  | HC Flow Meter<br>(wired or wireless) |
| HCC               | 54               | 2             | EZDS     | ROAM,<br>ROAM XL,<br>Hydrowise App | Hydrowise:<br>Wi-Fi                  | HC Flow Meter<br>(wired or wireless) |

# HYDRAWISE® SOFTWARE

*As the industry's best Wi-Fi control solution, the Hydrowise Irrigation Management Platform allows for professional multi-site management and provides a range of helpful water-saving features for end users.*



## Save Water

### PREDICTIVE WATERING®

Predictive Watering Technology uses past, current, and forecast weather data sourced from the internet to automatically adjust to local, real-time conditions and provide homeowners and end users with tremendous water savings.

### VIRTUAL SOLAR SYNC®

Virtual Solar Sync uses daily ET measurements from your selected weather stations to supplement the Predictive Watering adjustments on your controller, working to save even more water.



## Protect the Landscape

### SYSTEM MONITORING

Flow rate and valve monitoring alert you in the event of a problem, so you can quickly prevent landscape degradation before significant damage occurs.

### WEATHER MONITORING

Web-based climate monitoring automatically adjusts irrigation systems to local weather conditions, ensuring plants remain healthy — rain or shine.



## Save Time and Labor

### REMOTE MANAGEMENT

Make changes to a program and know the status of the controller and the irrigation plan without a site visit.

### STORE CUSTOMER PLANS AND DESIGNS

Attach irrigation system layouts to your customers' controllers for quick reference in the field. Never forget the location of the pipes or valve box again.

### ON-SITE REMOTE

Turn your smartphone into a remote control to make changes and check the irrigation system without visiting the controller.

All trademarks are property of their respective owners.



## Build a Stronger Business

### BUILD A STRONGER BUSINESS

Add services, grow revenue, increase customer satisfaction, and rest assured that Hydrowise has your back as you expand your business.

### BUSINESS BRANDING

Gain instant recognition from your customers by including your business logo and details in your Hydrowise account.

### MULTI-SITE MANAGER

Manage many customers or multiple sites with our unique business tools:

- Summary of all controllers
- List view of customers/sites
- Search for customers and controllers
- View all controller events and logs
- View all controller alerts
- Branded automatic email reporting to customers
- Global control settings
  - Alerts
  - Watering Schedules
  - Start Times
  - Watering Triggers
- Quick select controllers
- Generate job sheets
- Manage subcontractors or regions

### BUSINESS ACCOUNT

Manage staff access with different levels of permission. Remove or add staff easily and quickly. Add and store files, irrigation plans, layouts, or other documents for access by your staff.

### MESSAGING

Receive messages from and send messages to customers and staff through the Hydrowise App.



## Manage from Anywhere

### GLOBAL APP AND WEB ACCESS

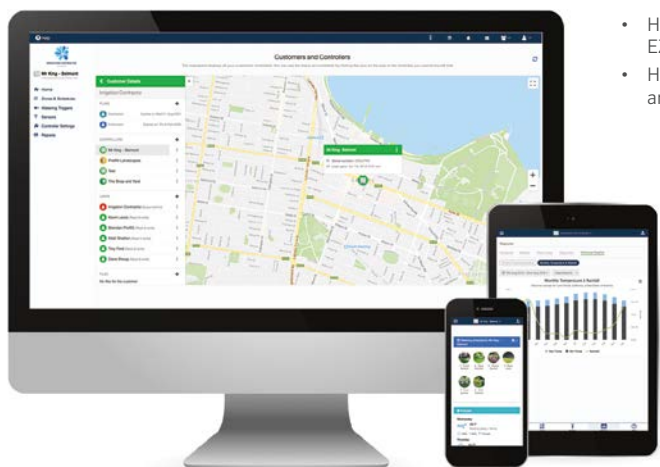
Sit back and relax. With Hydrowise, everything you need is in the palm of your hand. Remote access allows you to view, manage, and monitor irrigation controllers from your smartphone, tablet, or computer at your convenience.

### SMART-HOME COMPATIBILITY

Hydrowise integrates seamlessly with Amazon Alexa™, Control4®, and HomeSeer™.



### What's New with Hydrowise



- HPC Controller now compatible with the EZ Decoder System up to 32 stations
- HPC Controller has two sensors ports for any Klik Sensor and HC Flow Meter
- Create custom reports for water savings and forecasts; automatically email them to your customers
- WAND Module for X2 Controllers provides super-fast Bluetooth remote, Wi-Fi setup, and a convenient copy-paste schedule function
- Controller touchscreen enhancements



Access to Hydrowise Software is free for all users worldwide.  
To learn more, visit [hydrowise.com](http://hydrowise.com).



#### EPA WaterSense® Approved

Recognized as a responsible water-saving tool by the U.S. Environmental Protection Agency



#### X2 Controller with WAND Module

4-, 6-, 8-, and 14-station count



#### Pro-HC Controller

6-, 12-, and 24-station count



#### HPC Controller

4- to 32-station count, EZDS two-wire option



#### HCC Controller

8- to 54-station count, EZDS two-wire option, Wireless Valve Link (WVL) compatible



#### HC Flow Meter

Add an optional flow meter to receive flow alerts and monitor water consumption

*Not available for X2 Controller*

This online-capable controller offers *Rapid Programming™ Technology* and advanced water-saving features.

## KEY BENEFITS

- Number of stations:
  - 4, 6, 8, or 14 (fixed models)
- Wi-Fi capable controller automatically managed by Hydrowise® Software
- Backlit display provides optimal visibility in any light
- 3 flexible programs with 4 start times each and up to 6-hour run times
- QuickCheck™ Technology provides simple diagnostics of faulty field wiring
- Pre-wired with 48" lead and plug
- Hide Programs option shows one program and one start time for simplification
- Suspend irrigation up to 99 days during the off-season
- Short-circuit protection detects wiring faults and skips the station without system damage
- Easy Retrieve® Memory backs up the full irrigation schedule
- Delay Between Stations for slow-closing valves or pump recharge
- Cycle and Soak prevents water waste and runoff in areas with elevation changes or tight soils
- Seasonal adjustment for quicker schedule updates without changing run times

## OPERATING SPECIFICATIONS

- Transformer input: 120 VAC
- Transformer output (24 VAC): 1 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.28 A
- Sensor inputs: 1
- Approvals (controller): Plastic IP55 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISED
- Warranty period: 2 years



**X2**  
Height: 9"  
Width: 7½"  
Depth: 3½"

Compatible with:



**Hydrowise  
Software**  
Page 94



**Rain-Clik®  
Sensor**  
Page 134



**ROAM Remote**  
Page 126  
**ROAM XL Remote**  
Page 127

| X2      |                                                        |
|---------|--------------------------------------------------------|
| Model   | Description                                            |
| X2-400  | Fixed 4-station, plastic outdoor wall mount with plug  |
| X2-600  | Fixed 6-station, plastic outdoor wall mount with plug  |
| X2-800  | Fixed 8-station, plastic outdoor wall mount with plug  |
| X2-1400 | Fixed 14-station, plastic outdoor wall mount with plug |

# WAND FOR X2™

This Wi-Fi upgrade option connects the X2 Controller to Hydrawise Software, giving it remote management capabilities from anywhere with an internet connection.

## KEY BENEFITS

- Simple Wi-Fi plug-in enables remote irrigation management with any X2 Controller
- WAND Technology provides easy online irrigation management with controller status and faulty wiring alerts
- Standard programming allows for 3 independent programs featuring 6 start times each and 24-hour maximum run times
- Rapid Programming™ Technology lets you send preprogrammed schedules to any X2 Controller in seconds, so you get jobs done quicker
- Predictive Watering® Technology provides precise weather adjustments for maximum water savings
- Compatibility with Amazon Alexa™, Control4®, and HomeSeer™ home automation technology enables simple, centralized voice control of the irrigation system
- Bluetooth Wi-Fi setup or WPS push-button connection makes it easy to connect to a wireless network
- WAND Module sold separately from X2 Controller

## OPERATING SPECIFICATIONS

- Flexible setup options: Bluetooth® Wi-Fi tether, Wi-Fi direct, or WPS push-button connection
- Bluetooth 5.0
- 2.4 GHz (only) Wi-Fi router compatible, 802.11 b/g/n 20 MHz
- Supported security protocols: WPA/WPA2 Personal (only), TLS
- Approvals: UL, cUL, FCC, CE, UKCA, RCM, ISCED
- Warranty period: 2 years

| WAND MODULE |                                               |
|-------------|-----------------------------------------------|
| Model       | Description                                   |
| WAND        | Bluetooth and Wi-Fi Module for X2 Controllers |

## WAND INSTALLATION



The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG Inc., and any use of such marks by Hunter Industries is under license. Amazon Alexa is a trademark of Amazon.com Inc. or its affiliates. Control4 is a registered trademark of Control4 Corporation in the United States and/or other countries. HomeSeer is a trademark of HomeSeer Technologies LLC.

Try Hydrawise Software today at [hydrowise.com](https://hydrowise.com).



## WAND Module

Height: ¾"  
Width: 2⅛"  
Depth: 2⅛"



WAND Module installed in the X2 Controller

Compatible with:



X2 Controller  
Page 96



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# PRO-HC

Use this rugged, cost-effective, and professional-grade Wi-Fi controller for residential and light commercial applications.

Try Hydrawise Software today at [hydrawise.com](http://hydrawise.com).

## KEY BENEFITS

- Number of stations:
  - 6, 12, or 24 (fixed models)
- Standard programming option allows for 6 independent irrigation programs and 6 start times per program
- 2 sensor inputs available for use with any Klik Sensor and HC Flow Meter
- 1 P/MV output for pump start relay and master valve activation
- Wi-Fi enabled for quick connection to Hydrawise® Software
- 2¾" full-color touchscreen display for Wi-Fi setup, zone testing, and offline programming at the control panel
- Built-in milliamp sensor for wire fault detection and alerts

## OPERATING SPECIFICATIONS

- Transformer input: 120 VAC
- Transformer output (24 VAC): 1 A
- Controller maximum current draw: 0.8 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.28 A
- 2.4 GHz (only) Wi-Fi router compatible, 802.11 b/g/n 20 MHz
- Supported security protocols: WPA/WPA2 Personal (only), TLS
- Approvals: IP44 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISSED
- Warranty period: 2 years

## USER-INSTALLED OPTIONS

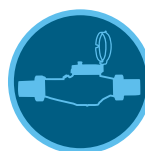
- Wireless HC Flow Meter option permits wireless flow monitoring for Hydrawise-enabled systems



### Pro-HC

(indoor/outdoor)  
Height: 9"  
Width: 10"  
Depth: 4"

Compatible with:



**HC Flow Meter**  
*Page 138*



**Rain-Clik Sensor**  
*Page 134*



**PXSUNC Accessory**  
*Visit [fxl.com](http://fxl.com)*



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| PRO-HC   |                                              |
|----------|----------------------------------------------|
| Model    | Description                                  |
| PHC-600  | Fixed 6-station, plastic outdoor wall mount  |
| PHC-1200 | Fixed 12-station, plastic outdoor wall mount |
| PHC-2400 | Fixed 24-station, plastic outdoor wall mount |

# HPC

*This smart and flexible control solution combines the modularity of the popular Pro-C® Controller with the power of Hydrowise® Software.*

Try Hydrowise Software today at [hydrowise.com](http://hydrowise.com).

## KEY BENEFITS

- Number of stations:
  - Conventional wiring from 4 to 23 stations
  - Hybrid EZ Decoder System option up to 32 total stations (28 stations maximum if two-wire only)
- Standard programming option allows for 6 independent irrigation programs and 6 start times per program
- 2 sensor inputs available for use with any Klik Sensor and HC Flow Meter
- 1 P/MV output for pump start relay and master valve activation
- Wi-Fi enabled for quick connection to Hydrowise Software
- 2¾" full-color touchscreen display for Wi-Fi setup, zone testing, and offline programming at the control panel
- Built-in milliamp sensor for wire fault detection and alerts

## OPERATING SPECIFICATIONS

- Transformer input: 120 VAC
- Transformer output (24 VAC): 1 A
- Controller maximum current draw: 0.8 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.28 A
- 2.4 GHz (only) Wi-Fi router compatible, 802.11 b/g/n 20 MHz
- Supported security protocols: WPA/WPA2 Personal (only), TLS
- Approvals: IP44 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISED
- Warranty period: 2 years

## USER-INSTALLED OPTIONS

- Wireless HC Flow Meter option permits wireless flow monitoring for Hydrowise-enabled systems



**HPC**  
(indoor/outdoor)  
Height: 9"  
Width: 10"  
Depth: 4½"

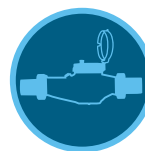


**HPC Face Panel**

| HPC     |                                                                                  |
|---------|----------------------------------------------------------------------------------|
| Model   | Description                                                                      |
| HPC-400 | Modular 4-station base, plastic outdoor wall mount with plug                     |
| HPC-FP  | Hydrowise retrofit face panel for Pro-C Controllers (March 2014 or newer models) |

| PC-SERIES STATION EXPANSION |                           |
|-----------------------------|---------------------------|
| Model                       | Description               |
| PCM-300                     | 3-station plug-in module  |
| PCM-900                     | 9-station plug-in module  |
| PCM-1600                    | 16-station plug-in module |
| PC-DM                       | EZ Decoder output module  |

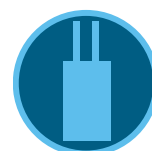
Compatible with:



**HC Flow Meter**  
Page 138



**ROAM Remote**  
Page 126  
**ROAM XL Remote**  
Page 127



**EZ Decoder System**  
Page 122



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# HCC

Bring the power of Hydrowise® Software to residential, commercial, and public-sector projects with this affordable powerhouse.

Try Hydrowise Software today at [hydrowise.com](http://hydrowise.com)

## KEY BENEFITS

- Number of stations:
  - Conventional: 8 to 38 (plastic), 8 to 54 (metal and pedestal)
  - With two-wire EZDS: Up to 54 (all enclosure options)
  - With Wireless Valve Link (WVL): up to 54 (all enclosure options)
- Standard programming option allows for 6 independent irrigation programs and 6 start times per program
- Any 2 programs can operate simultaneously to improve irrigation efficiency
- 2 sensor inputs available for use with any Clik Sensors and HC Flow Meter
- 1 P/MV output for pump start relay and master valve activation
- Wi-Fi enabled for quick connection to Hydrowise Software
- 3¼" full-color touchscreen display for Wi-Fi setup, zone testing, and offline programming at the control panel
- Built-in milliamp sensor for wire fault detection and alerts

## OPERATING SPECIFICATIONS

- Transformer input: 120/230 VAC
- Transformer output (24 VAC): 1.4 A
- Controller max. current draw: 1.2 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.56 A
- 2.4 GHz (only) Wi-Fi router compatible, 802.11 b/g/n 20 MHz
- Run a maximum of 4 Hunter solenoids 1.04 A at once
- Supported security protocols: WPA/WPA2 Personal (only) TLS
- Approvals: Plastic Wall Mount IP55 (outdoor), Plastic Pedestal IP24 (outdoor), Metal wall-mounted enclosure IP55 (outdoor), Metal Pedestal IP55 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISCED
- Warranty period: 2 years

## USER-INSTALLED OPTIONS

- Wireless HC Flow Meter option permits wireless flow monitoring for Hydrowise-enabled systems
- Compatible with ROAM Remote and ROAM XL Remote; see pages 126 and 127

| HCC         |                                                         |
|-------------|---------------------------------------------------------|
| Model       | Description                                             |
| HCC-800-PL  | 8-station base model, plastic outdoor, wall mount       |
| HCC-800-M   | 8-station base model, gray metal outdoor, wall mount    |
| HCC-800-SS  | 8-station base model, stainless steel, wall mount       |
| HCC-800-PP  | 8-station base model, plastic pedestal                  |
| HCC-FPUP    | Retrofit Upgrade Kit for ICC and ICC2 Controllers       |
| ICC-PED     | Gray pedestal for metal wall mount cabinet              |
| ICC-PED-SS  | Stainless steel pedestal for stainless steel wall mount |
| ICC-PWB     | Optional pedestal wiring board for metal pedestals      |
| ANT-EXT-KIT | Universal Antenna Extension Kit                         |

| HCC SERIES STATION EXPANSION |                                                          |
|------------------------------|----------------------------------------------------------|
| Model                        | Description                                              |
| ICM-400                      | 4-station plug-in module with enhanced surge protection  |
| ICM-800                      | 8-station plug-in module with enhanced surge protection  |
| ICM-2200                     | 22-station expansion module (maximum one per controller) |
| EZDS                         | See page 122 for model chart                             |
| WVL                          | See page 118 for model chart                             |



### Plastic

Height: 12"  
Width: 13¾"  
Depth: 5"

### Metal

(gray or stainless steel)  
Height: 16"  
Width: 13"  
Depth: 5"



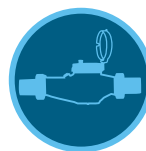
### Metal Pedestal

(gray or stainless steel)  
Height: 36"  
Width: 11½"  
Depth: 5"

### Plastic Pedestal

Height: 39"  
Width: 24"  
Depth: 17"

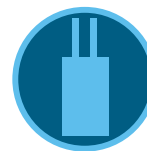
Compatible with:



HC Flow Meter  
Page 138



Wireless Valve  
Link  
Page 118



EZ Decoder  
System  
Page 122

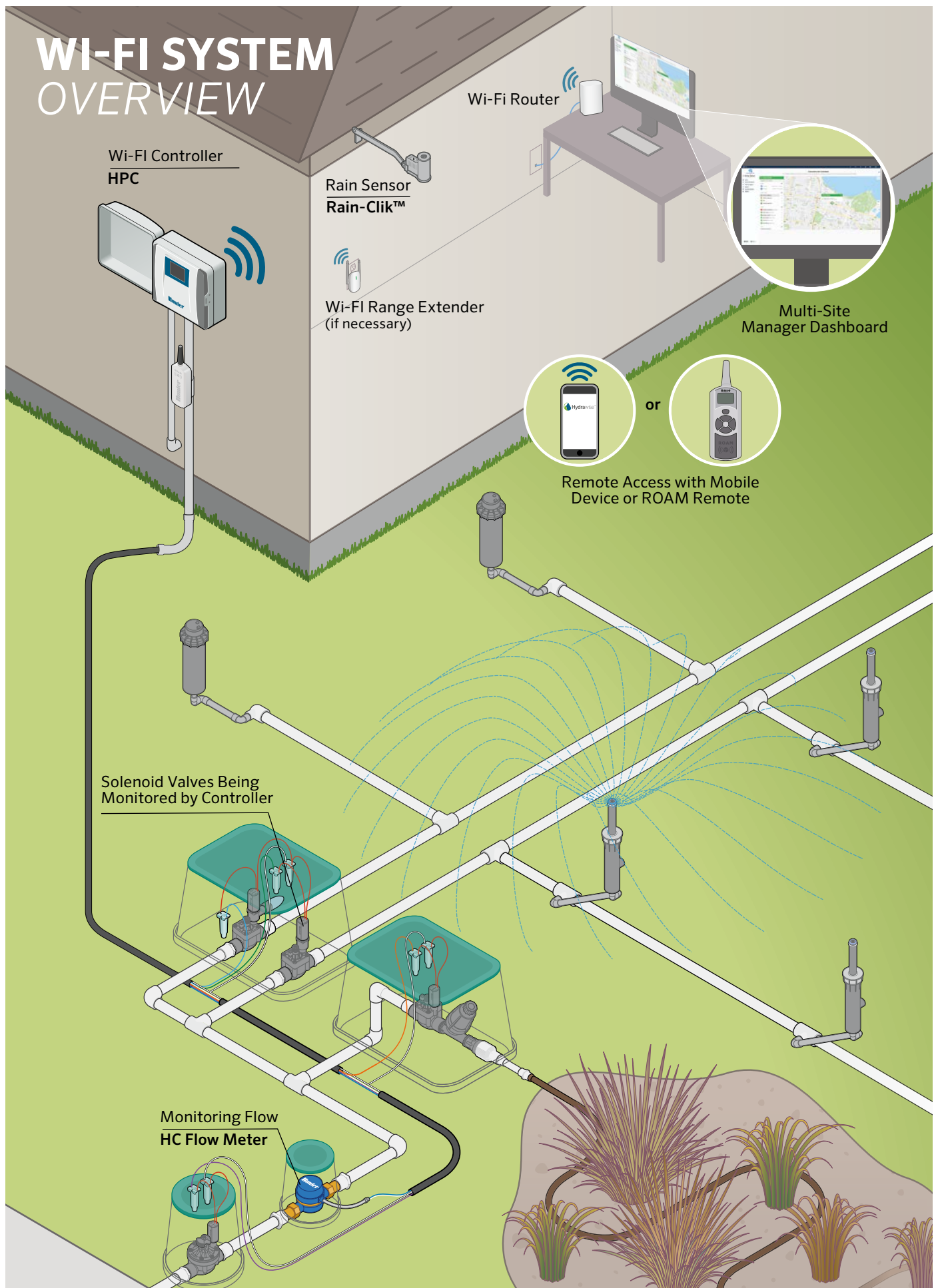


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# WI-FI SYSTEM OVERVIEW







# CENTRALUS™ CONTROLLERS

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Manage large, complex systems from your fingertips with the cloud-based Centralus Irrigation Management Platform. Simple plug-in communication modules provide powerful internet connectivity and mobile control for Hunter's commercial-grade ACC2, ICC2, and Pro-C® Controllers.

## CENTRALUS CONTROLLER COMPARISON CHART

| CONTROLLER MODELS | MAXIMUM STATIONS    | SENSOR INPUTS                       | TWO-WIRE             | FLOW*                          | REMOTE CONTROL                  | WEB ACCESS                          |
|-------------------|---------------------|-------------------------------------|----------------------|--------------------------------|---------------------------------|-------------------------------------|
| ACC2              | 54,<br>225 two-wire | 3 Klik,<br>1 Solar Sync®,<br>6 Flow | ICD,<br>225 stations | HFS, WFS                       | ROAM,<br>ROAM XL,<br>Smartphone | Centralus:<br>Wi-Fi,<br>LAN,<br>LTE |
| ICC2              | 54                  | 1 Klik or<br>Solar Sync,<br>1 Flow  | EZDS,<br>54 stations | HFS, WFS,<br>HC Flow Meter     | ROAM,<br>ROAM XL,<br>Smartphone | Centralus:<br>Wi-Fi,<br>LAN,<br>LTE |
| Pro-C             | 32                  | 1 Klik, 1 Solar Sync<br>or Flow     | EZDS,<br>28 stations | FS, HFS, WFS,<br>HC Flow Meter | ROAM,<br>ROAM XL,<br>Smartphone | Centralus:<br>Wi-Fi                 |

\*Centralus communication module required for flow sensor input with Pro-C and ICC2 Controllers



# CENTRALUS™ SOFTWARE

Add cloud-based control and monitoring for Pro-C®, ICC2, and ACC2 Controllers with the mobile-friendly Centralus Irrigation Management Platform.

## KEY BENEFITS

- Browser-based programming and communication software
- Highly secure cloud access
- Map-based navigation and status
- Instant remote control from mobile device
- Flow monitoring and reporting
- Alarm reporting and detailed irrigation history reports
- Responsive web design configures for your device, allowing the same controls from your smartphone, tablet, or desktop
- Operable in many international languages
- Wi-Fi, LAN (Ethernet), or LTE connectivity options
- Manage Solar Sync® Sensor adjustments and delay settings for greater water savings
- Professional crewmember administration with multiple levels of access
- Organize maintenance teams and their controllers into management groups

## OPERATING SPECIFICATIONS

- Operates in most modern browsers
- Secure internet connection for web-hosted application

## USER-INSTALLED OPTIONS

- ET-based Solar Sync Sensor (one per controller); **see page 136**
- Flow sensors including the Flow-Sync® Sensor, Wireless Flow Sensor, HC Flow Meter, and other approved equals
- Connected controllers are compatible with license-free ROAM/ROAM XL Remote control (pre-wired controller connection)

## COMMUNICATION OPTIONS

- LAN (Ethernet) with RJ-45 connection, low data requirements
- 2.4 GHz (only) Wi-Fi router compatible, 802.11 b/g/n
- Supported security protocols: WPA/WPA2 Personal (only), TLS
- Cellular connectivity with with ICC2 and ACC2 Controllers

### COMMUNICATIONS

| Model    | Description                                                    |
|----------|----------------------------------------------------------------|
| PC-WIFI  | Pro-C Wi-Fi connection                                         |
| WIFIKIT  | ICC2 Wi-Fi connection                                          |
| LANKIT   | ICC2 LAN (Ethernet) connection                                 |
| CELLKIT  | ICC2 cellular connection (service plan required)               |
| A2C-WIFI | ACC2 Wi-Fi connection                                          |
| A2C-LAN  | ACC2 LAN (Ethernet) connection                                 |
| A2C-LTEM | Cellular communication module for ACC2 (service plan required) |

### COMMUNICATIONS ACCESSORIES

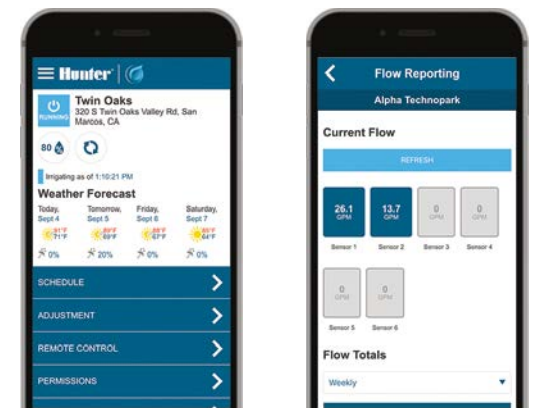
| Model       | Description                     |
|-------------|---------------------------------|
| ANT-EXT-KIT | Universal Antenna Extension Kit |

View Centralus Software today at [centralus.hunterindustries.com](http://centralus.hunterindustries.com).

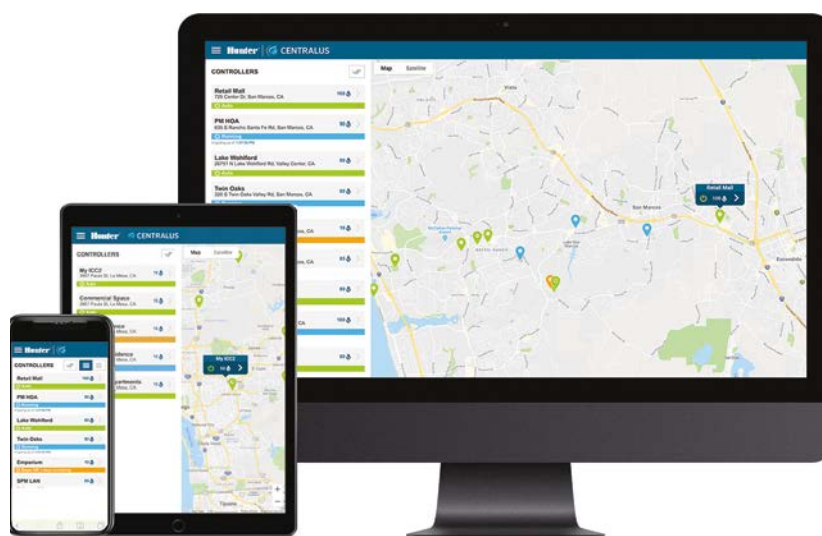
## ACC2 COMMUNICATION MODULE INSTALLATION



**A2C Communication Modules are installed behind the ACC2 Facepack**



**Manage and monitor controllers from anywhere**



### Centralus Software

Enable Pro-C, ICC2, and ACC2 Controllers with next-generation management technology. To learn more, visit [centralus.hunterindustries.com](http://centralus.hunterindustries.com).

### Mobile-Friendly

The mobile-friendly Centralus Irrigation Management Platform provides highly secure, comprehensive cloud-based control and monitoring features. The connectivity allows you to view a controller's status, change settings, view forecasts, save water, and receive instant notification of important system alarms.

### User-Friendly

The addition of internet access brings dial-based Pro-C, ICC2, and ACC2 Controllers seamlessly into the world of next-generation irrigation control. From the intuitive Centralus dashboard, it's now easier than ever to add alarm monitoring, location information, remote operation, and scheduling to Pro-C, ICC2, and ACC2 Controllers.

### Easy to Upgrade

To upgrade to Centralus control, add a simple Wi-Fi, Ethernet (LAN), or Cellular (LTE) communication module to the controller:

- Pro-C: PC-WIFI
- ICC2: WIFIKIT, LANKIT, or CELLKIT
- ACC2: A2C-WIFI, A2C-LAN, or A2C-LTEM



**PC-WIFI**  
Height: 4¼"  
Width: 2¾"  
Depth: ⅝"



**WIFIKIT**  
Height: 4¼"  
Width: 2½" (installed)  
Depth: 1⅜"



**LANKIT**  
Height: 4¼"  
Width: 2½" (installed)  
Depth: 1⅜"



**CELLKIT**  
Height: 3⅝"  
Width: 2⅝"  
Depth: 1½"



**A2C-WIFI**  
Height: 3"  
Width: 2¼"  
Depth: 1"



**A2C-LAN**  
Height: 3"  
Width: 2¼"  
Depth: 1"



**A2C-LTEM**  
Height: 3"  
Width: 2¼"  
Depth: 1"

# ACC2

The multi-flow monitoring and management capabilities of the ACC2 Controller, combined with the option to upgrade to Centralus cloud-based control, make it the best choice for complex projects.

## KEY BENEFITS

- Number of stations:
  - 12 to 225, for large projects
- Language-selectable, high-visibility display
- Up to 6 flow sensor inputs and 6 P/MV outputs
- 32 automatic programs (10 start times each) for precise plant management
- Block function to group stations and consolidate large systems
- Add a Solar Sync® Sensor to save water based on local weather conditions
- Real-time flow monitoring detects and diagnoses leaks in up to 6 flow zones
- Flow management optimizes watering at safe velocities
- High-visibility, full-color display with reversible facepack
- Conditional Response "if/then" programming for active responses to sensor inputs
- User management password protection, with two levels of access
- Optional plug-in communications modules for cloud or network control
- Detailed alarm logs
- Extreme service lightning protection
- Easy Retrieve® Memory programming backup and restore
- Non-Water Windows to inhibit accidental irrigation

## OPERATING SPECIFICATIONS

- Transformer input: 120/230 VAC
- Maximum AC current draw: 120 VAC, 2 A/230 VAC, 1 A
- Transformer output: 24 VAC, ~3 A
- P/MV outputs (24 VAC): Up to 6; 3 included, 0.8 A each
- Sensor inputs: 3 Clik, 1 Solar Sync, and up to 6 Flow Sensors (3 included)
- Approvals: Wall Mounts IP55 (outdoor), Plastic Pedestal IP24 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISED
- Warranty period: 5 years

## USER-INSTALLED OPTIONS

- Centralus central control available with Wi-Fi, LAN (Ethernet), and cellular connection; **see page 129**
- SCADA/automation compatible with BACnet, Modbus, RESTful API, and other protocols via Hunter Field Servers; **see page 110**

View Centralus Software today,  
at [centralus.hunterindustries.com](http://centralus.hunterindustries.com)



**Metal Wall Mount**  
(gray or stainless steel)  
Height: 15¾"  
Width: 15"  
Depth: 6¾"



**Plastic Wall Mount**  
Height: 16¾"  
Width: 16½"  
Depth: 6¾"



**Metal Pedestal**  
(gray or stainless steel)  
Height: 37"  
Width: 15½"  
Depth: 5"



**Plastic Pedestal**  
Height: 39½"  
Width: 23½"  
Depth: 17"

Compatible with:



**Solar Sync  
Sensor**  
Page 136



**Flow-Sync® Sensor**  
Page 141  
**Wireless Flow  
Sensor**  
Page 142



**ROAM Remote**  
Page 126  
**ROAM XL Remote**  
Page 127



### EPA WaterSense® Approved

Recognized as a responsible water-saving tool when used with a Solar Sync Sensor



## ADDITIONAL SPECIFICATIONS BY MODEL

### ACC2 CONVENTIONAL

- Number of stations:
  - 12 to 54, for large projects
- Simultaneous station operation: Up to 14 solenoids
- Expands in 6-station increments
- Extreme service lightning protection, standard on all A2M-600 Output Modules
- Station outputs: 0.8 A each

| ACC2 CONVENTIONAL MODELS |                                                                                              |
|--------------------------|----------------------------------------------------------------------------------------------|
| Model                    | Description                                                                                  |
| A2C-1200-M               | 12-station base unit controller, expands to 54 stations, gray steel wall mount, outdoor      |
| A2C-1200-P               | 12-station base unit controller, expands to 54 stations, plastic outdoor wall mount          |
| A2C-1200-SS              | 12-station base unit controller, expands to 54 stations, stainless steel wall mount, outdoor |
| A2C-1200-PP              | 12-station base unit controller, expands to 54 stations, plastic pedestal                    |
| A2M-600                  | 6-station plug-in module for use with the A2C-1200 series controllers                        |

### ACC2 DECODER

- Number of stations:
  - 75, 150, or 225, for large projects
- Simultaneous station operation: Up to 30 solenoids
- Operates Hunter's premium ICD Decoders over ID wire:
  - Up to 10,000' (14 AWG wire)
  - Up to 15,000' (12 AWG wire)
- See complete ICD Decoder key benefits and specifications on **page 120**
- Up to 3 two-wire paths per output module
- Diagnostics including decoder inventory, wire tracker, solenoid finder, and more

| ACC2 DECODER MODELS |                                                       |
|---------------------|-------------------------------------------------------|
| Model               | Description                                           |
| A2C-75D-M           | 75-station base model, gray metal outdoor, wall mount |
| A2C-75D-P           | 75-station base model, plastic outdoor, wall mount    |
| A2C-75D-SS          | 75-station base model, stainless steel, wall mount    |
| A2C-75D-PP          | 75-station base model, plastic pedestal               |
| A2C-D75             | 75-station decoder expansion module                   |

## ACC2 ACCESSORIES FOR ALL MODELS

| ACC2 ACCESSORIES |                                                                                             |
|------------------|---------------------------------------------------------------------------------------------|
| Model            | Description                                                                                 |
| A2C-F3           | Optional flow meter expansion module (adds 3 inputs)                                        |
| A2C-LEDKT        | External status light shows controller status with door closed                              |
| A2C-WIFI         | ACC2 Wi-Fi connection                                                                       |
| A2C-LAN          | ACC2 LAN (Ethernet) connection                                                              |
| A2C-LTEM         | Cellular Communication Module (4G LTE) for ACC2 Controllers (monthly service plan required) |
| ACC-PED          | Gray pedestal for wall mount                                                                |
| PED-SS           | Stainless steel pedestal for wall mount                                                     |

### ACC2 REVERSIBLE FACEPACK AND AUTOMATIC DIAGNOSTIC MODE



# ICC2

This flexible control system can run any combination of conventional, EZDS two-wire, or Wireless Valve Link outputs with the option to upgrade to cloud-based Centralus™ control.

## KEY BENEFITS

- Number of stations:
  - Conventional: 8 to 38 (plastic), 8 to 54 (metal and pedestals)
  - With two-wire EZDS: up to 54 (all enclosure options)
  - With Wireless Valve Link (WVL): up to 54 (all enclosure options)
- 4 automatic irrigation programs with 8 start times per program and 12-hour run times per station
- Any 2 programs can operate simultaneously, providing more efficient watering
- 1 sensor input available for use with Solar Sync® or any Clik Sensors
- 1 flow sensor input available with Centralus communication modules
- 1 P/MV output for pump start relay and master valve activation
- Backward compatibility to original ICC Controllers allows for quick updates to older systems
- Upgradable to Centralus Software for web-based central control options

## OPERATING SPECIFICATIONS

- Transformer input: 120/230 VAC
- Transformer output (24 VAC): 1.4 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.56 A
- Approvals: Wall Mounts IP55 (outdoor), Plastic Pedestal IP24 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISED
- Warranty period: 5 years

## USER-INSTALLED OPTIONS

- WIFIKIT, LANKIT, or CELLKIT communications for cloud-based Centralus control
- Compatible with Hunter Flow-Sync® Sensor and HC Flow Meter for flow monitoring and high-flow shutdown capabilities via Centralus Software
- SCADA/automation compatible with BACnet, Modbus, and other protocols via Hunter Field Servers; **see page 110**
- Compatible with ROAM and ROAM XL Remotes; **see pages 126 and 127**

| ICC2       |                                                               |
|------------|---------------------------------------------------------------|
| Model      | Description                                                   |
| I2C-800-PL | 8-station base model, plastic outdoor wall mount              |
| I2C-800-M  | 8-station base model, gray metal outdoor, wall mount          |
| I2C-800-SS | 8-station base model, stainless steel, wall mount             |
| I2C-800-PP | 8-station base model, plastic pedestal                        |
| ICC-FPUP2  | ICC2 Retrofit Kit for original ICC Controllers                |
| ICC-PED    | Gray pedestal for metal controller mount                      |
| ICC-PED-SS | Stainless steel pedestal for stainless steel controller mount |
| ICC-PWB    | Optional pedestal wiring board for metal pedestals            |

| ICC2 SERIES STATION EXPANSION |                                                          |
|-------------------------------|----------------------------------------------------------|
| Model                         | Description                                              |
| ICM-400                       | 4-station plug-in module with enhanced surge suppression |
| ICM-800                       | 8-station plug-in module with enhanced surge suppression |
| ICM-2200                      | 22-station expansion module (one per controller)         |
| EZDS                          | <b>See page 122</b> for model chart                      |
| WVL                           | <b>See page 118</b> for model chart                      |

View Centralus Software today,  
at [centralus.hunterindustries.com](http://centralus.hunterindustries.com)



**Plastic**  
Height: 12"  
Width: 13¾"  
Depth: 5"

**Metal**  
(gray or stainless steel)  
Height: 16"  
Width: 13"  
Depth: 5"



**Metal Pedestal**  
(gray or stainless steel)  
Height: 36"  
Width: 11½"  
Depth: 5"



**Plastic Pedestal**  
Height: 39"  
Width: 24"  
Depth: 17"

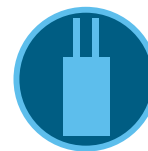
Compatible with:



**Solar Sync  
Sensor**  
Page 136



**WVL Wireless  
Valve Link**  
Page 118



**EZ Decoder  
System**  
Page 122



**EPA WaterSense**  
Recognized as a responsible water-saving tool when used with a Solar Sync Sensor

# PRO-C®

Simple programming and flexible station expansion make the Pro-C Controller the professional's choice for residential and light commercial systems.

## KEY BENEFITS

- Number of stations:
  - Modular Pro-C
    - Conventional wiring from 4 to 23 stations
    - Hybrid EZ Decoder option up to 32 total stations (28 stations maximum if two-wire only)
- 3 automatic irrigation programs with 4 start times per program and 6-hour run times per station
- 2 sensor inputs available for use with Solar Sync® or any Clik Sensors
- 1 P/MV output for pump start relay and master valve activation
- 1 flow sensor input available with Centralus Wi-Fi module
- High-visibility, backlit display for simple programming in any light
- Optional Seconds Mode allows for station run times with seconds resolution from 1 second to 5 minutes
- Easy Retrieve® Memory allows for manual backup and retrieval of preferred settings and programming
- QuickCheck™ Technology provides simple diagnostics of faulty field wiring
- Backward compatible with previous modular PC-400 models dated 2014 to 2023

## OPERATING SPECIFICATIONS

- Transformer input: 120 VAC
- Transformer output (24 VAC): 1 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.28 A
- Approvals: IP44 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISED
- Warranty period: 2 years

## USER-INSTALLED OPTIONS

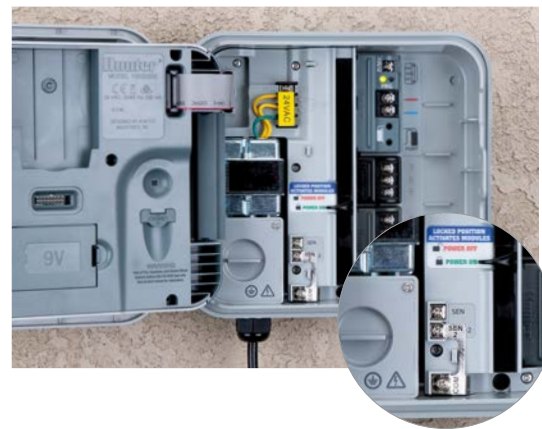
- PC-WIFI communication module for cloud-based Centralus control
- Compatible with Hunter Flow-Sync® Sensor and HC Flow Meter for flow monitoring and high-flow shutdown capabilities via Centralus Software



### Plastic Outdoor

Height: 9"  
Width: 10"  
Depth: 4½"

### P2C-400 CONTROLLER WITH 2 SENSOR INPUTS



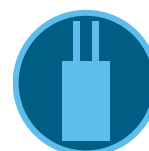
Compatible with:



**Solar Sync  
Sensor**  
Page 136



**ROAM Remote**  
Page 126  
**ROAM XL Remote**  
Page 127



**EZ Decoder  
System**  
Page 122



### EPA WaterSense

Recognized as a responsible water-saving tool when used with a Solar Sync Sensor

| PRO-C                       |                                                                |
|-----------------------------|----------------------------------------------------------------|
| Model                       | Description                                                    |
| P2C-400                     | 4-station base, plastic wall mount cabinet with cable and plug |
| PC-SERIES STATION EXPANSION |                                                                |
| Model                       | Description                                                    |
| PCM-300                     | 3-station plug-in module                                       |
| PCM-900                     | 9-station plug-in module                                       |
| PCM-1600                    | 16-station plug-in module                                      |
| PC-DM                       | EZ Decoder Output Module                                       |



# HUNTER FIELD SERVERS

These high-performance devices make it easy to communicate directly with Hunter ACC2 and ICC2 Controllers from centralized command centers.

## KEY BENEFITS

- Field server for BACnet, Modbus, RESTful API, and over 120 other automation protocols
- Up to 3,000 data points with complete documentation and demo software with Hunter license agreement
- Integrates controllers directly into SCADA, Smart City, and BMS applications
- Allows total access to all controller commands, reports, and features from the customer's integration software
- Does not require internet connection or other proprietary control software
- 2 x RJ-45 receptacles for system and controller connections
- 1 x RS-485/RS-232 and 1 x RS-485
- DIN rail mounting included
- Made in USA

## OPERATING SPECIFICATIONS

- Serial (galvanic isolation): 1 x RS-485/RS-232 and 1 x RS-485
- Baud: 9600, 19200, 38400, 57600, 76800, 115000
- Ethernet: 2 x 10/100BaseT, MDIX, DHCP
- Operating temperature: -4°F to 158°F (-20°C to 70°C)
- Relative humidity: 10% to 95% RH non-condensing

| HUNTER FIELD SERVER MODEL CHART |                                 |
|---------------------------------|---------------------------------|
| Model                           | Description                     |
| FS-3000                         | Field Server, 3,000 data points |
| FS-1000                         | Field Server, 1,000 data points |



### Hunter Field Server

Height: 4"  
Width: 1 1/16"  
Depth: 2 7/16"



### Field Server Connections

CENTRALUS CONTROLLERS



# BATTERY- OPERATED CONTROLLERS

---





When locations are difficult to access, lack electrical power, or demand cost-prohibitive wire runs, battery-operated controllers can make irrigation effective and affordable. Unlike traditional irrigation systems, they save time and money because there's no need to run wire, obtain construction permits, or lease equipment to tunnel under concrete or other hardscape elements. Since these systems are less intrusive, they can also help you win bids where specifications are strict about AC power requirements.

## BATTERY-OPERATED CONTROLLER COMPARISON CHART

| CONTROLLER MODELS | MAXIMUM STATIONS | SENSOR INPUTS | REMOTE CONTROL        | SOLAR                                  |
|-------------------|------------------|---------------|-----------------------|----------------------------------------|
| BTT               | 2                | N/A           | BTT Bluetooth® App    | N/A                                    |
| NODE              | 6                | 1             | N/A                   | SPNODE                                 |
| NODE-BT           | 4                | 2             | NODE-BT Bluetooth App | SPNODEBT                               |
| XC Hybrid         | 12               | 1             | N/A                   | SPXCH,<br>XCH-600-SSP,<br>XCH-1200-SSP |



# BTT

Take advantage of smartphone-controlled, above-ground irrigation for easier access to the hose tap.

## KEY BENEFITS

- Number of zones:
  - 1 or 2 (fixed models)
- Battery-operated tap timer with Bluetooth® control
- 1 smartphone manages an unlimited number of controllers
- 1-second to 24-hour run time with multiple start times for maximum programming flexibility
- Cycling mode repeats continuously within user-defined water windows, perfect for drip systems or germinating seeds
- Suspend irrigation up to 99 days during the off-season, ideal for seasonal markets
- Manual push-button operation for quick operation without a smartphone
- Automatic water shutoff after 1 hour prevents water waste
- Blinking LED low-battery alert indicates battery replacement
- Alkaline batteries included for quicker installation

## OPERATING SPECIFICATIONS

- Two 1.5V AA alkaline batteries (included)
- Flow rate: 0.5 to 600 GPH
- Recommended pressure: 7 to 116 PSI
- See friction loss chart on [page 192](#)
- Bluetooth 4.0/4.2 (BLE)
- Approvals: Plastic IPX6 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISCED
- Warranty period: 2 years

## APP SPECIFICATIONS

- iOS® 9.0 or above, Android™ 4.4 or above
- Maximum communication distance: 32'
- See all app features at [hunter.info/BTT](http://hunter.info/BTT)

| BTT     |                                            |
|---------|--------------------------------------------|
| Model   | Description                                |
| BTT-100 | 1-zone Bluetooth Tap Timer, ¾" hose thread |
| BTT-200 | 2-zone Bluetooth Tap Timer, ¾" hose thread |

| USER-INSTALLED OPTIONS |                                           |
|------------------------|-------------------------------------------|
| Model                  | Description                               |
| BTT-LOC                | BTT adapter for 16-18 mm dripline         |
| PRLG203FH3MH           | 20 PSI pressure regulator, ¾" hose thread |
| PRLG253FH3MH           | 25 PSI pressure regulator, ¾" hose thread |
| PRLG303FH3MH           | 30 PSI pressure regulator, ¾" hose thread |
| PRLG403FH3MH           | 40 PSI pressure regulator, ¾" hose thread |

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**BTT-100**  
Inlet diameter: ¾"  
Outlet diameter: ¾"  
Height: 5"  
Width: 5"  
Depth: 2½"



**BTT-200**  
Inlet diameter: ¾"  
Outlet diameter: ¾"  
Height: 6¼"  
Width: 5¼"  
Depth: 3"



**BTT-LOC**  
(optional)  
Inlet diameter: ¾"  
Outlet diameter: 16-18 mm dripline  
Height: 2¾"  
Width: 1¼"



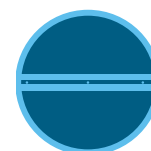
**Pressure Regulator**  
(optional)  
Inlet diameter: ¾"  
Outlet diameter: ¾"  
Height: 3"  
Width: 1½"

## BTT WITH HUNTER DRIPLINE (HDL) INSTALLATION



To control drip irrigation applications with BTT, use the BTT-LOC Drip Adapter, which connects BTT to HDL surface and subsurface systems.

Compatible with:



**HDL Dripline**  
[Page 156](#)

# NODE

*This battery-operated, waterproof controller offers automatic irrigation control for temporary irrigation and sites without electricity.*

## KEY BENEFITS

- Number of stations:
  - 1, 2, 4, or 6 (fixed models)
- Battery-operated controller for automatic irrigation
- Battery-life indicator for battery replacement
- Waterproof enclosure seal protects against water ingress
- 3 flexible programs with 4 start times each and up to 6-hour run times
- Suspend irrigation up to 99 days during the off-season
- Easy Retrieve® Memory backs up the full irrigation schedule if ever changed
- Seasonal adjustment for quicker schedule adjustments without changing run times
- Solar panel provides maintenance-free operation
- Mounts to Hunter solenoids, pipes, flat surfaces, or inside the valve box

## OPERATING SPECIFICATIONS

- One or two 9V alkaline batteries or 800 mAh solar panel with charging cell
- Operates Hunter DC-Latching Solenoids; [see page 84](#)
- 100' maximum wire runs, 18 AWG wire only
- Solar panel includes 40' of direct-burial wire
- Station output: 9-11 VDC
- P/MV output: 9-11 VDC (multi-station models)
- Sensor inputs: 1 (wired rain, freeze, or wind only)
- Approvals: IP68 (submersible), UL, cUL, FCC, CE, UKCA, RCM, ISED
- Warranty period: 2 years



### NODE

Height: 2½"  
Diameter: 3½"



### SPNODE

Solar Panel Kit (optional)  
Height: 3¼"  
Length: 3"  
Width: ⅝"  
Controller to solar panel: 100' maximum  
18 AWG direct-burial wire

### NODE WITH PGV INSTALLATION



*Compatible with:*



**Mini-Click®  
Sensor**  
[Page 135](#)



**Waterproof Wire  
Connector**  
[Page 125](#)

### NODE

| Model          | Description                                                                                  |
|----------------|----------------------------------------------------------------------------------------------|
| NODE-100       | Single-station battery controller and DC-Latching Solenoid                                   |
| NODE-100-LS    | Single-station battery controller                                                            |
| NODE-100-VALVE | Single-station battery controller with PGV-101G valve and DC-Latching Solenoid (NPT threads) |
| NODE-200       | 2-station battery controller                                                                 |
| NODE-400       | 4-station battery controller                                                                 |
| NODE-600       | 6-station battery controller                                                                 |

### USER-INSTALLED OPTIONS

| Model  | Description                                  |
|--------|----------------------------------------------|
| SPNODE | Solar Panel Kit for NODE controllers         |
| 458200 | DC-Latching Solenoid (for all Hunter valves) |

# NODE-BT

Manage gardens, greenhouses, traffic medians, and temporary irrigation sites from a smartphone without opening the valve box.

