

*AUTOMOTIVE, AIR CONDITIONING,*



**Mastercool<sup>®</sup>** Inc.  
*"World Class Quality"*

*SERVICE TOOLS AND EQUIPMENT*







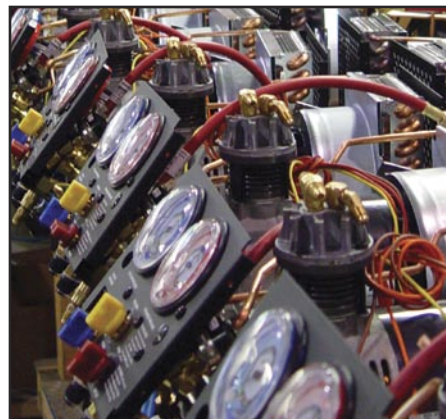
**Corporate Office  
Manufacturing and USA Warehouse**

For over 25 years Mastercool has been supplying professional quality air conditioning service tools and equipment. As one of the fastest growing companies in this market, our primary goal is to drive New Product Innovation and Technologies to make the every day work of the technician easier!

With our never-ending focus on innovation and new technology, Mastercool has been awarded many patents worldwide. Our products are currently being distributed in over 55 countries and growing everyday!



**In House Sensor Manufacturing**



**Recovery Machine Assembly Line**



**Machining Operation**



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## R134a DIGITAL MANIFOLD

### Mastercool introduces the most advanced and user friendly R134a Digital Manifold on the Market today!

This manifold offers a large easy to read LCD that displays temperature, pressure and vacuum readings for R134a. The unit easily allows the technician to obtain refrigerant and oil capacity readings for 55 automobile manufacturers. This unit also performs systems leak check at the conclusion of the evacuation process. To insure lasting performance and durability the manifold case is constructed of ABS material and protected by a rugged rubber boot.

The technician now has a fully functional manifold with the intelligence to quickly access and deliver the accurate information needed to do the job right!



Heavy-Duty Hook Folds  
Back Into Unit For  
Compact Storage

*Now Includes: Refrigerants and  
Oil Capacities for over  
1000 Makes and Models*

Protective Rubber Boot

Large Easy-To-Read  
LCD Screen

Keypad Control

Rugged ABS Case

Programming  
Connector for  
Software  
Upgrades

Aluminum Block Manifold  
With Double O-Ring Free  
Floating Piston Valves



Patent Pending

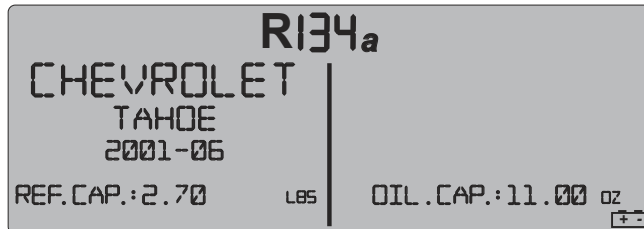




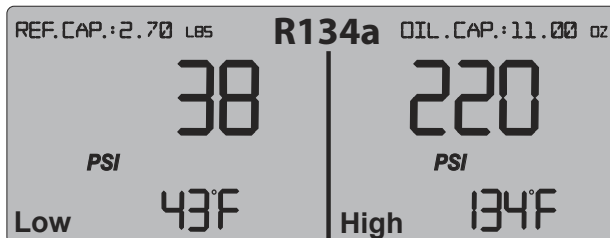
## All the Information you Need, in the PALM OF YOUR HAND!