## KEY BENEFITS

- Number of stations:
  - 1, 2, or 4 (fixed models)
- Bluetooth® battery-operated controller for automatic irrigation
- Active station LEDs and battery-life LED indicator for replacement
- 3 programs with 8 start times each and 1 second to 12-hour run times
- Suspend irrigation up to 99 days during the off-season
- Manual push-button operation for quick operation without a smartphone
- Delay Between Stations for slow-closing valves or pump recharge
- Cycle and Soak prevents water waste and runoff in areas with elevation changes or tight soils
- Monthly and global seasonal adjustment for quicker schedule adjustments without changing run times

## OPERATING SPECIFICATIONS

- One or two 9 V alkaline batteries
- Operates Hunter DC-Latching Solenoids; [see page 84](#)
- 100' maximum wire runs, 18 AWG wire only
- Station output: 9 to 11 VDC
- P/MV output: 9 to 11 VDC (multi-station models)
- Sensor inputs: 2 (wired soil plus wired rain, freeze, or wind only)
- Bluetooth 5.0 (BLE)
- Approvals: IP68 (submersible), UL, cUL, FCC, CE, UKCA, RCM, ISCED
- Warranty period: 2 years

## APP SPECIFICATIONS

- iOS® 9.0 or above, Android™ 5.0 or above
- Maximum communication distance: 50'
- See all app features at [hunter.info/NodeBT](http://hunter.info/NodeBT)

| NODE-BT                |                                                                                                        |
|------------------------|--------------------------------------------------------------------------------------------------------|
| Model                  | Description                                                                                            |
| NODE-BT-100            | Single-station Bluetooth battery controller and DC-Latching Solenoid                                   |
| NODE-BT-100-LS         | Single-station Bluetooth battery controller                                                            |
| NODE-BT-100-VALVE      | Single-station Bluetooth battery controller with PGV-101G valve and DC-Latching Solenoid (NPT threads) |
| NODE-BT-200            | 2-station Bluetooth battery controller                                                                 |
| NODE-BT-400            | 4-station Bluetooth battery controller                                                                 |
| USER-INSTALLED OPTIONS |                                                                                                        |
| Model                  | Description                                                                                            |
| SC-PROBE               | Soil probe for moisture sensing                                                                        |
| SP-NODE-BT             | Solar Panel Kit for NODE-BT Controllers                                                                |
| 458200                 | DC-Latching Solenoid (for all Hunter valves)                                                           |

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### NODE-BT

Height: 3"  
Diameter: 3½"



### SC-PROBE

Soil Moisture Sensor  
(optional)  
Height: 3¼"  
Diameter: 1"



### SP-NODE-BT

NODE-BT Solar Panel  
Height: 1¾"  
Width: 3"  
Depth: 9½"

## NODE-BT WITH PGV INSTALLATION



Compatible with:



**Mini-Click  
Sensor**  
[Page 135](#)



**Waterproof Wire  
Connector**  
[Page 125](#)



# XC HYBRID

Effectively manage landscapes where electricity is unavailable with this economical battery-operated or solar-powered controller.

## KEY BENEFITS

- Number of stations:
  - 6 or 12 (fixed models)
- 3 power options: ambient-light-compatible solar panel, battery, or AC power
- Stainless steel enclosure protects against vandalism
- 3 programs with 4 start times each and up to 4-hour run times
- Easy Retrieve® Memory backs up the full irrigation schedule
- Delay Between Stations for slow-closing valves or pump recharge
- Seasonal adjustment for quicker schedule adjustments without changing run times
- Solar Panel provides maintenance-free operation
- Mounts to flat surfaces or steel posts

## OPERATING SPECIFICATIONS

- Plastic model operates six 1.5 V AA alkaline batteries
- Stainless steel model operated by six 1.5 V C alkaline batteries
- Stainless steel solar model operates 800 mAh solar panel with charging cell
- Solar panel includes 40' of direct-burial wire
- Controller to solar panel: 100' maximum 18 AWG direct-burial wire
- All models operate optional 120/24 VAC plug-in wall adapter (P/N 526500)
- Operates Hunter DC-Latching Solenoids; [see page 84](#)
- Station output: 9 to 11 VDC
- P/MV output: 9 to 11 VDC
- Sensor inputs: 1 (wired rain, freeze, or wind only)
- Approvals: Plastic IP54 (outdoor), Stainless Steel IP24 (outdoor), UL, cUL, FCC, CE, UKCA, RCM, ISED
- Warranty period: 2 years



### Plastic

Height: 8 $\frac{5}{8}$ "  
Width: 7"  
Depth: 3 $\frac{3}{4}$ "



### Stainless Steel

Height: 9 $\frac{3}{4}$ "  
Width: 7 $\frac{3}{8}$ "  
Depth: 4 $\frac{1}{4}$ "



### Stainless Steel Solar

Height: 10 $\frac{3}{4}$ "  
Width: 7 $\frac{3}{8}$ "  
Depth: 4 $\frac{1}{4}$ "



### SPXCH

Solar panel kit (optional)  
Height: 5 $\frac{1}{2}$ "  
Length: 3"  
Width: 3"



### XCHSPB

Mounting bracket and hardware only (optional)



### XCHSPOLE

Pole-Mounting Kit (optional)  
Height: 4'

Compatible with:



Mini-Click Sensor  
[Page 135](#)

| XC HYBRID    |                                                                  |
|--------------|------------------------------------------------------------------|
| Model        | Description                                                      |
| XCH-600      | 6-station battery controller                                     |
| XCH-600-SS   | 6-station battery controller, stainless steel                    |
| XCH-600-SSP  | 6-station controller, stainless steel, with mounted solar panel  |
| XCH-1200     | 12-station battery controller                                    |
| XCH-1200-SS  | 12-station battery controller, stainless steel                   |
| XCH-1200-SSP | 12-station controller, stainless steel, with mounted solar panel |

| USER-INSTALLED OPTIONS |                                              |
|------------------------|----------------------------------------------|
| Model                  | Description                                  |
| DCREL2                 | Latching sensor relay switch for pumps       |
| 526500                 | 120/24 VAC plug-in wall adapter              |
| 458200                 | DC-Latching Solenoid (for all Hunter Valves) |

| MAXIMUM WIRE RUNS |               |
|-------------------|---------------|
| Wire Size         | Max. Distance |
| 18 AWG            | 550'          |
| 16 AWG            | 870'          |
| 14 AWG            | 1,380'        |
| 12 AWG            | 2,200'        |





# **CONTROLLER DECODERS & ACCESSORIES**

---



# WIRELESS VALVE LINK

Enable convenient wireless valve control for ICC2 and HCC Controllers with the highly flexible and easy-to-install Wireless Valve Link.

## KEY BENEFITS

- Works with Hunter ICC2 and HCC Controllers, compatible with Centralus™ and Hydrowise® Irrigation Management Platforms
- Add up to 54 valves plus P/MV up to 2,000' line of sight\*
- License-free LoRa® wireless connections direct to valve box — no copper field wiring required
- Wireless Solar Repeater (RPT) can extend or double ranges
- Seamless system expansion enables connection across hardscapes and other obstacles without wiring
- Combine with conventional ICM or EZDS Modules as needed (54 stations plus P/MV maximum per controller)
- Isolation from lightning or surge events in the field
- No field wires, wire breaks, or tracking
- No cutting into hardscape, plowing, boring, or lightning surge back to the controller

## OPERATING SPECIFICATIONS

- Low-profile, waterproof valve box lid mount for field durability
  - Requires 1½" diameter hole in valve box lid (hole saw supplied with WVOM)
- Two-way communications confirm field performance
- LoRa radio: 900 MHz for North America
- 1-, 2-, and 4-station configurations to optimize field installations
- Operates Hunter DC-Latching Solenoids; **see page 84**
- Maximum distance from WVL to solenoid: 100' with 18 AWG wire
- One or two 9 VDC batteries per WVL
  - Replace batteries once per season or year
  - Solar recharging option with SP-WVL
- Built-in site survey and manual test functions
- Easy, free setup with iOS® 9.0 or above, Android™ 5.0 or above, and Bluetooth® apps
- Approvals:
  - WVOM: UL, cUL, FCC, CE, UKCA, RCM, ISED
  - WVL in-box control links: IP68 (submersible)
  - RPT Wireless Solar Repeater (universal mount included): IP55 (outdoor)
- Warranty period: 2 years

\* Wireless range is subject to terrain, foliage, buildings, and other site factors. Consult product documentation before installing.

Compatible with:



**Hydrowise  
Software**  
Page 94



**Centralus  
Software**  
Page 104



**ROAM Remote**  
Page 126  
**ROAM XL Remote**  
Page 127



**Wireless Valve Output Module (WVOM)**

Height: 4½"  
Width: 3¾"  
Length: 1½"



**Wireless Valve Link (WVL-XXX)**

See model chart on next page.  
Diameter: 4¼"  
Height: 6½"



**Wireless Solar Repeater  
(RPT)**

Height: 13¾" (installed with  
antenna extended)  
Width: 6¾"  
Length: 7¾"

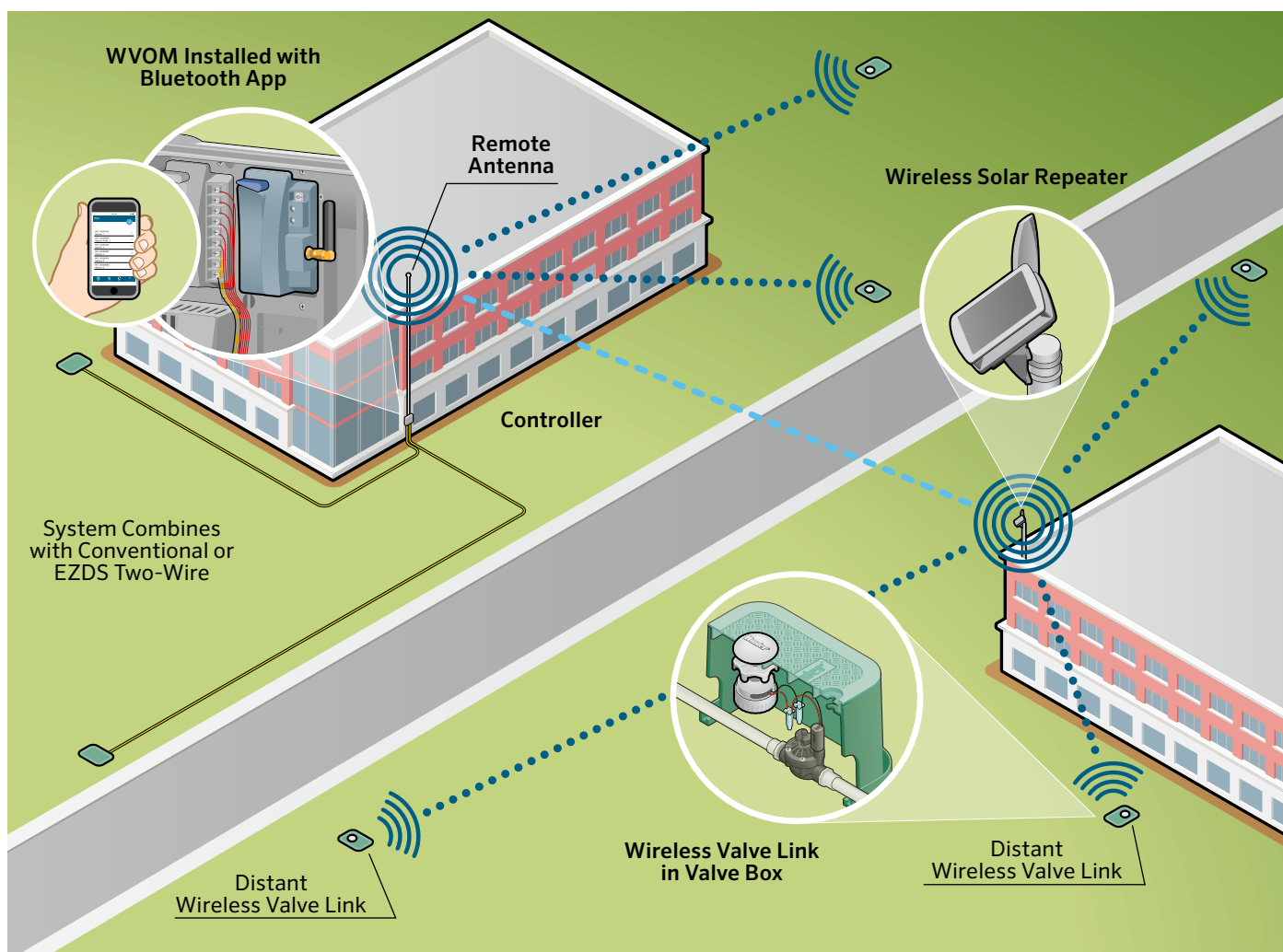


**SP-WVL**

Solar Panel  
Height: 1¾"  
Width: 3"  
Depth: 9½"

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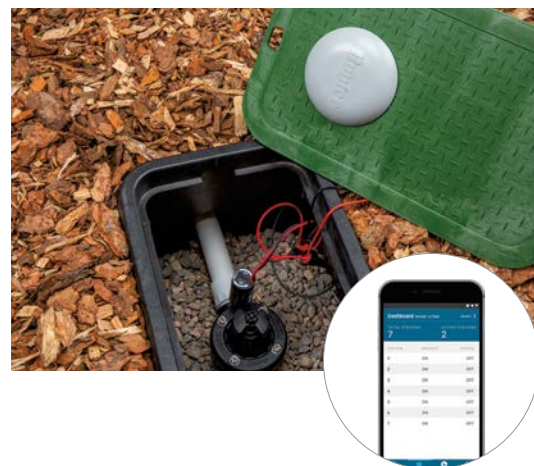
#### WIRELESS VALVE LINK MODEL CHART

| Model   | Description                                                                          |
|---------|--------------------------------------------------------------------------------------|
| WVOM    | Wireless Valve Output Module for ICC2/HCC Controllers                                |
| WVL-100 | Single-station Wireless Valve Link (antenna included)                                |
| WVL-200 | 2-station Wireless Valve Link (antenna included)                                     |
| WVL-400 | 4-station Wireless Valve Link (antenna included)                                     |
| RPT     | Battery-operated Wireless Solar Repeater for WVL range extension (1 per system, max) |

#### USER-INSTALLED OPTIONS

| Model       | Description                                          |
|-------------|------------------------------------------------------|
| ANT-EXT-KIT | Universal Antenna Extension Kit                      |
| 458200      | Hunter DC-Latching Solenoids (for all Hunter valves) |
| SP-WVL      | Solar Panel Kit for WVL Controllers                  |

#### WIRELESS VALVE LINK INSTALLED IN VALVE BOX



# ICD

Hunter's premium two-wire decoders for long-distance, high-station-count ACC2 applications include two-way communications and integrated surge protection.

## KEY BENEFITS

- ICD Decoders are compatible with ACC2 Decoder Controllers and legacy ACC-99D Decoder Controllers
- 1-, 2-, 4-, and 6-station versions provide maximum flexibility
- Sensor decoders allow Flow and Klik Sensor monitoring via the two-wire paths
- Field-programmable decoders accept station numbers directly, and do not require entering serial numbers into the control panel
  - Decoders can be programmed before installation at the controller interface
  - Use of ICD-HP Programmer allows for wireless decoder programming or reprogramming after installation to the two-wire path
- Integrated surge protection eliminates the need for extra surge protection devices
- Color-coded wiring connections simplify installation
- Industrial-grade, waterproof DRBY Splice Connectors included for two-wire path splices

## OPERATING SPECIFICATIONS

- Maximum recommended distance, decoder to solenoid: 150'
- Maximum distance to decoder via two-wire path:
  - 14 AWG wire path: 10,000'
  - 12 AWG wire path: 15,000'
- Approvals: UL, cUL, FCC, CE, UKCA, RCM
- Decoder rating: IP68 (submersible)
- Warranty period: 5 years

## USER-INSTALLED OPTIONS

- Wireless handheld ICD-HP Programmer; **see page 121**
- DECSTAKE10 Universal Decoder Stake, 10-pack; **see page 124**



**ICD-100, 200, ICD-SEN**

Height: 3½"  
Width: 1½"  
Depth: ¾"

**ICD-400, 600**

Height: 3½"  
Width: 1¾"  
Depth: 1½"

## DECODER MODELS

| Model   | Description                                                   |
|---------|---------------------------------------------------------------|
| ICD-100 | Single-station decoder with surge suppression and ground wire |
| ICD-200 | 2-station decoder with surge suppression and ground wire      |
| ICD-400 | 4-station decoder with surge suppression and ground wire      |
| ICD-600 | 6-station decoder with surge suppression and ground wire      |
| ICD-SEN | 2-input sensor decoder with surge suppression and ground wire |

## ID WIRE MODEL GUIDE

| 14 AWG Decoder Cable |               | 12 AWG Long-Range, Heavy-Duty Decoder Cable |               |
|----------------------|---------------|---------------------------------------------|---------------|
| ID1GRY               | Gray jacket   | ID2GRY                                      | Gray jacket   |
| ID1PUR               | Purple jacket | ID2PUR                                      | Purple jacket |
| ID1YLW               | Yellow jacket | ID2YLW                                      | Yellow jacket |
| ID1ORG               | Orange jacket | ID2ORG                                      | Orange jacket |
| ID1BLU               | Blue jacket   | ID2BLU                                      | Blue jacket   |
| ID1TAN               | Tan jacket    | ID2TAN                                      | Tan jacket    |

## ID WIRE MAXIMUM WIRE RUNS

| ID 1 Wire                       | ID 2 Wire                       |
|---------------------------------|---------------------------------|
| 5,000' with legacy DUAL systems | 7,500' with legacy DUAL systems |
| 10,000' with ICD systems        | 15,000' with ICD systems        |

Compatible with:



**Waterproof  
Splice Kit**  
Page 125

# ICD-HP PROGRAMMER

Gain wireless, handheld programming and diagnostic capabilities for Hunter ICD and legacy DUAL® Decoders.

## KEY BENEFITS

- Program or re-program decoder stations, whether new or installed\*
  - Simplifies setup and diagnostics for sensor decoders
  - Sensor test functions for Flow and Klik Sensors, plus built-in multimeter
  - Communicates with decoder through plastic case: wireless electromagnetic induction saves waterproof connectors
  - Compatible with Hunter ICD and legacy DUAL Decoders, as well as Pilot® Two-Way Modules
  - USB-powered for shop or office use; 4 AA batteries for field use
  - All test leads and cables included in durable, foam-padded carrying case
  - Turn decoder stations on and view solenoid status, current in milliamps, and more
  - Waterproof programming cup
  - Backlit adjustable display
  - 6 operating languages
- \* **Note:** ICD-HP Programmer is not compatible with EZ-1 Decoders

## ELECTRICAL SPECIFICATIONS

- Power input: 4 AA batteries, or standard USB connector (included)
- Communications: wireless induction, range 1"
- Fused test leads for unpowered decoder functions

## APPROVALS

- UL, cUL, FCC, CE, UKCA, RCM



### ICD-HP

Height: 8¼"  
Width: 3⅞"  
Depth: 2"

Packaged in an outdoor carrying case, this complete kit includes probes, induction cup, cable, USB power cable for bench use, and 4 AA batteries for fieldwork.

### ICD-HP



| ICD-HP |                                                                                                                    |
|--------|--------------------------------------------------------------------------------------------------------------------|
| Model  | Description                                                                                                        |
| ICD-HP | Wireless handheld decoder programmer, includes all test and power leads, programming cup, and rugged carrying case |



# EZ DECODER SYSTEM

Bring two-wire technology to more projects than ever before with the revolutionary, low-cost, and hassle-free EZ Decoder System for Pro-C®, HPC, ICC2, and HCC Controllers.

## KEY BENEFITS

- Number of stations:
  - Pro-C/HPC Controllers: Up to 28, plus master valve
  - ICC2/HCC Controllers: Up to 54, plus master valve
- No special wire or connectors required
- No special grounding or surge arrestors required in-line to maximize time and money savings during installation
- Programmable decoders with no need to input individual serial numbers
- P/MV can activate via the two-wire path for distant master valves
- Permits hybrid operations of side-by-side conventional and decoder stations for added flexibility
- EZ-1 Decoders have built-in status LED for positive diagnostics

## OPERATING SPECIFICATIONS

- Electrical output on two-wire path: 24 VAC, 50/60 Hz
- Two-wire paths to the field:
  - EZ-DM: 2
  - PC-DM: 1
- Wire paths possible over 3,000' (see Wiring Table below)
- Each EZ-1 Decoder can activate two standard 24 VAC solenoids
- Operate any two decoders simultaneously for more efficient watering (ICC2 and HCC Controllers only)
- Approvals: UL, cUL, FCC, CE, UKCA, RCM, ISED
- EZ-1 Decoders are IP68 rated (submersible)
- Warranty period: 3 years

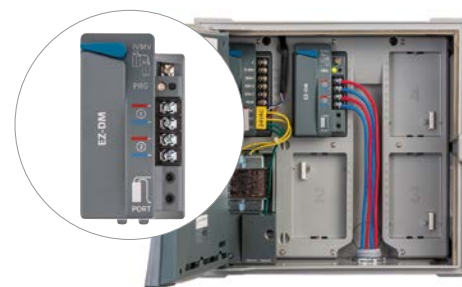
## USER-INSTALLED OPTIONS

- Centralus™ Software with Pro-C and ICC2 Controllers
- Hydrowise® Software with HPC and HCC Controllers
- Compatible with Waterproof Wire Connector; [see page 125](#)
- EZ-DT Diagnostic Tool for wireless diagnostics with EZ-1 Decoders; [see page 123](#)
- DECSTAKE10 Universal Decoder Stake, 10-pack; [see page 124](#)



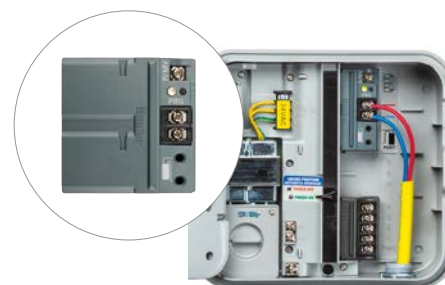
### Single-Station Decoder

Height: 2 $\frac{7}{8}$ "  
Width: 1 $\frac{5}{8}$ "  
Depth:  $\frac{5}{8}$ "



### Decoder Output Module: EZ-DM

Height: 4 $\frac{1}{2}$ "  
Width: 2 $\frac{1}{2}$ "  
Depth: 1 $\frac{5}{8}$ "



### Decoder Output Module: PC-DM

Height: 3"  
Width: 3"  
Depth: 1 $\frac{1}{4}$ "

Compatible with:



**HCC Controller**  
[Page 100](#)



**ICC2 Controller**  
[Page 108](#)



**Pro-C Controller**  
[Page 109](#)

## WIRING TABLE

| American Wire Gauge | Distance, single solenoid | Distance, 2 solenoids per output |
|---------------------|---------------------------|----------------------------------|
| 18 AWG              | 908'                      | 454'                             |
| 16 AWG              | 1,446'                    | 723'                             |
| 14 AWG              | 2,292'                    | 1,146'                           |
| 12 AWG              | 3,650'                    | 1,825'                           |

### Note

Distances in the Wiring Table are calculated based on 60 Hz for American Wire Gauge with a wire temperature of 120°F and a 10% safety factor.

## DECODER MODELS

| Model | Description                                         |
|-------|-----------------------------------------------------|
| EZ-DM | Decoder output module for HCC and ICC2 Controllers  |
| PC-DM | Decoder output module for HPC and Pro-C Controllers |
| EZ-1  | Single-station decoder with status LED              |
| EZ-DT | EZ-DT Diagnostic Tool                               |

# EZ-DT

*Simplify maintenance of EZ Decoder Systems with the handheld, wireless EZ-DT Diagnostic Tool.*

## KEY BENEFITS

- Wireless, handheld diagnostic tool for EZ-1 Decoders
- Detect faults and perform electrical troubleshooting in the field without uninstalling decoders
- Quickly read decoder status, station address, current draw, and two-wire voltage to simplify maintenance
- Program decoder station address via wired connection to speed up installation and save time on-site
- Update controller facepack or decoder module firmware via ribbon cable connection for flexibility when updating systems
- Communicate in your preferred language using the multilingual user interface
- Work reliably and efficiently on the go with power supplied by 4 AAA batteries

## OPERATING SPECIFICATIONS

- Power input: 4 AAA batteries (included)
- Communications: Wireless induction, 1" range from decoder to EZ-DT Diagnostic Tool
- 1.8" full-color, backlit TFT display

## USER-INSTALLED OPTIONS

- Centralus™ Software with Pro-C and ICC2 Controllers
- Hydrawise® Software with HPC and HCC Controllers
- DECSTAKE10 Universal Decoder Stake, 10-pack; [see page 124](#)



### EZ-DT Diagnostic Tool

Height: 7¾"

Width: 2¼"

Depth: ⅞"

### EZ-DT DIAGNOSTIC TOOL



### DECODER MODELS

| Model | Description                                         |
|-------|-----------------------------------------------------|
| EZ-DM | Decoder output module for HCC and ICC2 Controllers  |
| PC-DM | Decoder output module for HPC and Pro-C Controllers |
| EZ-1  | Single-station decoder with status LED              |
| EZ-DT | EZ-DT Diagnostic Tool                               |

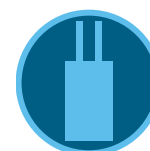
*Compatible with:*



**HCC Controller**  
[Page 100](#)



**ICC2 Controller**  
[Page 108](#)



**EZ Decoder System**  
[Page 122](#)

# UNIVERSAL DECODER STAKE

*The Universal Decoder Stake raises the decoder off the ground to keep two-wire installations organized, clean, and easily accessible during routine maintenance.*

## KEY BENEFITS

- Raises decoder off the ground, so contractors don't have to dig the device out of the mud
- Holds Hunter decoders in end-up position for convenient access and wireless programming without removal
- Works with all Hunter decoders and most other brands, so contractors only need to stock one item
- Zip ties conveniently included to secure the stake during installation
- Sturdy construction ensures the stake won't break or bend when hammered into the dirt
- Made primarily from recycled materials with minimal packaging to prevent waste and minimize carbon footprint

## OPERATING SPECIFICATIONS

- Fits all Hunter decoders and most other brands
- Zip ties included
- Made of recycled materials

### UNIVERSAL DECODER STAKE

| Model      | Description                                                |
|------------|------------------------------------------------------------|
| DECSTAKE10 | Universal Decoder Stake (10 per carton), zip ties included |

### Universal Decoder Stake

Height: 10 $\frac{3}{4}$ "



### UNIVERSAL DECODER STAKE



# ANTENNA EXTENSION KITS

*Use these flexible Antenna Extension Kits when buildings, terrain, or other obstructions prevent reliable wireless communications.*

## KEY BENEFITS

- Universal Antenna Extension Kit option for Wi-Fi, cellular, and LoRa® radio communications (ANT-EXT-KIT)
  - Wi-Fi: HCC Controller, A2C-WIFI
  - Cell: A2C-LTEM
  - LoRa: WVOM
- For ROAM XL Remotes, extend the receiver antenna up to 25' with a convenient extension cable (ROAMXL-EXT)
- Simplify Plastic Pedestal installations with a flexible pedestal lid mounting option (PED-LID-ANT-BRKT)

### ANTENNA EXTENSION OPTIONS

| Model            | Description                                                                                                           |
|------------------|-----------------------------------------------------------------------------------------------------------------------|
| ANT-EXT-KIT      | Universal Antenna Extension Kit for Wi-Fi, cellular, and LoRa communication hardware (9' cable and mounting hardware) |
| ROAMXL-EXT       | ROAM XL Antenna Extension Kit (25' cable and mounting hardware)                                                       |
| PED-LID-ANT-BRKT | Plastic Pedestal Antenna Mount                                                                                        |



### ANT-EXT-KIT

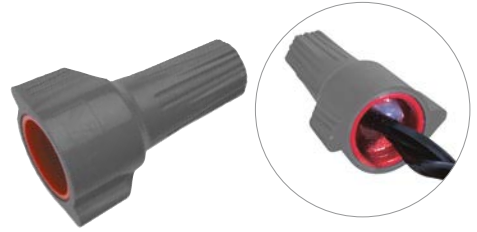


# WATERPROOF WIRE CONNECTOR

Use this approved waterproof connector for EZ-1 Decoders and all above-grade solenoid and sensor wiring connections.

## KEY BENEFITS

- 100% silicone-based sealant protects against moisture and corrosion
- Designed as a single-use only connection
- UL Listed (UL486G) to 600 V for use in damp/wet locations or above-grade applications
- Easy to apply, pre-filled twist-on wire connectors
- Eliminates the need for heat-shrink or excessive taping
- Not for use in continual submersion applications; use DBRY-6 Splice Connectors
- Approvals: UL, cUL, FCC, CE, UKCA, RCM, RoHS, ISED



### Waterproof Wire Connector

Height: 1½"  
Minimum wire: 3 #18 AWG  
Maximum wire: 2 #10 AWG with 1 #14 AWG

| WIRE CONNECTOR |                                 |
|----------------|---------------------------------|
| Model          | Description                     |
| WC100          | Bulk 100 connectors in canister |

### WC100 WIRE CONNECTOR



# WATERPROOF SPLICE KIT

Use this approved splice kit for all direct-burial, two-wire ICD, and legacy DUAL™ Decoder wiring connections.

## KEY BENEFITS

- UL Listed (UL486G) to 600 V for use in damp/wet location or direct-burial applications
- Waterproof, corrosion-proof, UV-rated, and impact resistant
- Snap-fit lid provides strain relief and three wire exits
- Prefilled with silicone that never hardens
- Two-part system includes red/yellow winged wire connector and silicone-filled tube
- Compatible with EZ-1 Decoder connections, but not a requirement
- Approvals: UL, cUL, FCC, CE, UKCA, RCM, RoHS, ISED

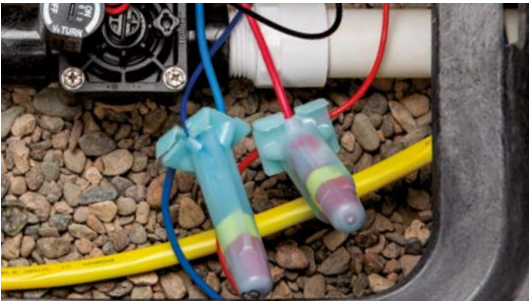


### Waterproof Splice Kit

Height: 3¾"  
Minimum wire: 2-7 #18 AWG  
Maximum wire: 2-3 #10 AWG

| DBRY-6 SPLICE KIT |                                                                                 |
|-------------------|---------------------------------------------------------------------------------|
| Model             | Description                                                                     |
| DBRY100           | Bulk 100 connectors (100 tubes loose in box, plus inner box with 100 wire nuts) |
| DBRY2X25          | 25 x 2-packs (2 tubes and 2 wire nuts in a plastic bag x 25 units)              |

### DBRY-6 WATERPROOF SPLICE KIT



# ROAM REMOTE

Enable convenient controller management from a distance with this handheld wireless remote.

## KEY BENEFITS

- Compatibility with Hunter X-Core®, X2™, Pro-C®, HPC, ICC2, HCC, ACC2, legacy ACC, and I-Core® Controllers to enable remote management for projects of any size
- Manually start individual stations or programs for quick maintenance checks and troubleshooting
- 128 programmable addresses available prevents cross-communication between multiple remotes within close proximity of each other
- Programmable run times from 1 to 90 minutes, which will not overwrite regular automatic programming
- Manual operation up to 240 stations provides flexibility for larger projects

## OPERATING SPECIFICATIONS

- Range: 1,000' from transmitter to receiver
- Transmitter power source: 4 AAA batteries (included)
- Receiver power source: 24 VAC, 0.010 A
- System operating frequency: 433 MHz
- SmartPort® Wiring Harness installation: maximum 50' from controller
- FCC, CE, and UKCA approved for use in the United States and internationally
- Warranty period: 2 years



### ROAM Transmitter and Receiver

Height: 7"  
Width: 2¼"  
Depth: 1¼"



### SmartPort Wiring Harness

Hunter remotes require the installation of a SmartPort Wiring Harness, which is a connector that is wired to the terminals on the controller and allows for quick connection to any Hunter receiver.



### Wall-Mount Bracket for SmartPort Wiring Harness

P/N 258200

## ROAM

| Model    | Description                                                          |
|----------|----------------------------------------------------------------------|
| ROAM-KIT | Transmitter, receiver, SmartPort Wiring Harness, and 4 AAA batteries |
| ROAM-TR  | Transmitter unit and 4 AAA batteries included                        |
| ROAM-R   | Receiver unit                                                        |

## USER-INSTALLED OPTIONS

| Model     | Description                                     |
|-----------|-------------------------------------------------|
| ROAM-WH   | SmartPort Wiring Harness (length: 6')           |
| ROAM-SCWH | Shielded SmartPort Wiring Harness (length: 25') |
| 258200    | Wall-mount bracket for SmartPort Wiring Harness |

# ROAM XL REMOTE

Add professional, license-free remote control to projects of any size with this long-range remote.

## KEY BENEFITS

- Compatibility with Hunter X-Core®, X2™, Pro-C®, HPC, ICC2, HCC, ACC2, legacy ACC, and I-Core® Controllers to enable remote management for projects of any size
- Manually start individual stations or programs for quick maintenance checks and troubleshooting
- 128 programmable addresses available prevents cross-communication between multiple remotes within close proximity of each other
- Programmable run times from 1 to 90 minutes, which will not overwrite regular automatic programming
- Manual operation up to 240 stations provides flexibility for larger projects
- Rugged and water-resistant transmitter includes a large LCD display with simple push-button operation and a battery-life indicator

## OPERATING SPECIFICATIONS

- Range: 2 miles (line of sight) from transmitter to receiver
- Transmitter power source: 4 AAA batteries (included)
- Receiver power source: 24 VAC, 0.010 A
- System operating frequency: 27 MHz
- SmartPort® Wiring Harness installation: maximum 50' from controller
- FCC approved (not available in EU and some other countries; check local regulations)
- Warranty period: 3 years



### ROAM XL Transmitter and Receiver

(without antenna)

Height: 6¼"

Width: 3"

Depth: 1¼"



### SmartPort Wiring Harness

Hunter remotes require the installation of a SmartPort Wiring Harness, which is a connector that is wired to the terminals on the controller and allows for quick connection to any Hunter receiver.



### Wall-Mount Bracket for SmartPort Wiring Harness

P/N 258200

| ROAM XL    |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| Model      | Description                                                                                         |
| ROAMXL-KIT | Transmitter, receiver, SmartPort Wiring Harness, 4 AAA batteries and plastic carrying case included |
| ROAMXL-TR  | Handheld transmitter and 4 AAA batteries included                                                   |
| ROAMXL-R   | Receiver unit (SmartPort Wiring Harness included)                                                   |

| USER-INSTALLED OPTIONS |                                                                          |
|------------------------|--------------------------------------------------------------------------|
| Model                  | Description                                                              |
| 258200                 | Wall-mount bracket for SmartPort Wiring Harness                          |
| ROAM-WH                | SmartPort Wiring Harness (length: 6')                                    |
| ROAM-SCWH              | Shielded SmartPort Wiring Harness (length: 25')                          |
| ROAMXL-EXT             | ROAM XL Antenna Extension Kit (25' cable and mounting hardware included) |



# PSR

*This reliable and economical Pump Start Relay family is perfect for systems that require pump activation.*

## KEY BENEFITS

- A pump start relay family for a variety of voltage and power requirements.
- 24 VAC flying leads make connection to the controller quick and easy
- Suitable for conventional wiring or two-wire decoder activation, allows flexible installation options

## OPERATING SPECIFICATIONS

- Recommended installation: Minimum 15' from irrigation controller; see chart on **page 203** for maximum distances
- Approvals: IP44 (outdoor), UL, cUL, FCC, CE, RCM, ISED
- Warranty period: 2 years



### Pump Start Relay

Height: 6½"

Width: 7½"

Depth: 4½"

### PUMP START RELAY

| Model  | Description                                                                                                                                |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------|
| PSR-22 | Double-pole/single-throw pump start relay for 120 VAC pumps up to 2 hp or 230 VAC pumps up to 3 hp                                         |
| PSR-52 | Double-pole/single-throw pump start relay for 120 VAC pumps up to 3 hp or 230 VAC pumps up to 7.5 hp                                       |
| PSR-53 | Triple-pole/single-throw pump start relay for 120 VAC pumps up to 3 hp, 230 VAC pumps up to 7.5 hp, or 230 VAC pumps up to 10 hp (3-phase) |

### PUMP START RELAY ELECTRICAL SPECIFICATIONS

| Model  | Single-Phase  |     | 3-Phase**     | Max. Full Load<br>AMPS | Max. Resistive<br>AMPS | Coil VA |       |       |       | Coil VA |       |       |       |
|--------|---------------|-----|---------------|------------------------|------------------------|---------|-------|-------|-------|---------|-------|-------|-------|
|        | HP at 120 VAC |     | HP at 230 VAC |                        |                        | INRUSH  |       | AMPS  |       | HOLDING |       | AMPS  |       |
|        |               |     |               |                        |                        | 50 Hz   | 60 Hz | 50 Hz | 60 Hz | 50 Hz   | 60 Hz | 50 Hz | 60 Hz |
| PSR-22 | 2*            | 3*  | N/A           | 30                     | 40                     | 33      | 30    | 1.38  | 1.25  | 8       | 6.5   | 0.33  | 0.27  |
| PSR-52 | 3             | 7.5 | N/A           | 40                     | 50                     | 65      | 60    | 2.71  | 2.50  | 7.5     | 5     | 0.31  | 0.21  |
| PSR-53 | 3             | 7.5 | 10            | 40                     | 50                     | 65      | 60    | 2.71  | 2.50  | 7.5     | 5     | 0.31  | 0.21  |

**Note:** \*Approximate power

\*\* 3-phase power at 230 VAC is not commonly available in some international markets. Check local electrical codes for compatibility.

# PSR-B

*For distant pump starts that require more power, choose the PSR-B.*

## KEY BENEFITS

- Provides a solution for irrigation controller and pump start relay installations that have insufficient power to activate the pump
- Includes solid state relay and local 24 VAC transformer for simple PSR activation

## OPERATING SPECIFICATIONS

- Primary AC power input: 120/230 VAC
- Secondary AC power output: 24 VAC, 1.6 A
- Relay rating: Double-pole, double-throw solid state (10 A)
- Approvals: IP54 (outdoor), UL, cUL, FCC, CE, RCM, ISED
- Warranty period: 2 years

### PUMP START RELAY BOOSTER

| Model | Description                                                     |
|-------|-----------------------------------------------------------------|
| PSR-B | Pump Start Relay Booster for increasing controller output power |



### PSR-B Pump Start Relay Booster

Height: 8⅝"

Width: 7"

Depth: 3¾"

# CONNECT YOUR WAY

Choose from a range of Wi-Fi, LAN (Ethernet), and cellular connection accessories to enable remote irrigation management on standalone controllers anytime, anywhere.

## HYDRAWISE® SOFTWARE

### X2 Controller with WAND Module Installed



**WAND**  
Wi-Fi accessory for X2 Controllers,  
managed by Hydrawise Software  
page 97

## CENTRALUS™ SOFTWARE

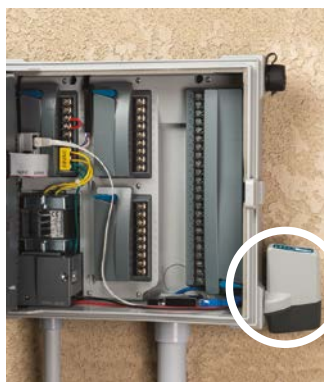
### PRO-C Controller with PC-WIFI Module Installed



**PC-WIFI**  
Wi-Fi accessory for Pro-C Controllers,  
managed by Centralus Software  
page 104

## CENTRALUS SOFTWARE

### ICC2 Controller with LANKIT Module Installed



**WIFIKIT**  
Wi-Fi accessory for ICC2 Controllers,  
managed by Centralus Software  
page 104



**LANKIT**  
Ethernet accessory for ICC2  
Controllers, managed by Centralus  
Software  
page 104



**CELLKIT**  
Cellular accessory for ICC2  
Controllers, managed by Centralus  
Software  
page 104

## CENTRALUS SOFTWARE

### ACC2 Controller with A2C-LTEM Module installed



**A2C-WIFI**  
Wi-Fi accessory for ACC2 Controllers,  
managed by Centralus Software  
page 107



**A2C-LAN**  
Ethernet accessory for ACC2  
Controllers, managed by Centralus  
Software  
page 107



**A2C-LTEM**  
Cellular accessory for ACC2  
Controllers, managed by Centralus  
Software  
page 107



# **SENSORS**

---





## SENSOR AND CONTROLLER COMPATIBILITY CHART

| AC CONTROLLERS               | SENSOR INPUTS                      | RAIN                            | SMART WEATHER ADJUST               | FLOW*                                                              | HIGH-FLOW SHUTOFF                                        |
|------------------------------|------------------------------------|---------------------------------|------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------|
| <b>X-CORE®</b><br>page 91    | 1                                  | Mini-Clik,<br>Rain-Clik         | Solar Sync                         | N/A                                                                | Flow-Clik                                                |
| <b>X2™</b><br>page 96        | 1                                  | Mini-Clik,<br>Rain-Clik         | Hydrawise® Software                | N/A                                                                | Flow-Clik                                                |
| <b>PRO-HC</b><br>page 98     | 2                                  | Mini-Clik,<br>Rain-Clik         | Hydrawise Software                 | HC Flow Meter                                                      | HC Flow Meter                                            |
| <b>HPC</b><br>page 99        | 2                                  | Mini-Clik,<br>Rain-Clik         | Hydrawise Software                 | HC Flow Meter                                                      | HC Flow Meter                                            |
| <b>HCC</b><br>page 100       | 2                                  | Mini-Clik,<br>Rain-Clik         | Hydrawise Software                 | HC Flow Meter                                                      | HC Flow Meter                                            |
| <b>ACC2</b><br>page 106      | 1 Solar Sync,<br>3 Clik,<br>6 Flow | Mini-Clik,<br>Rain-Clik         | Solar Sync,<br>Centralus Software  | HFS, WFS,<br>HC Flow Meter,<br>Other (K-Factor<br>or Scaled Pulse) | Built-In, Real-Time<br>Flow Monitoring and<br>Management |
| <b>ICC2</b><br>page 108      | 2                                  | Mini-Clik,<br>Rain-Clik         | Solar Sync,<br>Centralus™ Software | HFS, WFS,<br>HC Flow Meter,<br>Other (K-Factor or<br>Scaled Pulse) | Flow-Clik                                                |
| <b>PRO-C®</b><br>page 109    | 2                                  | Mini-Clik,<br>Rain-Clik         | Solar Sync,<br>Centralus Software  | HFS, WFS,<br>HC Flow Meter,<br>Other (K-Factor or<br>Scaled Pulse) | Flow-Clik                                                |
| BATTERY-OPERATED CONTROLLERS |                                    |                                 |                                    |                                                                    |                                                          |
| <b>NODE</b><br>page 114      | 1                                  | Mini-Clik,<br>Rain-Clik (wired) | N/A                                | N/A                                                                | N/A                                                      |
| <b>NODE-BT</b><br>page 115   | 2                                  | Mini-Clik,<br>Rain-Clik (wired) | N/A                                | N/A                                                                | N/A                                                      |
| <b>XC HYBRID</b><br>page 116 | 1                                  | Mini-Clik,<br>Rain-Clik (wired) | N/A                                | N/A                                                                | N/A                                                      |

\*Centralus communication module required for flow sensor input with Pro-C and ICC2 Controllers

| SOIL<br>MOISTURE | FREEZE                                         | WIND                                     |
|------------------|------------------------------------------------|------------------------------------------|
| Soil-Clik        | Freeze-Clik,<br>WR-Clik                        | Wind-Clik,<br>MWS                        |
| Soil-Clik        | Freeze-Clik,<br>WR-Clik,<br>Hydrawise Software | Wind-Clik,<br>MWS,<br>Hydrawise Software |
| Soil-Clik        | Freeze-Clik,<br>WR-Clik,<br>Hydrawise Software | Wind-Clik,<br>MWS,<br>Hydrawise Software |
| Soil-Clik        | Freeze-Clik,<br>WR-Clik,<br>Hydrawise Software | Wind-Clik,<br>MWS,<br>Hydrawise Software |
| Soil-Clik        | Freeze-Clik,<br>WR-Clik,<br>Hydrawise Software | Wind-Clik,<br>MWS,<br>Hydrawise Software |
| Soil-Clik        | Freeze-Clik,<br>WR-Clik,<br>Centralus Software | Wind-Clik,<br>MWS                        |
| Soil-Clik        | Freeze-Clik,<br>WR-Clik,<br>Centralus Software | Wind-Clik,<br>MWS                        |
| Soil-Clik        | Freeze-Clik,<br>WR-Clik,<br>Centralus Software | Wind-Clik,<br>MWS                        |
| N/A              | Freeze-Clik                                    | N/A                                      |
| SC-Probe         | Freeze-Clik                                    | N/A                                      |
| N/A              | Freeze-Clik                                    | N/A                                      |



**Rain-Clik® Sensor**



**Mini-Clik® Sensor**



**Soil-Clik® Sensor**



**Freeze-Clik® Sensor**



**Wind-Clik® Sensor**



**Mini Weather Station**



**Solar Sync® Sensor**



**Flow-Sync® Sensor**



**HC Flow Meter Sensor**  
*Available wireless!*



**Wireless Flow Sensor**



**Flow-Clik® Sensor**



# RAIN-CLIK®

To prevent water waste, built-in Quick Response® Technology instantly shuts down irrigation as soon as it starts raining.

## KEY BENEFITS

- Quick Response Technology triggers instant rain shutoff
- Freeze sensing model halts system operation at 37°F
- Wireless sensor kit simplifies installation
- Maintenance-free design with integrated battery for wireless models
- Adjustable vent ring allows for shorter or longer reset period
- Includes gutter bracket and wall mount with wireless models
- Compatible with most normally open or normally closed irrigation controllers

## OPERATING SPECIFICATIONS

- Quick Response Technology:
  - Time to turn off irrigation system: approximately 2 to 5 minutes for Quick Response
  - Time to reset Quick Response: approximately 4 hours under dry, sunny conditions
  - Time to reset when fully wet: approximately 3 days under dry, sunny conditions
- All models switch rating (24 VAC): 3 A
- Wired models include 25' of 20 AWG sheathed, UL-approved wire
- Wireless model operating frequency: 433 MHz
- Wireless model range is 800' line of sight from sensor to receiver
- Multiple wireless receivers can be operated from a single wireless sensor
- Approvals: UL, cUL, FCC, CE, UKCA, RCM
- Warranty period: 5 years

## USER-INSTALLED OPTIONS

- Optional Gutter Mount for wired models (included with WR-CLIK)
- Vandal-resistant Wireless Sensor Guard for flat surface- or pole-mounting (order sensor separately)
- Vandal-resistant Wireless Receiver Guard for pedestal mounting (order receiver separately)

Sensor: Rain, Freeze



**Wired Rain-Click Sensor**  
(with mounting arm)  
Height: 2½"  
Length: 7"  
Width: 1"



**Sensor Gutter Mount**  
optional gutter mount  
Height: ½"  
Length: 3"  
Width: 1¼"



**Wireless Rain-Click Sensor**  
(with mounting arm)  
Height: 3"  
Length: 8"  
Width: 1"



**Wireless Receiver**  
(with wall-mounting hardware)  
Height: 3¼"  
Length: 4"  
Width: 1½"



**Wireless Sensor Guard**  
(with mounting hardware)  
Height: 2¾"  
Length: 3¾"  
Width: 1¼"



**Wireless Receiver Guard**  
(with mounting hardware)  
Height: 5"  
Length: 4"  
Width: 1¼"

| RAIN-CLIK    |                                                                      |
|--------------|----------------------------------------------------------------------|
| Model        | Description                                                          |
| RAIN-CLIK    | Wired Rain-Click Sensor                                              |
| RAIN-CLIK-NO | Wired Rain-Click Sensor, normally open switch                        |
| RFC          | Wired Rain/Freeze-Click Sensor                                       |
| WR-CLIK      | Wireless Rain/Freeze-Click Sensor, Receiver, and Gutter Mount        |
| WS-GUARD     | Vandal-resistant wireless sensor guard for surface- or pole-mounting |
| WR-GUARD     | Vandal-resistant wireless receiver guard for pedestal mounting       |

Compatible with:



**Waterproof Wire  
Connector**  
Page 125

# MINI-CLIK®

*This sensor halts scheduled irrigation when it detects a preset level of rainfall to prevent water waste.*

## KEY BENEFITS

- Shuts off irrigation automatically when the sensor detects rainfall from 1/8" to 3/4"
- Debris-tolerant for reliable operation and no unnecessary shutdowns
- Wireless sensor kit simplifies installation\*
- Quick Response® Technology triggers faster system shutdown for plant protection\*
- Built-in freeze sensing halts system operation at 37°F to protect plants and keep roads and walkways ice-free\*
- Maintenance-free design with integrated battery for wireless models
- Compatible with most normally open or normally closed irrigation controllers

## OPERATING SPECIFICATIONS

- Quick Response Technology\* (when enabled):
  - Time to turn off irrigation system: approximately 2 to 5 minutes
  - Time to reset: approximately 4 hours under dry, sunny conditions
  - Time to reset when fully wet: approximately 3 days under dry, sunny conditions
- All models switch rating (24 VAC): 3 A
- Wired models include 25' of 20 AWG sheathed, UL-approved wire
- Wireless model operating frequency: 433 MHz
- Wireless model range is 800' line of sight from sensor to receiver
- Multiple wireless receivers can be operated from a single wireless sensor
- Approvals: UL, cUL, FCC, CE, UKCA, RCM
- Warranty period: 5 years

## USER-INSTALLED OPTIONS

- Optional Gutter Mount for wired models (included with WM-CLIK)
- Vandal-resistant Wireless Sensor Guard for flat surfaces or pole mounting (order sensor separately)
- Vandal-resistant Wireless Receiver Guard for pedestal mounting (order receiver separately)

\*Wireless Mini-Click Sensor only

| MINI-CLIK    |                                                                          |
|--------------|--------------------------------------------------------------------------|
| Model        | Description                                                              |
| MINI-CLIK    | Wired Mini-Click Sensor                                                  |
| MINI-CLIK-NO | Wired Mini-Click Sensor, normally open switch                            |
| MINI-CLIK-C  | Wired Mini-Click Sensor, conduit mount                                   |
| SG-MC        | Wired Mini-Click Sensor in a stainless steel sensor enclosure            |
| WM-CLIK      | Wireless Mini-Click Sensor, Receiver, and Gutter Mount                   |
| WS-GUARD     | Vandal-resistant Wireless Sensor Guard for flat surface or pole mounting |
| WR-GUARD     | Vandal-resistant Wireless Receiver Guard for pedestal mounting           |

Sensor: Rain, Freeze



**Wired Mini-Click Sensor**  
(with mounting arm)  
Height: 2"  
Length: 6"  
Width: 1"



**Wired Mini-Click Sensor**  
(with stainless steel enclosure)  
Height: 5 1/2"  
Length: 3"  
Width: 4"



**Wireless Mini-Click Sensor**  
(with mounting arm)  
Height: 3"  
Length: 8"  
Width: 1"



**Wireless Receiver**  
(with wall-mounting hardware)  
Height: 4"  
Length: 4"  
Width: 1 1/2"



**Wireless Sensor Guard**  
(with mounting hardware)  
Height: 2 3/4"  
Length: 3 3/4"  
Width: 1 1/4"



**Wireless Receiver Guard**  
(with mounting hardware)  
Height: 5"  
Length: 4"  
Width: 1 1/4"

Compatible with:



**Waterproof Wire Connector**  
Page 125

# SOLAR SYNC®

Sensor: **ET, Rain, Freeze**

*This sensor automatically adjusts controller run times daily based on local climate conditions to reduce water usage and improve plant health.*

## KEY BENEFITS

- Automatically adjusts irrigation run times based on weather conditions using on-site solar radiation and air temperature
- Quick Response® Technology triggers instant rain shutoff
- Freeze sensing halts system operation at 37°F
- Wireless sensor kit simplifies installation
- Maintenance-free design with integrated battery for wireless models
- Adjustable vent ring allows for shorter or longer reset period
- Use with X-Core®, Pro-C®, ICC2, ACC2, and legacy ACC and I-Core® Controllers
- Manage remotely with Centralus™ Software for Pro-C, ICC2, and ACC2 installations

## OPERATING SPECIFICATIONS

- Solar Sync Technology:
  - Adjusts run times daily 3 minutes before midnight using the last 3 days of ET (evapotranspiration) data
  - See calibration table on **page 205**
- Quick Response Technology:
  - Time to turn off irrigation system: approximately 2 to 5 minutes for Quick Response
  - Time to reset Quick Response: approximately 4 hours under dry, sunny conditions
  - Time to reset when fully wet: approximately 3 days under dry, sunny conditions
- All models switch rating (24 VAC): 3 A
- Wired models include 25' of 20 AWG sheathed, UL-approved wire
- Wireless model operating frequency: 433 MHz
- Wireless model range is 800' line of sight from sensor to receiver
- Multiple wireless receivers can be operated from a single wireless sensor
- Approvals: UL, cUL, FCC, CE, UKCA, RCM
- Warranty period: 5 years

## USER-INSTALLED OPTIONS

- Vandal-resistant Wireless Sensor Guard for flat surface- or pole-mounting (order sensor separately)
- Vandal-resistant Wireless Receiver Guard for pedestal mounting (order receiver separately)

| SOLAR SYNC     |                                                                           |
|----------------|---------------------------------------------------------------------------|
| Model          | Description                                                               |
| SOLAR-SYNC-SEN | Wired Solar Sync Sensor and Gutter Mount                                  |
| WSS-SEN        | Wireless Solar Sync Sensor, Receiver, and Gutter Mount                    |
| WS-GUARD       | Vandal-resistant Wireless Sensor Guard for flat surface- or pole-mounting |
| WR-GUARD       | Vandal-resistant Wireless Receiver Guard for pedestal mounting            |



### EPA WaterSense® Approved

Recognized as a responsible water-saving tool by the U.S. Environmental Protection Agency



### Wired Solar Sync Sensor

(with mounting arm)

Height: 3"  
Length: 8½"  
Width: 1"



### Wireless Solar Sync Sensor

Height: 4½"  
Length: 8½"  
Width: 1"



### Wireless Solar Sync Receiver

(with wall-mounting kit)

Height: 5½"  
Length: 1½"  
Width: 1½"



### Wireless Sensor Guard

(with mounting hardware)

Height: 2¾"  
Length: 3¾"  
Width: 1¼"



### Wireless Receiver Guard

(with mounting hardware)

Height: 5"  
Length: 4"  
Width: 1¼"

*Compatible with:*



**Centralus  
Software**  
Page 104



**Waterproof Wire  
Connector**  
Page 125



# SOIL-CLIK®

Sensor: **Soil Moisture**

*This sensor prevents water waste by measuring soil moisture and shutting off irrigation when a preset level is reached.*

## KEY BENEFITS

- View current soil moisture level and status at a glance
- One-touch override allows soil moisture bypass for special conditions
- Low-voltage outdoor enclosure powered by host controller
- Connect to sensor inputs, or use to interrupt common wires in virtually any 24 VAC irrigation system
- Use with Solar Sync® Sensor for maximum water savings; [see page 136](#)

## OPERATING SPECIFICATIONS

- Switch rating (24 VAC): 5 A
- Input power (24 VAC): 100 mA
- Output power: Normally closed, dry-contact closure
- 6' maximum distance from Soil-Clik module to controller
- 1,000' maximum distance from Soil-Clik module to sensor probe for AC installations
- 100' maximum distance for NODE-BT installations
- Sensor probe includes 30" of direct-burial wire
- Approvals: UL, cUL, FCC, CE, UKCA, RCM
- Warranty period: 5 years

### Soil-Clik Module

Height: 4½"  
Length: 3½"  
Width: 1¼"



### Soil-Clik Probe

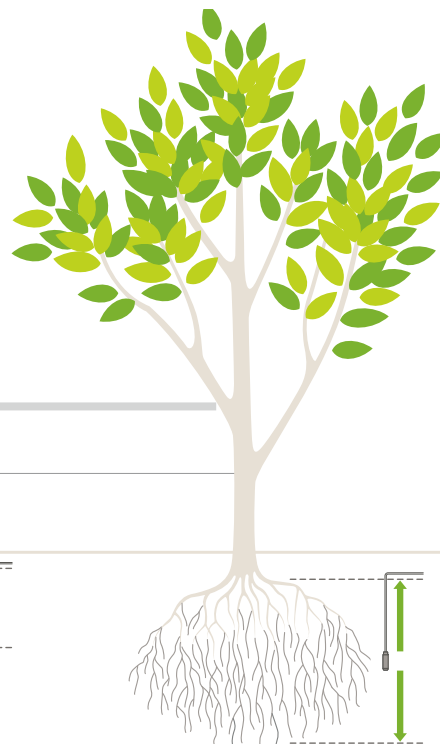
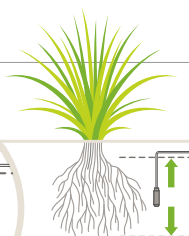
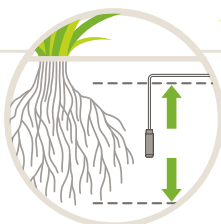
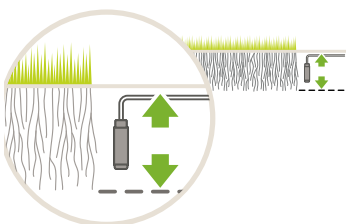
Height: 3¼"  
Diameter: 1"



SENSORS

| SOIL-CLIK |                                                             |
|-----------|-------------------------------------------------------------|
| Model     | Description                                                 |
| SOIL-CLIK | Soil-Clik moisture sensor module and probe                  |
| SC-PROBE  | Soil moisture probe sensor for NODE-BT (module is not used) |

Probe installed in root zone to monitor soil moisture



Compatible with:



**Waterproof Wire  
Connector**  
[Page 125](#)



**NODE-BT  
Controller**  
[Page 115](#)

In turf applications, the probe should be placed in the root zone, approximately 6" deep (adjust for actual turf conditions).

For shrubs or trees, select a deeper depth that matches the root zone. For new plantings, choose a spot halfway down the root ball, adjacent to native soil.

# HC FLOW METER

Sensor: **Flow**

Detect, monitor, and report critical flow zone data via wired or wireless connection with this robust and simple-to-install flow sensor.

## KEY BENEFITS

- Compatible with Hydrawise® enabled HC, Pro-HC, HPC, and HCC Controllers as well as Centralus™ enabled Pro-C®, ICC2, and ACC2 Controllers
- Provides station-level flow rates and totals
- Sends automatic alerts in the event of high-flow, low-flow, or unscheduled flow conditions
- Flow reports within Hydrawise Software can display total system water use and individual station water use for accurate water budgeting and tracking
- Robust brass construction with union fittings for easy installation and removal for winterization
- Analog dial on the face of the meter displays daily flow totals

## OPERATING SPECIFICATIONS

- Scaled pulse output is precalibrated from the factory based on the size of the meter
- When wired directly to the controller, the meter must be installed with shielded, minimum 18 AWG wire, up to 1,000' from the controller
- Accuracy: ± 2% of reading at recommended flow
- Warranty period: 2 years

## WIRELESS HC FLOW METER BENEFITS

- Add wireless communication to any HC Flow Meter (sensor sold separately)
- Send flow data wirelessly from the sensor to the controller, without the need to run wire or dig trenches



**HC-075-FLOW**  
(¾" male thread)  
Height: 3⅞"  
Length: 9⅞"  
Depth: 3⅞"

**HC-150-FLOW**  
(1½" male thread)  
Height: 6¼"  
Length: 16⅞"  
Depth: 4⅞"

**HC-100-FLOW**  
(1" male thread)  
Height: 3⅞"  
Length: 10¼"  
Depth: 3⅞"

**HC-200-FLOW**  
(2" male thread)  
Height: 6¼"  
Length: 17½"  
Depth: 4⅞"

## WIRELESS HC FLOW METER



| WIRELESS HC FLOW METER MODELS |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Model                         | Description                                                                      |
| W-HC-FLOW                     | Wireless HC Flow Meter Kit, includes transmitter and receiver (domestic 900 MHz) |
| HC-075-FLOW                   | HC Flow Meter with ¾" male thread, U.S. gal                                      |
| HC-100-FLOW                   | HC Flow Meter with 1" male thread, U.S. gal                                      |
| HC-150-FLOW                   | HC Flow Meter with 1½" male thread, U.S. gal                                     |
| HC-200-FLOW                   | HC Flow Meter with 2" male thread, U.S. gal                                      |

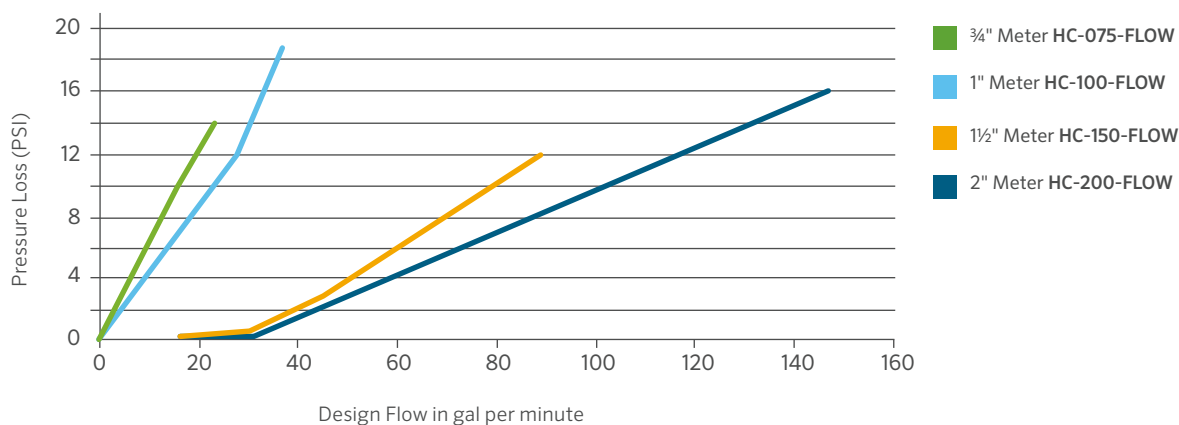
### HC FLOW METER SPECIFICATIONS

|                                | HC-075-FLOW (¾")         | HC-100-FLOW (1")       | HC-150-FLOW (1½")      | HC-200-FLOW (2")       |
|--------------------------------|--------------------------|------------------------|------------------------|------------------------|
| Minimum flow (GPM)             | 0.22                     | 0.3                    | 0.88                   | 1.98                   |
| Maximum recommended flow (GPM) | 15                       | 30                     | 66                     | 105                    |
| Maximum flow (GPM)             | 21                       | 34                     | 88                     | 132                    |
| Dial reading (U.S. gal)        | 1 pulse per 0.1 U.S. gal | 1 pulse per 1 U.S. gal | 1 pulse per 1 U.S. gal | 1 pulse per 1 U.S. gal |

### WIRELESS HC FLOW METER OPERATING SPECIFICATIONS

- 500' range (line of sight) from transmitter to receiver
- Communication frequency: 900 MHz for use in North America
- Transmitter power supply: 3 AA batteries
- Receiver power supply: 24 VAC from host controller
- Warranty period: 2 years

### HC FLOW METER Pressure Loss Chart





# FLOW-CLI<sup>®</sup>

Add high-flow shutoff capabilities to any irrigation controller with this simple, adjustable device.

## KEY BENEFITS

- Automatically shuts down entire system if an overflow condition occurs, helping to protect against flood damage and erosion
- Single-button calibration to set highest flow rate
- User-adjustable timing and delay for sensor response
- Compatible with all Hunter AC-powered controllers for a variety of applications
- Multi-color LED indicates system status and if flow is within limits

## OPERATING SPECIFICATIONS

- Recommended pressure range: 0 to 220 PSI
- Current draw (24 VAC): 0.025 A
- Switching current: 2 A maximum
- Sensor wiring: 2 x direct burial, 18 AWG or greater, color-coded or marked for polarity, up to 1,000' from the interface module
- Programmable start up delay: 0 to 300 seconds (allows for system hydraulics to stabilize and prevents false flow readings)
- Programmable interrupt period: 5 to 60 minutes (or option to reset manually)
- Warranty period: 5 years

## USER-INSTALLED OPTIONS

- FCT fittings for 1" to 4" pipe diameters

Sensor: **Flow**



**Flow-Click sensor and module shown with required FCT fitting for pipe installation** (sold separately)

### Flow-Click Module:

Height: 6"  
Width: 5¾"  
Depth: 2¼"

### Flow-Click Sensor

Height: 3½"  
Diameter: 1½"

Compatible with:



**Waterproof  
Splice Kit**  
[Page 125](#)

### FLOW-CLI<sup>®</sup>

| Model                 | Description                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| FLOW-CLI <sup>®</sup> | Standard kit for all 24 VAC controllers. <i>Includes sensor and interface module, sensor requires FCT for pipe installation.</i> |

### REQUIRED USER-INSTALLED OPTION (SPECIFY SEPARATELY)

| Model   | Description                                   |
|---------|-----------------------------------------------|
| FCT-100 | 1" Schedule 40 sensor (white) receptacle tee  |
| FCT-150 | 1½" Schedule 40 sensor (white) receptacle tee |
| FCT-158 | 1½" Schedule 80 sensor (gray) receptacle tee  |
| FCT-200 | 2" Schedule 40 sensor (white) receptacle tee  |
| FCT-208 | 2" Schedule 80 sensor (gray) receptacle tee   |
| FCT-300 | 3" Schedule 40 sensor (white) receptacle tee  |
| FCT-308 | 3" Schedule 80 sensor (gray) receptacle tee   |
| FCT-400 | 4" Schedule 40 sensor (white) receptacle tee  |

### FLOW RANGE

| Pipe Diameter | Operating Range (GPM) |                    |
|---------------|-----------------------|--------------------|
|               | Minimum               | Suggested Maximum* |
| 1"            | 2                     | 17                 |
| 1½"           | 5                     | 35                 |
| 2"            | 10                    | 55                 |
| 3"            | 28                    | 120                |
| 4"            | 34                    | 200                |

#### Note:

\* Good design practice dictates the maximum flow not to exceed 5"/sec. Suggested maximum flow is based upon Class 200 IPS plastic pipe.

# FLOW-SYNC®

This cost-effective flow sensor is designed for use with commercial controllers.

## KEY BENEFITS

- Simple-insertion flow sensor for metering and reacting to real-time flow conditions
- Provides station-level flow monitoring for reaction to high- or low-flow conditions, helping to protect against flood damage and erosion
- Compatible with Hunter ACC2 and legacy ACC and I-Core® Controllers, ICD-SEN Sensor Decoders, and Pro-C® and ICC2 Centralus Communication Modules
- Easy connection up to 1,000' from controller or sensor decoder
- Sensor is precalibrated for K-Factor and Offset based on pipe size, allowing for quick setup and programming within the controller

## OPERATING SPECIFICATIONS

- Recommended pressure range: 0 to 220 PSI
- Pressure loss: < 1 PSI
- Sensor wiring: 2 x direct burial, 18 AWG or greater, color-coded or marked for polarity, up to 1,000' from the controller
- Warranty period: 5 years

## USER-INSTALLED OPTIONS

- FCT tee fittings for pipe installation

| FLOW-SYNC |                                                                                  |
|-----------|----------------------------------------------------------------------------------|
| Model     | Description                                                                      |
| HFS       | Hunter Flow-Sync Sensor for use with ACC2 and legacy ACC and I-Core® Controllers |

| REQUIRED USER-INSTALLED OPTION (SPECIFY SEPARATELY) |                                       |
|-----------------------------------------------------|---------------------------------------|
| Model                                               | Description                           |
| FCT-100                                             | 1" Schedule 40 sensor receptacle tee  |
| FCT-150                                             | 1½" Schedule 40 sensor receptacle tee |
| FCT-158                                             | 1½" Schedule 80 sensor receptacle tee |
| FCT-200                                             | 2" Schedule 40 sensor receptacle tee  |
| FCT-208                                             | 2" Schedule 80 sensor receptacle tee  |
| FCT-300                                             | 3" Schedule 40 sensor receptacle tee  |
| FCT-308                                             | 3" Schedule 80 sensor receptacle tee  |
| FCT-400                                             | 4" Schedule 40 sensor receptacle tee  |

Sensor: **Flow**

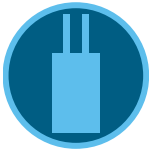


**Impeller-type flow sensor, requires FCT fitting for pipe installation** (order separately)

Compatible with:



**ACC2  
Controllers**  
[Page 106](#)



**ICD-SEN  
Decoder**  
[Page 121](#)



**Waterproof  
Splice Kit**  
[Page 125](#)

SENSORS

## FLOW RANGE

| Pipe Diameter | Operating Range (GPM) |                    |
|---------------|-----------------------|--------------------|
|               | Minimum               | Suggested Maximum* |
| 1"            | 2                     | 17                 |
| 1½"           | 5                     | 35                 |
| 2"            | 10                    | 55                 |
| 3"            | 28                    | 120                |
| 4"            | 34                    | 200                |

### Note:

\* Good design practice dictates the maximum flow not to exceed 5'/sec. Suggested maximum flow is based upon Class 200 IPS plastic pipe.

# WFS

Use this sensor to retrofit flow to existing systems that cross under asphalt, concrete, or other hardscapes.

## KEY BENEFITS

- Wireless flow sensor saves time, materials, and labor
- Simple-insertion flow sensor for monitoring and reacting to real-time flow conditions
- Provides station-level flow monitoring for reaction to high- or low-flow conditions, helping to protect against waste and damage from leaks
- Compatible with Hunter ACC2 and legacy ACC and I-Core® Controllers, and Pro-C® and ICC2 Centralus™ Communication Modules
- Sensor is precalibrated for K-Factor and Offset based on pipe size, allowing for quick setup and programming within the controller
- Multi-color LED on the receiver indicates proper communication to the transmitter, as well as remaining battery life

## OPERATING SPECIFICATIONS

- Maximum distance sensor to receiver: 500'
- Recommended pressure range: 0 to 220 PSI
- Pressure loss: < 1 PSI
- Approvals: FCC and CE approved
- Warranty period: 5 years

## USER-INSTALLED OPTIONS

- FCT tee fittings for pipe installation

Sensor: **Flow**



### WFS Transmitter

Height: 5½"  
Diameter: 4¼"

### WFS Sensor

Height: 3¾"  
Diameter: 2¼"

### WFS Receiver

Height: 5"  
Width: 3"  
Depth: 1½"

Compatible with:



**ACC2  
Controllers**  
Page 106

### WIRELESS FLOW SENSOR

| Model       | Description                                                  |
|-------------|--------------------------------------------------------------|
| WFS         | Wireless Flow Sensor Kit – Domestic 900 MHz                  |
| WFS-T       | Wireless Flow Sensor Kit Transmitter Only – Domestic 900 MHz |
| WFS-R       | Wireless Flow Sensor Kit Receiver Only – Domestic 900 MHz    |
| WFS-ALKBATT | Wireless Flow Sensor Alkaline Battery with Cage              |

### REQUIRED USER-INSTALLED OPTION (SPECIFY SEPARATELY)

| Model   | Description                                   |
|---------|-----------------------------------------------|
| FCT-100 | 1" Schedule 40 sensor (white) receptacle tee  |
| FCT-150 | 1½" Schedule 40 sensor (white) receptacle tee |
| FCT-158 | 1½" Schedule 80 sensor (gray) receptacle tee  |
| FCT-200 | 2" Schedule 40 sensor (white) receptacle tee  |
| FCT-208 | 2" Schedule 80 sensor (gray) receptacle tee   |
| FCT-300 | 3" Schedule 40 sensor (white) receptacle tee  |
| FCT-308 | 3" Schedule 80 sensor (gray) receptacle tee   |
| FCT-400 | 4" Schedule 40 sensor (white) receptacle tee  |

### FLOW RANGE

| Pipe Diameter | Operating Range (GPM) |                    |
|---------------|-----------------------|--------------------|
|               | Minimum               | Suggested Maximum* |
| 1"            | 2                     | 17                 |
| 1½"           | 5                     | 35                 |
| 2"            | 10                    | 55                 |
| 3"            | 28                    | 120                |
| 4"            | 34                    | 200                |

#### Note:

\* Good design practice dictates the maximum flow not to exceed 5/sec. Suggested maximum flow is based upon Class 200 IPS plastic pipe.







## WORK SMARTER, NOT HARDER ABOVE AND BELOW

Use the Solar Sync Sensor with the Soil-Clik Sensor to measure both climate and soil conditions. Solar Sync uses ET to adjust application amounts when irrigation is needed. Soil-Clik prevents watering when proper soil moisture levels have been reached. Together, they're the ultimate environmentally responsive solution.

### **Solar Sync®** *Sensor Above*

- **Water-Saving:** Automatically adjusts run times based on local weather conditions
- **Responsive:** Shuts down irrigation during rainfall and freezing conditions
- **Convenient:** Wired or wireless models available

### **Soil-Clik®** *Sensor Below*

- **Water-Saving:** Measures soil moisture and prevents unnecessary irrigation
- **Easy:** Simple installation and push-button operation
- **Flexible:** Use with any Hunter AC-powered controller and most other brands



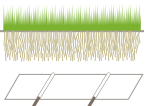
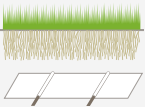
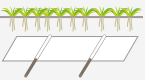
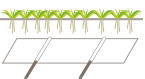


**MICRO**



# MICRO IRRIGATION SOLUTIONS

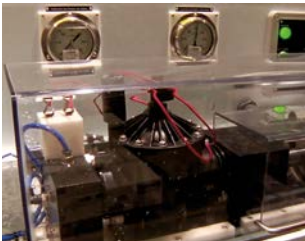
From ultra-durable Hunter Dripline to our innovative Root Zone Watering System, Hunter's micro irrigation solutions are designed to apply water efficiently and precisely where it's needed. Choose the combination of products best suited for your application and plant type using the chart below.

| COMMON MICRO APPLICATIONS GUIDE                                                                               |                                                 |                                                      |
|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------|
| APPLICATION                                                                                                   | STANDARD DESIGN                                 | ADVANCED DESIGN                                      |
| <b>TREES</b><br>             | MLD, Emitters, Micro Sprays, HDL                | HDL-COP, Eco-Wrap®, IH Risers, RZWS                  |
| <b>MIXED PLANTINGS</b><br>   | MLD, Micro Sprays, HDL, Single-Port Emitters    | HDL-COP, Multi-Port Emitters, Eco-Wrap               |
| <b>SLOPED AREAS</b><br>     | MLD, Micro Sprays, HDL-PC, HDL-R, Emitters, RZB | HDL-CV, Eco-Mat®, Eco-Wrap, HDL-COP, IH Risers, RZWS |
| <b>TURF</b><br>            | HDL-COP                                         | Eco-Wrap, Eco-Mat                                    |
| <b>SUBSURFACE</b><br>      | HDL-COP                                         | Eco-Wrap, Eco-Mat                                    |
| <b>SPARSE PLANTING</b><br> | Emitters                                        | IH Risers                                            |
| <b>DENSE PLANTING</b><br>  | Micro Sprays, HDL                               | HDL-COP, Eco-Wrap, Eco-Mat                           |
| <b>GREEN ROOFS</b><br>     | Eco-Mat , Eco-Wrap                              | Eco-Mat , Eco-Wrap                                   |
| <b>POTTED PLANTS</b><br>   | Single-Port Emitters, Micro Sprays              | MLD                                                  |
| <b>RECLAIMED</b><br>       | MLD, Micro Sprays, Emitters                     | HDL-R, IH Risers, RZWS                               |

# CONTROL ZONE KITS

## ADVANCED FEATURES

### TOTAL RELIABILITY



Every Hunter valve is water-tested to verify reliability, durability, and performance.

### DURABLE FILTER



All Hunter filters offer a stainless steel screen and low pressure loss. 1½" and 2" filter bodies offer sizes of 80, 120, and 150 mesh with a 120-mesh disc filter.

### ULTIMATE CONVENIENCE



Kits are preassembled to save time and labor in the field. With a highly compact design, they maximize space in the valve box.

### PRECISE REGULATION



Senninger® regulators are the most trusted regulators in the industry. Each regulator is water-tested before leaving the factory to ensure years of life in the field.

### COMPARISON CHART



| TOP FEATURES                   | PCZ         | ACZ         | ICZ        | IBZ        |
|--------------------------------|-------------|-------------|------------|------------|
| PREASSEMBLED FOR TIME SAVINGS  | ●           | ●           | ●          |            |
| ABOVE-GROUND INSTALLATION      |             | ●           |            |            |
| FILTER SENTRY® MECHANISM       |             |             | ●          | ●          |
| ROBUST, STAINLESS STEEL SCREEN | ●           | ●           | ●          | ●          |
| TOP-RATED SENNINGER REGULATOR  | ●           | ●           | ●          | ●          |
| VALVES 100% WATER-TESTED       | ●           | ●           | ●          | ●          |
| REGULATORS 100% WATER-TESTED   | ●           | ●           | ●          | ●          |
| LOW FRICTION LOSS              | ●           | ●           | ●          | ●          |
| RECLAIMED COMPONENTS           | ●           | ●           | ●          | ●          |
| CAPABILITY OF DISC FILTRATION  |             |             | ●          | ●          |
| HIGHEST FLOW OPTION (100 GPM)  |             |             | ●          | ●          |
| FLOW CONTROL                   | ●           | ●           | ●          | ●          |
| APPLICATION                    | Residential | Residential | Commercial | Commercial |
| WARRANTY                       | 2 Years     | 2 Years     | 5 Years    | 5 Years    |



# PCZ

Make installations quick and easy using this robust, preassembled kit with stainless steel filtration and pressure regulation.

## KEY BENEFITS

- Factory-assembled for quick and easy installation
- Valves 100% water-tested to ensure dependable operation
- Senninger regulator provides precise regulation to protect system from high pressure
- 150 mesh (100 microns) stainless steel screen for years of reliable filtration

## FACTORY-INSTALLED OPTIONS

- 25 or 40 PSI regulator

## USER-INSTALLED OPTIONS

- Reclaimed water ID handle for ACZ-075 and PCZ-101: P/N 269205

### PCZ-101

- 1" x ¾" inline valve
- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120°F
- 150 mesh stainless steel screen

## SOLENOID OPERATING SPECIFICATIONS

- Heavy-duty solenoid: 24 VAC
  - 350 mA inrush current, 190 mA holding current, 60 Hz
  - 370 mA inrush current, 210 mA holding current, 50 Hz
- Warranty period: 2 years



### PCZ-101

Height: 7"  
Width: 3"  
Length: 10"  
1" inlet x ¾" outlet

## DRIP CONTROL ZONE KITS

| Model             | Description                                                    |
|-------------------|----------------------------------------------------------------|
| <b>PCZ-101-25</b> | 1" PGV flow control valve with HFR-100-75 and 25 PSI regulator |
| <b>PCZ-101-40</b> | 1" PGV flow control valve with HFR-100-75 and 40 PSI regulator |

## PCZ AND ACZ KITS

| System Flow | PCZ-101-25 (25 PSI outlet)                                       | PCZ-101-40 (40 PSI outlet) | ACZ-25 (25 PSI outlet) | ACZ-40 (40 PSI outlet) |
|-------------|------------------------------------------------------------------|----------------------------|------------------------|------------------------|
| GPM         | Inlet pressure required to achieve desired outlet pressure (PSI) |                            |                        |                        |
| 0.5         | 34                                                               | 41                         | 25                     | 41                     |
| 1           | 34                                                               | 42                         | 26                     | 43                     |
| 5           | 34                                                               | 45                         | 28                     | 47                     |
| 10          | 37                                                               | 52                         | 30                     | 52                     |
| 15          | 41                                                               | 59                         | 32                     | 55                     |

40 PSI pressure regulator may not be required if the dynamic pressure of an irrigation system is below 60 PSI.

25 PSI pressure regulator may not be required if the dynamic pressure of an irrigation system is below 45 PSI.

# ACZ

This sturdy, preassembled kit includes filtration and pressure regulation for above-ground installations with no additional backflow prevention.

### ACZ-075

- ¾" x ¾" anti-siphon valve
- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120°F
- 150 mesh stainless steel screen

### ACZ-101

- 1" x ¾" anti-siphon valve
- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Warranty period: 2 years
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120°F
- 150 mesh stainless steel screen



### ACZ-075

Height: 11½"  
Width: 3"  
Length: 12"  
¾" inlet x ¾" outlet

### ACZ-101

Height: 11½"  
Width: 3"  
Length: 12"  
1" inlet x ¾" outlet

## DRIP CONTROL ZONE KITS

| Model             | Description                                                    |
|-------------------|----------------------------------------------------------------|
| <b>ACZ-075-25</b> | ¾" PGV-ASV valve with HFR-075 and 25 PSI regulator             |
| <b>ACZ-075-40</b> | ¾" PGV-ASV valve with HFR-075 and 40 PSI regulator             |
| <b>ACZ-101-25</b> | 1" PGV-ASV valve with HFR-100-075 and 25 PSI regulator         |
| <b>ACZ-101-40</b> | 1" PGV flow control valve with HFR-100-75 and 40 PSI regulator |

# 1" ICZ

The most durable kit in the industry is offered in low-, medium-, and high-flow options for diverse system needs.

## KEY BENEFITS

- Highest-quality components
- Factory-assembled to save installation time
- Filter Sentry® Mechanism screen-cleaning system (on all models except ICZ-101-LF)
- Wide flow range to cover most micro irrigation applications
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- 25 or 40 PSI regulator

## USER-INSTALLED OPTIONS

- Reclaimed water ID handle: P/N 561205

### ICZ-101

- Factory-installed Filter Sentry Mechanism
- Pressure regulation: 25 or 40 PSI
- Flow: 2 to 20 GPM (120 to 1,200 GPH)
- System operating pressure: Up to 120 PSI
- Operating temperature: Up to 120°F
- 150 mesh stainless steel screen
- 1" inlet and 1" outlet

### ICZ-101-LF

- Pressure regulation: 25 or 40 PSI
- Flow 0.5 to 15 GPM (30 to 900 GPH)
- Fits Multi-Purpose Box
- System operating pressure: Up to 120 PSI
- Operating temperature: Up to 120°F
- 150 mesh stainless steel screen
- 1" inlet and ¾" outlet

### ICZ-101-LF-R

- Pressure regulation: 25 or 40 PSI
- Flow 0.5 to 15 GPM (30 to 900 GPH)
- Fits Multi-Purpose Box
- System operating pressure: Up to 120 PSI
- Operating temperature: Up to 120°F
- 150 mesh (100 microns) stainless steel screen
- 1" inlet and ¾" outlet
- Reclaimed water ID tag, purple flow control knob, Filter Sentry Mechanism, and purple chlorine-resistant diaphragm

## SOLENOID OPERATING SPECIFICATIONS

- Heavy-duty solenoid: 24 VAC
  - 350 mA inrush current, 190 mA holding current, 60 cycles
  - 370 mA inrush current, 210 mA holding current, 50 cycles
- Warranty period: 5 years



### ICZ-101

Height: 6¾"  
Width: 4"  
Length: 14"  
1" inlet x 1" outlet



### ICZ-101-LF

Height: 7"  
Width: 4"  
Length: 10½"  
1" inlet x ¾" outlet



### ICZ-101-LF-R

Height: 7"  
Width: 4"  
Length: 10½"  
1" inlet x ¾" outlet

### ICZ-101 KITS

| GPM | Required Pressure for 25 PSI Outlet | Required Pressure for 40 PSI Outlet |
|-----|-------------------------------------|-------------------------------------|
| 2   | 35                                  | 52                                  |
| 5   | 35                                  | 52                                  |
| 7   | 36                                  | 54                                  |
| 10  | 40                                  | 58                                  |
| 15  | 46                                  | 66                                  |
| 20  | 60                                  | 82                                  |

### ICZ-101 (LOW-FLOW) KITS

| GPM | Required Pressure for 25 PSI Outlet | Required Pressure for 40 PSI Outlet |
|-----|-------------------------------------|-------------------------------------|
| 0.5 | 35                                  | 41                                  |
| 1   | 35                                  | 43                                  |
| 5   | 36                                  | 47                                  |
| 10  | 37                                  | 52                                  |
| 15  | 40                                  | 55                                  |

40 PSI pressure regulator may not be required if the dynamic pressure of an irrigation system is below 60 PSI.

25 PSI pressure regulator may not be required if the dynamic pressure of an irrigation system is below 45 PSI.

## DRIP CONTROL ZONE KITS – SPECIFICATION BUILDER: ORDER 1 + 2

| 1 Model                                                                                                                | 2 Options                    |
|------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>ICZ-101</b> = 1" ICV globe valve with Filter Sentry Mechanism and 1" HY-100 Filter and Regulator                    | <b>25</b> = 25 PSI regulator |
| <b>ICZ-101-LF</b> = 1" ICV globe valve with 1" HFR-100-075 Filter Regulator                                            | <b>40</b> = 40 PSI regulator |
| <b>ICZ-101-LF-R</b> = 1" ICV reclaimed valve with Filter Sentry Mechanism and 1"x ¾" reclaimed Hunter Filter Regulator |                              |

### Example:

**ICZ-101-40** = 1" ICV globe valve with Filter Sentry Mechanism and 1" HY-100 Filter Regulator, and 1" outlet 40 PSI regulator

# 1½" AND 2" ICZ

The toughest plastic valve available comes backed by glass-filled construction, a fabric-reinforced diaphragm, and a double-beaded diaphragm seal.

## KEY BENEFITS

- Highest-quality components set Hunter kits apart
- Highest flow options in the industry
- Factory-assembled to save installation time
- Filter Sentry® Mechanism screen-cleaning system

## USER-INSTALLED OPTIONS

- Reclaimed water ID handle: P/N 561205

### ICZ-151-XL

#### Operating Specifications

- Pressure regulation: 40 PSI
- Flow: 20 to 80 GPM
- Operating pressure: Up to 120 PSI
- Operating temperature: Up to 120°F
- Standard filter screen: 150 mesh; stainless steel
- Optional filter screens: 80 mesh; 120 mesh; stainless steel
- Disc filter available: 120 mesh

### ICZ-201-XL

- Pressure regulation: 40 PSI
- Flow: 20 to 100 GPM
- Operating pressure: Up to 120 PSI
- Operating temperature: Up to 120°F
- Standard filter screen: 150 mesh; stainless steel
- Optional filter screens: 80 mesh; 120 mesh; stainless steel
- Disc filter available: 120 mesh

## SOLENOID OPERATING SPECIFICATIONS

- Heavy-duty solenoid: 24 VAC
  - 350 mA inrush current, 190 mA holding current, 60 cycles
  - 370 mA inrush current, 210 mA holding current, 50 cycles
- Warranty period: 5 years
- Additional charts on **page 205**



### ICZ-151-XL

Height: 9"  
Width: 5½"  
Length: 22½"  
1½" inlet x 2" outlet



### ICZ-201-XL

Height: 12"  
Width: 7"  
Length: 26"  
2" inlet x 2" outlet

CONTROL ZONE KITS

| DRIP CONTROL ZONE KITS |                                                      |
|------------------------|------------------------------------------------------|
| Model                  | Description                                          |
| ICZ-151-40-XL          | 1½" ICV globe valve with 1½" filter and 2" regulator |
| ICZ-201-40-XL          | 2" ICV globe valve with 2" filter and 2" regulator   |

| ICZ-151 AND ICZ-201 KITS |                 |                                     |
|--------------------------|-----------------|-------------------------------------|
| Model                    | System Flow GPM | Required Pressure for 40 PSI Outlet |
| ICZ-151-40-XL            | 20              | 45                                  |
|                          | 30              | 50                                  |
|                          | 40              | 50                                  |
|                          | 50              | 50                                  |
|                          | 60              | 60                                  |
|                          | 70              | 60                                  |
|                          | 80              | 65                                  |
| ICZ-201-40-XL            | 20              | 45                                  |
|                          | 30              | 45                                  |
|                          | 40              | 45                                  |
|                          | 50              | 50                                  |
|                          | 60              | 50                                  |
|                          | 70              | 50                                  |
|                          | 80              | 50                                  |
|                          | 90              | 55                                  |
|                          | 100             | 55                                  |

40 PSI pressure regulator may not be required if the dynamic pressure of an irrigation system is below 60 PSI.



# 1" IBZ

This heavy-duty kit includes a brass valve and is offered in low-, medium-, and high-flow options for diverse system needs.

## KEY BENEFITS

- Highest-quality components
- Ability to handle extremely low flows; suitable for drip irrigation
- Filter Sentry® Mechanism to keep the screen clear of debris
- Wide flow range to cover most micro irrigation applications
- Warranty period: 5 years

## FACTORY-INSTALLED OPTIONS

- 25 or 40 PSI regulator

### IBZ-101

- Factory-installed Filter Sentry Mechanism
- Pressure regulation: 25 or 40 PSI
- Flow: 2 to 20 GPM (120 to 1,200 GPH)
- System operating pressure: Up to 120 PSI
- Operating temperature: Up to 120°F
- 150 mesh stainless steel screen
- 1" inlet and 1" outlet

### IBZ-101-LF

- Factory-installed Filter Sentry Mechanism
- Pressure regulation: 25 or 40 PSI
- Flow 0.5 to 15 GPM (30 to 900 GPH)
- Fits Multi-Purpose Box
- System operating pressure: Up to 120 PSI
- Operating temperature: Up to 120°F
- 150 mesh stainless steel screen
- 1" inlet and 3/4" outlet



### IBZ-101

Height: 6 3/4"  
Width: 4"  
Length: 13 3/4"  
1" inlet x 1" outlet



### IBZ-101-LF

Height: 7"  
Width: 4"  
Length: 10 1/4"  
1" inlet x 3/4" outlet

## SOLENOID OPERATING SPECIFICATIONS

- Heavy-duty solenoid: 24 VAC
  - 350 mA inrush current, 190 mA holding current, 60 cycles
  - 370 mA inrush current, 210 mA holding current, 50 cycles
- Warranty period: 5 years

### IBZ-101 KITS

| GPM | Required Pressure for 25 PSI Outlet | Required Pressure for 40 PSI Outlet |
|-----|-------------------------------------|-------------------------------------|
| 2   | 35                                  | 52                                  |
| 5   | 35                                  | 52                                  |
| 7   | 36                                  | 54                                  |
| 10  | 40                                  | 58                                  |
| 15  | 46                                  | 66                                  |
| 20  | 60                                  | 82                                  |

### IBZ-101-LF (LOW-FLOW) KITS

| GPM | Required Pressure for 25 PSI Outlet | Required Pressure for 40 PSI Outlet |
|-----|-------------------------------------|-------------------------------------|
| 0.5 | 35                                  | 41                                  |
| 1   | 35                                  | 43                                  |
| 5   | 36                                  | 47                                  |
| 10  | 37                                  | 52                                  |
| 15  | 40                                  | 55                                  |

40 PSI pressure regulator may not be required if the dynamic pressure of an irrigation system is below 60 PSI.

25 PSI pressure regulator may not be required if the dynamic pressure of an irrigation system is below 45 PSI.

### BRASS VALVE DRIP CONTROL ZONE KITS - SPECIFICATION BUILDER: ORDER 1 + 2

| 1 Model                                                                                                       | 2 Options                    |
|---------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>IBZ-101</b> = 1" IBV brass globe valve with Filter Sentry Mechanism and 1" HY100 Filter and Regulator      | <b>25</b> = 25 PSI regulator |
| <b>IBZ-101-LF</b> = 1" IBV brass globe valve with Filter Sentry Mechanism and 1" HFR-100-075 Filter Regulator | <b>40</b> = 40 PSI regulator |

#### Example:

**IBZ-101-40** = 1" brass globe valve with Filter Sentry Mechanism and 1" HY100 filter and regulator, and 1" outlet 40 PSI regulator

**Note:** Assembled at site. Kit components ship loose to avoid transit damages.

# 1½" AND 2" IBZ

*This kit offers a heavy-duty brass valve backed by glass-filled construction, a fabric-reinforced diaphragm, and a double-beaded diaphragm seal.*

## KEY BENEFITS

- Highest-quality components set Hunter kits apart
- Highest flow options in the industry
- Filter Sentry® Mechanism screen-cleaning system

### IBZ-151-XL

- Pressure regulation: 40 PSI
- Flow: 20 to 80 GPM
- Operating pressure: up to 120 PSI
- Operating temperature: up to 120°F
- Standard filter screen: 150 mesh; stainless steel
- Optional filter screens: 80 mesh; 120 mesh; stainless steel
- Disc filter available: 120 mesh

### IBZ-201-XL

- Pressure regulation: 40 PSI
- Flow: 20 to 100 GPM
- Operating pressure: up to 120 PSI
- Operating temperature: up to 120°F
- Standard filter screen: 150 mesh; stainless steel
- Optional filter screens: 80 mesh; 120 mesh; stainless steel
- Disc filter available: 120 mesh

## SOLENOID OPERATING SPECIFICATIONS

- Heavy-duty solenoid: 24 VAC
  - 350 mA inrush current, 190 mA holding current, 60 cycles
  - 370 mA inrush current, 210 mA holding current, 50 cycles
- Warranty period: 5 years



### IBZ-151-XL

Height: 9"  
Width: 5½"  
Length: 22"  
1½" inlet x 2" outlet



### IBZ-201-XL

Height: 12"  
Width: 7"  
Length: 25¼"  
2" inlet x 2" outlet

CONTROL ZONE KITS

| BRASS VALVE DRIP CONTROL ZONE KITS |                                                      |
|------------------------------------|------------------------------------------------------|
| Model                              | Description                                          |
| IBZ-151-40-XL                      | 1½" IBV globe valve with 1½" filter and 2" regulator |
| IBZ-201-40-XL                      | 2" IBV globe valve with 2" filter and 2" regulator   |

**Notes:** Assembled at site. Kit components ship loose to avoid transit damages.  
IBZ-151-40-XL assembly requires user-supplied P/N: 439251; 2" MPT x 1" FPT PVC bushing.

| IBZ-151 AND IBZ-201 KITS |                 |                                     |
|--------------------------|-----------------|-------------------------------------|
| Model                    | System Flow GPM | Required Pressure for 40 PSI Outlet |
| IBZ-151-40-XL            | 20              | 45                                  |
|                          | 30              | 50                                  |
|                          | 40              | 50                                  |
|                          | 50              | 50                                  |
|                          | 60              | 60                                  |
|                          | 70              | 60                                  |
|                          | 80              | 65                                  |
|                          | 20              | 45                                  |
| IBZ-201-40-XL            | 30              | 45                                  |
|                          | 40              | 45                                  |
|                          | 50              | 50                                  |
|                          | 60              | 50                                  |
|                          | 70              | 50                                  |
|                          | 80              | 50                                  |
|                          | 90              | 55                                  |
|                          | 100             | 55                                  |

40 PSI pressure regulator may not be required if the dynamic pressure of an irrigation system is below 60 PSI.

# FILTER REGULATORS

*This all-in-one choice features a state-of-the-art Senninger regulator and a stainless steel filter screen.*

## KEY BENEFITS

- HFR-075 (Hunter filter regulator)
  - Compact, all-in-one filter and regulator minimize required valve box space
  - Senninger regulator provides precise regulation to protect system from high pressure
  - 150 mesh (100 microns) stainless steel screen for years of reliable filtration
  - Wide flow range covers most drip applications
- Warranty period: 2 years



**HFR-075-25**

**HFR-075-40**

Height: 7"  
Width: 2¾"  
Length: 6¼"  
¾" inlet x ¾" outlet



**HFR-100-075-25**

**HFR-100-075-40**

Height: 7"  
Width: 2¾"  
Length: 6¼"  
1" inlet x ¾" outlet



**HFR-100-075-25-R**

**HFR-100-075-40-R**

Height: 7"  
Width: 2¾"  
Length: 6¼"  
1" inlet x ¾" outlet

## HUNTER FILTER REGULATORS

| Model            | Description                                          |
|------------------|------------------------------------------------------|
| HFR-075-25       | ¾" inlet x ¾" outlet, regulated at 25 PSI            |
| HFR-075-40       | ¾" inlet x ¾" outlet, regulated at 40 PSI            |
| HFR-100-075-25   | 1" inlet x ¾" outlet, regulated at 25 PSI            |
| HFR-100-075-25-R | 1" inlet x ¾" outlet, regulated at 25 PSI, reclaimed |
| HFR-100-075-40   | 1" inlet x ¾" outlet, regulated at 40 PSI            |
| HFR-100-075-40-R | 1" inlet x ¾" outlet, regulated at 40 PSI, reclaimed |
| 133801           | Reclaimed filter bonnet                              |

## HFR - FILTER REGULATOR KITS

| Model          | System Flow GPM | Required Pressure for 25 PSI Outlet |
|----------------|-----------------|-------------------------------------|
| HFR-075-25     | 0.5             | 30                                  |
|                | 2               | 30                                  |
|                | 5               | 31                                  |
|                | 10              | 33                                  |
|                | 15              | 37                                  |
| HFR-100-075-25 | 0.5             | 30                                  |
|                | 2               | 30                                  |
|                | 5               | 31                                  |
|                | 10              | 32                                  |
|                | 15              | 35                                  |
| Model          | System Flow GPM | Required Pressure for 40 PSI Outlet |
| HFR-075-40     | 0.5             | 45                                  |
|                | 2               | 45                                  |
|                | 5               | 46                                  |
|                | 10              | 48                                  |
|                | 15              | 54                                  |
| HFR-100-075-40 | 0.5             | 45                                  |
|                | 2               | 45                                  |
|                | 5               | 46                                  |
|                | 10              | 47                                  |
|                | 15              | 52                                  |

With standard 150 mesh (100 microns) filter screen



# FILTERS

For added durability, these simple yet rugged filters come standard with a stainless steel screen.