### DIGITAL LCD DISPLAYS:

#### REFRIGERANT & OIL CAPACITY MANUFACTURER/MODEL/YEAR



#### TEMPERATURE/PRESSURE



#### MANUFACTURERS Included:

|            |            |               |            |
|------------|------------|---------------|------------|
| Acura      | Honda      | Mitsubishi    | Smart      |
| Alfa Romeo | Hummer     | Mercedes-Benz | Subaru     |
| Audi       | Hyundai    | Nissan        | Suzuki     |
| BMW        | Infiniti   | Oldsmobile    | Toyota     |
| Buick      | Isuzu      | Opel-Vauxhall | Volkswagen |
| Cadillac   | Jaguar     | Peugeot       | Volvo      |
| Chevrolet  | Jeep       | Plymouth      |            |
| Chrysler   | KIA        | Pontiac       |            |
| Citroen    | Lancia     | Porsche       |            |
| Daewoo     | Land Rover | Renault       |            |
| Daihatsu   | Lexus      | Rover         |            |
| Dodge      | Lincoln    | SAAB          |            |
| Fiat       | Mazda      | Saturn        |            |
| Ford       | Mercury    | Scion         |            |
| GMC        | Mini       | Seat          |            |

**99134-A** Manifold only

**99860-A** Complete Kit in a blow molded case includes: manifold with a set of 3-60" hoses and a set of manual couplers (82834 & 82934).

**99872-A** Complete Kit in a blow molded case includes: manifold with a set of 3-72" hoses and a set of manual couplers (82834 & 82934).

**99134-A-UPDT-10** USB Adapter and CD for Software Upgrade

#### SPECIFICATIONS

- Refrigerant: R134a
- Pressure & Vacuum Display: Low Side - PSI, Bar, MPa, Kg/cm<sup>2</sup> & IN-Hg  
High Side - PSI, Bar, MPa, Kg/cm<sup>2</sup>
- Temperature Display: -40 to 200°F (-4 to 93°C)
- Response Time: 250 mSec.
- Connection: 1/2" ACME
- Operating Temperature: 32 to 122°F (0 to 45°C)
- Power: 9V DC battery
- Battery Life: 50-60 hours continuous use
- Low Battery Indicator: Special ICON on LCD
- Auto-Off: 15 min. with disabling capability



**Mastercool®**  
 "World Class Quality"

# ALUMINUM 4-WAY MANIFOLD GAUGE SETS

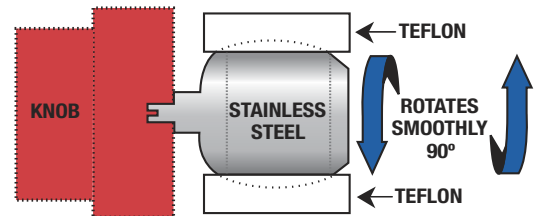


## 3/8" BORE 4-WAY BALL VALVE MANIFOLD

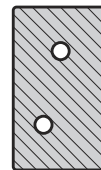
- Full 3/8" bore through the block increases flow considerably – faster charging & recovery
- Ball valve rotates 90° between two Teflon washers requiring little effort to turn, even under pressure
- Opens and closes quickly with only a quarter turn
- Knob position shows whether valves are open or closed (Vertical = OPEN, Horizontal = CLOSED)

Mastercool is the leading manufacturer of professional quality AC/R manifold gauge sets. Our manifold gauge sets are constructed of the finest materials and machined with precision to the highest standards. At Mastercool, every manifold we build is built to last.

## Mastercool's Aluminum 4-Way Manifolds feature PREMIER SERIES BALL VALVE DESIGN.

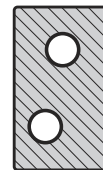


### Traditional 1/4" Bore



(Side Cut-away View )  
Competitor's Manifold Block  
W/1/4" bore

### Mastercool's 3/8" Bore



(Side Cut-away View )  
Mastercool's Manifold Block W/3/8" bore  
all the way through the block

**COMPARE!**



**R134a Auto A/C 4-way manifold gauge sets with hoses packaged in blow molded cases. Hose connections for blue and red are 14mm-M. Yellow hose is 1/2" ACME-F with auto shut-off valve. Gauges are 3 1/8" in PSI/Kpa & °F.**

| HOSE LENGTH (SET OF 4) | W/O COUPLERS | W/MANUAL COUPLERS | W/E-Z SNAP™ COUPLERS |
|------------------------|--------------|-------------------|----------------------|
| 36"                    | 86536        | 86936             | 86436                |
| 60"                    | 86561        | 86961             | 86461                |
| 72"                    | 86572        | 86972             | 86472                |