## ¾" AND 1" FILTER KEY BENEFITS

- Standard size of 150 mesh to collect debris and prevent system from clogging
- High-quality stainless steel screen
- Operating pressure: Up to 120 PSI

## 1½" AND 2" FILTER KEY BENEFITS

- Glass-filled polypropylene for added strength and durability
- Operating pressure: Up to 150 PSI
- Standard stainless steel screen: 150 mesh (100 microns)
- Large filtration screen provides longer life between cleanings
- Optional filter screens: 80 mesh (180 microns); 120 mesh (125 microns); SS
- Disc filter available: 120 mesh (125 microns)
- Warranty period: 2 years
- See page 202 for pressure loss charts

| HUNTER Y-FILTERS AND SCREENS |                   |                                        |
|------------------------------|-------------------|----------------------------------------|
| Size                         | Model             | Description                            |
| ¾" and 1"                    | HY-075            | ¾" inlet/outlet                        |
|                              | HY-100-075        | 1" inlet x ¾" outlet                   |
|                              | HY-100            | 1" inlet/outlet                        |
|                              | HY-100-R          | 1" inlet/outlet, with reclaimed bonnet |
| 1½"                          | HY-151            | 1½" inlet/outlet                       |
|                              | HY-151-D          | 1½" disc filter with 120 mesh          |
|                              | HY-151-SCREEN-150 | 150 mesh screen for 1½" filter         |
|                              | HY-151-SCREEN-120 | 120 mesh screen for 1½" filter         |
|                              | HY-151-SCREEN-080 | 80 mesh screen for 1½" filter          |
|                              | HY-151-DISC-120   | 120 mesh disc for 1½" filter           |
| 2"                           | HY-201            | 2" inlet/outlet                        |
|                              | HY-201-D          | 2" disc filter with 120 mesh           |
|                              | HY-201-SCREEN-150 | 150 mesh screen for 2" filter          |
|                              | HY-201-SCREEN-120 | 120 mesh screen for 2" filter          |
|                              | HY-201-SCREEN-080 | 80 mesh screen for 2" filter           |
|                              | HY-201-DISC-120   | 120 mesh disc for 2" filter            |



**Blue**  
80 mesh



**Red**  
120 mesh



**Black**  
150 mesh



**Disc**  
120 mesh



**HY-075, HY-100, HY-100-075**  
Height: 6"  
Width: 3"  
Length: 5"



**HY-100-R**  
Height: 6"  
Width: 3"  
Length: 5"



**HY-151**  
Height: 9"  
Width: 5"  
Length: 9"



**HY-201**  
Height: 12"  
Width: 6¾"  
Length: 11½"

# SENNINGER® PRESSURE REGULATORS

Choose the most consistent and reliable pressure regulators in the industry.

## KEY BENEFITS

- Maintains consistent preset outlet pressure to prevent damage to system components
- 100% water-tested to ensure accuracy and dependable operation
- Install above or below ground for project design convenience
- Tamper-proof construction provides reliability and long life
- Very low hysteresis and friction loss help maintain accurate regulation
- No external metal parts for excellent corrosion resistance

## OPERATING SPECIFICATIONS

- PRL (¾"):
  - Flow range: 0.5 to 8.0 GPM
  - Maximum inlet pressure\*: 100 to 120 PSI
- PMR-MF (¾", 1"):
  - Flow range: 2 to 20 GPM
  - Maximum inlet pressure\*: 100 to 130 PSI
- PRLG (¾"):
  - Flow range: 0.5 to 7.0 GPM
  - Maximum inlet pressure\*: 100 to 120 PSI
- PRU:
  - Flow range: 20 to 100 GPM
  - Maximum inlet pressure\*: 120 PSI
- Warranty period: 2 years

\*Maximum recommended inlet pressure should not exceed 80 PSI above nominal model pressure

| PRL (¾")  |          |       |        |
|-----------|----------|-------|--------|
| Model     | Pressure | Inlet | Outlet |
| PRL203F3F | 20 PSI   | ¾"    | ¾"     |
| PRL253F3F | 25 PSI   | ¾"    | ¾"     |
| PRL303F3F | 30 PSI   | ¾"    | ¾"     |
| PRL353F3F | 35 PSI   | ¾"    | ¾"     |

| PRLG (¾")    |          |       |        |
|--------------|----------|-------|--------|
| Model        | Pressure | Inlet | Outlet |
| PRLG253FH3MH | 25 PSI   | ¾"    | ¾"     |

| PRU40 (2") |          |       |        |
|------------|----------|-------|--------|
| Model      | Pressure | Inlet | Outlet |
| PRU-40     | 40 PSI   | 2"    | 2"     |

| PMR-MF (¾")  |          |       |        |
|--------------|----------|-------|--------|
| Model        | Pressure | Inlet | Outlet |
| PMR20MF3F3FV | 20 PSI   | ¾"    | ¾"     |
| PMR25MF3F3FV | 25 PSI   | ¾"    | ¾"     |
| PMR30MF3F3FV | 30 PSI   | ¾"    | ¾"     |
| PMR35MF3F3FV | 35 PSI   | ¾"    | ¾"     |
| PMR40MF3F3FV | 40 PSI   | ¾"    | ¾"     |
| PMR50MF3F3FV | 50 PSI   | ¾"    | ¾"     |

| PMR-MF (1")  |          |       |        |
|--------------|----------|-------|--------|
| Model        | Pressure | Inlet | Outlet |
| PMR20MF4F4FV | 20 PSI   | 1"    | 1"     |
| PMR25MF4F4FV | 25 PSI   | 1"    | 1"     |
| PMR30MF4F4FV | 30 PSI   | 1"    | 1"     |
| PMR40MF4F4FV | 40 PSI   | 1"    | 1"     |



### PRL Pressure Regulator

#### Low-Flow

Width: 2"  
Length: 4½"  
Inlet/outlet: ¾"



### PRLG Pressure Regulator

#### Landscape-Grade

Width: 1½"  
Length: 3"  
Inlet: ¾" FHT x Outlet: ¾" MHT



### PRU Pressure Regulator Ultra

Width: 4½"  
Length: 9"  
Inlet/outlet: 2"



### PMR-MF Pressure-Master Regulator

#### Medium-Flow

Width: 2½"  
Length: 5½" (¾" model); 5¾" (1" model)  
Inlet/outlet: ¾" or 1"

The pressure regulator will maintain the predetermined operating pressure, provided that the inlet pressure is at least 5 PSI above the expected outlet pressure, but not exceeding the maximum operating pressure.

# DRIPLINE SYSTEMS

Ultra-durable Hunter Dripline (HDL) is easy to install and provides maximum longevity in the field. HDL works efficiently and effectively to use as little water as possible and keep plants thriving.

**1** The dripline grid is a common installation practice either at grade or subsurface. Establishing consistent laterals in dense plantings provides a quick and simple approach to irrigating a planted area.

**2** Arranging the dripline through a series of plants is an accepted and reliable method of irrigation. Ensure the dripline has emission points near or around each plant.

**A Multi-Purpose Box:**

- 10" x 7" opening
- Five color options for lids

**B Control Zone Kit:**

- Factory-assembled for quick and easy installation
- Low-, medium-, and high-flow kits

**C HDL:**

- All versions are pressure-compensating
- Colored stripes indicate flow
- Stretch-wrapped coils make installation simple and clean
- Four dripline options to choose from: HDL-CV, HDL-PC, HDL-R, HDL-COP

**D Fittings:**

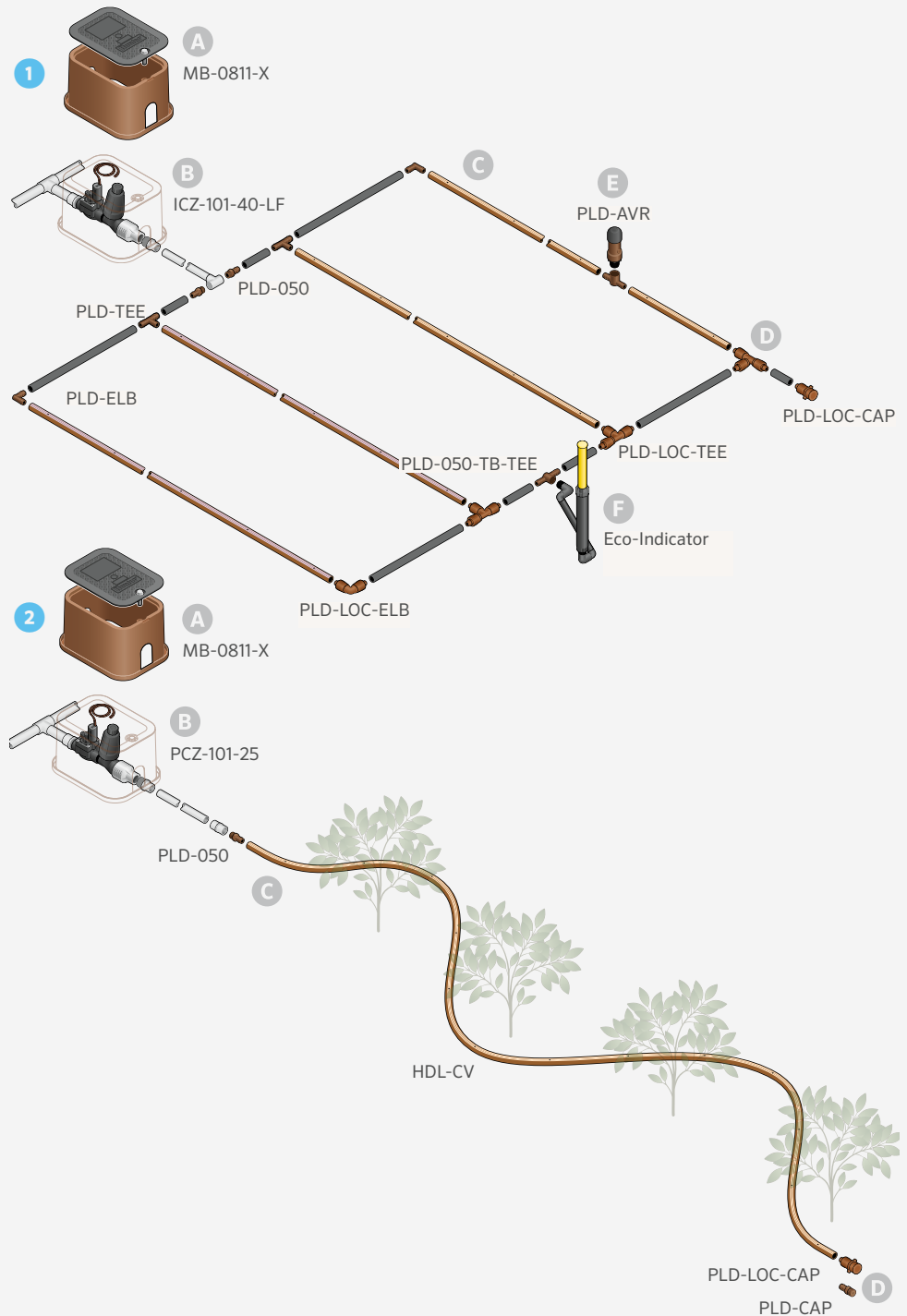
- Double-barb holds fittings tight
- LOC Fittings can be reused

**E Air/Vacuum Relief Valve:**

- Helps prevent water hammer and tubing collapse
- Use at high point(s) in zone

**F Eco-Indicator:**

- Pops up at 12 PSI and shows system is running
- Reveals when system pressure drops too low



# HDL-CV

Increase drip system efficiency with pressure compensation, flow indication stripes, and a 6' check height.

## KEY BENEFITS

- Pressure-compensating emitters for consistent flow and uniform coverage
- Non-draining check valve (CV) prevents low-point pooling and allows all emitters to open/close at the same time for greater system efficiency
- Check height of 6' minimizes system drainage and runoff
- Anti-siphon feature prevents debris from entering emitter at system shutdown
- Color-coded stripes provide easy identification of flow
- UV resistance facilitates product longevity
- Stretch-wrapped coils stay intact and make installation quick and easy
- Superior grit tolerance provided by proprietary emitter design with multiple inlet filters, a wide turbulent labyrinth, and a full-size outlet pool

## PRODUCT SPECIFICATIONS

- Available flow rates: 0.4, 0.6, 0.9 GPH
- Available emitter spacing: 12", 18", 24"
- Tubing dimensions: 0.660" x 0.560" (outside/inside diameter)
- Wall thickness: 0.049"

## OPERATING SPECIFICATIONS

- Operating range: 15 to 60 PSI
- Minimum filtration: 120 mesh (125 microns)
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)



HDL-CV



Coil with Stretch Wrap



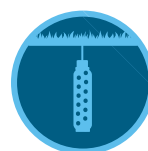
## HUNTER DRIPLINE COLOR CODE

| STRIPE COLOR      | TUBING COLOR                                                         |
|-------------------|----------------------------------------------------------------------|
| ● 0.9 GPH - Black | ● HDL-CV - Dark brown tubing, pressure-compensating with check valve |
| ● 0.6 GPH - Gray  |                                                                      |
| ● 0.4 GPH - Tan   |                                                                      |

See **page 190** for Maximum Run Length Chart.

| HDL-CV           |         |         |        |
|------------------|---------|---------|--------|
| Model            | Flow    | Spacing | Length |
| HDL-04-12-250-CV | 0.4 GPH | 12"     | 250'   |
| HDL-04-12-1K-CV  |         |         | 1,000' |
| HDL-04-18-250-CV |         | 18"     | 250'   |
| HDL-04-18-1K-CV  |         |         | 1,000' |
| HDL-06-12-100-CV | 0.6 GPH | 12"     | 100'   |
| HDL-06-12-250-CV |         |         | 250'   |
| HDL-06-12-500-CV |         |         | 500'   |
| HDL-06-12-1K-CV  |         |         | 1,000' |
| HDL-06-18-250-CV |         | 18"     | 250'   |
| HDL-06-18-1K-CV  |         |         | 1,000' |
| HDL-06-24-250-CV |         | 24"     | 250'   |
| HDL-09-12-100-CV | 0.9 GPH | 12"     | 100'   |
| HDL-09-12-250-CV |         |         | 250'   |
| HDL-09-12-500-CV |         |         | 500'   |
| HDL-09-12-1K-CV  |         |         | 1,000' |
| HDL-09-18-250-CV |         | 18"     | 250'   |
| HDL-09-18-1K-CV  |         |         | 1,000' |
| HDL-09-24-250-CV |         | 24"     | 250'   |

Compatible with:



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Eco-Indicator  
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PLD Fittings  
Page 160



# HDL-PC & HDL-R

Maximize drip system longevity with robust material construction and pressure compensation for standard and reclaimed applications.

## KEY BENEFITS

- Pressure-compensating emitters for consistent flow and uniform coverage
- Color-coded stripes provide easy identification of flow
- UV resistance facilitates product longevity
- Stretch-wrapped coils stay intact and make installation quick and easy
- Superior grit tolerance provided by proprietary emitter design with multiple inlet filters, a wide turbulent labyrinth, and a full-size outlet pool
- Reclaimed product (HDL-R) identified by purple stripes assists in visual identification when using non-potable water

## PRODUCT SPECIFICATIONS

- Available flow rates: 0.6, 0.9 GPH
- Available emitter spacing: 12", 18"
- Tubing dimensions: 0.660" x 0.560" (outside/inside diameter)
- Wall thickness: 0.049"

## OPERATING SPECIFICATIONS

- Operating range: 10 to 60 PSI
- Minimum filtration: 120 mesh (125 microns)
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)

| HDL-PC           |         |         |        |
|------------------|---------|---------|--------|
| Model            | Flow    | Spacing | Length |
| HDL-06-12-250-PC | 0.6 GPH | 12"     | 250'   |
| HDL-06-12-500-PC |         |         | 500'   |
| HDL-06-18-250-PC |         | 18"     | 250'   |
| HDL-09-12-250-PC | 0.9 GPH | 12"     | 250'   |
| HDL-09-12-500-PC |         |         | 500'   |
| HDL-09-18-250-PC |         | 18"     | 250'   |

| HDL-R           |         |         |        |
|-----------------|---------|---------|--------|
| Model           | Flow    | Spacing | Length |
| HDL-06-12-250-R | 0.6 GPH | 12"     | 250'   |
| HDL-06-12-1K-R  |         |         | 1,000' |
| HDL-06-18-250-R |         | 18"     | 250'   |
| HDL-06-18-1K-R  |         |         | 1,000' |
| HDL-09-12-250-R | 0.9 GPH | 12"     | 250'   |
| HDL-09-12-1K-R  |         |         | 1,000' |
| HDL-09-18-250-R |         | 18"     | 250'   |
| HDL-09-18-1K-R  |         |         | 1,000' |



HDL-PC



HDL-R (Reclaimed)



## HUNTER DRIPLINE COLOR CODE

### STRIPE COLOR

- 0.9 GPH - Black
- 0.6 GPH - Gray
- Reclaimed - Purple

### TUBING COLOR

- HDL-PC - Light brown tubing pressure-compensating
- HDL-R - Light brown with purple stripe, pressure-compensating, reclaimed

See [page 190](#) for Maximum Run Length Charts.

Compatible with:



Soil-Clik  
Page 137



Eco-Indicator  
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PLD Fittings  
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# HDL-BLNK

UV-resistant HDL Blank Tubing is a useful addition to any drip system.

## KEY BENEFITS

- UV resistance facilitates product longevity
- Stretch-wrapped coils stay intact and make installation quick and easy
- Accepts Hunter PLD-LOC and 17 mm barb fittings for ease of connection
- Earth-tone tubing prevents bright spots in the landscape
- Purple stripes for reclaimed applications

## PRODUCT SPECIFICATIONS

- Tubing dimensions: 0.660" x 0.560" (outside/inside diameter)
- Wall thickness: 0.049"

## OPERATING SPECIFICATIONS

- Operating range: Up to 60 PSI
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)

| HDL-BLNK       |                          |         |        |
|----------------|--------------------------|---------|--------|
| Model          | Flow                     | Spacing | Length |
| HDL-BLNK-100   | Blank tubing             |         | 100'   |
| HDL-BLNK-250   |                          |         | 250'   |
| HDL-BLNK-500   |                          |         | 500'   |
| HDL-BLNK-1K    |                          |         | 1,000' |
| HDL-BLNK-500-R | Blank tubing (reclaimed) |         | 500'   |



HDL-BLNK



HDL-BLNK-R

Compatible with:



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Eco-Indicator  
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PLD Fittings  
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# HDL-COP

Minimize the risk of root intrusion by adding copper to industry-leading Hunter Dripline.

## KEY BENEFITS

- Emitters infused with copper oxide (Cu<sub>2</sub>O) provide triple protection against root intrusion
- Long-term, safe, and non-leaching solution
- Slow-draining check valve (CV) emitters prevent low-point pooling and boost system efficiency
- Pressure-compensating emitters provide consistent flow over the entire lateral length
- Anti-siphon feature prevents debris from entering emitters
- Color-coded stripes provide easy flow identification
- UV resistance facilitates product longevity
- Stretch-wrapped coils stay intact and make installation quick and easy
- Multiple inlet filters in the emitter and a wide turbulent labyrinth provide superior grit tolerance
- Full-sized emitter outlet pool and raised wall keep debris and roots from entering the emitter

## PRODUCT SPECIFICATIONS

- Emitter spacing: 12", 18"
- Tubing dimensions: 0.660" x 0.560" (outside/inside diameter)
- Wall thickness: 0.049"
- Diaphragm: Silicone

## OPERATING SPECIFICATIONS

- Available flow rates: 0.6, 0.9 GPH
- Operating range: 15 to 60 PSI
- Recommended minimum filtration: 120 mesh
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)
- No warranty against root intrusion

| HDL-COP           |         |         |        |
|-------------------|---------|---------|--------|
| Model             | Flow    | Spacing | Length |
| HDL-06-12-250-COP | 0.6 GPH | 12"     | 250'   |
| HDL-06-12-1K-COP  |         |         | 1,000' |
| HDL-06-18-250-COP |         | 18"     | 250'   |
| HDL-09-12-250-COP | 0.9 GPH | 12"     | 250'   |
| HDL-09-12-1K-COP  |         |         | 1,000' |
| HDL-09-18-250-COP |         | 18"     | 250'   |

**Note:** While the use of copper does not completely remove the chance of root intrusion, it has been shown to assist in its prevention when coupled with proper irrigation scheduling.



HDL-COP



Coil with Stretch Wrap



## HUNTER DRIPLINE COLOR CODES

### STRIPE COLOR

- 0.6 GPH - Gray
- 0.9 GPH - Black

### TUBING COLOR

- HDL-COP - Pressure-compensating, earth-tone copper tubing with slow-draining check valve

See **page 190** for Maximum Run Length Charts.

Compatible with:



Soil-Clik  
Page 137



Eco-Indicator  
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PLD Fittings  
Page 160

# PLD LOC FITTINGS (16-18 MM)

LOC Fittings are compatible with any nominal 1/2" tubing and dripline for quicker installs and easy repairs.

## KEY BENEFITS

- Glass-filled polypropylene for added durability
- Thread lock connection method provides a secure connection while still allowing flexibility for service and system changes

## PRODUCT SPECIFICATIONS

- Use with HDL, TWPE, or other 16/17/18 mm dripline or tubing

## OPERATING SPECIFICATIONS

- Operating pressure range: up to 145 PSI
- Warranty period: 2 years

## FITTINGS



**PLD-LOC 075**  
3/4" male pipe  
thread x LOC



**PLD-LOC 050**  
1/2" male pipe  
thread x LOC



**PLD-LOC CAP**  
End cap x LOC



**PLD-LOC ELB**  
Locking elbow



**PLD-LOC CPL**  
Locking coupler



**PLD-LOC FHS**  
3/4" female hose  
swivel x LOC



**PLD-LOC TEE**  
Locking tee

# PLD BARB FITTINGS (17 MM)

Acetal construction holds vinyl and PE tubing for an ideal low-cost choice when installing dripline.

## KEY BENEFITS

- Acetal material provides a secure connection
- Dual barb removes the need for clamps

## PRODUCT SPECIFICATIONS

- Use with HDL or other 17 mm dripline
- For installations with PLD-IAC/PLD-IAE grommets, use an 1/16" spade drill bit to cut into the PVC

## OPERATING SPECIFICATIONS

- Operating pressure range: up to 100 PSI
- Warranty period: 1 year

## FITTINGS



**PLD-050**  
1/2" MPT x 17 mm  
barb



**PLD-ELB**  
17 mm barb elbow



**PLD-075**  
3/4" MPT x 17 mm  
barb



**PLD-CPL**  
17 mm barb  
coupling



**PLD-CAP**  
17 mm barb x 1/2"  
MPT with cap



**PLD-075-TB-TEE**  
17 mm barb tee x  
3/4" thread



**PLD-BV**  
17 mm barb  
Shut-off valve



**PLD-TEE**  
17 mm barb tee



**PLD-050-TB-TEE**  
1/2" FPT x 17 mm  
barb tee



**PLD-IAC**  
(with grommet)  
Insert adapter x  
17 mm coupling



**PLD-IAE**  
(with grommet)  
Insert adapter x  
17 mm elbow



**PLD-CRS**  
17 mm barb cross



**PLD-075-TB-ELB**  
3/4" FPT x 17 mm  
barb elbow



# SUBSURFACE SYSTEMS

Subsurface drip irrigation systems can be extremely effective at saving water and encouraging root growth. Hunter is the only manufacturer to offer three tiers of top-quality subsurface irrigation solutions: HDL-COP Dripline, the Eco-Wrap® System, and the Eco-Mat® System.

**1** Eco-Mat offers 30% greater efficiency than any other bare subsurface dripline product. It installs under the soil like a blanket of water, ready for the roots to absorb what they need.

**2** Eco-Wrap provides resistance to root intrusion while enhancing the capillary action and efficiency of the system. Eco-Wrap combines the quality of HDL with the wicking properties of polyethylene fleece.

**A** Entry Manifold:

- PVC (for stability) or polyethylene
- Assemble with either 17 mm or LOC Fittings

**B** Multi-Purpose Box:

- 10" x 7" opening
- Five color options for lids

**C** Control Zone Kit:

- Factory-assembled for quick and easy installation
- Low-, medium-, and high-flow kits

**D** Air/Vacuum Relief Valve:

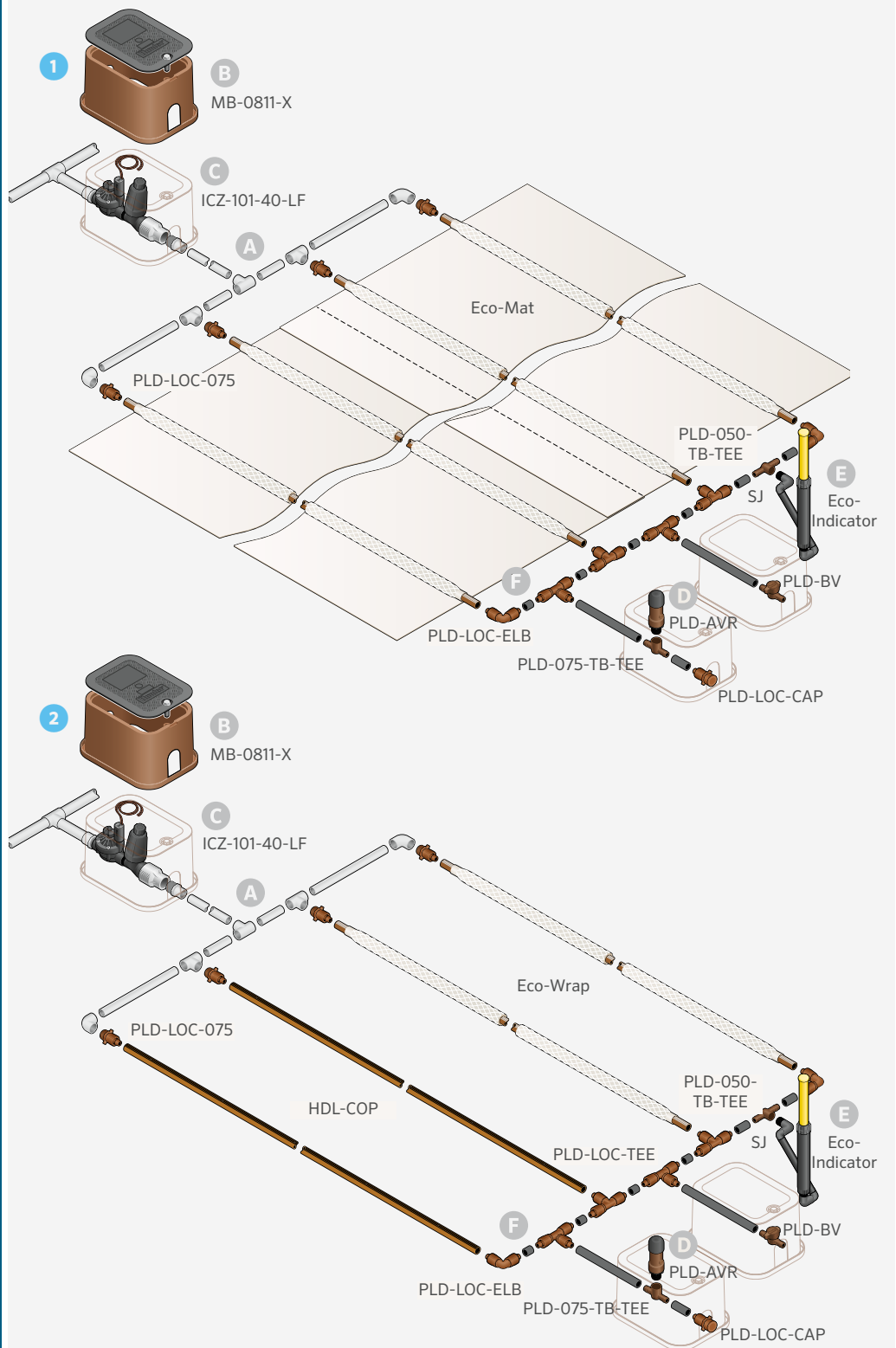
- Helps prevent water hammer and tubing collapse
- Use at high point(s) in zone

**E** Eco-Indicator Tool:

- Pops up at 12 PSI and shows system is running
- Reveals when system pressure drops too low

**F** Fittings:

- Double-barb holds fittings tight
- LOC Fittings can be reused



# ECO-MAT®

Irrigate plants below the root zone for maximum efficiency with a combination of fleece-wrapped dripline and fleece blanket.

## KEY BENEFITS

- Anti-siphon feature and fleece wrap protect against debris and root intrusion
- Saves 20% to 40% more water than standard products due to superior capillary movement of water to the entire root zone, promoting healthier root growth
- Non-draining, pressure-compensating emitters open/close simultaneously, maximizing efficiency
- Check height of 6' minimizes system drainage and runoff

## OPERATING SPECIFICATIONS

- Operating range: 15 to 50 PSI
- Minimum filtration: 120 mesh
- Compatible with LOC and 17 mm insert barb fittings
- Air relief recommended for sloping conditions greater than 6'
- Recommended installation depth: turf (4" to 6"); other (4" to 14")
- May use in conjunction with Eco-Wrap® System
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)

## PRODUCT SPECIFICATIONS

- Flow rate: 0.6 GPH; 0.83 in/hr
- Emitter spacing: 12"
- Lateral row spacing: 14"
- Product width: 32"
- Roll length: Mini roll = 100'; standard roll = 295'
- Tubing dimensions: 0.660" x 0.560" (outside/inside diameter)
- Water-holding capacity: 0.5 gallons
- Approximate coverage per roll: Mini roll = 250 ft²; Standard roll = 737 ft²
- Example calculation based on area 40' x 80':

$$\text{Roll Qty.} = \frac{\text{Irrigated landscape area}}{\text{Area of roll coverage}} = \frac{3,200 \text{ ft}^2}{737 \text{ ft}^2} = 4.34 \text{ (round up to 5 rolls)}$$

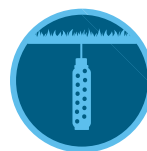


Eco-Mat

Eco-Mat Installed



Compatible with:

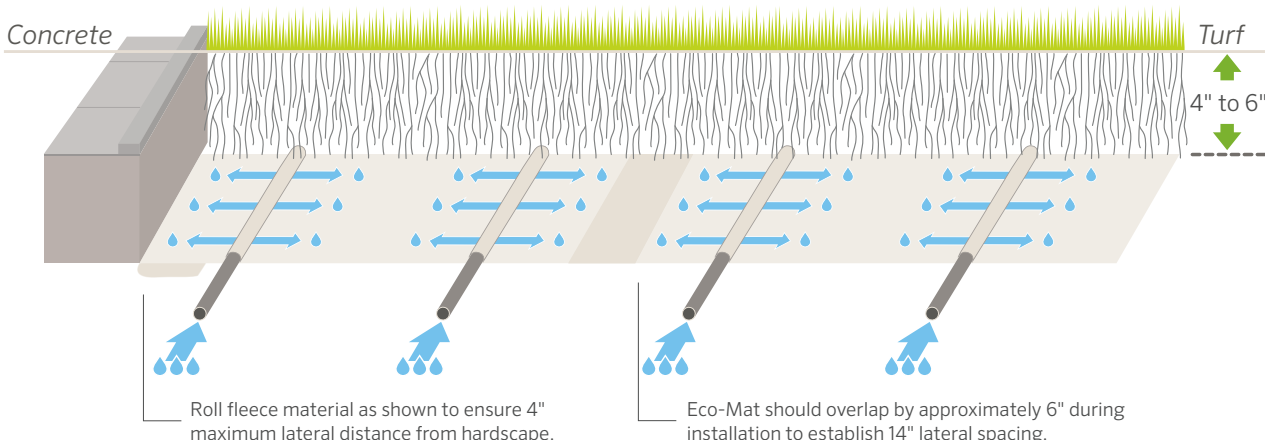


Soil-Clik® Sensor  
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Eco-Indicator  
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| ECO-MAT        |          |       |                                                          |
|----------------|----------|-------|----------------------------------------------------------|
| Model          | Pressure | Inlet | Outlet                                                   |
| ECO-MAT        |          |       | Subsurface drip mat, 32" wide, 295' long, 17 mm dripline |
| ECO-MAT-17-100 |          |       | Subsurface drip mat, 32" wide, 100' long, 17 mm dripline |



# ECO-WRAP®

*Irrigate more efficiently than blank dripline with fleece-wrapped dripline.*

## KEY BENEFITS

- Perfect for narrow areas that are difficult to irrigate with standard methods
- Anti-siphon feature and fleece wrap protect against debris and root intrusion
- Saves 20–40% more water than standard products due to superior capillary movement of water to the entire root zone, promoting healthier root growth
- Non-draining, pressure-compensating emitters open/close simultaneously, maximizing efficiency
- Check height of 6' minimizes system drainage and runoff

## OPERATING SPECIFICATIONS

- Flow rate: 0.6 GPH
- Emitter spacing: 12"
- Tubing dimensions: 0.660" x 0.560" (outside/inside diameter)
- Roll length: 250'
- Accepts 17 mm barb or LOC Fittings
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)

## PRODUCT SPECIFICATIONS

- Operating range: 15 to 50 PSI
- Minimum filtration: 120 mesh
- Air relief recommended for sloping conditions greater than 6'
- Recommended installation depth: turf (4" to 6"); other (4" to 8")
- Compatible with Eco-Mat® System

| ECO-WRAP    |                                      |
|-------------|--------------------------------------|
| Model       | Description                          |
| ECO-WRAP-17 | HDL-CV with subsurface fleece sleeve |

| MAXIMUM RUN LENGTH FOR<br>ECO-MAT AND ECO-WRAP |                |
|------------------------------------------------|----------------|
| Pressure<br>(PSI)                              | Length<br>(ft) |
| 15                                             | 171            |
| 20                                             | 239            |
| 25                                             | 280            |
| 30                                             | 314            |
| 40                                             | 363            |
| 50                                             | 404            |
| 60                                             | 438            |



### Eco-Wrap

*For maximum run lengths, reference the Maximum Run Length Chart on page 156. Use 0.6 GPH for flow and 12" emitter spacing.*

### Eco-Wrap Installed



*Compatible with:*



**Soil-Clik**  
Page 137



**Eco-Indicator**  
Page 164

# ECO-INDICATOR

Confirm system operation and adequate pressure with this handy visual device.

## KEY BENEFITS

- Visible bright yellow or reclaimed purple riser stem and cap indicate when system is in operation
- Stem pops up when pressure exceeds the threshold and assists in confirming low pressures if not raised
- Connects via bottom or side inlet ports for easy installation; side inlet port is available on 12" version

## OPERATING SPECIFICATIONS

- ECO-ID:
  - Operating pressure: up to 70 PSI
  - Indication of system operation: above 12 PSI
  - Warranty period: 2 years
- ECO-ID-12, ECO-ID-12-R:
  - Operating pressure: up to 100 PSI
  - Indication of system operation: above 15 PSI
  - Warranty period: 5 years

## USER-INSTALLED OPTIONS FOR 12" ECO-INDICATOR

- Drain check valve (up to 10' of elevation; P/N 437400SP)
- SJ Swing Joint: SJ-512 (½" threaded x 12" length)

| ECO-INDICATOR |                              |
|---------------|------------------------------|
| Model         | Description                  |
| ECO-ID        | 6" Eco-Indicator             |
| ECO-ID-12     | 12" Eco-Indicator            |
| ECO-ID-12-R   | 12" Eco-Indicator, Reclaimed |

Eco-Indicator Installed



### ECO-ID

Retracted height: 9½"  
Pop-up height: 6"  
Exposed diameter: 1¼"  
Inlet size: ½"



### [A] ECO-ID-12

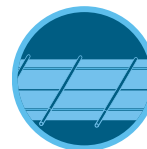
### [B] ECO-ID-12-R

Retracted height: 16½"  
Pop-up height: 12"  
Exposed diameter: 2¼"  
Inlet size: ½"

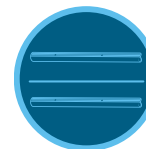
Compatible with:



**Eco-Mat®  
System**  
Page 162



**Eco-Wrap®  
System**  
Page 163



**HDL Dripline**  
Page 156



# SUPPLY TUBING

UV-resistant polyethylene makes this 0.700" x 0.600" solution a useful addition to drip systems.

## KEY BENEFITS

- Thick wall and UV resistance provide durability and longevity
- Kink resistance for added flexibility and quicker installation

## PRODUCT SPECIFICATIONS

- 0.700" x 0.600" (outside/inside diameter)

## OPERATING SPECIFICATIONS

- Operating pressure range: Up to 80 PSI
- Warranty period: 2 years



1/2" PE Tubing

| ½" PE TUBING – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 |       |                               |                 |                                        |        |
|-------------------------------------------------------|-------|-------------------------------|-----------------|----------------------------------------|--------|
| 1                                                     | Model | 2                             | Tubing Diameter | 3                                      | Length |
| TWPE = Thick-walled polyethylene tubing               |       | 700 = 0.700" outside diameter |                 | 100 = 100'<br>250 = 250'<br>500 = 500' |        |

Example:  
TWPE-700-250 = 1/2" polyethylene tubing in a 250' roll

# MLD

Use this 1/4" dripline solution for tight spaces and raised planters.

## KEY BENEFITS

- Superior flexibility makes MLD an excellent choice for small spaces and raised containers
- Properly irrigates without being intrusive to the landscape

## PRODUCT SPECIFICATIONS

- Colors: brown or black polyethylene
- Emitter spacing: 6" or 12"
- Coil size: 100'
- 0.250" x 0.175" (outside/inside diameter)
- Use with 1/4" barb fittings

## OPERATING SPECIFICATIONS

- Pressure range: 10 to 40 PSI
- Minimum filtration: 150 mesh
- Maximum run lengths: 6" spacing = 15'; 12" spacing = 30'
- Warranty period: 2 years

| MLD – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 |        |   |                     |   |            |   |                               |
|--------------------------------------------------|--------|---|---------------------|---|------------|---|-------------------------------|
| 1                                                | Model  | 2 | Spacing             | 3 | Length     | 4 | Options                       |
|                                                  | MLD-05 |   | 06 = 6"<br>12 = 12" |   | 100 = 100' |   | BL = Black<br>(blank) = Brown |

Example:  
MLD-05-12-100 = 0.5 GPH mini landscape dripline with 12" spacing in a 100' roll, brown



MLD

MLD Installed



# DISTRIBUTION TUBING

Add stability and flexibility to any system when using Point-Source Emitters or Micro Sprays.

## KEY BENEFITS

- High-quality vinyl or polyethylene securely connects to acetal ¼" fittings
- Vinyl is more flexible, but it softens in high heat and should be used in cooler climates
- Polyethylene performs well in warmer climates

## PRODUCT SPECIFICATIONS

- Material: Polyethylene or vinyl
- Coil sizes: 100', 250', and 1,000'

## OPERATING SPECIFICATIONS

- Operating pressure range: Up to 60 PSI
- Warranty period: 2 years



¼" Tubing

### ¼" TUBING - SPECIFICATION BUILDER: ORDER 1 + 2 + 3

| 1 | Model                      | 2 | Tubing Diameter               | 3 | Length      |
|---|----------------------------|---|-------------------------------|---|-------------|
|   | HQPE = Polyethylene tubing |   | 250 = 0.250" outside diameter |   | 100 = 100'  |
|   | HQV = Vinyl tubing         |   |                               |   | 250 = 250'  |
|   |                            |   |                               |   | 1K = 1,000' |

#### Example:

HQPE-250-1K = ¼" polyethylene tubing in a 1,000' roll

# ¼" BARBED FITTINGS

Ensure a superior hold with robust acetal construction.

## KEY BENEFITS

- Acetal material provides a secure connection
- Goof plug lays flat to help prevent leaking

## PRODUCT SPECIFICATIONS

- Fits Hunter MLD and Distribution Tubing

## OPERATING SPECIFICATIONS

- Pressure range: Up to 60 PSI
- Warranty period: 1 year



QB-TEE  
¼" barb tee



QB-ELB  
¼" barb elbow



QB-CPL  
¼" barb coupling



QB-CRS  
¼" barb cross



GP-025  
Goof plug

### ¼" Barb Fittings:

Use with MLD or any vinyl or polyethylene ¼" tubing, UV-stabilized materials, and durable single-barb connection

# RZWS

Deliver water across all levels of the root zone for high-efficiency subsurface irrigation of trees and shrubs.

## KEY BENEFITS

- Patented StrataRoot™ Baffle System diverts water to all levels of the root zone while adding strength to the unit
- Durable locking cap for vandal resistance
- Pressure-compensating bubbler for accurate water flow
- Built-in Hunter Swing Joint for direct installation to ½" PVC fitting
- Preassembled for fast installation

## OPERATING SPECIFICATIONS

- Bubbler flow rates: 0.25 or 0.50 GPM
- Recommended pressure range: 15 to 70 PSI
- Warranty period: 2 years

## FACTORY-INSTALLED OPTIONS

- Check valve (HCV)
- Locking reclaimed water purple cap

## USER-INSTALLED OPTIONS

- Fabric sleeve to prevent soil intrusion in sandy areas for 18" and 36" models (P/N RZWS-SLEEVE)
- Replacement cap for 18" and 36" models (P/N 913300SP)
- Locking reclaimed purple cap for 18" and 36" models (P/N 913301SP)
- Reclaimed water purple cap for 10" model (P/N RZWS10-RCC)



### RZWS-10

Tube diameter: 2"  
Cap diameter: 3"  
Length: 10"

### RZWS-18

Tube diameter: 3"  
Cap diameter: 4¼"  
Length: 18"

### RZWS-36

Tube diameter: 3"  
Cap diameter: 4¼"  
Length: 36"



Reclaimed models available  
(Add -R to model number)

SUBSURFACE SYSTEMS

## ROOT ZONE WATERING SYSTEM – SPECIFICATION BUILDER: Order 1 + 2 + 3

| 1 | Model                                          | 2                                          | Bubbler Flow Rate | 3              | Options                          |
|---|------------------------------------------------|--------------------------------------------|-------------------|----------------|----------------------------------|
|   | <b>RZWS-10</b> = 10" Root Zone Watering System | <b>25</b> = 0.25 GPM                       |                   | <b>(blank)</b> | = No option                      |
|   | <b>RZWS-18</b> = 18" Root Zone Watering System | <b>50</b> = 0.50 GPM                       |                   | <b>CV</b>      | = Check valve                    |
|   | <b>RZWS-36</b> = 36" Root Zone Watering System | <b>(blank)</b> = No bubbler or swing joint |                   | <b>R</b>       | = Reclaimed cap                  |
|   |                                                |                                            |                   | <b>CV-R</b>    | = Check valve with reclaimed cap |

### Examples:

**RZWS-10-50-CV** = 10" Root Zone Watering System at 0.50 GPM, with check valve  
**RZWS-36-25-CV-R** = 36" Root Zone Watering System at 0.25 GPM, with check valve and reclaimed cap

## ADDITIONAL OPTION (SPECIFY SEPARATELY)

**RZWS-SLEEVE** = Field-installed sleeve made from filter fabric

# SOFT PIPE SYSTEMS

Using soft pipe to distribute irrigation water is acceptable in both commercial and residential applications. Polyethylene tubing is used in place of PVC and may be 1", ¾", or ½". Hunter offers a full suite of products that are compatible with soft pipe systems.

## 1 Tree and Shrub Rings:

- Convenient and efficient way to irrigate sparse plantings
- Use HDL or MLD to form the irrigation ring
- Connect with LOC Fittings for faster installation

## 2 ½" and ¾" Tubing:

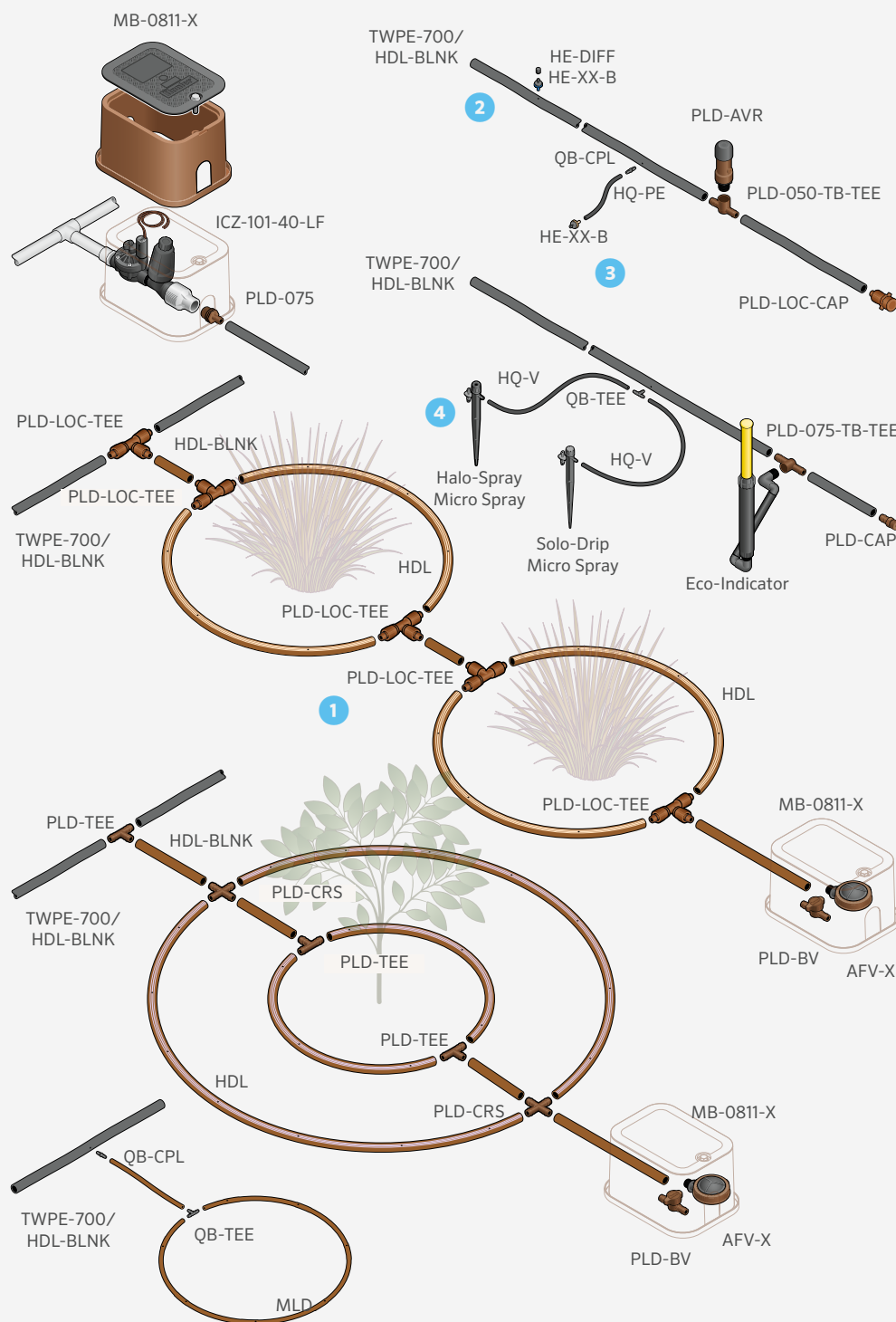
- Use ½" polyethylene (TWPE) to distribute water
- Use ¼" PE (HQPE) or vinyl (HQV) to connect to emitters and Micro Sprays

## 3 Point-Source Emitters:

- Barbed emitters insert directly into PE tubing or at the end of ¼" vinyl/PE
- Color-coded flows (0.5, 1.0, 2.0, 4.0, 6.0 GPH)

## 4 Micro Spray Stakes:

- Use when higher flows are needed (0-30 GPH)
- Throw water from 0' to 12'





# HARD PIPE SYSTEMS

From Multi-Port Emitters to Micro Sprays, Hunter offers a wide variety of products and accessories that are designed to complement hard pipe systems.

## 1 IH Risers:

- Ultra-durable, point-to-point emitters
- Built-in check valve screen makes them great for slopes
- Wide variety of flows

## 2 Point-Source Emitters:

- Color-coded flows (0.5, 1.0, 2.0, 4.0, 6.0 GPH)
- HEB (½" threaded emitter bubblers install directly onto ½" risers)
- HE-T (10-32 threaded emitters install onto rigid risers)

## 3 Multi-Port Emitters:

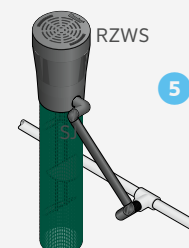
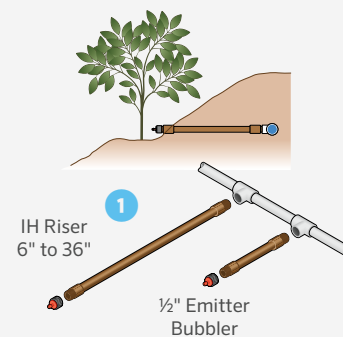
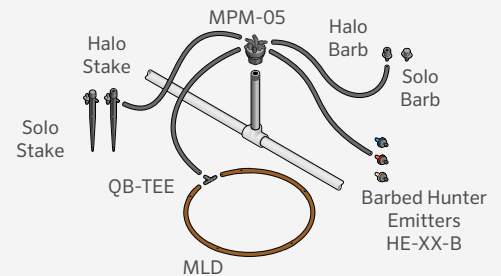
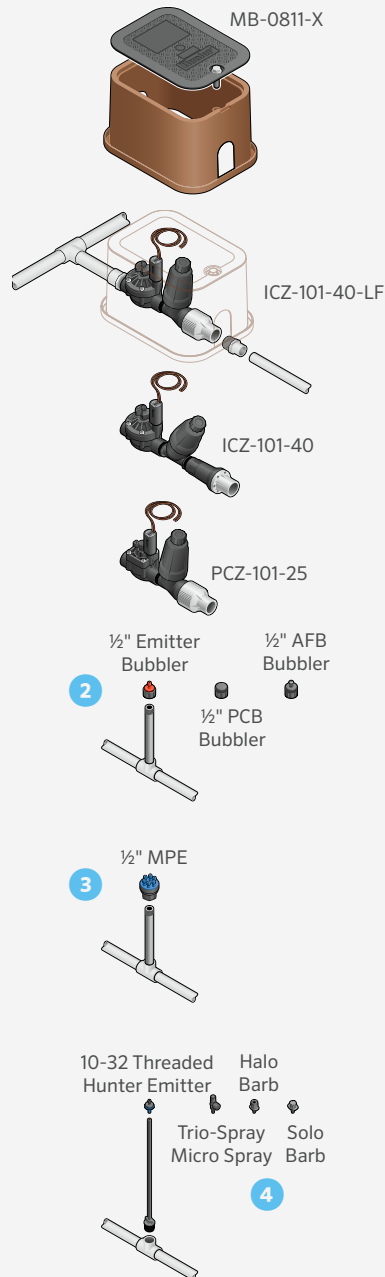
- Color-coded flows (0.5, 1.0, 2.0 GPH)
- Swivel barbs for directional flow
- Install directly onto ½" risers

## 4 Micro Sprays:

- Ideal for higher flows (0 to 30 GPH)
- Diameter of throw from 0' to 12' Install directly onto rigid risers or on ¼" tubing

## 5 Root Zone Watering System:

- For deep root irrigating
- Allows oxygen to penetrate the soil
- Encourages healthier root growth



# POINT-SOURCE EMITTERS

Ensure accurate irrigation for mixed and sparse plantings with a wide range of flow rates.

## KEY BENEFITS

- Pressure-compensating for consistent and reliable flow
- Color-coded by flow for easy identification in the field
- Self-flushing diaphragm to prevent clogs
- Earth-tone colors blend in well with the surrounding environment
- Three inlet variations offer installation flexibility: ¼" barb, 10-32 thread, ½" FPT
- Coined edges for easy gripping
- Self-piercing barb for simple, no-tool installation
- Optional diffuser cap to gently distribute water at high flow

## OPERATING SPECIFICATIONS

- Recommended pressure range: 20 to 50 PSI
- Minimum filtration: 150 mesh
- Warranty period: 2 years

### ½" FEMALE THREAD (BROWN BASE) WITH CHECK VALVE SCREEN

|        | Model     | Inlet Type       | Flow (GPH) |
|--------|-----------|------------------|------------|
| Blue   | HEB-05-CV | ½" female thread | 0.5        |
| Black  | HEB-10-CV | ½" female thread | 1.0        |
| Red    | HEB-20-CV | ½" female thread | 2.0        |
| Tan    | HEB-40-CV | ½" female thread | 4.0        |
| Orange | HEB-60-CV | ½" female thread | 6.0        |

### EMITTER MODEL CHART

|        | Model    | Inlet Type         | Flow (GPH) |
|--------|----------|--------------------|------------|
| Blue   | HE-050-B | Self-piercing barb | 0.5        |
| Black  | HE-10-B  | Self-piercing barb | 1.0        |
| Red    | HE-20-B  | Self-piercing barb | 2.0        |
| Tan    | HE-40-B  | Self-piercing barb | 4.0        |
| Orange | HE-60-B  | Self-piercing barb | 6.0        |
| Blue   | HE-050-T | 10-32 thread       | 0.5        |
| Black  | HE-10-T  | 10-32 thread       | 1.0        |
| Red    | HE-20-T  | 10-32 thread       | 2.0        |
| Tan    | HE-40-T  | 10-32 thread       | 4.0        |
| Orange | HE-60-T  | 10-32 thread       | 6.0        |
| Blue   | HEB-05   | ½" female thread   | 0.5        |
| Black  | HEB-10   | ½" female thread   | 1.0        |
| Red    | HEB-20   | ½" female thread   | 2.0        |
| Tan    | HEB-40   | ½" female thread   | 4.0        |
| Orange | HEB-60   | ½" female thread   | 6.0        |



### DIFFUSER CAP

(HE-DIFF)

Use for flows higher than 2 GPH to diffuse the water and prevent erosion



### ½" FEMALE THREAD

Brown base matches IH Risers and blends into the landscape



### SCREEN-CV

Filter screen with 12" check valve

### Inlet Options

#### ① Self-piercing barb



#### ② 10-32 thread



#### ③ ½" female thread



# IH RISERS

Simplify point-to-point irrigation with vandal-resistant, heavy-duty IH Risers.

## KEY BENEFITS

- Heavy-duty, military-grade, vandal-resistant design
- Made of flexible PVC for durability
- Brown components blend in with the landscape
- Purple fittings available for reclaimed water applications
- Accepts any ½" FPT emitter
- Ideal for slope applications
- At-grade or below-grade installation
- Available in multiple lengths for easy assembly
- Available as components for custom lengths

## OPERATING SPECIFICATIONS

- Maximum flow: 7 GPM
- Maximum pressure: 60 PSI
- Warranty period: 2 years

### IH Risers – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

| 1 Model         | 2 Riser Length                                                                                                           | 3 Fitting Options                                               |
|-----------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| <b>IH-RISER</b> | <b>06</b> = 6" riser<br><b>12</b> = 12" riser<br><b>18</b> = 18" riser<br><b>24</b> = 24" riser<br><b>36</b> = 36" riser | <b>(blank)</b> = Brown<br><b>R</b> = Reclaimed (purple fitting) |

#### Example:

IH-RISER-12 = 12" flexible PVC riser with preglued ½" fittings

### IH RISER COMPONENTS (SOLD SEPARATELY)

| Model         | Description                                                 |
|---------------|-------------------------------------------------------------|
| SCREEN-CV     | Filter screen with 12' check valve                          |
| IH-FIT-3850   | ¾" x ½" MPT IH fitting                                      |
| IH-FIT-3850-R | ¾" x ½" MPT IH fitting (reclaimed)                          |
| IH-250        | Flexible PVC irrigation hose (0.50" ID x 0.090" wall), 250' |

## RECOMMENDED GLUES FOR FLEXIBLE PVC

- IPS® Weld-On®:
  - P-68™ primer (recommended for PVC fittings only)
  - P-70™ primer (may be, used but P-68 is suggested)
  - 795™ Flex PVC cement
- Christy's®:
  - Purple Primer® or Red Hot Clear Primer® (fittings only)
  - Flex Pro PVC pipe cement
  - Red Hot Blue Glue® (not specialized for flexible PVC)

IPS, Weld-On, P-68, P-70, and 795 are trademarks of IPS Corporation. Christy's, Purple Primer, Red Hot Clear Primer, and Red Hot Blue Glue are trademarks of T. Christy Enterprises.



IH RISERS



#### SCREEN-CV

Filter screen with 12' check valve



**IH-FIT-3850,**  
**IH-FIT-3850-R**  
¾" x ½" MPT  
IH fitting



#### IH-250

Flexible PVC for creating headers or custom risers

Compatible with:



**Point-Source  
Emitters**  
Page 170



**Bubblers**  
Page 71



**Multi-Port  
Emitters**  
Page 172

# MULTI-PORT EMITTERS

Use these emitters to irrigate groups of plants effectively from one source.

## KEY BENEFITS

- Six pressure-compensating emitter ports provide consistent and reliable flow
- Color-coded by flow for easy identification
- Earth-tone colors blend in with surrounding landscape
- Swivel elbows assist in placing water directly to plant
- Multi-Port Manifold (MPM) provides unrestricted flow for each outlet

## PRODUCT SPECIFICATIONS

- Available in ½" FNPT
- Available flows: 0.5, 1.0, 2.0 GPH
- PVC cap plugs port when not being used

## OPERATING SPECIFICATIONS

- Pressure range: 10 to 50 PSI
- Minimum filtration: 150 mesh
- Warranty period: 2 years

### MULTI-PORT EMITTER MODEL CHART

|         | Model   | Flow (GPH) |
|---------|---------|------------|
| ● Blue  | MPE-05  | 0.5        |
| ● Black | MPE-10  | 1.0        |
| ● Red   | MPE-20  | 2.0        |
| ● Gray  | MPM-050 | N/A        |



**Multi-Port Emitter**



**Multi-Port Manifold**

(MPM-050)

Unrestricted flow through outlets as indicated by gray color. Use with ¼" distribution tubing and a barbed emitter at the end (available in ½" FPT). Allows water to be directed to as many as six different locations.

### Emitter Caps

(MPE-CAPS)

Plug unused ¼" barbed emitter outlets. Use with Hunter Multi-Port Emitters.



**Hunter Emitter Multi-Tool**

(HEMT)

Punches pilot holes and pellets, inserts and removes emitters, and cuts tubing.



# MICRO SPRAYS

Apply water accurately for small-area coverage.

## SOLO-DRIP

- Eight streams of water for thorough coverage
- Adjustable cap for flow and radius adjustment



### SOLO-DRIP PERFORMANCE DATA

|                                                                                   | Pressure PSI | Flow GPH | Throw Diameter ft |
|-----------------------------------------------------------------------------------|--------------|----------|-------------------|
|  | 15           | 0-11     | 0-1.5             |
|                                                                                   | 20           | 0-12.5   | 0-1.9             |
|                                                                                   | 30           | 0-15.7   | 0-2.7             |

**Note:** Adjustable to maximum (approximately 20 clicks)

## HALO-SPRAY

- Adjustable umbrella of water
- Adjustable cap for flow and radius adjustment



### HALO-SPRAY PERFORMANCE DATA

|                                                                                   | Pressure PSI | Flow GPH | Throw Diameter ft |
|-----------------------------------------------------------------------------------|--------------|----------|-------------------|
|  | 15           | 0-14     | 0-5.8             |
|                                                                                   | 20           | 0-16     | 0-7.7             |
|                                                                                   | 30           | 0-20     | 0-11.5            |

**Note:** Adjustable to maximum (approximately 14 clicks)

## TRIO-SPRAY

- Full-, half-, and quarter-circle configurations
- Adjustable cap for flow and radius adjustment



### TRIO-SPRAY PERFORMANCE DATA

|                                                                                     | Pressure PSI | Flow GPH | Spray Pattern ft.                |                      |      |
|-------------------------------------------------------------------------------------|--------------|----------|----------------------------------|----------------------|------|
|                                                                                     |              |          | Diameter in Throw 360° x 18 Hole | Radius of Throw 180° | 90°  |
|  | 10           | 0-16.7   | 0-17                             | 0-7                  | 0-6  |
|  | 15           | 0-20.3   | 0-19                             | 0-8                  | 0-7  |
|  | 20           | 0-23.4   | 0-20                             | 0-9                  | 0-8  |
|                                                                                     | 25           | 0-26.1   | 0-22                             | 0-10                 | 0-9  |
|                                                                                     | 30           | 0-28.6   | 0-23                             | 0-11                 | 0-10 |



SD-T



HS-T



TS-T-F



SD-B



HS-B



TS-T-H



SD-B-STK  
Height: 6"



HS-B-STK  
Height: 6"



TS-T-Q

B = Barbed, F = Full, H = Half, Q = Quarter, STK = Stake, T = Threaded

For a more robust overhead micro spray system, pair Short-Radius Micro Spray Nozzles with Pro-Spray® Sprinkler Bodies.



Short-Radius Micro  
Spray Nozzles  
Page 68

# RIGID RISERS

These risers maintain their stiffness even when used with Micro Sprays, making them a perfect choice for high-throw applications.

## KEY BENEFITS

- For rugged system designs
- Accepts 10-32 threaded components
- Perfect for annual flower beds and planters
- Inlet configurations: ½" FPT, ¼" barb, or blank
- HDPE construction

## OPERATING SPECIFICATIONS

- Warranty period: 1 year

### RIGID RISER MODEL CHART

| Model  | Description                           |
|--------|---------------------------------------|
| RR12   | 12" Rigid Riser                       |
| RR12-T | 12" Rigid Riser with ½" threaded base |
| RR12-B | 12" Rigid Riser with ¼" barb base     |



Rigid Riser

Available in 12" inlet options

# MULTI-PURPOSE BOX

*This sturdy box is just the right size to provide protection and easy access to essential irrigation components.*

## KEY BENEFITS

- Small footprint in a sturdy, durable box
- Five color offerings blend in with any environment
- Overlapping lid prevents debris from entering box
- Knock-out bolt hole
- UV-protected, non-slip lid

## PRODUCT SPECIFICATIONS

- Fits small control zone kits and other assorted components
- Durable HDPE construction
- $\frac{3}{8}$ " bolt included with every box
- Warranty period: 2 years

### MULTI-PURPOSE BOX

| Model     | Description                               |
|-----------|-------------------------------------------|
| MB-0811   | Multi-Purpose Box with standard brown lid |
| MB-0811-G | Multi-Purpose Box with green lid          |
| MB-0811-T | Multi-Purpose Box with tan lid            |
| MB-0811-R | Multi-Purpose Box with purple lid         |
| MB-0811-B | Multi-Purpose Box with black lid          |
| MB-BOX    | Multi-Purpose Box (box only)              |
| MB-LID    | Multi-Purpose Box (lid only, brown)       |
| MB-LID-G  | Multi-Purpose Box (lid only, green)       |
| MB-LID-T  | Multi-Purpose Box (lid only, tan)         |
| MB-LID-R  | Multi-Purpose Box (lid only, purple)      |
| MB-LID-B  | Multi-Purpose Box (lid only, black)       |



### Multi-Purpose Box

Top  
Width: 7½"  
Length: 10½"

Bottom  
Width: 8½"  
Length: 11½"  
Height: 8"



MB-LID-B



MB-LID-G



MB-LID



MB-LID-R



MB-LID-T

### Multi-Purpose Box Installed



# AIR/VACUUM RELIEF VALVE

*Prevent water hammer and system collapse by discharging air during startup and allowing air to enter during shutdown.*

## KEY BENEFITS

- Releases air pockets without premature closure
- Leak-free closure after release
- Helps prevent system collapse through vacuum relief

## PRODUCT SPECIFICATIONS

- UV-protected and corrosion-resistant material

## OPERATING SPECIFICATIONS

- Pressure range: up to 80 PSI
- Warranty period: 2 years



### AVR-075

Height: 5"  
Width: 2"  
Inlet: 3/4" MPT



### PLD-AVR

Height: 1"  
Width: 3/4"  
Inlet: 1/2"

## Air/Vacuum Relief Valve Installed



# AUTOMATIC FLUSH VALVE

*Keep laterals clean by automatically flushing water, air, and debris at each system startup.*

## KEY BENEFITS

- Flushes debris automatically at every system startup
- Reversible diaphragm to coordinate with low or high flow
- Lateral placement provides better grit tolerance

## PRODUCT SPECIFICATIONS

- Removable top for diaphragm maintenance

## OPERATING SPECIFICATIONS

- Pressure range: up to 60 PSI
- Low-flow diaphragm side: 2 to 5 GPM
- High-flow diaphragm side: 5 to 12 GPM
- AFV-075: Auto flush at 5 PSI
- Warranty period: 1 Year



### AFV-B

Automatic Flush Valve with  
17 mm barb connection



### AFV-T

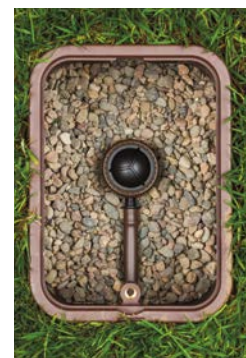
Automatic Flush Valve with  
1/2" MPT connection



### AFV-075

Automatic Flush Valve with  
3/4" FNPT connection

## Automatic Flush Valve Installed







**RECLAIMED**





# EMBRACE THE POWER OF PURPLE

*with our complete line of reclaimed water products*

## ROTORS



### PGJ

PGJ-00-R  
PGJ-04-R  
PGJ-06-R  
PGJ-12-R



### PGP® ULTRA

PGP-00-CV-R  
PGP-00-CV-R-PRB  
PGP-04-CV-R  
PGP-04-CV-R-PRB  
PGP-06-CV-R  
PGP-12-CV-R



### I-20

I-20-00-R  
I-20-00-R-PRB  
I-20-04-R  
I-20-04-SS-R  
I-20-04-R-PRB  
I-20-04-SS-R-PRB  
I-20-06-R  
I-20-06-SS-R  
I-20-06-R-PRB  
I-20-06-SS-R-PRB  
I-20-12-R



### I-25

I-25-04-R  
I-25-04-SS-R  
I-25-06-R  
I-25-06-SS-R



### I-40

I-40-04-SS-R  
I-40-04-SS-ON-R  
I-40-06-SS-R  
I-40-06-SS-ON-R

#### Rotors Key

00 - Shrub  
04 - 4" pop-up  
06 - 6" pop-up

12 - 12" pop-up  
CV - Check valve  
SS - Stainless steel

ON - Opposing nozzles  
PRB - Pressure-regulated body

ARV - Adjustable arc  
3RV - Full-circle

## ROTORS



### I-80

I-80-04-SS-R  
I-80-04-SS-ON-R



### I-90

I-90-ARV  
I-90-3RV

## SPRINKLER BODIES



### PRO-SPRAY®

PROS-00-R  
PROS-04-CV-R  
PROS-06-CV-R  
PROS-12-CV-R  
PROS-RC-CAP-SP (snap-on)  
458520SP = ID cap (threaded)



### PRO-SPRAY PRS30

PROS-00-PRS30-R  
PROS-04-PRS30-CV-R  
PROS-06-PRS30-CV-R  
PROS-12-PRS30-CV-R  
PROS-04-PRS30-CV-F-R  
PROS-06-PRS30-CV-F-R  
PROS-12-PRS30-CV-F-R  
458560 = ID cap



### PRO-SPRAY PRS40

PROS-00-PRS40-R  
PROS-04-PRS40-CV-R  
PROS-06-PRS40-CV-R  
PROS-12-PRS40-CV-R  
PROS-04-PRS40-CV-F-R  
PROS-06-PRS40-CV-F-R  
PROS-12-PRS40-CV-F-R  
458562 = ID cap

#### Sprays Key

00 - Shrub  
04 - 4" pop-up

06 - 6" pop-up  
12 - 12" pop-up

CV - Check valve  
F - FloGuard™ Technology

## BUBBLERS



### BUBBLERS

PCB-25-R  
PCB-50-R  
PCB-10-R  
PCB-20-R

#### Bubblers Key

25 - 0.25 GPM  
50 - 0.50 GPM  
10 - 1.00 GPM  
20 - 2.00 GPM

## VALVES



### ICV VALVE

ICV-151G-FS-R  
ICV-201G-FS-R  
561205 = ICV-101-201 series  
ID handle  
515005 = ICV-301 series  
ID handle



### IBV VALVE

IBV-151G-FS-R  
IBV-201G-FS-R

#### Valves Key

FS - Filter Sentry® Mechanism  
\* Note: IBV purple tags are user-installed options.



### QUICK COUPLERS

HQ-33-DLRC-R  
HQ-44-LRC-R  
HQ-44-LRC-AW-R  
HQ-5-LRC-R

#### Quick Couplers Key

LRC - Locking rubber cover  
RC - Rubber cover  
AW - Acme key with anti-rotation wheels



### DRIP CONTROL ZONE KITS

ICZ-101-25-LF-R  
ICZ-101-40-LF-R  
HFR-100-075-25-R  
HFR-100-075-40-R

## MICRO



### IH RISERS

IH-RISER-XX-R  
IH-FIT-3850-R



### ROOT ZONE WATERING SYSTEM

|                 |                              |
|-----------------|------------------------------|
| RZWS-10-R       | RZWS-36-R                    |
| RZWS-10-25-R    | RZWS-36-25-R                 |
| RZWS-10-50-R    | RZWS-36-50-R                 |
| RZWS-10-25-CV-R | RZWS-36-25-CV-R              |
| RZWS-10-50-CV-R | RZWS-36-50-CV-R              |
| RZWS-18-R       | 913301SP                     |
| RZWS-18-25-R    | (purple cap for 18" and 36") |
| RZWS-18-50-R    | RZWS-10-RCC                  |
| RZWS-18-25-CV-R | (purple cap for 10")         |
| RZWS-18-50-CV-R |                              |



### HUNTER DRIPLINE

HDL-06-12-250-R  
HDL-06-12-1K-R  
HDL-06-18-250-R  
HDL-06-18-1K-R  
HDL-09-12-250-R  
HDL-09-12-1K-R  
HDL-09-18-250-R  
HDL-09-18-1K-R  
HDL-BLNK-500-R



### ECO-INDICATOR

ECO-ID-12-R



### MULTI-PURPOSE BOX

MB-0811-R  
MB-LID-R (lid only)

#### Micro Key

##### IH Risers

XX = Riser Length  
06 = 6"  
12 = 12"  
18 = 18"  
24 = 24"  
36 = 36"

##### RZWS

|                 |                  |
|-----------------|------------------|
| 10 - 10" length | 25 - 0.25 GPM    |
| 18 - 18" length | 50 - 0.50 GPM    |
| 36 - 36" length | CV - Check valve |

##### HDL

|                   |                  |                    |
|-------------------|------------------|--------------------|
| BLNK - No emitter | 12 - 12" spacing | 250 - 250' length  |
| HDL-04 - 0.4 GPH  | 18 - 18" spacing | 500 - 500' length  |
| HDL-06 - 0.6 GPH  | 24 - 24" spacing | 1K - 1,000' length |
| HDL-09 - 0.9 GPH  |                  |                    |





# TOOLS



## SPOTSHOT HOSE-END NOZZLE

### MODELS

- ¾" hose thread inlet – P/N 160700
- 1" hose thread inlet – P/N 160705

### KEY BENEFITS

- Variable nozzle stream choices:
  - Fan: Broad, light stream for turf hot spots
  - Soak: Medium stream for dust-control areas
  - Jet: Tight, focused stream for power washing

### OPERATING SPECIFICATIONS

- Flow – 35 GPM at 80 PSI\*

\* Not recommended for residential use with regulated, low-pressure, or low-flow conditions



#### SpotShot Hose-End Nozzle

¾" P/N 160700SP

1" P/N 160705SP



#### Pitot Gauge

P/N 280100SP

Used to check operating pressure of rotor sprinklers



#### MP Gauge Assembly

P/N MPGAUGE

Used to check operating pressure on spray body sprinklers



#### Hand Pump

P/N 217500SP

Used to remove water from flooded areas during service and installation



#### Nozzle Insertion Collar

P/N 123200SP



#### Hunter Wrench

P/N 172000SP



#### T-Handle Tool

P/N 319100SP



#### Nozzle Removal/ Installation Tool

P/N 803700SP

5/16" Nut Driver used with I-80 Rotor short and mid-range nozzles



#### Snap Ring Removal Tool

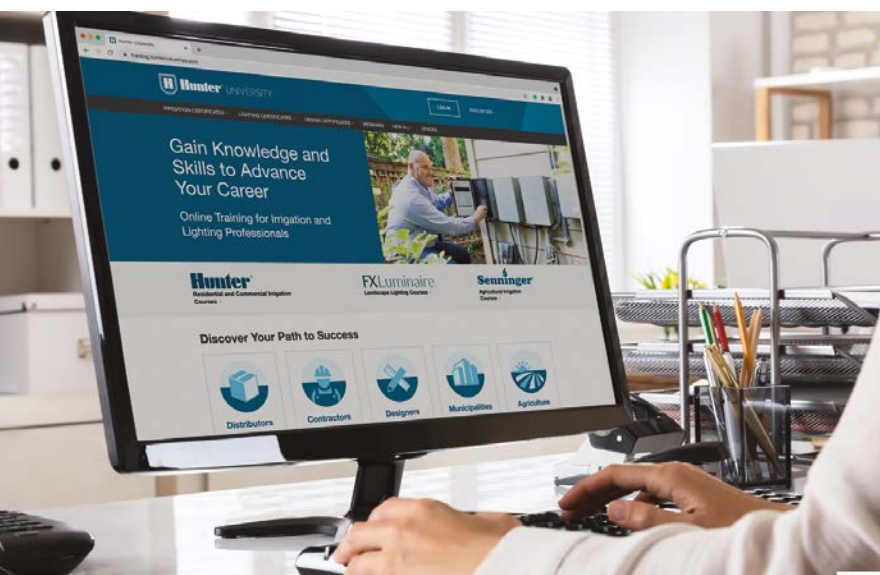
P/N 251000SP

Use with I-80 Rotor

# RESOURCES







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**HUNTER UNIVERSITY**

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- Irrigation Designer
- Hydrowise® Specialist
- X2™ Specialist
- Irrigation Installation Fundamentals
- Valve Technician ◆NEW
- S.T.A.R. Distributor
- EZ Decoder System Specialist ◆NEW
- EZ Decoder System Technician ◆NEW

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### SITEREC APP

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### RUN TIME CALCULATOR

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Build customized product lists for every project. Email lists to distributors for faster ordering and add pricing and notes to each project.

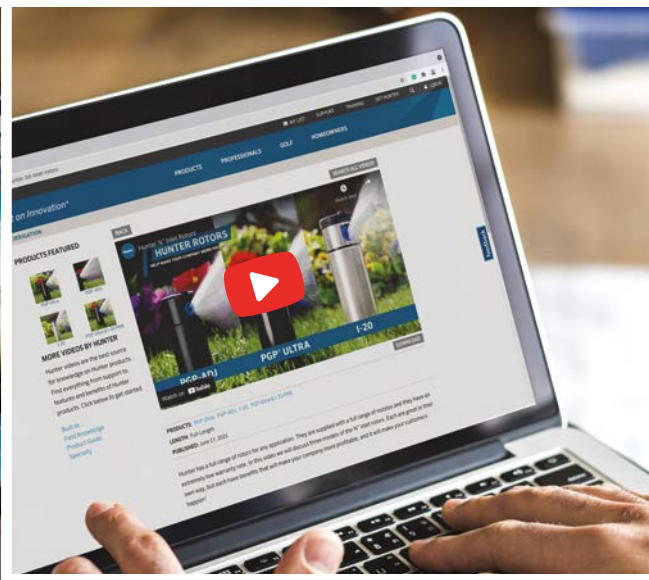


### DRIPLINE CALCULATOR

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# PRECIPITATION RATES

In this section, the “Sprinkler Spacing Method – Any Arc and Any Spacing” equation is used to calculate precipitation rates. The first set of equations with the ■ shows the precipitation rate for the sprinklers when they are laid out in a square pattern. The next set with the ▲ shows the precipitation rate for the sprinklers laid out in an equilateral triangular spacing pattern. This is the “Sprinkler Spacing Method – Equilateral Triangular Spacing” equation.

## WHAT IS “PRECIPITATION RATE”?

If someone said they were caught in a rainstorm that dropped one inch of water in an hour, you would have some idea of how “hard” or “heavily” the rain came down. A rainstorm that covers an area with one inch of water in one hour has a “precipitation rate” of one inch per hour (1 in/hr or 25 mm/hr). Similarly, the precipitation rate is the “speed” at which a sprinkler or an irrigation system applies water.

## MATCHED PRECIPITATION RATES

A zone or system in which all the heads have similar precipitation rates is said to have “matched precipitation rates.” Systems that have matched precipitation rates reduce wet and dry spots and minimize run times, which reduces water consumption and lowers costs. Knowing that sprinkler spacing, flow rates, and arcs of coverage affect precipitation rates, a general guideline is: as the spray arc doubles, so should the flow.

 90° Arc = 1 GPM  
(0.23 m³/hr; 3.8 l/min)

 180° Arc = 2 GPM  
(0.45 m³/hr; 7.6 l/min)

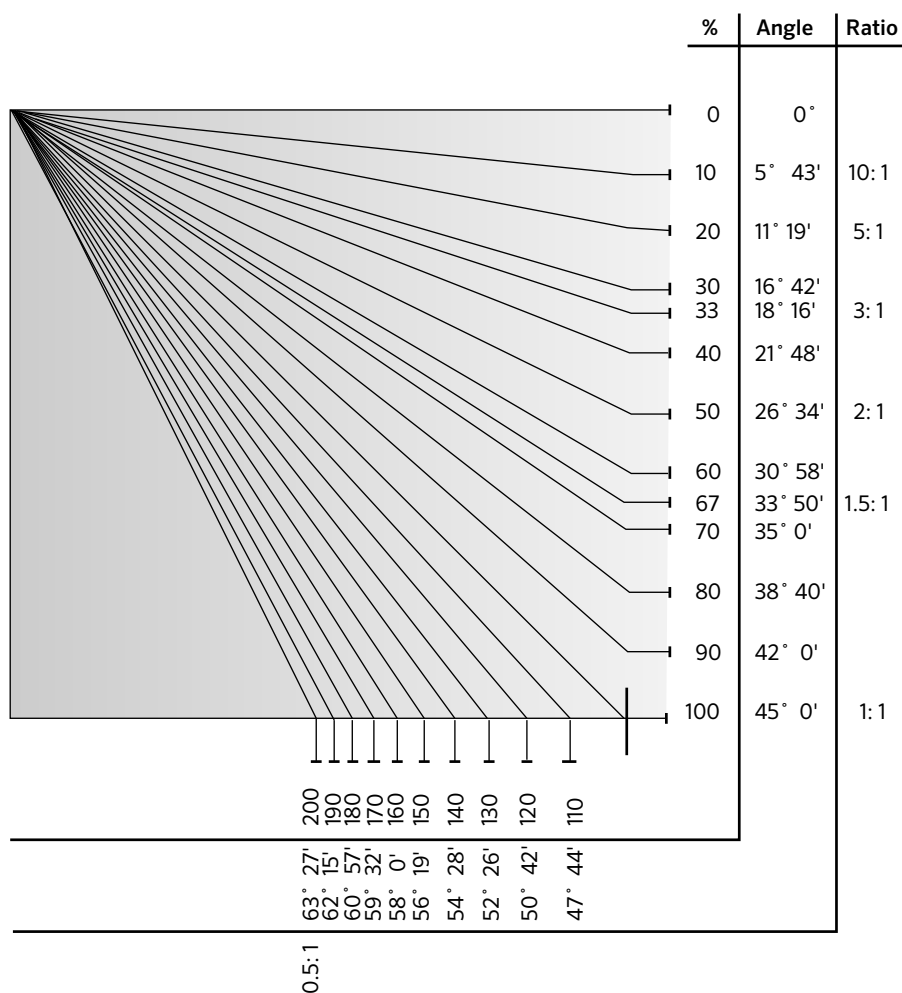
 360° Arc = 4 GPM  
(0.91 m³/hr; 15.1 l/min)

The flow rate of half-circle heads must be two times the flow rate of the quarter-circle heads, and the full-circle heads must have two times the flow rate of the half-circle heads. In the illustration, the same amount of water is applied to each quarter circle area, and precipitation is therefore matched.

| CALCULATING PRECIPITATION RATES                                                                                                                                                                                                                                                     |                                            |                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Depending upon the construction of the irrigation system, the precipitation rate may be calculated by either a Sprinkler Spacing or a Total Area method.                                                                                                                            |                                            |                                                                                                                                                          |
| <b>Sprinkler Spacing Method (■)</b><br>The precipitation rate should be calculated for each individual zone. If all sprinkler heads on the zone have the same spacing, flow rate, and arc of coverage, use one of the following formulas:                                           | <b>Any Arc and Any Spacing (■):</b>        |                                                                                                                                                          |
|                                                                                                                                                                                                                                                                                     | P.R. (in/hr) =                             | $\frac{\text{Flow Rate (GPM) for any Arc} \times 34,650}{\text{Degrees of Arc} \times \text{Head Spacing (ft.)} \times \text{Row Spacing (ft.)}}$        |
|                                                                                                                                                                                                                                                                                     | P.R. (mm/hr) =                             | $\frac{\text{Flow Rate (m}^3\text{/hr) for any Arc} \times 360,000}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$ |
|                                                                                                                                                                                                                                                                                     | P.R. (mm/hr) =                             | $\frac{\text{Flow Rate (l/min) for any Arc} \times 21,600}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$          |
| <b>Sprinkler Spacing Method (▲)</b><br>The precipitation rate should be calculated for each individual zone. If all sprinkler heads on the zone have the same spacing, flow rate, and arc of coverage, use one of the following formulas:                                           | <b>Equilateral Triangular Spacing (▲):</b> |                                                                                                                                                          |
|                                                                                                                                                                                                                                                                                     | P.R. (in/hr) =                             | $\frac{\text{Flow Rate (GPM) for any Arc} \times 34,650}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866}$                             |
|                                                                                                                                                                                                                                                                                     | P.R. (mm/hr) =                             | $\frac{\text{Flow Rate (m}^3\text{/hr) for any Arc} \times 360,000}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866}$                  |
|                                                                                                                                                                                                                                                                                     | P.R. (mm/hr) =                             | $\frac{\text{Flow Rate (l/min) for any Arc} \times 21,600}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866}$                           |
| <b>Total Area Method</b><br>The precipitation rate for a “system” is the average precipitation rate of all sprinklers in an area, regardless of the spacing, flow rate, or arc for each head. The Total Area Method calculates all the flows of all of the heads in any given area. | P.R. (in/hr) =                             | $\frac{\text{Flow (GPM)} \times 96.25}{\text{Total Area (ft.)}}$                                                                                         |
|                                                                                                                                                                                                                                                                                     | P.R. (mm/hr) =                             | $\frac{\text{Flow (m}^3\text{/hr)} \times 1,000}{\text{Total Area (m}^2\text{)}}$                                                                        |
|                                                                                                                                                                                                                                                                                     | P.R. (mm/hr) =                             | $\frac{\text{Flow (l/min)} \times 60}{\text{Total Area (m}^2\text{)}}$                                                                                   |

# SLOPE EQUIVALENTS/IRRIGATION

## PERCENT, ANGLE, RATIO



## SLOPE IRRIGATION: Maximum precipitation rates for slopes in in/hr

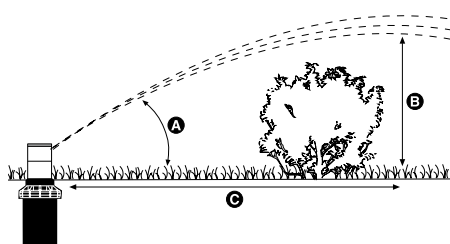
| Soil Texture                             | 0 to 5% Slope |      | 5 to 8% Slope |      | 8 to 12% Slope |      | 12%+ Slope |      |
|------------------------------------------|---------------|------|---------------|------|----------------|------|------------|------|
|                                          | Cover         | Bare | Cover         | Bare | Cover          | Bare | Cover      | Bare |
| Coarse sandy soils                       | 2.0           | 2.0  | 2.0           | 1.5  | 1.5            | 1.0  | 1.0        | 0.5  |
| Coarse sandy soils over compact subsoils | 1.75          | 1.5  | 1.25          | 1.0  | 1.0            | 0.75 | 0.75       | 0.4  |
| Light sandy loams uniform                | 1.75          | 1.0  | 1.25          | 0.8  | 1.0            | 0.6  | 0.75       | 0.4  |
| Light sandy loams over compact subsoils  | 1.25          | 0.75 | 1.0           | 0.5  | 0.75           | 0.4  | 0.5        | 0.3  |
| Uniform silt loams                       | 1.0           | 0.5  | 0.8           | 0.4  | 0.6            | 0.3  | 0.4        | 0.2  |
| Silt loams over compact subsoil          | 0.6           | 0.3  | 0.5           | 0.25 | 0.4            | 0.15 | 0.3        | 0.1  |
| Heavy clay or clay loam                  | 0.2           | 0.15 | 0.15          | 0.10 | 0.12           | 0.08 | 0.1        | 0.06 |

### Notes:

The maximum precipitation values listed below are those suggested by the United States Department of Agriculture. The values are average and may vary with respect to actual soil and groundcover conditions.

# HEIGHT OF SPRAY

When designing and installing irrigation systems, it's important to know the trajectory and spray height of the water stream leaving the sprinkler nozzle.



These rotor nozzle trajectory charts are designed to help determine how close a sprinkler can be placed to an object such as a fence or hedge without obstructing the spray pattern. All information shown is at optimum operating pressures.

**HUNTER NOZZLE HEIGHT AND TRAJECTORY CHART**

| Model                            | Nozzle No. | Pressure (PSI) | Degrees of Trajectory | Max Height of Spray | Distance from Head to Maximum Height (ft) |
|----------------------------------|------------|----------------|-----------------------|---------------------|-------------------------------------------|
| MP ROTATOR®                      | 800SR      | 40             | 18                    | 18"                 | Varies                                    |
|                                  | 815        | 40             | 15                    | 12"                 | Varies                                    |
|                                  | 1000       | 40             | 20                    | 20"                 | Varies                                    |
|                                  | 2000       | 40             | 26                    | 45"                 | Varies                                    |
|                                  | 3000       | 40             | 26                    | 79"                 | Varies                                    |
|                                  | 3500       | 40             | 26                    | 79"                 | Varies                                    |
|                                  | Corner     | 40             | 14                    | 14"                 | Varies                                    |
|                                  | Side Strip | 40             | 16                    | 19"                 | Varies                                    |
|                                  | Left Strip | 40             | 16                    | 18"                 | Varies                                    |
| PGJ / SRM                        | 0.50       | 40             | 10                    | 2'                  | 4                                         |
|                                  | 0.75       | 40             | 10                    | 2'                  | 4                                         |
|                                  | 1.0        | 40             | 10                    | 2'                  | 8                                         |
|                                  | 1.5        | 40             | 10                    | 3'                  | 12                                        |
|                                  | 2.0        | 40             | 15                    | 5'                  | 16                                        |
|                                  | 2.5        | 40             | 15                    | 5'                  | 20                                        |
|                                  | 3.0        | 40             | 15                    | 5'                  | 20                                        |
|                                  | 4.0        | 40             | 15                    | 5'                  | 22                                        |
| PGP® RED NOZZLES                 | 1          | 50             | 26                    | 7'                  | 22                                        |
|                                  | 2          | 50             | 26                    | 7'                  | 22                                        |
|                                  | 3          | 50             | 26                    | 8'                  | 23                                        |
|                                  | 4          | 50             | 26                    | 8'                  | 23                                        |
|                                  | 5          | 50             | 27                    | 9'                  | 26                                        |
|                                  | 6          | 50             | 27                    | 10'                 | 28                                        |
|                                  | 7          | 50             | 26                    | 11'                 | 30                                        |
|                                  | 8          | 50             | 26                    | 11'                 | 30                                        |
|                                  | 9          | 50             | 27                    | 12'                 | 32                                        |
|                                  | 10         | 60             | 25                    | 13'                 | 32                                        |
|                                  | 11         | 60             | 25                    | 13'                 | 38                                        |
|                                  | 12         | 60             | 25                    | 13'                 | 40                                        |
| PGP LOW-ANGLE GRAY NOZZLES       | 4          | 50             | 15                    | 5'                  | 22                                        |
|                                  | 5          | 50             | 15                    | 4'                  | 22                                        |
|                                  | 6          | 50             | 14                    | 4'                  | 22                                        |
|                                  | 7          | 50             | 14                    | 4'                  | 22                                        |
|                                  | 8          | 50             | 14                    | 5'                  | 24                                        |
|                                  | 9          | 50             | 15                    | 5'                  | 26                                        |
|                                  | 10         | 60             | 15                    | 6'                  | 30                                        |
| PGP BLUE NOZZLES                 | 1.5        | 45             | 25                    | 8'                  | 23                                        |
|                                  | 2.0        | 45             | 25                    | 8'                  | 23                                        |
|                                  | 2.5        | 45             | 25                    | 9'                  | 26                                        |
|                                  | 3.0        | 45             | 25                    | 10'                 | 28                                        |
|                                  | 4.0        | 45             | 25                    | 11'                 | 30                                        |
|                                  | 5.0        | 45             | 25                    | 11'                 | 30                                        |
|                                  | 6.0        | 55             | 25                    | 12'                 | 32                                        |
|                                  | 8.0        | 55             | 25                    | 13'                 | 32                                        |
| PGP ULTRA/I-20 DARK BLUE NOZZLES | 1.0        | 50             | 26                    | 8'                  | 23                                        |
|                                  | 1.5        | 50             | 26                    | 8'                  | 23                                        |
|                                  | 2.0        | 50             | 27                    | 9'                  | 26                                        |
|                                  | 3.0        | 50             | 27                    | 10'                 | 28                                        |
|                                  | 3.5        | 50             | 26                    | 11'                 | 30                                        |
|                                  | 4.0        | 50             | 26                    | 11'                 | 30                                        |
|                                  | 6.0        | 50             | 27                    | 12'                 | 32                                        |
|                                  | 8.0        | 60             | 25                    | 13'                 | 32                                        |
| PGP ULTRA/I-20 BLUE NOZZLES      | 1.5        | 45             | 25                    | 8'                  | 23                                        |
|                                  | 2.0        | 45             | 25                    | 8'                  | 23                                        |
|                                  | 2.5        | 45             | 25                    | 9'                  | 26                                        |
|                                  | 3.0        | 45             | 25                    | 10'                 | 28                                        |
|                                  | 4.0        | 45             | 25                    | 11'                 | 30                                        |
|                                  | 5.0        | 45             | 25                    | 11'                 | 30                                        |
|                                  | 6.0        | 55             | 25                    | 12'                 | 32                                        |
|                                  | 8.0        | 55             | 25                    | 13'                 | 32                                        |



# HEIGHT OF SPRAY

## HUNTER NOZZLE HEIGHT AND TRAJECTORY CHART

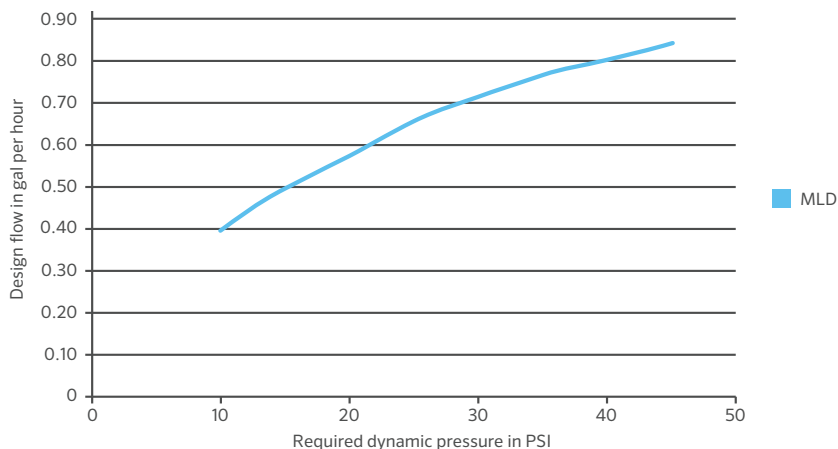
| Model                                           | Nozzle No. | Pressure<br>(PSI) | Degrees of<br>Trajectory | Max Height<br>of Spray | Distance from Head to<br>Maximum Height (ft) |
|-------------------------------------------------|------------|-------------------|--------------------------|------------------------|----------------------------------------------|
| PGP® Ultra/I-20<br>Low-Angle<br>Gray Nozzles    | 2.0LA      | 50                | 13                       | 5                      | 22                                           |
|                                                 | 2.5LA      | 50                | 13                       | 4                      | 22                                           |
|                                                 | 3.5LA      | 50                | 13                       | 4                      | 22                                           |
|                                                 | 4.5LA      | 50                | 13                       | 4                      | 22                                           |
| PGP Ultra/I-20<br>Short-Radius<br>Black Nozzles | 0.5        | 50                | 15                       | 5                      | 8                                            |
|                                                 | 1.0        | 50                | 14                       | 6                      | 9                                            |
|                                                 | 2.0        | 50                | 3                        | 1                      | 6                                            |
| PGP Ultra/I-20<br>Short-Radius<br>Black Nozzles | 0.75       | 50                | 22                       | 7                      | 13                                           |
|                                                 | 1.5        | 50                | 18                       | 7                      | 13                                           |
|                                                 | 3.0        | 50                | 8                        | 1                      | 6                                            |
| PGP Ultra/I-20<br>MPR-25 Red Nozzles            | Q - 90     | 45                | 22                       | 3                      | 15                                           |
|                                                 | T - 120    | 45                | 21                       | 4                      | 14                                           |
|                                                 | H - 180    | 45                | 24                       | 4                      | 14                                           |
|                                                 | F - 360    | 45                | 22                       | 4                      | 10                                           |
| PGP Ultra/I-20<br>MPR-30 Lt. Green<br>Nozzles   | Q - 90     | 45                | 28                       | 5                      | 18                                           |
|                                                 | T - 120    | 45                | 14                       | 3                      | 17                                           |
|                                                 | H - 180    | 45                | 16                       | 4                      | 16                                           |
|                                                 | F - 360    | 45                | 18                       | 2                      | 13                                           |
| PGP Ultra/I-20<br>MPR-35 Tan Nozzles            | Q - 90     | 45                | 28                       | 6                      | 19                                           |
|                                                 | T - 120    | 45                | 28                       | 6                      | 18                                           |
|                                                 | H - 180    | 45                | 16                       | 4                      | 17                                           |
|                                                 | F - 360    | 45                | 14                       | 3                      | 12                                           |
| I-25                                            | 4          | 50                | 25                       | 9                      | 22                                           |
|                                                 | 7          | 50                | 25                       | 10                     | 28                                           |
|                                                 | 8          | 50                | 25                       | 11                     | 28                                           |
|                                                 | 10         | 60                | 25                       | 12                     | 30                                           |
|                                                 | 13         | 60                | 25                       | 13                     | 31                                           |
|                                                 | 15         | 60                | 25                       | 12                     | 31                                           |
|                                                 | 18         | 60                | 25                       | 15                     | 34                                           |
|                                                 | 20         | 70                | 25                       | 15                     | 35                                           |
|                                                 | 23         | 70                | 25                       | 16                     | 38                                           |
|                                                 | 25         | 70                | 25                       | 16                     | 38                                           |
| I-40 Adjustable                                 | 28         | 70                | 25                       | 17                     | 40                                           |
|                                                 | 8          | 50                | 25                       | 12                     | 32                                           |
|                                                 | 10         | 60                | 25                       | 14                     | 32                                           |
|                                                 | 13         | 60                | 25                       | 14                     | 34                                           |
|                                                 | 15         | 60                | 25                       | 15                     | 42                                           |
| I-40-ON                                         | 23         | 70                | 25                       | 17                     | 46                                           |
|                                                 | 25         | 70                | 25                       | 17                     | 48                                           |
|                                                 | 15         | 50                | 25                       | 15                     | 42                                           |
|                                                 | 18         | 60                | 25                       | 16                     | 43                                           |
|                                                 | 20         | 60                | 25                       | 17                     | 45                                           |
|                                                 | 23         | 60                | 25                       | 17                     | 46                                           |
|                                                 | 25         | 70                | 25                       | 17                     | 48                                           |
|                                                 | 28         | 70                | 25                       | 17                     | 50                                           |

## HUNTER NOZZLE HEIGHT AND TRAJECTORY CHART

| Model              | Nozzle No. | Pressure<br>(PSI) | Degrees of<br>Trajectory | Max Height<br>of Spray | Distance from Head to<br>Maximum Height (ft) |
|--------------------|------------|-------------------|--------------------------|------------------------|----------------------------------------------|
| I-80 & I-90 ADV    | 23         | 80                | 22.5                     | 14                     | 37                                           |
|                    | 25         | 80                | 22.5                     | 15                     | 40                                           |
|                    | 33         | 80                | 22.5                     | 15                     | 42                                           |
|                    | 38         | 80                | 22.5                     | 16                     | 48                                           |
|                    | 43         | 80                | 22.5                     | 16                     | 48                                           |
|                    | 48         | 80                | 22.5                     | 17                     | 54                                           |
|                    | 53         | 80                | 22.5                     | 17                     | 56                                           |
|                    | 63         | 80                | 22.5                     | 18                     | 64                                           |
|                    | 73         | 80                | 22.5                     | 19                     | 68                                           |
| I-80-ON & I-90 36V | 23         | 80                | 22.5                     | 7                      | 34                                           |
|                    | 25         | 80                | 22.5                     | 8                      | 36                                           |
|                    | 33         | 80                | 22.5                     | 8                      | 38                                           |
|                    | 38         | 80                | 22.5                     | 9                      | 40                                           |
|                    | 43         | 80                | 22.5                     | 9                      | 41                                           |
|                    | 48         | 80                | 22.5                     | 10                     | 43                                           |
|                    | 53         | 80                | 22.5                     | 11                     | 45                                           |
|                    | 63         | 80                | 22.5                     | 12                     | 48                                           |
|                    | 73         | 80                | 22.5                     | 13                     | 52                                           |

# MLD FLOW CHART

MLD FLOW CHART



## HDL MAXIMUM RUN LENGTHS

HDL-CV - 0.4 GPH

| Pressure<br>(PSI) | Emitter Spacing (in.) |     |     |
|-------------------|-----------------------|-----|-----|
|                   | 12                    | 18  | 24  |
| 15                | 205                   | 289 | 367 |
| 20                | 289                   | 404 | 513 |
| 25                | 339                   | 479 | 604 |
| 30                | 380                   | 535 | 679 |
| 40                | 438                   | 623 | 788 |
| 50                | 489                   | 691 | 872 |
| 60                | 529                   | 747 | 947 |