**R12, R22 and R502 4-way manifold gauge sets with hoses packaged in blow molded cases. Hose connections are 1/4" SAE and gauges are 3 1/8" in PSI & °F.**

| HOSE LENGTH (SET OF 4) | STANDARD HOSES<br>STANDARD FITTINGS | STANDARD HOSES AUTO<br>SHUT-OFF VALVES | NYLON BARRIER HOSES<br>STANDARD FITTINGS | NYLON BARRIER HOSES<br>AUTO SHUT-OFF VALVES |
|------------------------|-------------------------------------|----------------------------------------|------------------------------------------|---------------------------------------------|
| 36"                    | 95136                               | 95336                                  | 95236                                    | 95436                                       |
| 60"                    | 95161                               | 95361                                  | 95261                                    | 95461                                       |
| 72"                    | 95172                               | 95372                                  | 95272                                    | 95472                                       |

To order manifolds with shock-resistant gauge protectors, simply place a "-G" after the part number.

## 4-WAY MANIFOLDS W/GAUGES ONLY

- 86103** R134a 3 1/8" (1/2" ACME-M)  
**95103** R12, R22, R502 3 1/8" (1/4" MFL)

## 3 1/8" GAUGES

- 86350** R134a PSI/Kpa & °F Low Side Gauge  
**86500** R134a PSI/Kpa & °F High Side Gauge  
**91250** R12, R22, R502 PSI & °F Low Side Gauge  
**91500** R12, R22, R502 PSI & °F High Side Gauge

## GAUGE PROTECTORS and LENS

- 91253-E** Blue Gauge Protector 3 1/8"  
**91503-E** Red Gauge Protector 3 1/8"  
**91553-E** Set (Red & Blue) Gauge Protectors 3 1/8"  
**98251-E** 3 1/8" Lens



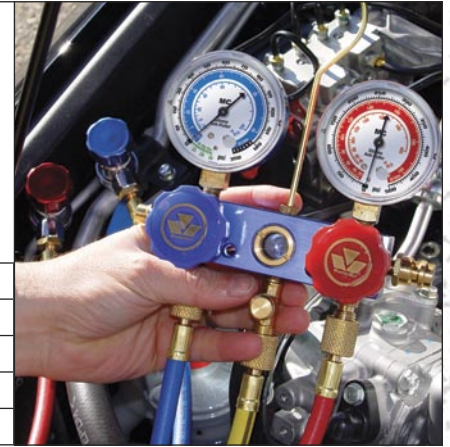


## R134a Auto A/C 2-way manifold gauge sets with hoses packaged in clamshells.

- Hose connections for blue and red are 14mm-M.
- Yellow hose is 1/2" ACME-F with auto shut-off valve.
- Gauges are 2 1/2" in PSI/°F, 3 1/8" in PSI/Kpa & °F.

To order manifolds with shock-resistant gauge protectors, simply place a "-G" after the part no. (2 1/2" only)

| HOSE LENGTH (SET OF 3) | W/MANUAL COUPLERS |        | W/E-Z SNAP™ COUPLERS |        | W/O COUPLERS |        |
|------------------------|-------------------|--------|----------------------|--------|--------------|--------|
| GAUGE SIZE             | 2 1/2"            | 3 1/8" | 2 1/2"               | 3 1/8" | 2 1/2"       | 3 1/8" |
| 36"                    | 89636             | 89136  | 88436                | 88136  | 85636        | 85136  |
| 60"                    | 89661             | 89161  | 88461                | 88161  | 85661        | 85161  |
| 72"                    | 89772             | 89172  | 88472                | 88172  | 85772        | 85172  |



## R12, R22 and R502 2-way manifold gauge sets with hoses packaged in clamshells.

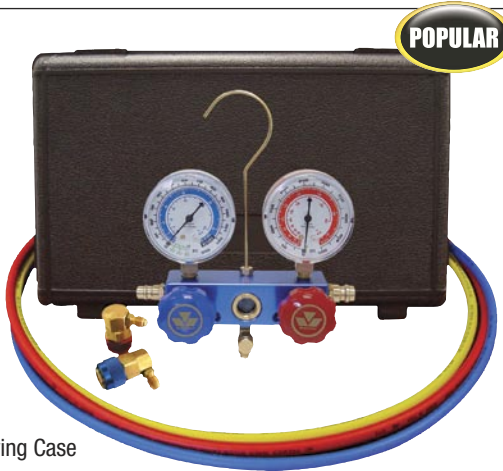
- Hose connections are 1/4" SAE.
- Gauges are 2 1/2" or 3 1/8" in PSI & °F.

To order manifolds with shock-resistant gauge protectors, simply place a "-G" after the part no. (2 1/2" only)

| HOSE LENGTH (SET OF 3) |  | STANDARD HOSES STANDARD FITTINGS |        | STANDARD HOSES AUTO SHUT-OFF VALVES |        | NYLON BARRIER HOSES STANDARD FITTINGS |        | NYLON BARRIER HOSES AUTO SHUT-OFF VALVES |        | NYLON BARRIER HOSES MANUAL BALL VALVES |        |
|------------------------|--|----------------------------------|--------|-------------------------------------|--------|---------------------------------------|--------|------------------------------------------|--------|----------------------------------------|--------|
| GAUGE SIZE             |  | 2 1/2"                           | 3 1/8" | 2 1/2"                              | 3 1/8" | 2 1/2"                                | 3 1/8" | 2 1/2"                                   | 3 1/8" | 2 1/2"                                 | 3 1/8" |
| 36"                    |  | 93636                            | 93136  | 95636                               | 95536  | 96636                                 | 96136  | 97636                                    | 97136  | 92636                                  | 92136  |
| 60"                    |  | 93661                            | 93161  | 95661                               | 95561  | 96661                                 | 96161  | 97661                                    | 97161  | 92661                                  | 92161  |
| 72"                    |  | 93772                            | 93172  | 95772                               | 95572  | 96772                                 | 96172  | 97772                                    | 97172  | 92772                                  | 92172  |

### 89660 AUTOMOTIVE R134a MANIFOLD GAUGE SET

- Professional Extruded Aluminum Block
- Silicone Dampened, Recalibrateable Gauges
- 3 - SAE Approved Nylon Barrier Hoses
- Professional R134a Couplers
- Custom Molded Carrying Case



POPULAR

### 98660 DUAL R134a/R12 MANIFOLD GAUGE SET

- Professional Extruded Aluminum Block
- Silicone Dampened, Recalibrateable Gauges
- Set of 3 - R134a Nylon Barrier Hoses
- Set of 3 - R12 Nylon Barrier Hoses
- Professional R134a Couplers
- Custom Molded Carrying Case



### 98661 DUAL R134a/R12 MANIFOLD GAUGE SET

- Professional Extruded Aluminum Block
- Silicone Dampened, Recalibrateable Gauges
- Set of 3 - R134a Nylon Barrier Hoses
- Set of 3 - R12 Nylon Barrier Hoses
- Manual Couplers
- Custom Molded Carrying Case



## 2-WAY MANIFOLDS W/ GAUGES ONLY

### 2 1/2" GAUGES

- 85103** R134a (1/2" ACME-M)  
**93103** R12, R22, R502 (1/4" FL-M)

### 3 1/8" GAUGES

- 85113** R134a (1/2" ACME-M)  
**93113** R12, R22, R502 (1/4" FL-M)