HDL-CV - 0.6 GPH

| Pressure<br>(PSI) | Emitter Spacing (in.) |     |     |
|-------------------|-----------------------|-----|-----|
|                   | 12                    | 18  | 24  |
| 15                | 171                   | 239 | 304 |
| 20                | 239                   | 336 | 426 |
| 25                | 280                   | 398 | 501 |
| 30                | 314                   | 441 | 560 |
| 40                | 363                   | 516 | 653 |
| 50                | 404                   | 570 | 722 |
| 60                | 438                   | 619 | 784 |

HDL-CV - 0.9 GPH

| Pressure<br>(PSI) | Emitter Spacing (in.) |     |     |
|-------------------|-----------------------|-----|-----|
|                   | 12                    | 18  | 24  |
| 15                | 117                   | 164 | 211 |
| 20                | 164                   | 233 | 292 |
| 25                | 192                   | 273 | 348 |
| 30                | 217                   | 307 | 389 |
| 40                | 251                   | 355 | 451 |
| 50                | 280                   | 395 | 501 |
| 60                | 302                   | 429 | 541 |

HDL-PC/R - 0.4 GPH

| Pressure<br>(PSI) | Emitter Spacing (in.) |     |     |
|-------------------|-----------------------|-----|-----|
|                   | 12                    | 18  | 24  |
| 10                | 205                   | 285 | 361 |
| 15                | 285                   | 404 | 511 |
| 20                | 339                   | 475 | 604 |
| 25                | 380                   | 532 | 675 |
| 30                | 411                   | 582 | 735 |
| 40                | 463                   | 657 | 831 |
| 50                | 507                   | 719 | 912 |
| 60                | 548                   | 772 | 981 |

HDL-PC/R - 0.6 GPH

| Pressure<br>(PSI) | Emitter Spacing (in.) |     |     |
|-------------------|-----------------------|-----|-----|
|                   | 12                    | 18  | 24  |
| 10                | 168                   | 236 | 298 |
| 15                | 236                   | 333 | 423 |
| 20                | 280                   | 395 | 501 |
| 25                | 314                   | 441 | 560 |
| 30                | 339                   | 482 | 610 |
| 40                | 385                   | 545 | 688 |
| 50                | 419                   | 594 | 753 |
| 60                | 451                   | 638 | 810 |

HDL-PC/R - 0.9 GPH

| Pressure<br>(PSI) | Emitter Spacing (in.) |     |     |
|-------------------|-----------------------|-----|-----|
|                   | 12                    | 18  | 24  |
| 10                | 114                   | 164 | 208 |
| 15                | 164                   | 233 | 292 |
| 20                | 192                   | 273 | 348 |
| 25                | 214                   | 304 | 385 |
| 30                | 236                   | 333 | 419 |
| 40                | 267                   | 376 | 479 |
| 50                | 292                   | 414 | 523 |
| 60                | 314                   | 441 | 560 |

HDL-COP - 0.6 GPH

| Pressure<br>(PSI) | Emitter Spacing (in.) |     |
|-------------------|-----------------------|-----|
|                   | 12                    | 18  |
| 15                | 171                   | 239 |
| 20                | 239                   | 336 |
| 25                | 280                   | 398 |
| 30                | 314                   | 441 |
| 40                | 363                   | 516 |
| 50                | 404                   | 570 |
| 60                | 438                   | 619 |

HDL-COP - 0.9 GPH

| Pressure<br>(PSI) | Emitter Spacing (in.) |     |
|-------------------|-----------------------|-----|
|                   | 12                    | 18  |
| 15                | 117                   | 164 |
| 20                | 164                   | 233 |
| 25                | 192                   | 273 |
| 30                | 217                   | 307 |
| 40                | 251                   | 355 |
| 50                | 280                   | 395 |
| 60                | 302                   | 429 |

# CONVERSION FACTORS

| CONVERSION FACTORS |                            |                            |             |
|--------------------|----------------------------|----------------------------|-------------|
| To Convert         | From                       | To                         | Multiply By |
| Area               | acres                      | foot <sup>2</sup>          | 43560       |
|                    | acres                      | meter <sup>2</sup>         | 4046.8      |
|                    | meter <sup>2</sup>         | foot <sup>2</sup>          | 10.764      |
|                    | foot <sup>2</sup>          | inch <sup>2</sup>          | 144         |
|                    | inch <sup>2</sup>          | centimeter <sup>2</sup>    | 6.452       |
|                    | hectares                   | meter <sup>2</sup>         | 10000       |
|                    | hectares                   | acres                      | 2.471       |
| Power              | kilowatts                  | horsepower                 | 1.341       |
| Flow               | foot <sup>3</sup> /minute  | meter <sup>3</sup> /second | 0.0004719   |
|                    | foot <sup>3</sup> /second  | meter <sup>3</sup> /second | 0.02832     |
|                    | yards <sup>3</sup> /minute | meter <sup>3</sup> /second | 0.01274     |
|                    | gallon/minute              | meter <sup>3</sup> /hour   | 0.22716     |
|                    | gallon/minute              | liter/minute               | 3.7854      |
|                    | gallon/minute              | liter/second               | 0.06309     |
|                    | meter <sup>3</sup> /hour   | liter/minute               | 16.645      |
|                    | meter <sup>3</sup> /hour   | liter/second               | 0.2774      |
|                    | liter/minute               | liter/second               | 60          |
| Length             | foot                       | inch                       | 12          |
|                    | inch                       | centimeter                 | 2.54        |
|                    | foot                       | meter                      | 0.30481     |
|                    | kilometer                  | miles                      | 0.6214      |
|                    | miles                      | foot                       | 5280        |
|                    | miles                      | meter                      | 1609.34     |
|                    | millimeter                 | inch                       | 0.03937     |
| Pressure           | PSI                        | kilopascals                | 6.89476     |
|                    | PSI                        | bar                        | 0.068948    |
|                    | bar                        | kilopascals                | 100         |
|                    | PSI                        | feet of head               | 2.31        |
| Velocity           | feet/second                | meter/second               | 0.3048      |
| Volume             | feet <sup>3</sup>          | gallon                     | 7.481       |
|                    | feet <sup>3</sup>          | liter                      | 28.32       |
|                    | meter <sup>3</sup>         | feet <sup>3</sup>          | 35.31       |
|                    | meter <sup>3</sup>         | yard <sup>3</sup>          | 1.3087      |
|                    | yard <sup>3</sup>          | feet <sup>3</sup>          | 27          |
|                    | yard <sup>3</sup>          | gallon                     | 202         |
|                    | acres/feet                 | foot <sup>3</sup>          | 43,560      |
|                    | gallon                     | meter <sup>3</sup>         | 0.003785    |
|                    | gallon                     | liter                      | 3.785       |
|                    | imperial gallon            | gallon                     | 1.833       |

# FRICION LOSS CHARTS

**WATER METER PRESSURE LOSS CHART: Typical Pressure Loss (PSI)**

| Flow (GPM)                | 5/8"   | 3/4"     | 1"       | 1 1/2" | 2"      | 3"      | 4"      | Flow (GPM)                |
|---------------------------|--------|----------|----------|--------|---------|---------|---------|---------------------------|
| 1                         | 0.2    | 0.1      |          |        |         |         |         | 1                         |
| 2                         | 0.3    | 0.2      |          |        |         |         |         | 2                         |
| 3                         | 0.4    | 0.3      |          |        |         |         |         | 3                         |
| 4                         | 0.6    | 0.5      | 0.1      |        |         |         |         | 4                         |
| 5                         | 0.9    | 0.6      | 0.2      |        |         |         |         | 5                         |
| 6                         | 1.3    | 0.7      | 0.3      |        |         |         |         | 6                         |
| 7                         | 1.8    | 0.8      | 0.4      |        |         |         |         | 7                         |
| 8                         | 2.3    | 1.0      | 0.5      |        |         |         |         | 8                         |
| 9                         | 3.0    | 1.3      | 0.6      |        |         |         |         | 9                         |
| 10                        | 3.7    | 1.6      | 0.7      |        |         |         |         | 10                        |
| 11                        | 4.4    | 1.9      | 0.8      |        |         |         |         | 11                        |
| 12                        | 5.1    | 2.2      | 0.9      |        |         |         |         | 12                        |
| 13                        | 6.1    | 2.6      | 1.0      |        |         |         |         | 13                        |
| 14                        | 7.2    | 3.1      | 1.1      |        |         |         |         | 14                        |
| 15                        | 8.3    | 3.6      | 1.2      |        |         |         |         | 15                        |
| 16                        | 9.4    | 4.1      | 1.4      | 0.4    |         |         |         | 16                        |
| 17                        | 10.7   | 4.6      | 1.6      | 0.5    |         |         |         | 17                        |
| 18                        | 12.0   | 5.2      | 1.8      | 0.6    |         |         |         | 18                        |
| 19                        | 13.4   | 5.8      | 2.0      | 0.7    |         |         |         | 19                        |
| 20                        | 15.0   | 6.5      | 2.2      | 0.8    |         |         |         | 20                        |
| 22                        |        | 7.9      | 2.8      | 1.0    |         |         |         | 22                        |
| 24                        |        | 9.5      | 3.4      | 1.2    |         |         |         | 24                        |
| 26                        |        | 11.2     | 4.0      | 1.4    |         |         |         | 26                        |
| 28                        |        | 13.0     | 4.6      | 1.6    |         |         |         | 28                        |
| 30                        |        | 15.0     | 5.3      | 1.8    | 0.7     |         |         | 30                        |
| 32                        |        |          | 6.0      | 2.1    | 0.8     |         |         | 32                        |
| 34                        |        |          | 6.9      | 2.4    | 0.9     |         |         | 34                        |
| 36                        |        |          | 7.8      | 2.7    | 1.0     |         |         | 36                        |
| 38                        |        |          | 8.7      | 3.0    | 1.2     |         |         | 38                        |
| 40                        |        |          | 9.6      | 3.3    | 1.3     |         |         | 40                        |
| 42                        |        |          | 10.6     | 3.6    | 1.4     |         |         | 42                        |
| 44                        |        |          | 11.7     | 3.9    | 1.5     |         |         | 44                        |
| 46                        |        |          | 12.8     | 4.2    | 1.6     |         |         | 46                        |
| 48                        |        |          | 13.9     | 4.5    | 1.7     |         |         | 48                        |
| 50                        |        |          | 15.0     | 4.9    | 1.9     |         |         | 50                        |
| 52                        |        |          |          | 5.3    | 2.1     |         |         | 52                        |
| 54                        |        |          |          | 5.7    | 2.2     |         |         | 54                        |
| 56                        |        |          |          | 6.2    | 2.3     |         |         | 56                        |
| 58                        |        |          |          | 6.7    | 2.5     |         |         | 58                        |
| 60                        |        |          |          | 7.2    | 2.7     | 1.0     |         | 60                        |
| 65                        |        |          |          | 8.3    | 3.2     | 1.1     |         | 65                        |
| 70                        |        |          |          | 9.8    | 3.7     | 1.3     |         | 70                        |
| 75                        |        |          |          | 11.3   | 4.3     | 1.5     |         | 75                        |
| 80                        |        |          |          | 12.8   | 4.9     | 1.6     | 0.7     | 80                        |
| 90                        |        |          |          | 16.1   | 6.2     | 2.0     | 0.8     | 90                        |
| 100                       |        |          |          | 20.0   | 7.8     | 2.5     | 0.9     | 100                       |
| 110                       |        |          |          |        | 9.5     | 2.9     | 1.0     | 110                       |
| 120                       |        |          |          |        | 11.3    | 3.4     | 1.2     | 120                       |
| 130                       |        |          |          |        | 13.0    | 3.9     | 1.4     | 130                       |
| 140                       |        |          |          |        | 15.1    | 4.5     | 1.6     | 140                       |
| 150                       |        |          |          |        | 17.3    | 5.1     | 1.8     | 150                       |
| 160                       |        |          |          |        | 20.0    | 5.8     | 2.1     | 160                       |
| 170                       |        |          |          |        |         | 6.5     | 2.4     | 170                       |
| 180                       |        |          |          |        |         | 7.2     | 2.7     | 180                       |
| 190                       |        |          |          |        |         | 8.0     | 3.0     | 190                       |
| 200                       |        |          |          |        |         | 9.0     | 3.2     | 200                       |
| 220                       |        |          |          |        |         | 11.0    | 3.9     | 220                       |
| 240                       |        |          |          |        |         | 13.0    | 4.7     | 240                       |
| 260                       |        |          |          |        |         | 15.0    | 5.5     | 260                       |
| 280                       |        |          |          |        |         | 17.3    | 6.3     | 280                       |
| 300                       |        |          |          |        |         | 20.0    | 7.2     | 300                       |
| 350                       |        |          |          |        |         |         | 10.0    | 350                       |
| 400                       |        |          |          |        |         |         | 13.0    | 400                       |
| 450                       |        |          |          |        |         |         | 16.2    | 450                       |
| 500                       |        |          |          |        |         |         | 20.0    | 500                       |
| 75% of max meter capacity | 15 GPM | 22.5 GPM | 37.5 GPM | 75 GPM | 120 GPM | 225 GPM | 375 GPM | 75% of max meter capacity |

**Notes:** Shaded areas represent velocities over 5 fps. Use with caution when water hammer is a concern.



# FRICTION LOSS CHARTS - TYPE K COPPER TUBING

| ASTM B88 C = 140 • PSI loss per 100 ft. of pipe |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |
|-------------------------------------------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|-------------------------|-------------|
| Nominal Size<br>Pipe ID<br>Pipe OD<br>Avg. Wall | ½"                      |             | ⅝"                      |             | ¾"                      |             | 1"                      |             | 1¼"                     |             | 1½"                     |             | 2"                      |             | 2½"                     |             | 3"                      |             |
|                                                 | 0.527<br>0.625<br>0.049 |             | 0.652<br>0.750<br>0.049 |             | 0.745<br>0.875<br>0.065 |             | 0.995<br>1.125<br>0.065 |             | 1.245<br>1.375<br>0.065 |             | 1.481<br>1.625<br>0.072 |             | 1.959<br>2.125<br>0.083 |             | 2.435<br>2.625<br>0.095 |             | 2.907<br>3.125<br>0.109 |             |
| Flow<br>(GPM)                                   | Velocity<br>FPS         | PSI<br>Loss | Velocity<br>FPS         | PSI<br>Loss | Velocity<br>FPS         | PSI<br>Loss | Velocity<br>FPS         | PSI<br>Loss | Velocity<br>FPS         | PSI<br>Loss | Velocity<br>FPS         | PSI<br>Loss | Velocity<br>FPS         | PSI<br>Loss | Velocity<br>FPS         | PSI<br>Loss | Velocity<br>FPS         | PSI<br>Loss |
| 1                                               | 1.47                    | 1.09        | 0.96                    | 0.39        | 0.74                    | 0.20        | 0.41                    | 0.05        | 0.26                    | 0.02        |                         |             |                         |             |                         |             |                         |             |
| 2                                               | 2.94                    | 3.94        | 1.92                    | 1.40        | 1.47                    | 0.73        | 0.82                    | 0.18        | 0.53                    | 0.06        |                         |             |                         |             |                         |             |                         |             |
| 3                                               | 4.41                    | 8.35        | 2.88                    | 2.97        | 2.21                    | 1.55        | 1.24                    | 0.38        | 0.79                    | 0.13        |                         |             |                         |             |                         |             |                         |             |
| 4                                               | 5.88                    | 14.23       | 3.84                    | 5.05        | 2.94                    | 2.64        | 1.65                    | 0.65        | 1.05                    | 0.22        |                         |             |                         |             |                         |             |                         |             |
| 5                                               | 7.35                    | 21.51       | 4.80                    | 7.64        | 3.68                    | 3.99        | 2.06                    | 0.98        | 1.32                    | 0.33        |                         |             |                         |             |                         |             |                         |             |
| 6                                               | 8.81                    | 30.15       | 5.76                    | 10.70       | 4.41                    | 5.59        | 2.47                    | 1.37        | 1.58                    | 0.46        | 1.12                    | 0.20        |                         |             |                         |             |                         |             |
| 7                                               | 10.28                   | 40.12       | 6.72                    | 14.24       | 5.15                    | 7.44        | 2.88                    | 1.82        | 1.84                    | 0.61        | 1.30                    | 0.26        |                         |             |                         |             |                         |             |
| 8                                               | 11.75                   | 51.37       | 7.68                    | 18.24       | 5.88                    | 9.53        | 3.30                    | 2.33        | 2.11                    | 0.78        | 1.49                    | 0.34        |                         |             |                         |             |                         |             |
| 9                                               | 13.22                   | 63.90       | 8.64                    | 22.68       | 6.62                    | 11.85       | 3.71                    | 2.90        | 2.37                    | 0.97        | 1.67                    | 0.42        |                         |             |                         |             |                         |             |
| 10                                              | 14.69                   | 77.66       | 9.60                    | 27.57       | 7.35                    | 14.41       | 4.12                    | 3.52        | 2.63                    | 1.18        | 1.86                    | 0.51        |                         |             |                         |             |                         |             |
| 12                                              |                         |             | 11.52                   | 38.64       | 8.82                    | 20.20       | 4.95                    | 4.94        | 3.16                    | 1.66        | 2.23                    | 0.71        | 1.28                    | 0.18        |                         |             |                         |             |
| 14                                              |                         |             | 13.44                   | 51.41       | 10.29                   | 26.87       | 5.77                    | 6.57        | 3.69                    | 2.21        | 2.60                    | 0.95        | 1.49                    | 0.24        |                         |             |                         |             |
| 16                                              |                         |             | 15.36                   | 65.83       | 11.76                   | 34.41       | 6.59                    | 8.42        | 4.21                    | 2.83        | 2.98                    | 1.22        | 1.70                    | 0.31        |                         |             |                         |             |
| 18                                              |                         |             | 17.28                   | 81.88       | 13.23                   | 42.80       | 7.42                    | 10.47       | 4.74                    | 3.52        | 3.35                    | 1.51        | 1.91                    | 0.39        |                         |             |                         |             |
| 20                                              |                         |             |                         |             | 14.70                   | 52.02       | 8.24                    | 12.72       | 5.26                    | 4.28        | 3.72                    | 1.84        | 2.13                    | 0.47        |                         |             |                         |             |
| 22                                              |                         |             |                         |             | 16.17                   | 62.06       | 9.07                    | 15.18       | 5.79                    | 5.10        | 4.09                    | 2.19        | 2.34                    | 0.56        | 1.51                    | 0.19        | 1.06                    | 0.08        |
| 24                                              |                         |             |                         |             | 17.64                   | 72.91       | 9.89                    | 17.84       | 6.32                    | 5.99        | 4.46                    | 2.58        | 2.55                    | 0.66        | 1.65                    | 0.23        | 1.16                    | 0.10        |
| 26                                              |                         |             |                         |             |                         |             | 10.71                   | 20.69       | 6.84                    | 6.95        | 4.84                    | 2.99        | 2.76                    | 0.77        | 1.79                    | 0.27        | 1.26                    | 0.11        |
| 28                                              |                         |             |                         |             |                         |             | 11.54                   | 23.73       | 7.37                    | 7.97        | 5.21                    | 3.43        | 2.98                    | 0.88        | 1.93                    | 0.30        | 1.35                    | 0.13        |
| 30                                              |                         |             |                         |             |                         |             | 12.36                   | 26.96       | 7.90                    | 9.06        | 5.58                    | 3.89        | 3.19                    | 1.00        | 2.06                    | 0.35        | 1.45                    | 0.15        |
| 32                                              |                         |             |                         |             |                         |             | 13.19                   | 30.39       | 8.42                    | 10.21       | 5.95                    | 4.39        | 3.40                    | 1.12        | 2.20                    | 0.39        | 1.54                    | 0.16        |
| 34                                              |                         |             |                         |             |                         |             | 14.01                   | 34.00       | 8.95                    | 11.42       | 6.32                    | 4.91        | 3.61                    | 1.26        | 2.34                    | 0.44        | 1.64                    | 0.18        |
| 36                                              |                         |             |                         |             |                         |             | 14.84                   | 37.79       | 9.48                    | 12.70       | 6.70                    | 5.46        | 3.83                    | 1.40        | 2.48                    | 0.49        | 1.74                    | 0.20        |
| 38                                              |                         |             |                         |             |                         |             | 15.66                   | 41.77       | 10.00                   | 14.04       | 7.07                    | 6.03        | 4.04                    | 1.55        | 2.61                    | 0.54        | 1.83                    | 0.23        |
| 40                                              |                         |             |                         |             |                         |             | 16.48                   | 45.94       | 10.53                   | 15.43       | 7.44                    | 6.63        | 4.25                    | 1.70        | 2.75                    | 0.59        | 1.93                    | 0.25        |
| 42                                              |                         |             |                         |             |                         |             | 17.31                   | 50.28       | 11.06                   | 16.89       | 7.81                    | 7.26        | 4.47                    | 1.86        | 2.89                    | 0.65        | 2.03                    | 0.27        |
| 44                                              |                         |             |                         |             |                         |             |                         |             | 11.58                   | 18.41       | 8.18                    | 7.91        | 4.68                    | 2.03        | 3.03                    | 0.70        | 2.12                    | 0.30        |
| 46                                              |                         |             |                         |             |                         |             |                         |             | 12.11                   | 19.99       | 8.56                    | 8.59        | 4.89                    | 2.20        | 3.17                    | 0.76        | 2.22                    | 0.32        |
| 48                                              |                         |             |                         |             |                         |             |                         |             | 12.63                   | 21.63       | 8.93                    | 9.30        | 5.10                    | 2.38        | 3.30                    | 0.83        | 2.32                    | 0.35        |
| 50                                              |                         |             |                         |             |                         |             |                         |             | 13.16                   | 23.33       | 9.30                    | 10.03       | 5.32                    | 2.57        | 3.44                    | 0.89        | 2.41                    | 0.38        |
| 55                                              |                         |             |                         |             |                         |             |                         |             | 14.48                   | 27.84       | 10.23                   | 11.96       | 5.85                    | 3.07        | 3.78                    | 1.06        | 2.66                    | 0.45        |
| 60                                              |                         |             |                         |             |                         |             |                         |             | 15.79                   | 32.70       | 11.16                   | 14.05       | 6.38                    | 3.60        | 4.13                    | 1.25        | 2.90                    | 0.53        |
| 65                                              |                         |             |                         |             |                         |             |                         |             | 17.11                   | 37.93       | 12.09                   | 16.30       | 6.91                    | 4.18        | 4.47                    | 1.45        | 3.14                    | 0.61        |
| 70                                              |                         |             |                         |             |                         |             |                         |             | 18.43                   | 43.51       | 13.02                   | 18.70       | 7.44                    | 4.79        | 4.82                    | 1.66        | 3.38                    | 0.70        |
| 75                                              |                         |             |                         |             |                         |             |                         |             |                         |             | 13.95                   | 21.24       | 7.97                    | 5.45        | 5.16                    | 1.89        | 3.62                    | 0.80        |
| 80                                              |                         |             |                         |             |                         |             |                         |             |                         |             | 14.88                   | 23.94       | 8.51                    | 6.14        | 5.50                    | 2.13        | 3.86                    | 0.90        |
| 85                                              |                         |             |                         |             |                         |             |                         |             |                         |             | 15.81                   | 26.79       | 9.04                    | 6.87        | 5.85                    | 2.38        | 4.10                    | 1.01        |
| 90                                              |                         |             |                         |             |                         |             |                         |             |                         |             | 16.74                   | 29.78       | 9.57                    | 7.63        | 6.19                    | 2.65        | 4.35                    | 1.12        |
| 95                                              |                         |             |                         |             |                         |             |                         |             |                         |             | 17.67                   | 32.91       | 10.10                   | 8.44        | 6.54                    | 2.93        | 4.59                    | 1.24        |
| 100                                             |                         |             |                         |             |                         |             |                         |             |                         |             | 18.60                   | 36.19       | 10.63                   | 9.28        | 6.88                    | 3.22        | 4.83                    | 1.36        |
| 110                                             |                         |             |                         |             |                         |             |                         |             |                         |             | 11.69                   | 11.07       | 7.57                    | 3.84        | 5.31                    | 3.84        | 5.31                    | 1.62        |
| 120                                             |                         |             |                         |             |                         |             |                         |             |                         |             | 12.76                   | 13.01       | 8.26                    | 4.51        | 5.79                    | 4.51        | 5.79                    | 1.91        |
| 130                                             |                         |             |                         |             |                         |             |                         |             |                         |             | 13.82                   | 15.08       | 8.95                    | 5.23        | 6.28                    | 5.23        | 6.28                    | 2.21        |
| 140                                             |                         |             |                         |             |                         |             |                         |             |                         |             | 14.88                   | 17.30       | 9.63                    | 6.00        | 6.76                    | 6.00        | 6.76                    | 2.54        |
| 150                                             |                         |             |                         |             |                         |             |                         |             |                         |             | 15.95                   | 19.66       | 10.32                   | 6.82        | 7.24                    | 6.82        | 7.24                    | 2.88        |
| 160                                             |                         |             |                         |             |                         |             |                         |             |                         |             | 17.01                   | 22.16       | 11.01                   | 7.69        | 7.72                    | 7.69        | 7.72                    | 3.25        |
| 170                                             |                         |             |                         |             |                         |             |                         |             |                         |             | 18.07                   | 24.79       | 11.70                   | 8.60        | 8.21                    | 8.60        | 8.21                    | 3.63        |
| 180                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 12.39                   | 9.56        | 8.69                    | 4.04        |
| 190                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 13.07                   | 10.57       | 9.17                    | 4.46        |
| 200                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 13.76                   | 11.62       | 9.66                    | 4.91        |
| 220                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 15.14                   | 13.87       | 10.62                   | 5.86        |
| 240                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 16.51                   | 16.29       | 11.59                   | 6.88        |
| 260                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 17.89                   | 18.90       | 12.55                   | 7.98        |
| 280                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 19.27                   | 21.68       | 13.52                   | 9.15        |
| 300                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 14.48                   | 10.40       |
| 320                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 15.45                   | 11.72       |
| 340                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 16.42                   | 13.11       |
| 360                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 17.38                   | 14.58       |
| 380                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             | 18.35                   | 16.11       |
| 400                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |
| 420                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |
| 440                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |
| 460                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |
| 480                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |
| 500                                             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |                         |             |

Notes: Shaded areas represent velocities over 7 fps. Use with caution when water hammer is a concern.

# FRICTION LOSS CHARTS - TYPE L COPPER TUBING

ASTM B88 C = 140 • PSI loss per 100 ft. of pipe

| Nominal Size<br>Pipe ID<br>Pipe OD<br>Avg. Wall | ½"              |             | ⅝"              |             | ¾"              |             | 1"              |             | 1¼"             |             | 1½"             |             | 2"              |             | 2½"             |             | 3"              |             |
|-------------------------------------------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|
|                                                 | 0.545           |             | 0.666           |             | 0.785           |             | 1.025           |             | 1.265           |             | 1.505           |             | 1.985           |             | 2.465           |             | 2.945           |             |
|                                                 | 0.625           |             | 0.750           |             | 0.875           |             | 1.125           |             | 1.375           |             | 1.625           |             | 2.125           |             | 2.625           |             | 3.125           |             |
|                                                 | 0.040           |             | 0.042           |             | 0.045           |             | 0.050           |             | 0.055           |             | 0.060           |             | 0.070           |             | 0.080           |             | 0.090           |             |
| Flow<br>(GPM)                                   | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss |
| 1                                               | 1.37            | 0.93        | 0.92            | 0.35        | 0.66            | 0.16        | 0.39            | 0.04        | 0.25            | 0.02        |                 |             |                 |             |                 |             |                 |             |
| 2                                               | 2.75            | 3.35        | 1.84            | 1.26        | 1.32            | 0.57        | 0.78            | 0.15        | 0.51            | 0.06        |                 |             |                 |             |                 |             |                 |             |
| 3                                               | 4.12            | 7.09        | 2.76            | 2.67        | 1.99            | 1.20        | 1.17            | 0.33        | 0.76            | 0.12        |                 |             |                 |             |                 |             |                 |             |
| 4                                               | 5.49            | 12.09       | 3.68            | 4.56        | 2.65            | 2.05        | 1.55            | 0.56        | 1.02            | 0.20        |                 |             |                 |             |                 |             |                 |             |
| 5                                               | 6.87            | 18.27       | 4.60            | 6.89        | 3.31            | 3.09        | 1.94            | 0.85        | 1.27            | 0.30        |                 |             |                 |             |                 |             |                 |             |
| 6                                               | 8.24            | 25.61       | 5.52            | 9.65        | 3.97            | 4.34        | 2.33            | 1.18        | 1.53            | 0.43        | 1.08            | 0.18        |                 |             |                 |             |                 |             |
| 7                                               | 9.62            | 34.07       | 6.44            | 12.84       | 4.63            | 5.77        | 2.72            | 1.58        | 1.78            | 0.57        | 1.26            | 0.24        |                 |             |                 |             |                 |             |
| 8                                               | 10.99           | 43.63       | 7.36            | 16.45       | 5.30            | 7.39        | 3.11            | 2.02        | 2.04            | 0.72        | 1.44            | 0.31        |                 |             |                 |             |                 |             |
| 9                                               | 12.36           | 54.26       | 8.28            | 20.45       | 5.96            | 9.19        | 3.50            | 2.51        | 2.29            | 0.90        | 1.62            | 0.39        |                 |             |                 |             |                 |             |
| 10                                              | 13.74           | 65.95       | 9.20            | 24.86       | 6.62            | 11.17       | 3.88            | 3.05        | 2.55            | 1.10        | 1.80            | 0.47        |                 |             |                 |             |                 |             |
| 12                                              |                 |             | 11.04           | 34.85       | 7.95            | 15.66       | 4.66            | 4.28        | 3.06            | 1.54        | 2.16            | 0.66        | 1.24            | 0.17        |                 |             |                 |             |
| 14                                              |                 |             | 12.88           | 46.36       | 9.27            | 20.83       | 5.44            | 5.69        | 3.57            | 2.04        | 2.52            | 0.88        | 1.45            | 0.23        |                 |             |                 |             |
| 16                                              |                 |             | 14.72           | 59.37       | 10.59           | 26.68       | 6.21            | 7.28        | 4.08            | 2.62        | 2.88            | 1.12        | 1.66            | 0.29        |                 |             |                 |             |
| 18                                              |                 |             | 16.56           | 73.84       | 11.92           | 33.18       | 6.99            | 9.06        | 4.59            | 3.25        | 3.24            | 1.40        | 1.86            | 0.36        |                 |             |                 |             |
| 20                                              |                 |             |                 |             | 13.24           | 40.33       | 7.77            | 11.01       | 5.10            | 3.96        | 3.60            | 1.70        | 2.07            | 0.44        |                 |             |                 |             |
| 22                                              |                 |             |                 |             | 14.57           | 48.11       | 8.54            | 13.14       | 5.61            | 4.72        | 3.96            | 2.03        | 2.28            | 0.53        | 1.48            | 0.18        | 1.03            | 0.08        |
| 24                                              |                 |             |                 |             | 15.89           | 56.53       | 9.32            | 15.44       | 6.12            | 5.55        | 4.32            | 2.38        | 2.49            | 0.62        | 1.61            | 0.22        | 1.13            | 0.09        |
| 26                                              |                 |             |                 |             |                 |             | 10.10           | 17.90       | 6.63            | 6.43        | 4.68            | 2.76        | 2.69            | 0.72        | 1.75            | 0.25        | 1.22            | 0.11        |
| 28                                              |                 |             |                 |             |                 |             | 10.87           | 20.54       | 7.14            | 7.38        | 5.04            | 3.17        | 2.90            | 0.82        | 1.88            | 0.29        | 1.32            | 0.12        |
| 30                                              |                 |             |                 |             |                 |             | 11.65           | 23.33       | 7.65            | 8.38        | 5.40            | 3.60        | 3.11            | 0.94        | 2.01            | 0.33        | 1.41            | 0.14        |
| 32                                              |                 |             |                 |             |                 |             | 12.43           | 26.30       | 8.16            | 9.45        | 5.76            | 4.06        | 3.31            | 1.05        | 2.15            | 0.37        | 1.51            | 0.15        |
| 34                                              |                 |             |                 |             |                 |             | 13.20           | 29.42       | 8.67            | 10.57       | 6.12            | 4.54        | 3.52            | 1.18        | 2.28            | 0.41        | 1.60            | 0.17        |
| 36                                              |                 |             |                 |             |                 |             | 13.98           | 32.71       | 9.18            | 11.75       | 6.48            | 5.05        | 3.73            | 1.31        | 2.42            | 0.46        | 1.69            | 0.19        |
| 38                                              |                 |             |                 |             |                 |             | 14.76           | 36.15       | 9.69            | 12.99       | 6.84            | 5.58        | 3.93            | 1.45        | 2.55            | 0.51        | 1.79            | 0.21        |
| 40                                              |                 |             |                 |             |                 |             | 15.53           | 39.75       | 10.20           | 14.28       | 7.21            | 6.13        | 4.14            | 1.59        | 2.69            | 0.56        | 1.88            | 0.23        |
| 42                                              |                 |             |                 |             |                 |             | 16.31           | 43.51       | 10.71           | 15.63       | 7.57            | 6.71        | 4.35            | 1.75        | 2.82            | 0.61        | 1.98            | 0.26        |
| 44                                              |                 |             |                 |             |                 |             |                 |             | 11.22           | 17.04       | 7.93            | 7.32        | 4.56            | 1.90        | 2.95            | 0.66        | 2.07            | 0.28        |
| 46                                              |                 |             |                 |             |                 |             |                 |             | 11.73           | 18.50       | 8.29            | 7.94        | 4.76            | 2.07        | 3.09            | 0.72        | 2.16            | 0.30        |
| 48                                              |                 |             |                 |             |                 |             |                 |             | 12.24           | 20.02       | 8.65            | 8.60        | 4.97            | 2.24        | 3.22            | 0.78        | 2.26            | 0.33        |
| 50                                              |                 |             |                 |             |                 |             |                 |             | 12.75           | 21.59       | 9.01            | 9.27        | 5.18            | 2.41        | 3.36            | 0.84        | 2.35            | 0.35        |
| 55                                              |                 |             |                 |             |                 |             |                 |             | 14.02           | 25.76       | 9.91            | 11.06       | 5.70            | 2.88        | 3.69            | 1.00        | 2.59            | 0.42        |
| 60                                              |                 |             |                 |             |                 |             |                 |             | 15.30           | 30.26       | 10.81           | 13.00       | 6.21            | 3.38        | 4.03            | 1.18        | 2.82            | 0.50        |
| 65                                              |                 |             |                 |             |                 |             |                 |             | 16.57           | 35.10       | 11.71           | 15.07       | 6.73            | 3.92        | 4.36            | 1.37        | 3.06            | 0.57        |
| 70                                              |                 |             |                 |             |                 |             |                 |             | 17.85           | 40.26       | 12.61           | 17.29       | 7.25            | 4.50        | 4.70            | 1.57        | 3.29            | 0.66        |
| 75                                              |                 |             |                 |             |                 |             |                 |             |                 |             | 13.51           | 19.65       | 7.77            | 5.11        | 5.04            | 1.78        | 3.53            | 0.75        |
| 80                                              |                 |             |                 |             |                 |             |                 |             |                 |             | 14.41           | 22.14       | 8.28            | 5.76        | 5.37            | 2.01        | 3.76            | 0.84        |
| 85                                              |                 |             |                 |             |                 |             |                 |             |                 |             | 15.31           | 24.77       | 8.80            | 6.44        | 5.71            | 2.25        | 4.00            | 0.94        |
| 90                                              |                 |             |                 |             |                 |             |                 |             |                 |             | 16.21           | 27.54       | 9.32            | 7.16        | 6.04            | 2.50        | 4.23            | 1.05        |
| 95                                              |                 |             |                 |             |                 |             |                 |             |                 |             | 17.11           | 30.44       | 9.84            | 7.91        | 6.38            | 2.76        | 4.47            | 1.16        |
| 100                                             |                 |             |                 |             |                 |             |                 |             |                 |             | 18.01           | 33.47       | 10.35           | 8.70        | 6.71            | 3.03        | 4.70            | 1.28        |
| 110                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.39           | 10.38       | 7.39            | 3.62        | 5.17            | 1.52        |
| 120                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.43           | 12.20       | 8.06            | 4.25        | 5.65            | 1.79        |
| 130                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 13.46           | 14.15       | 8.73            | 4.93        | 6.12            | 2.07        |
| 140                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 14.50           | 16.23       | 9.40            | 5.66        | 6.59            | 2.38        |
| 150                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 15.53           | 18.44       | 10.07           | 6.43        | 7.06            | 2.70        |
| 160                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 16.57           | 20.78       | 10.74           | 7.24        | 7.53            | 3.05        |
| 170                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 17.60           | 23.25       | 11.41           | 8.11        | 8.00            | 3.41        |
| 180                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.09           | 9.01        | 8.47            | 3.79        |
| 190                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.76           | 9.96        | 8.94            | 4.19        |
| 200                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 13.43           | 10.95       | 9.41            | 4.61        |
| 220                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 14.77           | 13.07       | 10.35           | 5.50        |
| 240                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 16.12           | 15.35       | 11.29           | 6.46        |
| 260                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 17.46           | 17.80       | 12.23           | 7.49        |
| 280                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 18.80           | 20.42       | 13.17           | 8.59        |
| 300                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 14.11           | 9.76        |
| 320                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 15.05           | 11.00       |
| 340                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 15.99           | 12.31       |
| 360                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 16.94           | 13.69       |
| 380                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 17.88           | 15.13       |
| 400                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| 420                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| 440                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| 460                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| 480                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| 500                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |

Notes: Shaded areas represent velocities over 7 fps. Use with caution when water hammer is a concern.

# FRICITION LOSS CHARTS - SCHEDULE 40 STEEL

ASTM B53 C = 100 • PSI loss per 100 ft. of pipe

| Nominal Size<br>Pipe ID<br>Pipe OD<br>Avg. Wall | ½"              |             | ¾"              |             | 1"              |             | 1¼"             |             | 1½"             |             | 2"              |             | 2½"             |             | 3"              |             | 4"              |             |
|-------------------------------------------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|
|                                                 | 0.622           |             | 0.824           |             | 1.049           |             | 1.38            |             | 1.610           |             | 2.067           |             | 2.469           |             | 3.068           |             | 4.026           |             |
|                                                 | 0.842           |             | 1.050           |             | 1.315           |             | 1.660           |             | 1.900           |             | 2.375           |             | 2.875           |             | 3.500           |             | 4.500           |             |
|                                                 | 0.110           |             | 0.113           |             | 0.133           |             | 0.140           |             | 0.145           |             | 0.154           |             | 0.203           |             | 0.216           |             | 0.237           |             |
| Flow<br>(GPM)                                   | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss |
| 1                                               | 1.05            | 0.91        | 0.60            | 0.23        | 0.37            | 0.07        | 0.21            | 0.02        | 0.16            | 0.01        |                 |             |                 |             |                 |             |                 |             |
| 2                                               | 2.11            | 3.28        | 1.20            | 0.84        | 0.74            | 0.26        | 0.43            | 0.07        | 0.31            | 0.03        |                 |             |                 |             |                 |             |                 |             |
| 3                                               | 3.16            | 6.95        | 1.80            | 1.77        | 1.11            | 0.55        | 0.64            | 0.14        | 0.47            | 0.07        |                 |             |                 |             |                 |             |                 |             |
| 4                                               | 4.22            | 11.85       | 2.40            | 3.02        | 1.48            | 0.93        | 0.86            | 0.25        | 0.63            | 0.12        |                 |             |                 |             |                 |             |                 |             |
| 5                                               | 5.27            | 17.91       | 3.00            | 4.56        | 1.85            | 1.41        | 1.07            | 0.37        | 0.79            | 0.18        |                 |             |                 |             |                 |             |                 |             |
| 6                                               | 6.33            | 25.10       | 3.61            | 6.39        | 2.22            | 1.97        | 1.29            | 0.52        | 0.94            | 0.25        | 0.57            | 0.07        |                 |             |                 |             |                 |             |
| 7                                               | 7.38            | 33.40       | 4.21            | 8.50        | 2.60            | 2.63        | 1.50            | 0.69        | 1.10            | 0.33        | 0.67            | 0.10        |                 |             |                 |             |                 |             |
| 8                                               | 8.44            | 42.77       | 4.81            | 10.88       | 2.97            | 3.36        | 1.71            | 0.89        | 1.26            | 0.42        | 0.76            | 0.12        |                 |             |                 |             |                 |             |
| 9                                               | 9.49            | 53.19       | 5.41            | 13.54       | 3.34            | 4.18        | 1.93            | 1.10        | 1.42            | 0.52        | 0.86            | 0.15        |                 |             |                 |             |                 |             |
| 10                                              | 10.55           | 64.65       | 6.01            | 16.45       | 3.71            | 5.08        | 2.14            | 1.34        | 1.57            | 0.63        | 0.95            | 0.19        |                 |             |                 |             |                 |             |
| 12                                              | 12.65           | 90.62       | 7.21            | 23.06       | 4.45            | 7.12        | 2.57            | 1.88        | 1.89            | 0.89        | 1.15            | 0.26        | 0.80            | 0.11        |                 |             |                 |             |
| 14                                              |                 |             | 8.41            | 30.68       | 5.19            | 9.48        | 3.00            | 2.50        | 2.20            | 1.18        | 1.34            | 0.35        | 0.94            | 0.15        |                 |             |                 |             |
| 16                                              |                 |             | 9.61            | 39.29       | 5.93            | 12.14       | 3.43            | 3.20        | 2.52            | 1.51        | 1.53            | 0.45        | 1.07            | 0.19        |                 |             |                 |             |
| 18                                              |                 |             | 10.82           | 48.87       | 6.67            | 15.10       | 3.86            | 3.97        | 2.83            | 1.88        | 1.72            | 0.56        | 1.20            | 0.23        |                 |             |                 |             |
| 20                                              |                 |             | 12.02           | 59.40       | 7.42            | 18.35       | 4.28            | 4.83        | 3.15            | 2.28        | 1.91            | 0.68        | 1.34            | 0.28        |                 |             |                 |             |
| 22                                              |                 |             | 13.22           | 70.87       | 8.16            | 21.89       | 4.71            | 5.76        | 3.46            | 2.72        | 2.10            | 0.81        | 1.47            | 0.34        | 0.95            | 0.12        | 0.55            | 0.03        |
| 24                                              |                 |             |                 |             | 8.90            | 25.72       | 5.14            | 6.77        | 3.78            | 3.20        | 2.29            | 0.95        | 1.61            | 0.40        | 1.04            | 0.14        | 0.60            | 0.04        |
| 26                                              |                 |             |                 |             | 9.64            | 29.83       | 5.57            | 7.85        | 4.09            | 3.71        | 2.48            | 1.10        | 1.74            | 0.46        | 1.13            | 0.16        | 0.65            | 0.04        |
| 28                                              |                 |             |                 |             | 10.38           | 34.22       | 6.00            | 9.01        | 4.41            | 4.25        | 2.67            | 1.26        | 1.87            | 0.53        | 1.21            | 0.18        | 0.70            | 0.05        |
| 30                                              |                 |             |                 |             | 11.12           | 38.88       | 6.43            | 10.24       | 4.72            | 4.83        | 2.86            | 1.43        | 2.01            | 0.60        | 1.30            | 0.21        | 0.76            | 0.06        |
| 32                                              |                 |             |                 |             | 11.86           | 43.81       | 6.86            | 11.54       | 5.04            | 5.45        | 3.06            | 1.62        | 2.14            | 0.68        | 1.39            | 0.24        | 0.81            | 0.06        |
| 34                                              |                 |             |                 |             | 12.61           | 49.02       | 7.28            | 12.91       | 5.35            | 6.10        | 3.25            | 1.81        | 2.28            | 0.76        | 1.47            | 0.26        | 0.86            | 0.07        |
| 36                                              |                 |             |                 |             | 13.35           | 54.49       | 7.71            | 14.35       | 5.67            | 6.78        | 3.44            | 2.01        | 2.41            | 0.85        | 1.56            | 0.29        | 0.91            | 0.08        |
| 38                                              |                 |             |                 |             |                 |             | 8.14            | 15.86       | 5.98            | 7.49        | 3.63            | 2.22        | 2.54            | 0.94        | 1.65            | 0.33        | 0.96            | 0.09        |
| 40                                              |                 |             |                 |             |                 |             | 8.57            | 17.44       | 6.30            | 8.24        | 3.82            | 2.44        | 2.68            | 1.03        | 1.73            | 0.36        | 1.01            | 0.10        |
| 42                                              |                 |             |                 |             |                 |             | 9.00            | 19.09       | 6.61            | 9.02        | 4.01            | 2.67        | 2.81            | 1.13        | 1.82            | 0.39        | 1.06            | 0.10        |
| 44                                              |                 |             |                 |             |                 |             | 9.43            | 20.81       | 6.93            | 9.83        | 4.20            | 2.91        | 2.94            | 1.23        | 1.91            | 0.43        | 1.11            | 0.11        |
| 46                                              |                 |             |                 |             |                 |             | 9.86            | 22.59       | 7.24            | 10.67       | 4.39            | 3.16        | 3.08            | 1.33        | 1.99            | 0.46        | 1.16            | 0.12        |
| 48                                              |                 |             |                 |             |                 |             | 10.28           | 24.44       | 7.56            | 11.55       | 4.58            | 3.42        | 3.21            | 1.44        | 2.08            | 0.50        | 1.21            | 0.13        |
| 50                                              |                 |             |                 |             |                 |             | 10.71           | 26.36       | 7.87            | 12.45       | 4.77            | 3.69        | 3.35            | 1.55        | 2.17            | 0.54        | 1.26            | 0.14        |
| 55                                              |                 |             |                 |             |                 |             | 11.78           | 31.45       | 8.66            | 14.86       | 5.25            | 4.40        | 3.68            | 1.85        | 2.38            | 0.64        | 1.38            | 0.17        |
| 60                                              |                 |             |                 |             |                 |             | 12.85           | 36.95       | 9.44            | 17.45       | 5.73            | 5.17        | 4.02            | 2.18        | 2.60            | 0.76        | 1.51            | 0.20        |
| 65                                              |                 |             |                 |             |                 |             | 13.93           | 42.86       | 10.23           | 20.24       | 6.21            | 6.00        | 4.35            | 2.53        | 2.82            | 0.88        | 1.64            | 0.23        |
| 70                                              |                 |             |                 |             |                 |             |                 |             | 11.02           | 23.22       | 6.68            | 6.88        | 4.69            | 2.90        | 3.03            | 1.01        | 1.76            | 0.27        |
| 75                                              |                 |             |                 |             |                 |             |                 |             | 11.81           | 26.39       | 7.16            | 7.82        | 5.02            | 3.29        | 3.25            | 1.14        | 1.89            | 0.31        |
| 80                                              |                 |             |                 |             |                 |             |                 |             | 12.59           | 29.74       | 7.64            | 8.82        | 5.35            | 3.71        | 3.47            | 1.29        | 2.01            | 0.34        |
| 85                                              |                 |             |                 |             |                 |             |                 |             | 13.38           | 33.27       | 8.12            | 9.86        | 5.69            | 4.15        | 3.68            | 1.44        | 2.14            | 0.38        |
| 90                                              |                 |             |                 |             |                 |             |                 |             |                 |             | 8.59            | 10.96       | 6.02            | 4.62        | 3.90            | 1.60        | 2.27            | 0.43        |
| 95                                              |                 |             |                 |             |                 |             |                 |             |                 |             | 9.07            | 12.12       | 6.36            | 5.10        | 4.12            | 1.77        | 2.39            | 0.47        |
| 100                                             |                 |             |                 |             |                 |             |                 |             |                 |             | 9.55            | 13.33       | 6.69            | 5.61        | 4.33            | 1.95        | 2.52            | 0.52        |
| 110                                             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.50           | 15.90       | 7.36            | 6.70        | 4.77            | 2.33        | 2.77            | 0.62        |
| 120                                             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.46           | 18.68       | 8.03            | 7.87        | 5.20            | 2.73        | 3.02            | 0.73        |
| 130                                             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.41           | 21.66       | 8.70            | 9.12        | 5.63            | 3.17        | 3.27            | 0.85        |
| 140                                             |                 |             |                 |             |                 |             |                 |             |                 |             | 13.37           | 24.85       | 9.37            | 10.47       | 6.07            | 3.64        | 3.52            | 0.97        |
| 150                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.04           | 11.89       | 6.50            | 4.13        | 3.78            | 1.10        |
| 160                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.71           | 13.40       | 6.94            | 4.66        | 4.03            | 1.24        |
| 170                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.38           | 15.00       | 7.37            | 5.21        | 4.28            | 1.39        |
| 180                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.05           | 16.67       | 7.80            | 5.79        | 4.53            | 1.54        |
| 190                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.72           | 18.43       | 8.24            | 6.40        | 4.78            | 1.71        |
| 200                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 13.39           | 20.26       | 8.67            | 7.04        | 5.03            | 1.88        |
| 220                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 9.54            | 8.40        | 5.54            | 2.24        |
| 240                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.40           | 9.87        | 6.04            | 2.63        |
| 260                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.27           | 11.45       | 6.54            | 3.05        |
| 280                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.14           | 13.13       | 7.05            | 3.50        |
| 300                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 13.00           | 14.92       | 7.55            | 3.98        |
| 320                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 13.87           | 16.81       | 8.05            | 4.48        |
| 340                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 8.56            | 5.01        |
| 360                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 9.06            | 5.57        |
| 380                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 9.57            | 6.16        |
| 400                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.07           | 6.77        |
| 420                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.57           | 7.42        |
| 440                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.08           | 8.08        |
| 460                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.58           | 8.78        |
| 480                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.08           | 9.50        |
| 500                                             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.59           | 10.24       |

Notes: Shaded areas represent velocities over 7 fps. Use with caution when water hammer is a concern.