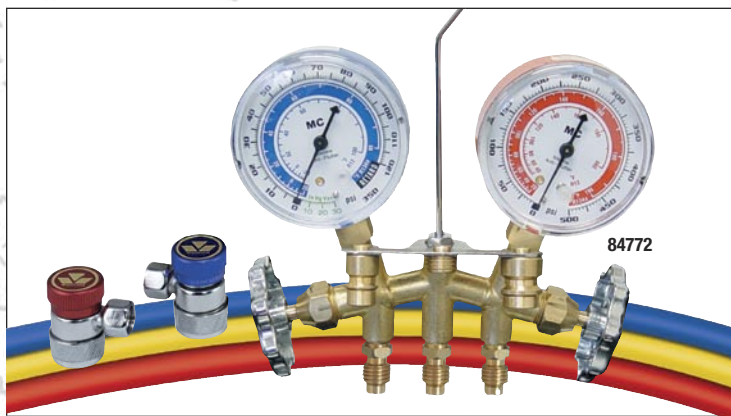
## PARTS FOR 2-WAY ALUMINUM MANIFOLDS

- 85215** O-rings for Al. Manifold (4 pcs)    **85216** Seal & Seat Assembly (2 pcs)



**Mastercool®**  
 "World Class Quality"

## BRASS 2-WAY MANIFOLD GAUGE SETS

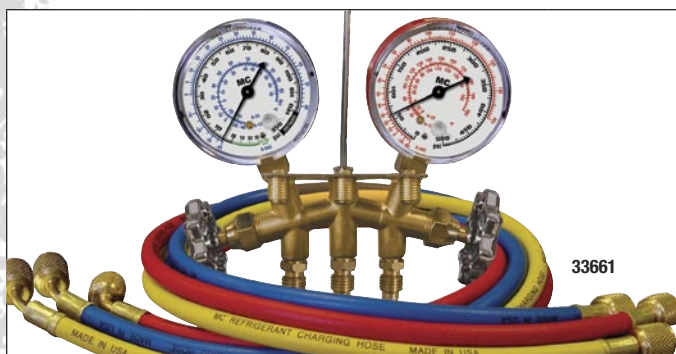


### R134a Auto A/C 2-way manifold gauge sets with hoses packaged in clamshells.

- Hose connections for blue and red are 14mm-M.
- Yellow hose is 1/2" ACME-F with auto shut-off valve.
- Gauges are 2 1/2" PSI/°F, 3 1/8" in PSI/Kpa & °F.

To order manifolds with shock-resistant gauge protectors, simply place a "-G" after the part number. (2 1/2" only)

| HOSE LENGTH<br>(SET OF 3) | W/MANUAL COUPLERS    |        | W/E-Z SNAP™ COUPLERS |        | W/O COUPLERS |        |
|---------------------------|----------------------|--------|----------------------|--------|--------------|--------|
| GAUGE SIZE                | 2 1/2"               | 3 1/8" | 2 1/2"               | 3 1/8" | 2 1/2"       | 3 1/8" |
| 36"                       | 84636                | 84136  | 83436                | 83136  | 80636        | 80136  |
| 60"                       | 84661                | 84161  | 83461                | 83161  | 80661        | 80161  |
| 72"                       | 84772 <b>POPULAR</b> | 84172  | 83472                | 83172  | 80772        | 80172  |



### R12, R22 and R502 2-way manifold gauge sets with hoses packaged in clamshells.

- Hose connections are 1/4" SAE.
- Gauges are 2 1/2" or 3 1/8" in PSI & °F.

To order manifolds with shock-resistant gauge protectors, simply place a "-G" after the part number. (2 1/2" only)

| HOSE LENGTH<br>(SET OF 3) | STANDARD HOSES<br>STANDARD FITTINGS |        | STANDARD HOSES<br>AUTO SHUT-OFF VALVES |        | NYLON BARRIER HOSES<br>STANDARD FITTINGS |        | NYLON BARRIER HOSES<br>AUTO SHUT-OFF VALVES |        | NYLON BARRIER HOSES<br>MANUAL BALL VALVES |        |
|---------------------------|-------------------------------------|--------|----------------------------------------|--------|------------------------------------------|--------|---------------------------------------------|--------|-------------------------------------------|--------|
| GAUGE SIZE                | 2 1/2"                              | 3 1/8" | 2 1/2"                                 | 3 1/8" | 2 1/2"                                   | 3 1/8" | 2 1/2"                                      | 3 1/8" | 2 1/2"                                    | 3 1/8" |
| 36"                       | 33636                               | 33136  | 35636                                  | 35136  | 36636                                    | 36136  | 37636                                       | 37136  | 32636                                     | 32136  |
| 60"                       | 33661                               | 33161  | 35661                                  | 35161  | 36661                                    | 36161  | 37661                                       | 37161  | 32661                                     | 32161  |
| 72"                       | 33772                               | 33172  | 35772                                  | 35172  | 36772                                    | 36172  | 37772                                       | 37172  | 32772                                     | 32172  |