# FRICION LOSS CHARTS - CLASS 160 PVC IPS PLASTIC PIPE

ASTM D2241 (1120, 1220) SDR 26 C = 150 • PSI loss per 100 ft. of pipe

| Nominal Size | ½"           |          | ¾"           |          | 1"           |          | 1¼"          |          | 1½"          |          | 2"           |          | 2½"          |          | 3"           |          | 4"           |          |
|--------------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|
| Avg. ID      | 0.696        |          | 0.910        |          | 1.175        |          | 1.512        |          | 1.734        |          | 2.173        |          | 2.635        |          | 3.21         |          | 4.134        |          |
| Pipe OD      | 0.840        |          | 1.050        |          | 1.315        |          | 1.660        |          | 1.900        |          | 2.375        |          | 2.875        |          | 3.500        |          | 4.500        |          |
| Avg. Wall    | 0.072        |          | 0.070        |          | 0.070        |          | 0.074        |          | 0.083        |          | 0.101        |          | 0.120        |          | 0.145        |          | 0.183        |          |
| Min. Wall    | 0.062        |          | 0.060        |          | 0.060        |          | 0.064        |          | 0.073        |          | 0.091        |          | 0.110        |          | 0.135        |          | 0.173        |          |
| Flow (GPM)   | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss |
| 1            | 0.84         | 0.25     | 0.49         | 0.07     | 0.30         | 0.02     | 0.18         | 0.01     | 0.14         | 0.00     |              |          |              |          |              |          |              |          |
| 2            | 1.68         | 0.90     | 0.99         | 0.24     | 0.59         | 0.07     | 0.36         | 0.02     | 0.27         | 0.01     | 0.17         | 0.00     |              |          |              |          |              |          |
| 3            | 2.53         | 1.90     | 1.48         | 0.52     | 0.89         | 0.15     | 0.54         | 0.04     | 0.41         | 0.02     | 0.26         | 0.01     |              |          |              |          |              |          |
| 4            | 3.37         | 3.24     | 1.97         | 0.88     | 1.18         | 0.25     | 0.71         | 0.07     | 0.54         | 0.04     | 0.35         | 0.01     | 0.24         | 0.00     |              |          |              |          |
| 5            | 4.21         | 4.89     | 2.46         | 1.33     | 1.48         | 0.38     | 0.89         | 0.11     | 0.68         | 0.06     | 0.43         | 0.02     | 0.29         | 0.01     |              |          |              |          |
| 6            | 5.05         | 6.86     | 2.96         | 1.86     | 1.77         | 0.54     | 1.07         | 0.16     | 0.81         | 0.08     | 0.52         | 0.03     | 0.35         | 0.01     | 0.24         | 0.00     |              |          |
| 7            | 5.90         | 9.12     | 3.45         | 2.47     | 2.07         | 0.71     | 1.25         | 0.21     | 0.95         | 0.11     | 0.60         | 0.04     | 0.41         | 0.01     | 0.28         | 0.01     |              |          |
| 8            | 6.74         | 11.68    | 3.94         | 3.17     | 2.36         | 0.91     | 1.43         | 0.27     | 1.09         | 0.14     | 0.69         | 0.05     | 0.47         | 0.02     | 0.32         | 0.01     |              |          |
| 9            | 7.58         | 14.53    | 4.43         | 3.94     | 2.66         | 1.14     | 1.61         | 0.33     | 1.22         | 0.17     | 0.78         | 0.06     | 0.53         | 0.02     | 0.36         | 0.01     |              |          |
| 10           | 8.42         | 17.66    | 4.93         | 4.79     | 2.96         | 1.38     | 1.78         | 0.40     | 1.36         | 0.21     | 0.86         | 0.07     | 0.59         | 0.03     | 0.40         | 0.01     |              |          |
| 12           | 10.11        | 24.75    | 5.91         | 6.71     | 3.55         | 1.94     | 2.14         | 0.57     | 1.63         | 0.29     | 1.04         | 0.10     | 0.71         | 0.04     | 0.48         | 0.01     |              |          |
| 14           | 11.79        | 32.93    | 6.90         | 8.93     | 4.14         | 2.58     | 2.50         | 0.76     | 1.90         | 0.39     | 1.21         | 0.13     | 0.82         | 0.05     | 0.55         | 0.02     |              |          |
| 16           | 13.48        | 42.16    | 7.88         | 11.44    | 4.73         | 3.30     | 2.86         | 0.97     | 2.17         | 0.50     | 1.38         | 0.17     | 0.94         | 0.06     | 0.63         | 0.02     | 0.38         | 0.01     |
| 18           | 15.16        | 52.44    | 8.87         | 14.23    | 5.32         | 4.10     | 3.21         | 1.20     | 2.44         | 0.62     | 1.56         | 0.21     | 1.06         | 0.08     | 0.71         | 0.03     | 0.43         | 0.01     |
| 20           |              |          | 9.85         | 17.29    | 5.91         | 4.99     | 3.57         | 1.46     | 2.71         | 0.75     | 1.73         | 0.25     | 1.18         | 0.10     | 0.79         | 0.04     | 0.48         | 0.01     |
| 22           |              |          | 10.84        | 20.63    | 6.50         | 5.95     | 3.93         | 1.74     | 2.99         | 0.90     | 1.90         | 0.30     | 1.29         | 0.12     | 0.87         | 0.04     | 0.53         | 0.01     |
| 24           |              |          | 11.82        | 24.24    | 7.09         | 6.99     | 4.28         | 2.05     | 3.26         | 1.05     | 2.07         | 0.35     | 1.41         | 0.14     | 0.95         | 0.05     | 0.57         | 0.02     |
| 26           |              |          | 12.81        | 28.11    | 7.68         | 8.11     | 4.64         | 2.38     | 3.53         | 1.22     | 2.25         | 0.41     | 1.53         | 0.16     | 1.03         | 0.06     | 0.62         | 0.02     |
| 28           |              |          | 13.80        | 32.25    | 8.27         | 9.30     | 5.00         | 2.73     | 3.80         | 1.40     | 2.42         | 0.47     | 1.65         | 0.18     | 1.11         | 0.07     | 0.67         | 0.02     |
| 30           |              |          | 14.78        | 36.64    | 8.87         | 10.57    | 5.35         | 3.10     | 4.07         | 1.59     | 2.59         | 0.53     | 1.76         | 0.21     | 1.19         | 0.08     | 0.72         | 0.02     |
| 32           |              |          |              |          | 9.46         | 11.91    | 5.71         | 3.49     | 4.34         | 1.79     | 2.76         | 0.60     | 1.88         | 0.23     | 1.27         | 0.09     | 0.76         | 0.03     |
| 34           |              |          |              |          | 10.05        | 13.32    | 6.07         | 3.91     | 4.61         | 2.01     | 2.94         | 0.67     | 2.00         | 0.26     | 1.35         | 0.10     | 0.81         | 0.03     |
| 36           |              |          |              |          | 10.64        | 14.81    | 6.42         | 4.34     | 4.88         | 2.23     | 3.11         | 0.74     | 2.12         | 0.29     | 1.43         | 0.11     | 0.86         | 0.03     |
| 38           |              |          |              |          | 11.23        | 16.37    | 6.78         | 4.80     | 5.16         | 2.46     | 3.28         | 0.82     | 2.23         | 0.32     | 1.50         | 0.12     | 0.91         | 0.04     |
| 40           |              |          |              |          | 11.82        | 18.00    | 7.14         | 5.28     | 5.43         | 2.71     | 3.46         | 0.90     | 2.35         | 0.35     | 1.58         | 0.14     | 0.95         | 0.04     |
| 42           |              |          |              |          | 12.41        | 19.70    | 7.50         | 5.78     | 5.70         | 2.97     | 3.63         | 0.99     | 2.47         | 0.39     | 1.66         | 0.15     | 1.00         | 0.04     |
| 44           |              |          |              |          | 13.00        | 21.47    | 7.85         | 6.30     | 5.97         | 3.23     | 3.80         | 1.08     | 2.59         | 0.42     | 1.74         | 0.16     | 1.05         | 0.05     |
| 46           |              |          |              |          | 13.59        | 23.32    | 8.21         | 6.84     | 6.24         | 3.51     | 3.97         | 1.17     | 2.70         | 0.46     | 1.82         | 0.18     | 1.10         | 0.05     |
| 48           |              |          |              |          | 14.18        | 25.23    | 8.57         | 7.40     | 6.51         | 3.80     | 4.15         | 1.27     | 2.82         | 0.50     | 1.90         | 0.19     | 1.15         | 0.06     |
| 50           |              |          |              |          | 14.78        | 27.21    | 8.92         | 7.98     | 6.78         | 4.10     | 4.32         | 1.37     | 2.94         | 0.53     | 1.98         | 0.20     | 1.19         | 0.06     |
| 55           |              |          |              |          |              |          | 9.82         | 9.52     | 7.46         | 4.89     | 4.75         | 1.63     | 3.23         | 0.64     | 2.18         | 0.24     | 1.31         | 0.07     |
| 60           |              |          |              |          |              |          | 10.71        | 11.18    | 8.14         | 5.74     | 5.18         | 1.91     | 3.53         | 0.75     | 2.38         | 0.29     | 1.43         | 0.08     |
| 65           |              |          |              |          |              |          | 11.60        | 12.97    | 8.82         | 6.66     | 5.62         | 2.22     | 3.82         | 0.87     | 2.57         | 0.33     | 1.55         | 0.10     |
| 70           |              |          |              |          |              |          | 12.49        | 14.88    | 9.50         | 7.64     | 6.05         | 2.55     | 4.11         | 1.00     | 2.77         | 0.38     | 1.67         | 0.11     |
| 75           |              |          |              |          |              |          | 13.38        | 16.90    | 10.18        | 8.68     | 6.48         | 2.89     | 4.41         | 1.13     | 2.97         | 0.43     | 1.79         | 0.13     |
| 80           |              |          |              |          |              |          | 14.28        | 19.05    | 10.86        | 9.78     | 6.91         | 3.26     | 4.70         | 1.28     | 3.17         | 0.49     | 1.91         | 0.14     |
| 85           |              |          |              |          |              |          |              |          | 11.53        | 10.94    | 7.34         | 3.65     | 4.99         | 1.43     | 3.37         | 0.55     | 2.03         | 0.16     |
| 90           |              |          |              |          |              |          |              |          | 12.21        | 12.16    | 7.78         | 4.06     | 5.29         | 1.59     | 3.56         | 0.61     | 2.15         | 0.18     |
| 95           |              |          |              |          |              |          |              |          | 12.89        | 13.45    | 8.21         | 4.48     | 5.58         | 1.76     | 3.76         | 0.67     | 2.27         | 0.20     |
| 100          |              |          |              |          |              |          |              |          | 13.57        | 14.79    | 8.64         | 4.93     | 5.88         | 1.93     | 3.96         | 0.74     | 2.39         | 0.22     |
| 110          |              |          |              |          |              |          |              |          | 14.93        | 17.64    | 9.50         | 5.88     | 6.46         | 2.30     | 4.36         | 0.88     | 2.63         | 0.26     |
| 120          |              |          |              |          |              |          |              |          |              |          | 10.37        | 6.91     | 7.05         | 2.71     | 4.75         | 1.04     | 2.86         | 0.30     |
| 130          |              |          |              |          |              |          |              |          |              |          | 11.23        | 8.02     | 7.64         | 3.14     | 5.15         | 1.20     | 3.10         | 0.35     |
| 140          |              |          |              |          |              |          |              |          |              |          | 12.10        | 9.20     | 8.23         | 3.60     | 5.54         | 1.38     | 3.34         | 0.40     |
| 150          |              |          |              |          |              |          |              |          |              |          | 12.96        | 10.45    | 8.81         | 4.09     | 5.94         | 1.57     | 3.58         | 0.46     |
| 160          |              |          |              |          |              |          |              |          |              |          | 13.82        | 11.77    | 9.40         | 4.61     | 6.34         | 1.76     | 3.82         | 0.52     |
| 170          |              |          |              |          |              |          |              |          |              |          | 14.69        | 13.17    | 9.99         | 5.16     | 6.73         | 1.97     | 4.06         | 0.58     |
| 180          |              |          |              |          |              |          |              |          |              |          |              |          | 10.58        | 5.73     | 7.13         | 2.19     | 4.30         | 0.64     |
| 190          |              |          |              |          |              |          |              |          |              |          |              |          | 11.16        | 6.34     | 7.52         | 2.42     | 4.54         | 0.71     |
| 200          |              |          |              |          |              |          |              |          |              |          |              |          | 11.75        | 6.97     | 7.92         | 2.67     | 4.77         | 0.78     |
| 220          |              |          |              |          |              |          |              |          |              |          |              |          | 12.93        | 8.31     | 8.71         | 3.18     | 5.25         | 0.93     |
| 240          |              |          |              |          |              |          |              |          |              |          |              |          | 14.10        | 9.77     | 9.50         | 3.74     | 5.73         | 1.09     |
| 260          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 10.29        | 4.33     | 6.21         | 1.27     |
| 280          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.09        | 4.97     | 6.68         | 1.45     |
| 300          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.88        | 5.65     | 7.16         | 1.65     |
| 320          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 12.67        | 6.37     | 7.64         | 1.86     |
| 340          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 13.46        | 7.12     | 8.12         | 2.08     |
| 360          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 14.25        | 7.92     | 8.59         | 2.31     |
| 380          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 9.07         | 2.56     |
| 400          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 9.55         | 2.81     |
| 420          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 10.03        | 3.08     |
| 440          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 10.50        | 3.35     |
| 460          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 10.98        | 3.64     |
| 480          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.46        | 3.94     |
| 500          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.94        | 4.25     |

Notes: Shaded areas represent velocities over 5 fps. Use with caution when water hammer is a concern.



# FRICITION LOSS CHARTS - CLASS 200 PVC IPS PLASTIC PIPE

ASTM D2241 (1120, 1220) SDR 21 C = 150 • PSI loss per 100 ft. of pipe

| Nominal Size | Class 315: ½" |          | ¾"           |          | 1"           |          | 1¼"          |          | 1½"          |          | 2"           |          | 2½"          |          | 3"           |          | 4"           |          | 6"           |          |
|--------------|---------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|
| Avg. ID      | 0.696         |          | 0.910        |          | 1.169        |          | 1.482        |          | 1.700        |          | 2.129        |          | 2.581        |          | 3.146        |          | 4.046        |          | 5.955        |          |
| Pipe OD      | 0.840         |          | 1.050        |          | 1.315        |          | 1.660        |          | 1.900        |          | 2.375        |          | 2.875        |          | 3.500        |          | 4.500        |          | 6.625        |          |
| Avg. Wall    | 0.072         |          | 0.070        |          | 0.073        |          | 0.089        |          | 0.100        |          | 0.123        |          | 0.147        |          | 0.177        |          | 0.227        |          | 0.335        |          |
| Min. Wall    | 0.062         |          | 0.060        |          | 0.063        |          | 0.079        |          | 0.090        |          | 0.113        |          | 0.137        |          | 0.167        |          | 0.214        |          | 0.316        |          |
| Flow (GPM)   | Velocity FPS  | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss |
| 1            | 0.84          | 0.25     | 0.49         | 0.07     | 0.30         | 0.02     | 0.19         | 0.01     | 0.14         | 0.00     |              |          |              |          |              |          |              |          |              |          |
| 2            | 1.68          | 0.90     | 0.99         | 0.24     | 0.60         | 0.07     | 0.37         | 0.02     | 0.28         | 0.01     | 0.18         | 0.00     |              |          |              |          |              |          |              |          |
| 3            | 2.53          | 1.90     | 1.48         | 0.52     | 0.90         | 0.15     | 0.56         | 0.05     | 0.42         | 0.02     | 0.27         | 0.01     |              |          |              |          |              |          |              |          |
| 4            | 3.37          | 3.24     | 1.97         | 0.88     | 1.19         | 0.26     | 0.74         | 0.08     | 0.56         | 0.04     | 0.36         | 0.01     | 0.24         | 0.01     |              |          |              |          |              |          |
| 5            | 4.21          | 4.89     | 2.46         | 1.33     | 1.49         | 0.39     | 0.93         | 0.12     | 0.71         | 0.06     | 0.45         | 0.02     | 0.31         | 0.01     |              |          |              |          |              |          |
| 6            | 5.05          | 6.86     | 2.96         | 1.86     | 1.79         | 0.55     | 1.11         | 0.17     | 0.85         | 0.09     | 0.54         | 0.03     | 0.37         | 0.01     | 0.25         | 0.00     |              |          |              |          |
| 7            | 5.90          | 9.12     | 3.45         | 2.47     | 2.09         | 0.73     | 1.30         | 0.23     | 0.99         | 0.12     | 0.63         | 0.04     | 0.43         | 0.02     | 0.29         | 0.01     |              |          |              |          |
| 8            | 6.74          | 11.68    | 3.94         | 3.17     | 2.39         | 0.94     | 1.49         | 0.30     | 1.13         | 0.15     | 0.72         | 0.05     | 0.49         | 0.02     | 0.33         | 0.01     |              |          |              |          |
| 9            | 7.58          | 14.53    | 4.43         | 3.94     | 2.69         | 1.17     | 1.67         | 0.37     | 1.27         | 0.19     | 0.81         | 0.06     | 0.55         | 0.02     | 0.37         | 0.01     |              |          |              |          |
| 10           | 8.42          | 17.66    | 4.93         | 4.79     | 2.99         | 1.42     | 1.86         | 0.45     | 1.41         | 0.23     | 0.90         | 0.08     | 0.61         | 0.03     | 0.41         | 0.01     |              |          |              |          |
| 12           | 10.11         | 24.75    | 5.91         | 6.71     | 3.58         | 1.98     | 2.23         | 0.63     | 1.69         | 0.32     | 1.08         | 0.11     | 0.73         | 0.04     | 0.49         | 0.02     |              |          |              |          |
| 14           | 11.79         | 32.93    | 6.90         | 8.93     | 4.18         | 2.64     | 2.60         | 0.83     | 1.98         | 0.43     | 1.26         | 0.14     | 0.86         | 0.06     | 0.58         | 0.02     |              |          |              |          |
| 16           | 13.48         | 42.16    | 7.88         | 11.44    | 4.78         | 3.38     | 2.97         | 1.07     | 2.26         | 0.55     | 1.44         | 0.18     | 0.98         | 0.07     | 0.66         | 0.03     | 0.40         | 0.01     |              |          |
| 18           | 15.16         | 52.44    | 8.87         | 14.23    | 5.37         | 4.21     | 3.34         | 1.33     | 2.54         | 0.68     | 1.62         | 0.23     | 1.10         | 0.09     | 0.74         | 0.03     | 0.45         | 0.01     |              |          |
| 20           |               |          | 9.85         | 17.29    | 5.97         | 5.11     | 3.72         | 1.61     | 2.82         | 0.83     | 1.80         | 0.28     | 1.22         | 0.11     | 0.82         | 0.04     | 0.50         | 0.01     |              |          |
| 22           |               |          | 10.84        | 20.63    | 6.57         | 6.10     | 4.09         | 1.92     | 3.11         | 0.99     | 1.98         | 0.33     | 1.35         | 0.13     | 0.91         | 0.05     | 0.55         | 0.01     |              |          |
| 24           |               |          | 11.82        | 24.24    | 7.17         | 7.17     | 4.46         | 2.26     | 3.39         | 1.16     | 2.16         | 0.39     | 1.47         | 0.15     | 0.99         | 0.06     | 0.60         | 0.02     |              |          |
| 26           |               |          | 12.81        | 28.11    | 7.76         | 8.31     | 4.83         | 2.62     | 3.67         | 1.34     | 2.34         | 0.45     | 1.59         | 0.18     | 1.07         | 0.07     | 0.65         | 0.02     |              |          |
| 28           |               |          | 13.80        | 32.25    | 8.36         | 9.53     | 5.20         | 3.01     | 3.95         | 1.54     | 2.52         | 0.52     | 1.71         | 0.20     | 1.15         | 0.08     | 0.70         | 0.02     |              |          |
| 30           |               |          | 14.78        | 36.64    | 8.96         | 10.83    | 5.57         | 3.41     | 4.24         | 1.75     | 2.70         | 0.59     | 1.84         | 0.23     | 1.24         | 0.09     | 0.75         | 0.03     |              |          |
| 32           |               |          |              |          | 9.55         | 12.21    | 5.94         | 3.85     | 4.52         | 1.97     | 2.88         | 0.66     | 1.96         | 0.26     | 1.32         | 0.10     | 0.80         | 0.03     | 0.37         | 0.00     |
| 34           |               |          |              |          | 10.15        | 13.66    | 6.32         | 4.31     | 4.80         | 2.21     | 3.06         | 0.74     | 2.08         | 0.29     | 1.40         | 0.11     | 0.85         | 0.03     | 0.39         | 0.00     |
| 36           |               |          |              |          | 10.75        | 15.18    | 6.69         | 4.79     | 5.08         | 2.45     | 3.24         | 0.82     | 2.20         | 0.32     | 1.48         | 0.12     | 0.90         | 0.04     | 0.41         | 0.01     |
| 38           |               |          |              |          | 11.35        | 16.78    | 7.06         | 5.29     | 5.36         | 2.71     | 3.42         | 0.91     | 2.33         | 0.36     | 1.57         | 0.14     | 0.95         | 0.04     | 0.44         | 0.01     |
| 40           |               |          |              |          | 11.94        | 18.45    | 7.43         | 5.82     | 5.65         | 2.98     | 3.60         | 1.00     | 2.45         | 0.39     | 1.65         | 0.15     | 1.00         | 0.04     | 0.46         | 0.01     |
| 42           |               |          |              |          | 12.54        | 20.20    | 7.80         | 6.37     | 5.93         | 3.27     | 3.78         | 1.09     | 2.57         | 0.43     | 1.73         | 0.16     | 1.05         | 0.05     | 0.48         | 0.01     |
| 44           |               |          |              |          | 13.14        | 22.02    | 8.17         | 6.94     | 6.21         | 3.56     | 3.96         | 1.19     | 2.69         | 0.47     | 1.81         | 0.18     | 1.10         | 0.05     | 0.51         | 0.01     |
| 46           |               |          |              |          | 13.73        | 23.91    | 8.55         | 7.54     | 6.49         | 3.86     | 4.14         | 1.29     | 2.82         | 0.51     | 1.90         | 0.19     | 1.15         | 0.06     | 0.53         | 0.01     |
| 48           |               |          |              |          | 14.33        | 25.87    | 8.92         | 8.15     | 6.78         | 4.18     | 4.32         | 1.40     | 2.94         | 0.55     | 1.98         | 0.21     | 1.20         | 0.06     | 0.55         | 0.01     |
| 50           |               |          |              |          | 14.93        | 27.90    | 9.29         | 8.79     | 7.06         | 4.51     | 4.50         | 1.51     | 3.06         | 0.59     | 2.06         | 0.23     | 1.25         | 0.07     | 0.58         | 0.01     |
| 55           |               |          |              |          | 10.22        | 10.49    | 7.76         | 5.38     | 4.95         | 1.80     | 3.37         | 0.71     | 2.27         | 0.27     | 1.37         | 0.08     | 0.63         | 0.01     |              |          |
| 60           |               |          |              |          | 11.15        | 12.33    | 8.47         | 6.32     | 5.40         | 2.11     | 3.67         | 0.83     | 2.47         | 0.32     | 1.50         | 0.09     | 0.69         | 0.01     |              |          |
| 65           |               |          |              |          | 12.07        | 14.30    | 9.18         | 7.33     | 5.85         | 2.45     | 3.98         | 0.96     | 2.68         | 0.37     | 1.62         | 0.11     | 0.75         | 0.02     |              |          |
| 70           |               |          |              |          | 13.00        | 16.40    | 9.88         | 8.41     | 6.30         | 2.81     | 4.29         | 1.10     | 2.89         | 0.42     | 1.74         | 0.12     | 0.81         | 0.02     |              |          |
| 75           |               |          |              |          | 13.93        | 18.63    | 10.59        | 9.56     | 6.75         | 3.20     | 4.59         | 1.25     | 3.09         | 0.48     | 1.87         | 0.14     | 0.86         | 0.02     |              |          |
| 80           |               |          |              |          | 14.86        | 21.00    | 11.29        | 10.77    | 7.20         | 3.60     | 4.90         | 1.41     | 3.30         | 0.54     | 1.99         | 0.16     | 0.92         | 0.02     |              |          |
| 85           |               |          |              |          |              |          | 12.00        | 12.05    | 7.65         | 4.03     | 5.21         | 1.58     | 3.50         | 0.60     | 2.12         | 0.18     | 0.98         | 0.03     |              |          |
| 90           |               |          |              |          |              |          | 12.71        | 13.40    | 8.10         | 4.48     | 5.51         | 1.76     | 3.71         | 0.67     | 2.24         | 0.20     | 1.04         | 0.03     |              |          |
| 95           |               |          |              |          |              |          | 13.41        | 14.81    | 8.55         | 4.95     | 5.82         | 1.94     | 3.92         | 0.74     | 2.37         | 0.22     | 1.09         | 0.03     |              |          |
| 100          |               |          |              |          |              |          | 14.12        | 16.28    | 9.00         | 5.45     | 6.12         | 2.13     | 4.12         | 0.81     | 2.49         | 0.24     | 1.15         | 0.04     |              |          |
| 110          |               |          |              |          |              |          |              |          | 9.90         | 6.50     | 6.74         | 2.55     | 4.53         | 0.97     | 2.74         | 0.29     | 1.27         | 0.04     |              |          |
| 120          |               |          |              |          |              |          |              |          | 10.80        | 7.63     | 7.35         | 2.99     | 4.95         | 1.14     | 2.99         | 0.34     | 1.38         | 0.05     |              |          |
| 130          |               |          |              |          |              |          |              |          | 11.70        | 8.85     | 7.96         | 3.47     | 5.36         | 1.32     | 3.24         | 0.39     | 1.50         | 0.06     |              |          |
| 140          |               |          |              |          |              |          |              |          | 12.60        | 10.16    | 8.57         | 3.98     | 5.77         | 1.52     | 3.49         | 0.45     | 1.61         | 0.07     |              |          |
| 150          |               |          |              |          |              |          |              |          | 13.50        | 11.54    | 9.19         | 4.52     | 6.18         | 1.73     | 3.74         | 0.51     | 1.73         | 0.08     |              |          |
| 160          |               |          |              |          |              |          |              |          | 14.40        | 13.01    | 9.80         | 5.10     | 6.60         | 1.95     | 3.99         | 0.57     | 1.84         | 0.09     |              |          |
| 170          |               |          |              |          |              |          |              |          |              |          | 10.41        | 5.70     | 7.01         | 2.18     | 4.24         | 0.64     | 1.96         | 0.10     |              |          |
| 180          |               |          |              |          |              |          |              |          |              |          | 11.02        | 6.34     | 7.42         | 2.42     | 4.49         | 0.71     | 2.07         | 0.11     |              |          |
| 190          |               |          |              |          |              |          |              |          |              |          | 11.64        | 7.01     | 7.83         | 2.67     | 4.74         | 0.79     | 2.19         | 0.12     |              |          |
| 200          |               |          |              |          |              |          |              |          |              |          | 12.25        | 7.71     | 8.24         | 2.94     | 4.98         | 0.86     | 2.30         | 0.13     |              |          |
| 220          |               |          |              |          |              |          |              |          |              |          | 13.47        | 9.19     | 9.07         | 3.51     | 5.48         | 1.03     | 2.53         | 0.16     |              |          |
| 240          |               |          |              |          |              |          |              |          |              |          | 14.70        | 10.80    | 9.89         | 4.12     | 5.98         | 1.21     | 2.76         | 0.18     |              |          |
| 260          |               |          |              |          |              |          |              |          |              |          |              |          | 10.72        | 4.78     | 6.48         | 1.41     | 2.99         | 0.21     |              |          |
| 280          |               |          |              |          |              |          |              |          |              |          |              |          | 11.54        | 5.48     | 6.98         | 1.61     | 3.22         | 0.25     |              |          |
| 300          |               |          |              |          |              |          |              |          |              |          |              |          | 12.37        | 6.23     | 7.48         | 1.83     | 3.45         | 0.28     |              |          |
| 320          |               |          |              |          |              |          |              |          |              |          |              |          | 13.19        | 7.02     | 7.98         | 2.06     | 3.68         | 0.31     |              |          |
| 340          |               |          |              |          |              |          |              |          |              |          |              |          | 14.02        | 7.86     | 8.47         | 2.31     | 3.91         | 0.35     |              |          |
| 360          |               |          |              |          |              |          |              |          |              |          |              |          | 14.84        | 8.73     | 8.97         | 2.57     | 4.14         | 0.39     |              |          |
| 380          |               |          |              |          |              |          |              |          |              |          |              |          |              |          | 9.47         | 2.84     | 4.37         | 0.43     |              |          |
| 400          |               |          |              |          |              |          |              |          |              |          |              |          |              |          | 9.97         | 3.12     | 4.60         | 0.48     |              |          |
| 420          |               |          |              |          |              |          |              |          |              |          |              |          |              |          | 10.47        | 3.42     | 4.83         | 0.52     |              |          |
| 440          |               |          |              |          |              |          |              |          |              |          |              |          |              |          | 10.97        | 3.72     | 5.06         | 0.57     |              |          |
| 460          |               |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.46        | 4.04     | 5.29         | 0.62     |              |          |
| 480          |               |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.96        | 4.37     | 5.52         | 0.67     |              |          |
| 500          |               |          |              |          |              |          |              |          |              |          |              |          |              |          | 12.46        | 4.72     | 5.75         | 0.72     |              |          |

Notes: Shaded areas represent velocities over 5 fps. Use with caution when water hammer is a concern.

# FRICION LOSS CHARTS - CLASS 315 PVC IPS PLASTIC PIPE

ASTM D2241 (1120, 1220) SDR 13.5 C = 150 • PSI loss per 100 ft. of pipe

| Nominal Size | ½"           |          | ¾"           |          | 1"           |          | 1¼"          |          | 1½"          |          | 2"           |          | 2½"          |          | 3"           |          | 4"           |          | 6"           |          |
|--------------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|
| Avg. ID      | 0.696        |          | 0.874        |          | 1.101        |          | 1.394        |          | 1.598        |          | 1.983        |          | 2.423        |          | 2.948        |          | 3.794        |          | 5.583        |          |
| Pipe OD      | 0.840        |          | 1.050        |          | 1.315        |          | 1.660        |          | 1.900        |          | 2.375        |          | 2.875        |          | 3.500        |          | 4.500        |          | 6.625        |          |
| Avg. Wall    | 0.072        |          | 0.088        |          | 0.107        |          | 0.133        |          | 0.151        |          | 0.196        |          | 0.226        |          | 0.274        |          | 0.353        |          | 0.521        |          |
| Min. Wall    | 0.062        |          | 0.078        |          | 0.097        |          | 0.123        |          | 0.141        |          | 0.176        |          | 0.213        |          | 0.259        |          | 0.333        |          | 0.491        |          |
| Flow (GPM)   | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss |
| 1            | 0.84         | 0.25     | 0.53         | 0.08     | 0.34         | 0.03     | 0.21         | 0.01     | 0.16         | 0.00     |              |          |              |          |              |          |              |          |              |          |
| 2            | 1.68         | 0.90     | 1.07         | 0.30     | 0.67         | 0.10     | 0.42         | 0.03     | 0.32         | 0.02     | 0.21         | 0.01     |              |          |              |          |              |          |              |          |
| 3            | 2.53         | 1.90     | 1.60         | 0.63     | 1.01         | 0.20     | 0.63         | 0.06     | 0.48         | 0.03     | 0.31         | 0.01     |              |          |              |          |              |          |              |          |
| 4            | 3.37         | 3.24     | 2.14         | 1.07     | 1.35         | 0.35     | 0.84         | 0.11     | 0.64         | 0.06     | 0.42         | 0.02     | 0.28         | 0.01     |              |          |              |          |              |          |
| 5            | 4.21         | 4.89     | 2.67         | 1.61     | 1.68         | 0.53     | 1.05         | 0.17     | 0.80         | 0.09     | 0.52         | 0.03     | 0.35         | 0.01     |              |          |              |          |              |          |
| 6            | 5.05         | 6.86     | 3.20         | 2.26     | 2.02         | 0.74     | 1.26         | 0.23     | 0.96         | 0.12     | 0.62         | 0.04     | 0.42         | 0.02     | 0.28         | 0.01     |              |          |              |          |
| 7            | 5.90         | 9.12     | 3.74         | 3.01     | 2.36         | 0.98     | 1.47         | 0.31     | 1.12         | 0.16     | 0.73         | 0.06     | 0.49         | 0.02     | 0.33         | 0.01     |              |          |              |          |
| 8            | 6.74         | 11.68    | 4.27         | 3.86     | 2.69         | 1.25     | 1.68         | 0.40     | 1.28         | 0.20     | 0.83         | 0.07     | 0.56         | 0.03     | 0.38         | 0.01     |              |          |              |          |
| 9            | 7.58         | 14.53    | 4.81         | 4.80     | 3.03         | 1.56     | 1.89         | 0.49     | 1.44         | 0.25     | 0.93         | 0.09     | 0.63         | 0.03     | 0.42         | 0.01     |              |          |              |          |
| 10           | 8.42         | 17.66    | 5.34         | 5.83     | 3.37         | 1.90     | 2.10         | 0.60     | 1.60         | 0.31     | 1.04         | 0.11     | 0.69         | 0.04     | 0.47         | 0.02     |              |          |              |          |
| 12           | 10.11        | 24.75    | 6.41         | 8.17     | 4.04         | 2.66     | 2.52         | 0.84     | 1.92         | 0.43     | 1.25         | 0.15     | 0.83         | 0.06     | 0.56         | 0.02     |              |          |              |          |
| 14           | 11.79        | 32.93    | 7.48         | 10.87    | 4.71         | 3.53     | 2.94         | 1.12     | 2.24         | 0.58     | 1.45         | 0.20     | 0.97         | 0.08     | 0.66         | 0.03     |              |          |              |          |
| 16           | 13.48        | 42.16    | 8.55         | 13.92    | 5.39         | 4.53     | 3.36         | 1.44     | 2.56         | 0.74     | 1.66         | 0.26     | 1.11         | 0.10     | 0.75         | 0.04     | 0.45         | 0.01     |              |          |
| 18           | 15.16        | 52.44    | 9.61         | 17.32    | 6.06         | 5.63     | 3.78         | 1.79     | 2.88         | 0.92     | 1.87         | 0.32     | 1.25         | 0.12     | 0.85         | 0.05     | 0.51         | 0.01     |              |          |
| 20           |              |          | 10.68        | 21.05    | 6.73         | 6.84     | 4.20         | 2.17     | 3.20         | 1.12     | 2.08         | 0.39     | 1.39         | 0.15     | 0.94         | 0.06     | 0.57         | 0.02     |              |          |
| 22           |              |          | 11.75        | 25.11    | 7.40         | 8.16     | 4.62         | 2.59     | 3.52         | 1.33     | 2.28         | 0.47     | 1.53         | 0.18     | 1.03         | 0.07     | 0.62         | 0.02     |              |          |
| 24           |              |          | 12.82        | 29.50    | 8.08         | 9.59     | 5.04         | 3.04     | 3.83         | 1.57     | 2.49         | 0.55     | 1.67         | 0.21     | 1.13         | 0.08     | 0.68         | 0.02     |              |          |
| 26           |              |          | 13.89        | 34.21    | 8.75         | 11.12    | 5.46         | 3.53     | 4.15         | 1.82     | 2.70         | 0.64     | 1.81         | 0.24     | 1.22         | 0.09     | 0.74         | 0.03     |              |          |
| 28           |              |          | 14.96        | 39.25    | 9.42         | 12.76    | 5.88         | 4.05     | 4.47         | 2.08     | 2.91         | 0.73     | 1.95         | 0.27     | 1.31         | 0.11     | 0.79         | 0.03     |              |          |
| 30           |              |          | 16.02        | 44.60    | 10.10        | 14.50    | 6.30         | 4.60     | 4.79         | 2.37     | 3.11         | 0.83     | 2.08         | 0.31     | 1.41         | 0.12     | 0.85         | 0.04     |              |          |
| 32           |              |          |              |          | 10.77        | 16.34    | 6.72         | 5.18     | 5.11         | 2.67     | 3.32         | 0.93     | 2.22         | 0.35     | 1.50         | 0.14     | 0.91         | 0.04     | 0.42         | 0.01     |
| 34           |              |          |              |          | 11.44        | 18.28    | 7.14         | 5.80     | 5.43         | 2.98     | 3.53         | 1.04     | 2.36         | 0.39     | 1.60         | 0.15     | 0.96         | 0.04     | 0.45         | 0.01     |
| 36           |              |          |              |          | 12.12        | 20.32    | 7.56         | 6.45     | 5.75         | 3.32     | 3.74         | 1.16     | 2.50         | 0.44     | 1.69         | 0.17     | 1.02         | 0.05     | 0.47         | 0.01     |
| 38           |              |          |              |          | 12.79        | 22.46    | 7.98         | 7.13     | 6.07         | 3.67     | 3.94         | 1.28     | 2.64         | 0.48     | 1.78         | 0.19     | 1.08         | 0.05     | 0.50         | 0.01     |
| 40           |              |          |              |          | 13.46        | 24.70    | 8.40         | 7.84     | 6.39         | 4.03     | 4.15         | 1.41     | 2.78         | 0.53     | 1.88         | 0.20     | 1.13         | 0.06     | 0.52         | 0.01     |
| 42           |              |          |              |          | 14.14        | 27.04    | 8.82         | 8.58     | 6.71         | 4.41     | 4.36         | 1.54     | 2.92         | 0.58     | 1.97         | 0.22     | 1.19         | 0.07     | 0.55         | 0.01     |
| 44           |              |          |              |          | 14.81        | 29.47    | 9.24         | 9.35     | 7.03         | 4.81     | 4.57         | 1.68     | 3.06         | 0.63     | 2.07         | 0.24     | 1.25         | 0.07     | 0.58         | 0.01     |
| 46           |              |          |              |          | 15.48        | 32.00    | 9.66         | 10.15    | 7.35         | 5.22     | 4.77         | 1.83     | 3.20         | 0.69     | 2.16         | 0.27     | 1.30         | 0.08     | 0.60         | 0.01     |
| 48           |              |          |              |          | 16.16        | 34.62    | 10.08        | 10.98    | 7.67         | 5.65     | 4.98         | 1.98     | 3.34         | 0.75     | 2.25         | 0.29     | 1.36         | 0.08     | 0.63         | 0.01     |
| 50           |              |          |              |          | 16.83        | 37.34    | 10.50        | 11.85    | 7.99         | 6.09     | 5.19         | 2.13     | 3.47         | 0.80     | 2.35         | 0.31     | 1.42         | 0.09     | 0.65         | 0.01     |
| 55           |              |          |              |          |              |          | 11.55        | 14.13    | 8.79         | 7.27     | 5.71         | 2.54     | 3.82         | 0.96     | 2.58         | 0.37     | 1.56         | 0.11     | 0.72         | 0.02     |
| 60           |              |          |              |          |              |          | 12.60        | 16.60    | 9.59         | 8.54     | 6.23         | 2.99     | 4.17         | 1.13     | 2.82         | 0.43     | 1.70         | 0.13     | 0.79         | 0.02     |
| 65           |              |          |              |          |              |          | 13.65        | 19.26    | 10.39        | 9.91     | 6.74         | 3.47     | 4.52         | 1.31     | 3.05         | 0.50     | 1.84         | 0.15     | 0.85         | 0.02     |
| 70           |              |          |              |          |              |          | 14.70        | 22.09    | 11.18        | 11.37    | 7.26         | 3.98     | 4.86         | 1.50     | 3.29         | 0.58     | 1.98         | 0.17     | 0.92         | 0.03     |
| 75           |              |          |              |          |              |          | 15.75        | 25.10    | 11.98        | 12.91    | 7.78         | 4.52     | 5.21         | 1.70     | 3.52         | 0.66     | 2.13         | 0.19     | 0.98         | 0.03     |
| 80           |              |          |              |          |              |          | 16.80        | 28.29    | 12.78        | 14.55    | 8.30         | 5.09     | 5.56         | 1.92     | 3.76         | 0.74     | 2.27         | 0.22     | 1.05         | 0.03     |
| 85           |              |          |              |          |              |          |              |          | 13.58        | 16.28    | 8.82         | 5.70     | 5.91         | 2.15     | 3.99         | 0.83     | 2.41         | 0.24     | 1.11         | 0.04     |
| 90           |              |          |              |          |              |          |              |          | 14.38        | 18.10    | 9.34         | 6.33     | 6.25         | 2.39     | 4.23         | 0.92     | 2.55         | 0.27     | 1.18         | 0.04     |
| 95           |              |          |              |          |              |          |              |          | 15.18        | 20.01    | 9.86         | 7.00     | 6.60         | 2.64     | 4.46         | 1.02     | 2.69         | 0.30     | 1.24         | 0.05     |
| 100          |              |          |              |          |              |          |              |          | 15.98        | 22.00    | 10.38        | 7.70     | 6.95         | 2.90     | 4.69         | 1.12     | 2.83         | 0.33     | 1.31         | 0.05     |
| 110          |              |          |              |          |              |          |              |          | 11.41        | 9.18     | 7.64         | 3.46     | 5.16         | 1.33     | 3.12         | 0.39     | 1.44         | 0.06     |              |          |
| 120          |              |          |              |          |              |          |              |          | 12.45        | 10.79    | 8.34         | 4.07     | 5.63         | 1.57     | 3.40         | 0.46     | 1.57         | 0.07     |              |          |
| 130          |              |          |              |          |              |          |              |          | 13.49        | 12.51    | 9.03         | 4.72     | 6.10         | 1.82     | 3.68         | 0.53     | 1.70         | 0.08     |              |          |
| 140          |              |          |              |          |              |          |              |          | 14.53        | 14.35    | 9.73         | 5.41     | 6.57         | 2.08     | 3.97         | 0.61     | 1.83         | 0.09     |              |          |
| 150          |              |          |              |          |              |          |              |          | 15.56        | 16.31    | 10.42        | 6.15     | 7.04         | 2.37     | 4.25         | 0.69     | 1.96         | 0.11     |              |          |
| 160          |              |          |              |          |              |          |              |          | 16.60        | 18.38    | 11.12        | 6.93     | 7.51         | 2.67     | 4.54         | 0.78     | 2.09         | 0.12     |              |          |
| 170          |              |          |              |          |              |          |              |          |              |          | 11.81        | 7.76     | 7.98         | 2.99     | 4.82         | 0.87     | 2.23         | 0.13     |              |          |
| 180          |              |          |              |          |              |          |              |          |              |          | 12.51        | 8.62     | 8.45         | 3.32     | 5.10         | 0.97     | 2.36         | 0.15     |              |          |
| 190          |              |          |              |          |              |          |              |          |              |          | 13.20        | 9.53     | 8.92         | 3.67     | 5.39         | 1.08     | 2.49         | 0.16     |              |          |
| 200          |              |          |              |          |              |          |              |          |              |          | 13.90        | 10.48    | 9.39         | 4.03     | 5.67         | 1.18     | 2.62         | 0.18     |              |          |
| 220          |              |          |              |          |              |          |              |          |              |          | 15.29        | 12.50    | 10.33        | 4.81     | 6.24         | 1.41     | 2.88         | 0.22     |              |          |
| 240          |              |          |              |          |              |          |              |          |              |          | 16.68        | 14.69    | 11.27        | 5.66     | 6.80         | 1.66     | 3.14         | 0.25     |              |          |
| 260          |              |          |              |          |              |          |              |          |              |          |              |          | 12.21        | 6.56     | 7.37         | 1.92     | 3.40         | 0.29     |              |          |
| 280          |              |          |              |          |              |          |              |          |              |          |              |          | 13.15        | 7.52     | 7.94         | 2.20     | 3.67         | 0.34     |              |          |
| 300          |              |          |              |          |              |          |              |          |              |          |              |          | 14.08        | 8.55     | 8.50         | 2.50     | 3.93         | 0.38     |              |          |
| 320          |              |          |              |          |              |          |              |          |              |          |              |          | 15.02        | 9.64     | 9.07         | 2.82     | 4.19         | 0.43     |              |          |
| 340          |              |          |              |          |              |          |              |          |              |          |              |          | 15.96        | 10.78    | 9.64         | 3.16     | 4.45         | 0.48     |              |          |
| 360          |              |          |              |          |              |          |              |          |              |          |              |          | 16.90        | 11.98    | 10.20        | 3.51     | 4.71         | 0.54     |              |          |
| 380          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 10.77        | 3.88     | 4.97         | 0.59     |              |          |
| 400          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.34        | 4.27     | 5.24         | 0.65     |              |          |
| 420          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.90        | 4.67     | 5.50         | 0.71     |              |          |
| 440          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 12.47        | 5.09     | 5.76         | 0.78     |              |          |
| 460          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 13.04        | 5.53     | 6.02         | 0.84     |              |          |
| 480          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 13.61        | 5.98     | 6.28         | 0.91     |              |          |
| 500          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 14.17        | 6.45     | 6.54         | 0.98     |              |          |

Notes: Shaded areas represent velocities over 5 fps. Use with caution when water hammer is a concern.