## GAUGES

- 85350** R134a, R12 PSI/°F Low Side Gauge (2 1/2")  
**85500** R134a, R12 PSI/°F High Side Gauge (2 1/2")  
**93350** R12, R22, R502 PSI & °F Low Side Gauge (2 1/2")  
**93500** R12, R22, R502 PSI & °F High Side Gauge (2 1/2")  
**86350** R134a PSI/Kpa & °F Low Side Gauge (3 1/8")  
**86500** R134a PSI/Kpa & °F High Side Gauge (3 1/8")  
**91250** R12, R22, R502 PSI & °F Low Side Gauge (3 1/8")  
**91500** R12, R22, R502 PSI & °F High Side Gauge (3 1/8")

## PARTS FOR 2-WAY BRASS MANIFOLD

- 34215** O-rings for Brass Manifolds  
**34216** Seal & seat assembly for brass manifolds

## AUTOMOTIVE R134a MANIFOLD GAUGE SETS WITH ECONOMY COUPLERS

- 66660** Brass R134a Manifold Gauge Set comes complete with 1 – 60" hose, 2 – 36" hoses and economy couplers. Packaged in a clamshell.
- 66661** Brass R134a Manifold Gauge Set comes complete with 3 – 60" hoses and economy couplers. Packaged in a clamshell.



## BRASS MANIFOLDS W/GAUGES ONLY

- 33103** R12, R22, R502 2 1/2" (1/4" MFL)  
**33113** R12, R22, R502 3 1/8" (1/4" MFL)  
**80103** R134a 2 1/2" (1/2" ACME-M)  
**81113** R134a 3 1/8" (1/2" ACME-M)





Mastercool offers one of the most extensive lines of high quality replacement gauges. Our wide variety of gauge scales are available in different sizes and styles. All of our gauges are designed with the **ANTI-FLUTTER** feature that reduces needle fluctuation and increases reading accuracy.



85350



85500



93500



93350

## 2 1/2" GAUGE MODELS

| MODEL# | COMPOUND (Low Side) | MODEL# | PRESSURE (High Side) | REFRIGERANT    |
|--------|---------------------|--------|----------------------|----------------|
| 85350  | PSI/F               | 85500  | PSI/F                | R134a, R12     |
| 93350  | PSI/F               | 93500  | PSI/F                | R12, R22, R502 |



91500



91250



86500



86350

## 3 1/8" GAUGE MODELS

| MODEL# | COMPOUND (Low Side) | MODEL# | PRESSURE (High Side) | REFRIGERANT    |
|--------|---------------------|--------|----------------------|----------------|
| 86350  | PSI/Kpa/F           | 86500  | PSI/Kpa/F            | R134a          |
| 91250  | PSI/F               | 91500  | PSI/F                | R12, R22, R502 |

Mastercool gauge protectors are built to cushion shock due to rough handling. The unique ribbing deadens bumps and deflects shocks. Snug fitting. Color coded. All Mastercool manifold gauge sets are available with gauge protectors installed. To order, simply place a "-G" after any gauge set number.



## GAUGE PROTECTORS

| COLOR | 2 1/2" GAUGE | 3 1/8" GAUGE |
|-------|--------------|--------------|
| BLUE  | 93253-E      | 91253-E      |
| RED   | 93503-E      | 91503-E      |
| SET   | 93553-E      | 91553-E      |



## REPLACEMENT LENSES

**85253-E** Replacement Lens for 2 1/2" gauge

**98251-E** Replacement Lens for 3 1/8" gauge



**Mastercool**<sup>®</sup>  
"World Class Quality"

## CHARGING HOSES

Mastercool uses only **(GRADE 5 HOSE)** with a selection of Standard and Nylon Barrier for high pressure applications. Knurled brass nuts make finger tightening easy. **Crimped with 8 segment dies for secure fit and maximum durability.** Hoses are available in sets and a variety of lengths to meet all EPA, SAE and UL requirements for containment of refrigerant.

| STANDARD & HIGH PRESSURE HOSES W/STANDARD FITTINGS (1/4" SAE) |       |       |       |       |                                                               |       |       |       |       |
|---------------------------------------------------------------|-------|-------|-------|-------|---------------------------------------------------------------|-------|-------|-------|-------|
| Standard Hoses, Working pressure 750 PSI, Burst 3000 PSI      |       |       |       |       | Nylon Barrier Hoses, Working Pressure 800 PSI, Burst 4000 PSI |       |       |       |       |
| HOSE LENGTH                                                   | 36"   | 60"   | 72"   | 96"   | HOSE LENGTH                                                   | 36"   | 60"   | 72"   | 96"   |
| Blue 1/4"                                                     | 41361 | 41601 | 41721 | 41961 | Blue 1/4"                                                     | 47361 | 47601 | 47721 | 47961 |
| Yellow 1/4"                                                   | 41362 | 41602 | 41722 | 41962 | Yellow 1/4"                                                   | 47362 | 47602 | 47722 | 47962 |
| Red 1/4"                                                      | 41363 | 41603 | 41723 | 41963 | Red 1/4"                                                      | 47363 | 47603 | 47723 | 47963 |
| Black 1/4"                                                    | N/A   | N/A   | N/A   | N/A   | Black 1/4"                                                    | 47364 | 47604 | 47724 | 47964 |
| Sets* 1/4"                                                    | 40336 | 40360 | 40372 | 40396 | Sets* 1/4"                                                    | 47336 | 47360 | 47372 | 47396 |
| Black 3/8"                                                    | N/A   | N/A   | N/A   | N/A   | Black 3/8"                                                    | 48364 | 48604 | 48724 | 48964 |

\* Sets include one blue, one red and one yellow hose.

| STANDARD & HIGH PRESSURE HOSES W/AUTOMATIC SHUT-OFF VALVE FITTINGS (1/4" SAE) |       |       |       |       |                                                               |       |       |       |       |
|-------------------------------------------------------------------------------|-------|-------|-------|-------|---------------------------------------------------------------|-------|-------|-------|-------|
| Standard Hoses, Working pressure 750 PSI, Burst 3000 PSI                      |       |       |       |       | Nylon Barrier Hoses, Working Pressure 800 PSI, Burst 4000 PSI |       |       |       |       |
| HOSE LENGTH                                                                   | 36"   | 60"   | 72"   | 96"   | HOSE LENGTH                                                   | 36"   | 60"   | 72"   | 96"   |
| Blue 1/4"                                                                     | 45361 | 45601 | 45721 | 45961 | Blue 1/4"                                                     | 46361 | 46601 | 46721 | 46961 |
| Yellow 1/4"                                                                   | 45362 | 45602 | 45722 | 45962 | Yellow 1/4"                                                   | 46362 | 46602 | 46722 | 46962 |
| Red 1/4"                                                                      | 45363 | 45603 | 45723 | 45963 | Red 1/4"                                                      | 46363 | 46603 | 46723 | 46963 |
| Black 1/4"                                                                    | N/A   | N/A   | N/A   | N/A   | Black 1/4"                                                    | 46364 | 46604 | 46724 | 46964 |
| Sets* 1/4"                                                                    | 45336 | 45360 | 45372 | 45396 | Sets* 1/4"                                                    | 46336 | 46360 | 46372 | 46396 |

Auto shut-off valves automatically retain refrigerant in the service hose when they are removed from the system, meet EPA, SAE and UL standards for containment of refrigerant.