# FRICION LOSS CHARTS - SCHEDULE 40 PVC IPS PLASTIC PIPE

ASTM D1785 (1120, 1220) C = 150 • PSI loss per 100 ft. of pipe

| Nominal Size | ½"           |          | ¾"           |          | 1"           |          | 1¼"          |          | 1½"          |          | 2"           |          | 2½"          |          | 3"           |          | 4"           |          | 5"           |          |
|--------------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|
| Avg. ID      | 0.602        |          | 0.804        |          | 1.029        |          | 1.360        |          | 1.590        |          | 2.047        |          | 2.445        |          | 3.042        |          | 3.998        |          | 6.031        |          |
| Pipe OD      | 0.840        |          | 1.050        |          | 1.315        |          | 1.660        |          | 1.900        |          | 2.375        |          | 2.875        |          | 3.500        |          | 4.500        |          | 6.625        |          |
| Avg. Wall    | 0.119        |          | 0.123        |          | 0.143        |          | 0.150        |          | 0.155        |          | 0.164        |          | 0.215        |          | 0.229        |          | 0.251        |          | 0.297        |          |
| Min. Wall    | 0.109        |          | 0.113        |          | 0.133        |          | 0.140        |          | 0.145        |          | 0.154        |          | 0.203        |          | 0.216        |          | 0.237        |          | 0.280        |          |
| Flow (GPM)   | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss | Velocity FPS | PSI Loss |
| 1            | 1.13         | 0.50     | 0.63         | 0.12     | 0.39         | 0.04     | 0.22         | 0.01     | 0.16         | 0.00     |              |          |              |          |              |          |              |          |              |          |
| 2            | 2.25         | 1.82     | 1.26         | 0.44     | 0.77         | 0.13     | 0.44         | 0.03     | 0.32         | 0.02     | 0.19         | 0.00     |              |          |              |          |              |          |              |          |
| 3            | 3.38         | 3.85     | 1.89         | 0.94     | 1.16         | 0.28     | 0.66         | 0.07     | 0.48         | 0.03     | 0.29         | 0.01     |              |          |              |          |              |          |              |          |
| 4            | 4.50         | 6.55     | 2.52         | 1.60     | 1.54         | 0.48     | 0.88         | 0.12     | 0.65         | 0.06     | 0.39         | 0.02     | 0.27         | 0.01     |              |          |              |          |              |          |
| 5            | 5.63         | 9.91     | 3.16         | 2.42     | 1.93         | 0.73     | 1.10         | 0.19     | 0.81         | 0.09     | 0.49         | 0.03     | 0.34         | 0.01     |              |          |              |          |              |          |
| 6            | 6.75         | 13.89    | 3.79         | 3.40     | 2.31         | 1.02     | 1.32         | 0.26     | 0.97         | 0.12     | 0.58         | 0.04     | 0.41         | 0.02     | 0.26         | 0.01     |              |          |              |          |
| 7            | 7.88         | 18.48    | 4.42         | 4.52     | 2.70         | 1.36     | 1.54         | 0.35     | 1.13         | 0.16     | 0.68         | 0.05     | 0.48         | 0.02     | 0.31         | 0.01     |              |          |              |          |
| 8            | 9.01         | 23.66    | 5.05         | 5.79     | 3.08         | 1.74     | 1.76         | 0.45     | 1.29         | 0.21     | 0.78         | 0.06     | 0.55         | 0.03     | 0.35         | 0.01     |              |          |              |          |
| 9            | 10.13        | 29.43    | 5.68         | 7.20     | 3.47         | 2.17     | 1.99         | 0.56     | 1.45         | 0.26     | 0.88         | 0.08     | 0.61         | 0.03     | 0.40         | 0.01     |              |          |              |          |
| 10           | 11.26        | 35.77    | 6.31         | 8.75     | 3.85         | 2.63     | 2.21         | 0.68     | 1.61         | 0.32     | 0.97         | 0.09     | 0.68         | 0.04     | 0.44         | 0.01     |              |          |              |          |
| 12           | 13.51        | 50.14    | 7.57         | 12.27    | 4.62         | 3.69     | 2.65         | 0.95     | 1.94         | 0.44     | 1.17         | 0.13     | 0.82         | 0.05     | 0.53         | 0.02     |              |          |              |          |
| 14           | 15.76        | 66.71    | 8.84         | 16.32    | 5.39         | 4.91     | 3.09         | 1.26     | 2.26         | 0.59     | 1.36         | 0.17     | 0.96         | 0.07     | 0.62         | 0.03     |              |          |              |          |
| 16           | 18.01        | 85.42    | 10.10        | 20.90    | 6.17         | 6.29     | 3.53         | 1.62     | 2.58         | 0.76     | 1.56         | 0.22     | 1.09         | 0.09     | 0.71         | 0.03     | 0.41         | 0.01     |              |          |
| 18           | 20.26        | 106.24   | 11.36        | 25.99    | 6.94         | 7.82     | 3.97         | 2.01     | 2.90         | 0.94     | 1.75         | 0.28     | 1.23         | 0.12     | 0.79         | 0.04     | 0.46         | 0.01     |              |          |
| 20           |              |          | 12.62        | 31.59    | 7.71         | 9.51     | 4.41         | 2.45     | 3.23         | 1.14     | 1.95         | 0.33     | 1.36         | 0.14     | 0.88         | 0.05     | 0.51         | 0.01     |              |          |
| 22           |              |          | 13.89        | 37.69    | 8.48         | 11.35    | 4.85         | 2.92     | 3.55         | 1.37     | 2.14         | 0.40     | 1.50         | 0.17     | 0.97         | 0.06     | 0.56         | 0.02     |              |          |
| 24           |              |          | 15.15        | 44.28    | 9.25         | 13.33    | 5.29         | 3.43     | 3.87         | 1.60     | 2.34         | 0.47     | 1.64         | 0.20     | 1.06         | 0.07     | 0.61         | 0.02     |              |          |
| 26           |              |          | 16.41        | 51.36    | 10.02        | 15.46    | 5.74         | 3.98     | 4.20         | 1.86     | 2.53         | 0.54     | 1.77         | 0.23     | 1.15         | 0.08     | 0.66         | 0.02     |              |          |
| 28           |              |          | 17.67        | 58.91    | 10.79        | 17.73    | 6.18         | 4.56     | 4.52         | 2.13     | 2.73         | 0.62     | 1.91         | 0.26     | 1.23         | 0.09     | 0.71         | 0.02     |              |          |
| 30           |              |          | 18.94        | 66.94    | 11.56        | 20.15    | 6.62         | 5.19     | 4.84         | 2.42     | 2.92         | 0.71     | 2.05         | 0.30     | 1.32         | 0.10     | 0.77         | 0.03     |              |          |
| 32           |              |          |              |          | 12.33        | 22.71    | 7.06         | 5.85     | 5.16         | 2.73     | 3.12         | 0.80     | 2.18         | 0.34     | 1.41         | 0.12     | 0.82         | 0.03     | 0.36         | 0.00     |
| 34           |              |          |              |          | 13.10        | 25.41    | 7.50         | 6.54     | 5.49         | 3.06     | 3.31         | 0.89     | 2.32         | 0.38     | 1.50         | 0.13     | 0.87         | 0.03     | 0.38         | 0.00     |
| 36           |              |          |              |          | 13.87        | 28.24    | 7.94         | 7.27     | 5.81         | 3.40     | 3.51         | 0.99     | 2.46         | 0.42     | 1.59         | 0.14     | 0.92         | 0.04     | 0.40         | 0.01     |
| 38           |              |          |              |          | 14.64        | 31.22    | 8.38         | 8.04     | 6.13         | 3.76     | 3.70         | 1.10     | 2.59         | 0.46     | 1.68         | 0.16     | 0.97         | 0.04     | 0.43         | 0.01     |
| 40           |              |          |              |          | 15.41        | 34.33    | 8.82         | 8.84     | 6.46         | 4.13     | 3.89         | 1.21     | 2.73         | 0.51     | 1.76         | 0.18     | 1.02         | 0.05     | 0.45         | 0.01     |
| 42           |              |          |              |          | 16.18        | 37.58    | 9.26         | 9.67     | 6.78         | 4.52     | 4.09         | 1.32     | 2.87         | 0.56     | 1.85         | 0.19     | 1.07         | 0.05     | 0.47         | 0.01     |
| 44           |              |          |              |          | 16.95        | 40.96    | 9.71         | 10.54    | 7.10         | 4.93     | 4.28         | 1.44     | 3.00         | 0.61     | 1.94         | 0.21     | 1.12         | 0.06     | 0.49         | 0.01     |
| 46           |              |          |              |          | 17.73        | 44.47    | 10.15        | 11.45    | 7.42         | 5.35     | 4.48         | 1.57     | 3.14         | 0.66     | 2.03         | 0.23     | 1.17         | 0.06     | 0.52         | 0.01     |
| 48           |              |          |              |          | 18.50        | 48.12    | 10.59        | 12.39    | 7.75         | 5.79     | 4.67         | 1.69     | 3.28         | 0.71     | 2.12         | 0.25     | 1.23         | 0.07     | 0.54         | 0.01     |
| 50           |              |          |              |          | 19.27        | 51.90    | 11.03        | 13.36    | 8.07         | 6.25     | 4.87         | 1.83     | 3.41         | 0.77     | 2.20         | 0.27     | 1.28         | 0.07     | 0.56         | 0.01     |
| 55           |              |          |              |          |              |          | 12.13        | 15.94    | 8.88         | 7.45     | 5.36         | 2.18     | 3.75         | 0.92     | 2.42         | 0.32     | 1.40         | 0.08     | 0.62         | 0.01     |
| 60           |              |          |              |          |              |          | 13.24        | 18.72    | 9.68         | 8.75     | 5.84         | 2.56     | 4.09         | 1.08     | 2.65         | 0.37     | 1.53         | 0.10     | 0.67         | 0.01     |
| 65           |              |          |              |          |              |          | 14.34        | 21.72    | 10.49        | 10.15    | 6.33         | 2.97     | 4.44         | 1.25     | 2.87         | 0.43     | 1.66         | 0.11     | 0.73         | 0.02     |
| 70           |              |          |              |          |              |          | 15.44        | 24.91    | 11.30        | 11.65    | 6.82         | 3.41     | 4.78         | 1.43     | 3.09         | 0.50     | 1.79         | 0.13     | 0.79         | 0.02     |
| 75           |              |          |              |          |              |          | 16.54        | 28.31    | 12.10        | 13.23    | 7.30         | 3.87     | 5.12         | 1.63     | 3.31         | 0.56     | 1.91         | 0.15     | 0.84         | 0.02     |
| 80           |              |          |              |          |              |          | 17.65        | 31.90    | 12.91        | 14.91    | 7.79         | 4.36     | 5.46         | 1.84     | 3.53         | 0.63     | 2.04         | 0.17     | 0.90         | 0.02     |
| 85           |              |          |              |          |              |          |              |          | 13.72        | 16.69    | 8.28         | 4.88     | 5.80         | 2.06     | 3.75         | 0.71     | 2.17         | 0.19     | 0.95         | 0.03     |
| 90           |              |          |              |          |              |          |              |          | 14.52        | 18.55    | 8.76         | 5.43     | 6.14         | 2.29     | 3.97         | 0.79     | 2.30         | 0.21     | 1.01         | 0.03     |
| 95           |              |          |              |          |              |          |              |          | 15.33        | 20.50    | 9.25         | 6.00     | 6.48         | 2.53     | 4.19         | 0.87     | 2.42         | 0.23     | 1.07         | 0.03     |
| 100          |              |          |              |          |              |          |              |          | 16.14        | 22.55    | 9.74         | 6.59     | 6.82         | 2.78     | 4.41         | 0.96     | 2.55         | 0.25     | 1.12         | 0.03     |
| 110          |              |          |              |          |              |          |              |          |              |          | 10.71        | 7.87     | 7.51         | 3.31     | 4.85         | 1.14     | 2.81         | 0.30     | 1.23         | 0.04     |
| 120          |              |          |              |          |              |          |              |          |              |          | 11.68        | 9.24     | 8.19         | 3.89     | 5.29         | 1.34     | 3.06         | 0.36     | 1.35         | 0.05     |
| 130          |              |          |              |          |              |          |              |          |              |          | 12.66        | 10.72    | 8.87         | 4.52     | 5.73         | 1.56     | 3.32         | 0.41     | 1.46         | 0.06     |
| 140          |              |          |              |          |              |          |              |          |              |          | 13.63        | 12.30    | 9.55         | 5.18     | 6.17         | 1.79     | 3.57         | 0.47     | 1.57         | 0.06     |
| 150          |              |          |              |          |              |          |              |          |              |          | 14.61        | 13.97    | 10.24        | 5.89     | 6.61         | 2.03     | 3.83         | 0.54     | 1.68         | 0.07     |
| 160          |              |          |              |          |              |          |              |          |              |          | 15.58        | 15.75    | 10.92        | 6.63     | 7.05         | 2.29     | 4.08         | 0.61     | 1.79         | 0.08     |
| 170          |              |          |              |          |              |          |              |          |              |          |              |          | 11.60        | 7.42     | 7.50         | 2.56     | 4.34         | 0.68     | 1.91         | 0.09     |
| 180          |              |          |              |          |              |          |              |          |              |          |              |          | 12.28        | 8.25     | 7.94         | 2.85     | 4.59         | 0.75     | 2.02         | 0.10     |
| 190          |              |          |              |          |              |          |              |          |              |          |              |          | 12.97        | 9.12     | 8.38         | 3.15     | 4.85         | 0.83     | 2.13         | 0.11     |
| 200          |              |          |              |          |              |          |              |          |              |          |              |          | 13.65        | 10.03    | 8.82         | 3.46     | 5.11         | 0.92     | 2.24         | 0.12     |
| 220          |              |          |              |          |              |          |              |          |              |          |              |          | 15.01        | 11.96    | 9.70         | 4.13     | 5.62         | 1.09     | 2.47         | 0.15     |
| 240          |              |          |              |          |              |          |              |          |              |          |              |          | 16.38        | 14.06    | 10.58        | 4.85     | 6.13         | 1.28     | 2.69         | 0.17     |
| 260          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.46        | 5.63     | 6.64         | 1.49     | 2.92         | 0.20     |
| 280          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 12.35        | 6.46     | 7.15         | 1.71     | 3.14         | 0.23     |
| 300          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 13.23        | 7.34     | 7.66         | 1.94     | 3.37         | 0.26     |
| 320          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 14.11        | 8.27     | 8.17         | 2.19     | 3.59         | 0.30     |
| 340          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 14.99        | 9.25     | 8.68         | 2.45     | 3.81         | 0.33     |
| 360          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 15.87        | 10.29    | 9.19         | 2.72     | 4.04         | 0.37     |
| 380          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 9.70         | 3.01     | 4.26         | 0.41     |
| 400          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 10.21        | 3.31     | 4.49         | 0.45     |
| 420          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 10.72        | 3.62     | 4.71         | 0.49     |
| 440          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.23        | 3.95     | 4.94         | 0.53     |
| 460          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 11.74        | 4.28     | 5.16         | 0.58     |
| 480          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 12.25        | 4.64     | 5.38         | 0.63     |
| 500          |              |          |              |          |              |          |              |          |              |          |              |          |              |          |              |          | 12.76        | 5.00     | 5.61         | 0.68     |

Notes: Shaded areas represent velocities over 5 fps. Use with caution when water hammer is a concern.

# FRICION LOSS CHARTS - POLYETHYLENE PLASTIC PIPE ID CONTROLLED

PE 3408 ASTM D2239 C = 140 • PSI loss per 100 ft. of pipe

| Nominal Size<br>Avg. ID | ½"<br>0.622     |             | ¾"<br>0.824     |             | 1"<br>1.049     |             | 1¼"<br>1.380    |             | 1½"<br>1.610    |             | 2"<br>2.067     |             | 2½"<br>2.469    |             | 3"<br>3.068     |             | 4"<br>4.026     |             |
|-------------------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|
| Flow<br>(GPM)           | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss | Velocity<br>FPS | PSI<br>Loss |
| 1                       | 1.05            | 0.49        | 0.60            | 0.12        | 0.37            | 0.04        | 0.21            | 0.01        | 0.16            | 0.00        |                 |             |                 |             |                 |             |                 |             |
| 2                       | 2.11            | 1.76        | 1.20            | 0.45        | 0.74            | 0.14        | 0.43            | 0.04        | 0.31            | 0.02        | 0.19            | 0.01        |                 |             |                 |             |                 |             |
| 3                       | 3.16            | 3.73        | 1.80            | 0.95        | 1.11            | 0.29        | 0.64            | 0.08        | 0.47            | 0.04        | 0.29            | 0.01        |                 |             |                 |             |                 |             |
| 4                       | 4.22            | 6.35        | 2.40            | 1.62        | 1.48            | 0.50        | 0.86            | 0.13        | 0.63            | 0.06        | 0.38            | 0.02        | 0.27            | 0.01        |                 |             |                 |             |
| 5                       | 5.27            | 9.60        | 3.00            | 2.44        | 1.85            | 0.76        | 1.07            | 0.20        | 0.79            | 0.09        | 0.48            | 0.03        | 0.33            | 0.01        |                 |             |                 |             |
| 6                       | 6.33            | 13.46       | 3.61            | 3.43        | 2.22            | 1.06        | 1.29            | 0.28        | 0.94            | 0.13        | 0.57            | 0.04        | 0.40            | 0.02        | 0.26            | 0.01        |                 |             |
| 7                       | 7.38            | 17.91       | 4.21            | 4.56        | 2.60            | 1.41        | 1.50            | 0.37        | 1.10            | 0.18        | 0.67            | 0.05        | 0.47            | 0.02        | 0.30            | 0.01        |                 |             |
| 8                       | 8.44            | 22.93       | 4.81            | 5.84        | 2.97            | 1.80        | 1.71            | 0.47        | 1.26            | 0.22        | 0.76            | 0.07        | 0.54            | 0.03        | 0.35            | 0.01        |                 |             |
| 9                       | 9.49            | 28.52       | 5.41            | 7.26        | 3.34            | 2.24        | 1.93            | 0.59        | 1.42            | 0.28        | 0.86            | 0.08        | 0.60            | 0.03        | 0.39            | 0.01        |                 |             |
| 10                      | 10.55           | 34.67       | 6.01            | 8.82        | 3.71            | 2.73        | 2.14            | 0.72        | 1.57            | 0.34        | 0.95            | 0.10        | 0.67            | 0.04        | 0.43            | 0.01        |                 |             |
| 12                      |                 |             | 7.21            | 12.37       | 4.45            | 3.82        | 2.57            | 1.01        | 1.89            | 0.48        | 1.15            | 0.14        | 0.80            | 0.06        | 0.52            | 0.02        |                 |             |
| 14                      |                 |             | 8.41            | 16.45       | 5.19            | 5.08        | 3.00            | 1.34        | 2.20            | 0.63        | 1.34            | 0.19        | 0.94            | 0.08        | 0.61            | 0.03        |                 |             |
| 16                      |                 |             | 9.61            | 21.07       | 5.93            | 6.51        | 3.43            | 1.71        | 2.52            | 0.81        | 1.53            | 0.24        | 1.07            | 0.10        | 0.69            | 0.04        | 0.40            | 0.01        |
| 18                      |                 |             | 10.82           | 26.21       | 6.67            | 8.10        | 3.86            | 2.13        | 2.83            | 1.01        | 1.72            | 0.30        | 1.20            | 0.13        | 0.78            | 0.04        | 0.45            | 0.01        |
| 20                      |                 |             | 12.02           | 31.85       | 7.42            | 9.84        | 4.28            | 2.59        | 3.15            | 1.22        | 1.91            | 0.36        | 1.34            | 0.15        | 0.87            | 0.05        | 0.50            | 0.01        |
| 22                      |                 |             |                 |             | 8.16            | 11.74       | 4.71            | 3.09        | 3.46            | 1.46        | 2.10            | 0.43        | 1.47            | 0.18        | 0.95            | 0.06        | 0.55            | 0.02        |
| 24                      |                 |             |                 |             | 8.90            | 13.79       | 5.14            | 3.63        | 3.78            | 1.72        | 2.29            | 0.51        | 1.61            | 0.21        | 1.04            | 0.07        | 0.60            | 0.02        |
| 26                      |                 |             |                 |             | 9.64            | 16.00       | 5.57            | 4.21        | 4.09            | 1.99        | 2.48            | 0.59        | 1.74            | 0.25        | 1.13            | 0.09        | 0.65            | 0.02        |
| 28                      |                 |             |                 |             | 10.38           | 18.35       | 6.00            | 4.83        | 4.41            | 2.28        | 2.67            | 0.68        | 1.87            | 0.28        | 1.21            | 0.10        | 0.70            | 0.03        |
| 30                      |                 |             |                 |             | 11.12           | 20.85       | 6.43            | 5.49        | 4.72            | 2.59        | 2.86            | 0.77        | 2.01            | 0.32        | 1.30            | 0.11        | 0.76            | 0.03        |
| 32                      |                 |             |                 |             | 11.86           | 23.50       | 6.86            | 6.19        | 5.04            | 2.92        | 3.06            | 0.87        | 2.14            | 0.36        | 1.39            | 0.13        | 0.81            | 0.03        |
| 34                      |                 |             |                 |             | 12.61           | 26.29       | 7.28            | 6.92        | 5.35            | 3.27        | 3.25            | 0.97        | 2.28            | 0.41        | 1.47            | 0.14        | 0.86            | 0.04        |
| 36                      |                 |             |                 |             |                 |             | 7.71            | 7.69        | 5.67            | 3.63        | 3.44            | 1.08        | 2.41            | 0.45        | 1.56            | 0.16        | 0.91            | 0.04        |
| 38                      |                 |             |                 |             |                 |             | 8.14            | 8.50        | 5.98            | 4.02        | 3.63            | 1.19        | 2.54            | 0.50        | 1.65            | 0.17        | 0.96            | 0.05        |
| 40                      |                 |             |                 |             |                 |             | 8.57            | 9.35        | 6.30            | 4.42        | 3.82            | 1.31        | 2.68            | 0.55        | 1.73            | 0.19        | 1.01            | 0.05        |
| 42                      |                 |             |                 |             |                 |             | 9.00            | 10.24       | 6.61            | 4.83        | 4.01            | 1.43        | 2.81            | 0.60        | 1.82            | 0.21        | 1.06            | 0.06        |
| 44                      |                 |             |                 |             |                 |             | 9.43            | 11.16       | 6.93            | 5.27        | 4.20            | 1.56        | 2.94            | 0.66        | 1.91            | 0.23        | 1.11            | 0.06        |
| 46                      |                 |             |                 |             |                 |             | 9.86            | 12.12       | 7.24            | 5.72        | 4.39            | 1.70        | 3.08            | 0.71        | 1.99            | 0.25        | 1.16            | 0.07        |
| 48                      |                 |             |                 |             |                 |             | 10.28           | 13.11       | 7.56            | 6.19        | 4.58            | 1.84        | 3.21            | 0.77        | 2.08            | 0.27        | 1.21            | 0.07        |
| 50                      |                 |             |                 |             |                 |             | 10.71           | 14.14       | 7.87            | 6.68        | 4.77            | 1.98        | 3.35            | 0.83        | 2.17            | 0.29        | 1.26            | 0.08        |
| 55                      |                 |             |                 |             |                 |             | 11.78           | 16.87       | 8.66            | 7.97        | 5.25            | 2.36        | 3.68            | 0.99        | 2.38            | 0.35        | 1.38            | 0.09        |
| 60                      |                 |             |                 |             |                 |             | 12.85           | 19.82       | 9.44            | 9.36        | 5.73            | 2.77        | 4.02            | 1.17        | 2.60            | 0.41        | 1.51            | 0.11        |
| 65                      |                 |             |                 |             |                 |             |                 |             | 10.23           | 10.86       | 6.21            | 3.22        | 4.35            | 1.36        | 2.82            | 0.47        | 1.64            | 0.13        |
| 70                      |                 |             |                 |             |                 |             |                 |             | 11.02           | 12.45       | 6.68            | 3.69        | 4.69            | 1.55        | 3.03            | 0.54        | 1.76            | 0.14        |
| 75                      |                 |             |                 |             |                 |             |                 |             | 11.81           | 14.15       | 7.16            | 4.19        | 5.02            | 1.77        | 3.25            | 0.61        | 1.89            | 0.16        |
| 80                      |                 |             |                 |             |                 |             |                 |             | 12.59           | 15.95       | 7.64            | 4.73        | 5.35            | 1.99        | 3.47            | 0.69        | 2.01            | 0.18        |
| 85                      |                 |             |                 |             |                 |             |                 |             | 13.38           | 17.84       | 8.12            | 5.29        | 5.69            | 2.23        | 3.68            | 0.77        | 2.14            | 0.21        |
| 90                      |                 |             |                 |             |                 |             |                 |             |                 |             | 8.59            | 5.88        | 6.02            | 2.48        | 3.90            | 0.86        | 2.27            | 0.23        |
| 95                      |                 |             |                 |             |                 |             |                 |             |                 |             | 9.07            | 6.50        | 6.36            | 2.74        | 4.12            | 0.95        | 2.39            | 0.25        |
| 100                     |                 |             |                 |             |                 |             |                 |             |                 |             | 9.55            | 7.15        | 6.69            | 3.01        | 4.33            | 1.05        | 2.52            | 0.28        |
| 110                     |                 |             |                 |             |                 |             |                 |             |                 |             | 10.50           | 8.53        | 7.36            | 3.59        | 4.77            | 1.25        | 2.77            | 0.33        |
| 120                     |                 |             |                 |             |                 |             |                 |             |                 |             | 11.46           | 10.02       | 8.03            | 4.22        | 5.20            | 1.47        | 3.02            | 0.39        |
| 130                     |                 |             |                 |             |                 |             |                 |             |                 |             | 12.41           | 11.62       | 8.70            | 4.89        | 5.63            | 1.70        | 3.27            | 0.45        |
| 140                     |                 |             |                 |             |                 |             |                 |             |                 |             | 13.37           | 13.33       | 9.37            | 5.61        | 6.07            | 1.95        | 3.52            | 0.52        |
| 150                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.04           | 6.38        | 6.50            | 2.22        | 3.78            | 0.59        |
| 160                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.71           | 7.19        | 6.94            | 2.50        | 4.03            | 0.67        |
| 170                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.38           | 8.04        | 7.37            | 2.79        | 4.28            | 0.74        |
| 180                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.05           | 8.94        | 7.80            | 3.11        | 4.53            | 0.83        |
| 190                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.72           | 9.88        | 8.24            | 3.43        | 4.78            | 0.92        |
| 200                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 13.39           | 10.87       | 8.67            | 3.78        | 5.03            | 1.01        |
| 220                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 9.54            | 4.50        | 5.54            | 1.20        |
| 240                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.40           | 5.29        | 6.04            | 1.41        |
| 260                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.27           | 6.14        | 6.54            | 1.64        |
| 280                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.14           | 7.04        | 7.05            | 1.88        |
| 300                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 13.00           | 8.00        | 7.55            | 2.13        |
| 320                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 13.87           | 9.02        | 8.05            | 2.40        |
| 340                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 8.56            | 2.69        |
| 360                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 9.06            | 2.99        |
| 380                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 9.57            | 3.30        |
| 400                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.07           | 3.63        |
| 420                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 10.57           | 3.98        |
| 440                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.08           | 4.33        |
| 460                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 11.58           | 4.71        |
| 480                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.08           | 5.09        |
| 500                     |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             | 12.59           | 5.49        |

Notes: Shaded areas represent velocities over 5 fps. Use with caution when water hammer is a concern.



# FRICTION LOSS CHARTS

**TABLE OF APPROXIMATE PRESSURE LOSSES FOR PIPE FITTINGS (LISTED IN EQUIVALENT FEET OF PIPE)**

| Steel Fitting Type  | ½"   | ¾"  | 1"  | 1¼" | 1½" | 2"  | 2½" | 3"  | 4" | 6"  | 8" |
|---------------------|------|-----|-----|-----|-----|-----|-----|-----|----|-----|----|
| Coupling            | 0.6  | 0.8 | 1   | 1.2 | 1.5 | 2   | 2.5 | 3   | 4  | 6   | 8  |
| Run of St. Tee      | 1    | 1   | 1.5 | 2   | 2   | 2.5 | 3   | 4   | 5  | 7   | 10 |
| Tee, Side Outlet    | 3    | 4.5 | 5   | 7   | 9   | 11  | 13  | 16  | 20 | 31  | 42 |
| Tee, Run Reduced ½" | 1.5  | 2.5 | 3   | 4   | 5   | 6   | 7   | 8   | 12 | 16  | 20 |
| Elbow, 90°          | 1.5  | 2.5 | 3   | 4   | 5   | 6   | 7   | 8   | 12 | 16  | 20 |
| Elbow, 45°          | 0.75 | 1   | 1.3 | 1.7 | 2   | 2.5 | 3   | 3.5 | 5  | 7.5 | 10 |
| Corporation Stop    | 9    | 9   | 9   | 9   | 9   | 9   |     |     |    |     |    |
| Curb Stop           | 6    | 6   | 7   | 7   | 8   | 8   |     |     |    |     |    |

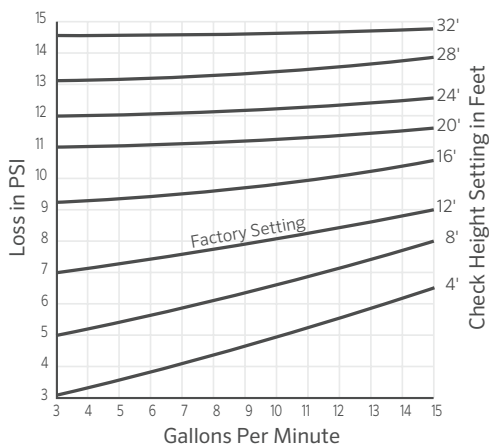
| Plastic IPS or Copper Fitting Type | ½"  | ¾"  | 1"   | 1¼"  | 1½"  | 2"   | 2½"  | 3"   | 4"   | 6"   | 8"   |
|------------------------------------|-----|-----|------|------|------|------|------|------|------|------|------|
| Coupling                           | 1.5 | 2.5 | 3.0  | 3.0  | 4.0  | 6.0  | 7.0  | 8.0  | 11.0 | 18.0 | 24.0 |
| Run of St. Tee                     | 2.5 | 3.0 | 4.0  | 5.0  | 6.0  | 8.0  | 9.0  | 11.0 | 15.0 | 21.0 | 28.0 |
| Tee, Side Outlet                   | 7.0 | 9.0 | 12.0 | 15.0 | 18.0 | 24.0 | 30.0 | 36.0 | 45.0 | 70.0 | 90.0 |
| Tee, Run Reduced ½"                | 3.5 | 4.5 | 6.0  | 8.0  | 9.0  | 11.0 | 14.0 | 17.0 | 24.0 | 34.0 | 45.0 |
| Elbow, 90°                         | 3.5 | 4.5 | 6.0  | 8.0  | 9.0  | 11.0 | 14.0 | 17.0 | 24.0 | 34.0 | 45.0 |
| Elbow, 34°                         | 1.5 | 2.0 | 3.0  | 3.5  | 4.0  | 5.0  | 7.0  | 8.0  | 10.0 | 16.0 | 20.0 |

To use this chart, multiply the approximate "equivalent feet of pipe" value by the proper pipe pressure loss per 100 ft. rating, then divide by 100. The result is the fitting loss in PSI.

**Note:** It is recommended that the charts above only be used when the manufacturer's recommended pressure loss values are not available.

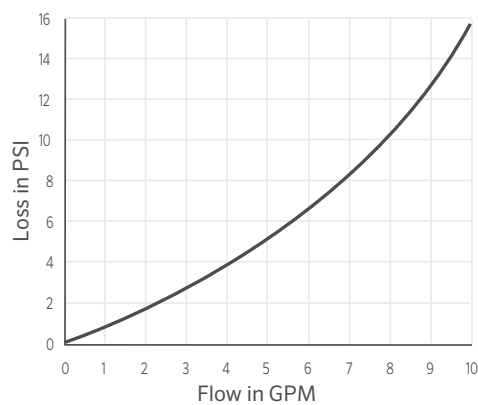
## ACCESSORY PRESSURE LOSS CHARTS

**HCV PRESSURE LOSS CHART**



For more information, see the Hunter Check Valve section on **page 30**

**SJ SWING JOINT FRICTION LOSS**



For more information, see the Spray Accessories section on **page 60**

# PRESSURE LOSS CHARTS

| BTT 1-ZONE Inlet Size ¾",<br>Flow Rate: 1 to 8 GPM |               |
|----------------------------------------------------|---------------|
| GPM                                                | Pressure Loss |
| 1                                                  | 4             |
| 2                                                  | 5             |
| 3                                                  | 6             |
| 4                                                  | 8             |
| 5                                                  | 11            |
| 6                                                  | 15            |
| 7                                                  | 20            |
| 8                                                  | 26            |

**Note:** Maximum flow at 50 PSI

| BTT 2-ZONE Inlet Size ¾",<br>Flow Rate: 1 to 8 GPM |               |
|----------------------------------------------------|---------------|
| GPM                                                | Pressure Loss |
| 1                                                  | 2             |
| 2                                                  | 3             |
| 3                                                  | 5             |
| 4                                                  | 7             |
| 5                                                  | 10            |
| 6                                                  | 14            |
| 7                                                  | 18            |
| 8                                                  | 24            |

**Note:** Maximum flow at 50 PSI (1-zone activated)

For applications requiring higher efficiency and lower pressure loss, use Hunter valves and dripline products.

| HY FILTER PRESSURE LOSS IN PSI (AT OPTIMAL FLOWS) |               |               |                |                   |                |                  |
|---------------------------------------------------|---------------|---------------|----------------|-------------------|----------------|------------------|
| Flow (GPM)                                        | *HY-075<br>¾" | *HY-100<br>1" | *HY-151<br>1½" | **HY-151-D<br>1½" | **HY-201<br>2" | **HY-201-D<br>2" |
| 0.5                                               | 0             | 0             |                |                   |                |                  |
| 2                                                 | 0             | 0             |                |                   |                |                  |
| 5                                                 | 1             | 1             |                |                   |                |                  |
| 7                                                 | 2             | 2             |                |                   |                |                  |
| 10                                                | 3             | 3             |                |                   |                |                  |
| 15                                                | 6             | 6             |                |                   |                |                  |
| 20                                                | 11            | 11            | 0              | 0                 | 0              | 0                |
| 30                                                |               |               | 1              | 1                 | 0              | 0                |
| 40                                                |               |               | 1              | 2                 | 0              | 1                |
| 50                                                |               |               | 2              | 3                 | 1              | 1                |
| 60                                                |               |               | 3              | 4                 | 1              | 2                |
| 70                                                |               |               | 3              | 4                 | 1              | 2                |
| 80                                                |               |               | 4              | 5                 | 2              | 3                |
| 90                                                |               |               |                |                   | 2              | 3                |
| 100                                               |               |               |                |                   | 3              | 4                |

**Notes:** \*With standard 150 mesh screen \*\*With standard 120 mesh disc

# WIRE DATA

| STANDARD ANNEALED COPPER AT 68°F (20°C) |                                             |                 |               |                                         |                           |                          |
|-----------------------------------------|---------------------------------------------|-----------------|---------------|-----------------------------------------|---------------------------|--------------------------|
| American Wire Gauge                     | Common Metric Equivalent (mm <sup>2</sup> ) | Diameter (mils) | Diameter (mm) | Cross-Sectional Area (mm <sup>2</sup> ) | Resistance (Per mft ohms) | Resistance (Per km ohms) |
| 1                                       | 50                                          | 289.3           | 7.348         | 42.4                                    | 0.924                     | 0.407                    |
| 2                                       | 35                                          | 257.6           | 6.543         | 33.6                                    | 0.156                     | 0.513                    |
| 3                                       |                                             | 229.4           | 5.827         | 26.7                                    | 0.197                     | 0.647                    |
| 4                                       | 25                                          | 204.3           | 5.189         | 21.1                                    | 0.249                     | 0.815                    |
| 5                                       |                                             | 181.9           | 4.62          | 16.8                                    | 0.313                     | 1.028                    |
| 6                                       | 16                                          | 162             | 4.115         | 13.3                                    | 0.395                     | 1.297                    |
| 7                                       |                                             | 144.3           | 3.665         | 10.6                                    | 0.498                     | 1.634                    |
| 8                                       | 10                                          | 128.5           | 3.264         | 8.36                                    | 0.628                     | 2.061                    |
| 9                                       |                                             | 114.4           | 2.906         | 6.63                                    | 0.793                     | 2.6                      |
| 10                                      | 6                                           | 101.9           | 2.588         | 5.26                                    | 0.999                     | 3.277                    |
| 11                                      |                                             | 90.7            | 2.3           | 4.17                                    | 1.26                      | 4.14                     |
| 12                                      | 4                                           | 80.8            | 2.05          | 3.31                                    | 1.59                      | 5.21                     |
| 13                                      |                                             | 72              | 1.83          | 2.63                                    | 2                         | 6.56                     |
| 14                                      | 2.5                                         | 64.1            | 1.63          | 1.63                                    | 2.52                      | 8.28                     |
| 15                                      |                                             | 57.1            | 1.45          | 1.65                                    | 3.18                      | 10.4                     |
| 16                                      | 1.5                                         | 50.8            | 1.29          | 1.31                                    | 4.02                      | 13.2                     |
| 17                                      |                                             | 45.3            | 1.15          | 1.04                                    | 5.05                      | 16.6                     |
| 18                                      | 0.75                                        | 40.3            | 1.02          | 0.82                                    | 6.39                      | 21                       |
| 19                                      |                                             | 35.9            | 0.912         | 0.65                                    | 8.05                      | 26.4                     |
| 20                                      | 0.5                                         | 32              | 0.813         | 0.52                                    | 10.1                      | 33.2                     |

## PSR WIRE DATA

| MAXIMUM WIRE LENGTH |        |        |        |        |         |         |
|---------------------|--------|--------|--------|--------|---------|---------|
| Model               | 18 AWG | 16 AWG | 14 AWG | 12 AWG | 10 AWG  | 8 AWG   |
| PSR-22              | 243 ft | 386 ft | 616 ft | 976 ft | 1551 ft | 2463 ft |
| PSR-52              | 134 ft | 214 ft | 341 ft | 540 ft | 859 ft  | 1365 ft |
| PSR-53              | 134 ft | 214 ft | 341 ft | 540 ft | 859 ft  | 1365 ft |

For more information, see the Pump Start Relay section on **page 128**.

# WIRE SIZING

## REQUIRED INFORMATION

- 1) Actual one-way length of wire between the controllers and the power source or the controllers and valves
- 2) Allowable voltage loss along the wire circuit
- 3) Accumulative current flowing through the wire section being sized in amperes

## RESISTANCE IS CALCULATED USING THIS FORMULA:

$$R = \frac{1000 \times AVL}{2L \times I}$$

R = Maximum allowable resistance of wire in ohms per 1,000'

AVL = Allowable voltage loss

L = Wire length (one way)

I = Inrush current

AVL for controller power wire sizing is calculated by subtracting the minimum operating voltage required by the controller from the minimum available voltage at the power source.

AVL for valve wire sizing is calculated by subtracting minimum solenoid operating voltage from controller output voltage. This number will vary depending on the manufacturer and in some cases with line pressure.

## VALVE WIRE SIZING EXAMPLE

Given: The distance from the controller to the valve is 1,800'. The controller output is 24 VAC. The valve has a minimum operating voltage of 20 VAC and an inrush current of 370 mA (0.37 A).

$$R = \frac{1,000 \times 4}{2 (1,800) \times 0.37}$$
$$R = \frac{4,000}{1,332}$$
$$R = 3.00 \text{ ohms/1,000 ft.}$$

So, wire resistance cannot exceed 3.00 ohms per 1,000'. Now go to table #1 and select the proper wire size. Since 18 gauge wire has more resistance than 3.00 ohms per 1,000', choose 14 gauge wire.

Table 2 is a quick reference and is set up to provide maximum wire runs given the information at the bottom of the table.

| TABLE 1 - RESISTANCE OF COPPER WIRE |                                               |
|-------------------------------------|-----------------------------------------------|
| Wire Size (AWG)                     | Resistance at 20° C (68° F) (ohms per 1,000') |
| 18                                  | 6.39                                          |
| 16                                  | 4.02                                          |
| 14                                  | 2.52                                          |
| 12                                  | 1.59                                          |
| 10                                  | 1                                             |
| 8                                   | 0.63                                          |
| 6                                   | 0.4                                           |
| 4                                   | 0.25                                          |

| TABLE 2 - VALVE WIRE SIZING |      |              |      |      |      |       |       |
|-----------------------------|------|--------------|------|------|------|-------|-------|
| Ground Wire                 |      | Control Wire |      |      |      |       |       |
|                             | 18   | 16           | 14   | 12   | 10   | 8     | 6     |
| 18                          | 850  | 1040         | 1210 | 1350 | 1460 | 1540  | 1590  |
| 16                          | 1040 | 1340         | 1650 | 1920 | 2150 | 2330  | 2440  |
| 14                          | 1210 | 1650         | 2150 | 2630 | 3080 | 3450  | 3700  |
| 12                          | 1350 | 1920         | 2630 | 3390 | 4170 | 4880  | 5400  |
| 10                          | 1460 | 2150         | 3080 | 4170 | 5400 | 6670  | 7690  |
| 8                           | 1540 | 2330         | 3450 | 4880 | 6670 | 8700  | 10530 |
| 6                           | 1590 | 2440         | 3700 | 5400 | 7690 | 10530 | 13330 |

**Notes:**

Maximum one-way distance in feet between controller and valve heavy-duty solenoid: 24 VAC, 350 mA inrush current, 190 mA holding current, 60 Hz; 370 mA inrush current, 210 mA holding current, 50 Hz.

Table 2 is for a single active solenoid. With two solenoids operating simultaneously on the same wires, the wire distances should be halved.



# SOLAR SYNC® CALIBRATION TABLE

Use this table to identify your region and select the closest region number based on average July ET or peak summer ET. For more information, visit [hunter.info/ReferenceMap](http://hunter.info/ReferenceMap) and [hunter.info/SeasonalAdjustment](http://hunter.info/SeasonalAdjustment).

| CALIBRATION AND SETUP PERIOD                                                                                                         |                                                                                                                                              |                                                  |        |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------|
| Based on the ET of your region using the average July ET or peak summer ET. This is the preferred option when selecting your region. | Based on the temperature for your region using the average July or the driest month high temperature (not the highest temperature for July). | Based on the general description of your region. | Region |
| July* ET is 0.17" or less per day                                                                                                    | Temperature for July* is 65° to 75°F                                                                                                         | U.S. Northern States, Coastal Regions            | 1      |
| July* ET is 0.18" to 0.23" per day                                                                                                   | Temperature for July* is 75° to 85°F                                                                                                         | Mountains, U.S. North Inland States              | 2      |
| July* ET is 0.24" to 0.29" per day                                                                                                   | Temperature for July* is 85° to 95°F                                                                                                         | U.S. Southern States, Inland and High Deserts    | 3      |
| July* ET is 0.30" or more per day                                                                                                    | Temperature for July* is 95° to 105°F                                                                                                        | Deserts                                          | 4      |

Notes: \*For Southern Hemisphere locations, use the month of January.

## ADDITIONAL DATA

| MAXIMUM NUMBER OF WIRES TO BE INSTALLED IN CONDUIT OR SLEEVING |    |    |    |     |     |    |     |     |     |     |     |     |                 |
|----------------------------------------------------------------|----|----|----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----------------|
| Wire Size (AWG)                                                | ½" | ¾" | 1" | 1¼" | 1½" | 2" | 2½" | 3"  | 3½" | 4"  | 5"  | 6"  | Wire Size (AWG) |
| 18                                                             | 6  | 12 | 20 | 35  | 49  | 80 | 110 | 175 |     |     |     |     | 18              |
| 16                                                             | 5  | 10 | 16 | 30  | 42  | 67 | 97  | 150 |     |     |     |     | 16              |
| 14                                                             | 4  | 6  | 10 | 18  | 25  | 40 | 56  | 88  | 120 | 150 |     |     | 14              |
| 12                                                             | 3  | 5  | 7  | 15  | 20  | 33 | 50  | 75  | 102 | 130 | 205 |     | 12              |
| 10                                                             | 1  | 3  | 6  | 13  | 16  | 27 | 40  | 63  | 85  | 110 | 170 |     | 10              |
| 8                                                              | 1  | 2  | 4  | 6   | 9   | 16 | 25  | 35  | 50  | 65  | 105 | 150 | 8               |
| 6                                                              | 1  | 1  | 3  | 3   | 5   | 10 | 15  | 22  | 32  | 40  | 63  | 92  | 6               |
| 4                                                              |    | 1  | 1  | 2   | 4   | 7  | 10  | 16  | 24  | 30  | 48  | 70  | 4               |
| 2                                                              |    | 1  | 1  | 2   | 2   | 5  | 9   | 12  | 18  | 22  | 36  | 54  | 2               |
| 0                                                              |    |    | 1  | 1   | 2   | 3  | 5   | 8   | 12  | 15  | 24  | 36  | 0               |
| 00                                                             |    |    | 1  | 1   | 1   | 2  | 4   | 7   | 10  | 14  | 21  | 31  | 00              |
| 000                                                            |    |    |    | 1   | 1   | 2  | 3   | 6   | 8   | 11  | 18  | 26  | 000             |
| 0000                                                           |    |    |    | 1   | 1   | 1  | 2   | 5   | 7   | 10  | 15  | 22  | 0000            |

## STATEMENT OF WARRANTY

### Hunter Residential and Commercial Irrigation Products

Hunter Industries Incorporated ("Hunter") warrants the following products to be free of defects in materials or workmanship under normal use in landscape irrigation applications for the specified period of time outlined below from the original date of manufacture:

|                    |                    |                                                                                   |                    |                                                                                                                                                                             |
|--------------------|--------------------|-----------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ONE YEAR</b>    | <b>ROTORS</b>      | SRM                                                                               | <b>MICRO</b>       | Micro Sprays, PLD Fittings, Rigid Risers, Air/Vacuum Relief Valves                                                                                                          |
|                    | <b>ROTORS</b>      | PGP-ADJ, PGJ, HCV                                                                 | <b>CONTROLLERS</b> | ACC (Legacy), BTT, FS-1000, FS-3000, I-Core/DUAL (Legacy), NODE, NODE-BT, Pro-C, PSR, ROAM, XC Hybrid, X-Core, WWL, and Hydrowise Controllers (HC, X2, WAND, PHC, HPC, HCC) |
| <b>TWO YEARS</b>   | <b>SPRAYS</b>      | PS Ultra, SJ, FlexSG, HSBE                                                        | <b>SENSORS</b>     | HC Flow Meter (wired and wireless)                                                                                                                                          |
|                    | <b>NOZZLES</b>     | Spray Nozzles, PCN, PCB, AFB, MSBN                                                | <b>MICRO</b>       | ACZ, Accu Sync, PCZ, RZWS, Point-Source Emitters, Tubing, Multi-Port Emitters, IH Risers, MLD, Eco-Indicator***, Multi-Purpose Box, Senninger Regulators, PLD-LOC Fittings  |
|                    | <b>VALVES</b>      | PGV                                                                               | <b>TOOLS</b>       | SpotShot                                                                                                                                                                    |
|                    | <b>CENTRAL****</b> | All central communication modules (cell, LAN, Wi-Fi and automation field servers) |                    |                                                                                                                                                                             |
| <b>THREE YEARS</b> | <b>CONTROLLERS</b> | ROAM XL, EZ Decoder System, EZ-DT                                                 | <b>MP ROTATOR</b>  | All                                                                                                                                                                         |
|                    | <b>ROTORS</b>      | PGP Ultra, I-20, I-25, I-40, I-80, and I-90                                       | <b>CONTROLLERS</b> | ACC2, ICC2, ICD Decoders, ICD-HP Programmer                                                                                                                                 |
| <b>FIVE YEARS</b>  | <b>SPRAYS</b>      | Pro-Spray, Pro-Spray PRS30, and Pro-Spray PRS40                                   | <b>SENSORS</b>     | Clik Sensors, Flow-Sync, MWS, Solar Sync, Wireless Flow Sensor                                                                                                              |
|                    | <b>VALVES</b>      | HQ, ICV, IBV                                                                      | <b>MICRO</b>       | ICZ, IBZ, HDL**, HDL-COP**, Eco-Mat, Eco-Wrap, Eco-Indicator***                                                                                                             |

### Hunter Golf and ST System Irrigation Products\*

Hunter will repair, replace, or repurchase, at its sole discretion, any defective component\* assemblies contained within the Golf and ST products listed below by category, returned freight prepaid, from the date of manufacture within a period of:

|                    |                                                                              |                                                                                                                                                        |
|--------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ONE YEAR</b>    | <b>GOLF CONTROLLERS</b>                                                      | Pilot Command Center Software, Pilot-FC, Pilot-FI, Pilot Hub                                                                                           |
| <b>THREE YEARS</b> | <b>GOLF ROTORS</b>                                                           | TTS-800 Series, G-800 Series, G-900 Series, B-Series                                                                                                   |
|                    | <b>GOLF TWO-WAY MODULES</b>                                                  | Pilot 100, Pilot 200, Pilot 400, Pilot 600                                                                                                             |
| <b>FIVE YEARS</b>  | <b>GOLF ROTORS</b>                                                           | The golf rotor component warranty is extended to 5 years with a one-for-one purchase of an HSJ Swing Joint from an authorized Hunter Golf distributor. |
|                    | <b>SWING JOINTS</b>                                                          | HSJ-0, HSJ-1, HSJ-2, HSJ-3                                                                                                                             |
|                    | <b>ST ROTORS</b>                                                             | ST-90, STG-900, ST-1200, ST-1600                                                                                                                       |
|                    | <b>ST ACCESSORIES</b>                                                        | All models starting with "ST"                                                                                                                          |
|                    | <b>COMPUTER, PRINTERS &amp; ACCESSORIES, MAINTENANCE RADIO &amp; BATTERY</b> | Equipment manufacturer's warranty (no Hunter warranty)                                                                                                 |

\* Warranty covers repair, replacement, or repurchase of individual defective component assemblies contained within the product. Returns of complete finished goods are not allowed under warranty without prior approval from the Hunter Product Manager.

If used for agricultural applications, Hunter limits the warranty for valves, sprays, MP Rotator Nozzles, and rotor products to a period of one (1) year from the original date of manufacture. This agriculture limitation supersedes all other warranties expressed or implied.

\*\* Plus 2 additional years for environmental stress cracking. No warranty against root intrusion on HDL-COP. While the use of copper does not completely remove the chance of root intrusion, it has been shown to assist in its prevention when coupled with proper irrigation scheduling.

\*\*\* Eco-Indicator – 6" ECO-ID: 2-year warranty; 12" ECO-ID-12: 5-year warranty

\*\*\*\* Hunter's cellular module warranty does not apply to the availability or compatibility of cellular data service, in any particular area. Availability of compatible data services should be determined prior to installation.

## *Statement of Warranty, Continued*

If a defect in a Hunter product is discovered during the applicable warranty period, Hunter will repair or replace, at its option, the product or the defective part. This warranty does not extend to repairs, adjustments, or replacement of a Hunter product or part that results from misuse, negligence, alteration, modification, tampering, or improper installation and/or maintenance of the product. This warranty extends only to the original installer of the Hunter product. If a defect arises in a Hunter product during the warranty period, contact your local Hunter Authorized Distributor.

Hunter's warranty applies only to products installed as specified and used as intended for irrigation purposes. Hunter's warranty shall be limited to defects in materials and workmanship during the warranty period, and shall not extend to situations in which the product was subjected to improper design, installation, operation, maintenance, application, abuse, improper electrical current, grounding, service other than by Hunter authorized agents, operating conditions other than that for which it was designed, or in systems using water containing corrosive chemicals, electrolytes, sand, dirt, silt, rust, or agents that otherwise attack and degrade plastics. Hunter's warranty does not cover component failures caused by lightning strikes, electrical power surges, or unconditioned power supplies. If products are repurchased, the price to Distributor for such products in effect at the time of return will apply.

Hunter's obligation to repair, replace, or repurchase its products or product components as set forth above is the sole and exclusive warranty extended by Hunter. There are no other warranties, expressed or implied, including warranties of merchantability and warranties of fitness for a particular purpose. Hunter will not be liable to a distributor or to any other party in strict liability, tort, contract, or any other manner for any damages caused or claimed to be caused as a result of any design of or defect in Hunter's products, or for any special, incidental, or consequential damages of any nature.

Where applicable, Hunter's statement of warranty complies with local directives.

**If you have any questions concerning the warranty or its application, please email [support@hunterindustries.com](mailto:support@hunterindustries.com).**

## **ASAE CERTIFICATION STATEMENT**

Hunter Industries Incorporated certifies that pressure, flow rate, and radius data for these products were determined and listed in accordance with ASAE Standard S398.1, Procedure for Sprinkler Testing and Performance Reporting, and are representative of performance of production sprinklers at the time of publication. Actual product performance may differ from the published specifications due to normal manufacturing variations and sample selection. All other specifications are solely the recommendation of Hunter Industries Incorporated.



Helping our customers succeed is what drives us. While our passion for innovation and engineering is built into everything we do, it is our commitment to exceptional support that we hope will keep you in the Hunter family of customers for years to come.

A stylized, handwritten signature in white ink, appearing to read "G.R. Hunter".

Gregory R. Hunter, CEO of Hunter Industries

A stylized, handwritten signature in white ink, appearing to read "Denise Mullikin".

Denise Mullikin, President, Landscape Irrigation and Outdoor Lighting

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