\* Sets include one blue, one red and one yellow hose.

| STANDARD & HIGH PRESSURE HOSES W/MANUAL SHUT-OFF VALVE FITTINGS (1/4" SAE) |          |          |          |  |                                                               |          |          |          |  |
|----------------------------------------------------------------------------|----------|----------|----------|--|---------------------------------------------------------------|----------|----------|----------|--|
| Standard Hoses, Working pressure 750 PSI, Burst 3000 PSI                   |          |          |          |  | Nylon Barrier Hoses, Working Pressure 800 PSI, Burst 4000 PSI |          |          |          |  |
| HOSE LENGTH                                                                | 36"      | 60"      | 72"      |  | HOSE LENGTH                                                   | 36"      | 60"      | 72"      |  |
| Blue 1/4"                                                                  | 90263-36 | 90263-60 | 90263-72 |  | Blue 1/4"                                                     | 49263-36 | 49263-60 | 49263-72 |  |
| Yellow 1/4"                                                                | 90264-36 | 90264-60 | 90264-72 |  | Yellow 1/4"                                                   | 49264-36 | 49264-60 | 49264-72 |  |
| Red 1/4"                                                                   | 90265-36 | 90265-60 | 90265-72 |  | Red 1/4"                                                      | 49265-36 | 49265-60 | 49265-72 |  |
| Sets* 1/4"                                                                 | 90262-36 | 90262-60 | 90262-72 |  | Sets* 1/4"                                                    | 49262-36 | 49262-60 | 49262-72 |  |

\* Sets include one blue, one red and one yellow hose.

| R134a HOSES WITH 1/2" ACME-F AND 14MM-M AUTO A/C FITTINGS |       |       |       |       |
|-----------------------------------------------------------|-------|-------|-------|-------|
| HOSE LENGTH                                               | 36"   | 60"   | 72"   | 96"   |
| Blue-14mm-M x 1/2" ACME-F                                 | 84361 | 84601 | 84721 | 84961 |
| Yellow W/Shut-off Valve-1/2" ACME-F                       | 84362 | 84602 | 84722 | 84962 |
| Red-14mm-M x 1/2" ACME-F                                  | 84363 | 84603 | 84723 | 84963 |
| Black-1/2" ACME-F                                         | 84364 | 84604 | 84724 | 84964 |
| Black Conversion Hose 1/2" ACME-F x 1/4" FL-F             | 98364 | 98604 | 98724 | 98964 |
| Yellow without Shut-off Valve                             | 84365 | 84605 | 84725 | 84965 |
| Sets*                                                     | 84336 | 84360 | 84372 | 84396 |

Mastercool R134a charging hoses meet SAE J2196 specifications and are UL tested. Tested for working pressure of 600 PSI and burst pressure of 3000 PSI.

\* Sets include one blue, one red and one yellow hose.





Mastercool manufactures a complete line of shut-off valves for containment of refrigerant. EPA requires shut-off valves within 12 inches of the charging hose ends to prevent unnecessary venting of refrigerant. Using shut-off valves is much safer than allowing refrigerant to blow out during service.

## 90259 90° MANUAL SHUT-OFF VALVE SET

Needle valve design with flexible hose controls refrigerant with a twist of a knob. Meets SAE, EPA and UL requirements for containment of refrigerant. Screws onto charging hose end.

90° Manual Shut-Off Valve Set Includes:

**90269** Blue 1/4 x 1/4"

**90279** Yellow 1/4 x 1/4"

**90289** Red 1/4 x 1/4"

**Also Available:**

**90389** Red 1/4 x 3/16"  
(Automotive)



## 90262 STRAIGHT MANUAL SHUT-OFF VALVE SET

Ball valve design with flexible hose controls refrigerant with a quarter turn of the valve handle. Meets SAE, EPA and UL requirements for containment of refrigerant. One hand operation. Screws onto charging hose end. Straight and Manual Shut-Off Valve Set includes:

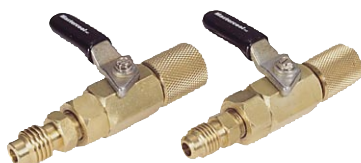
**90263** Blue 1/4 x 1/4"

**90264** Yellow 1/4 x 1/4"

**90265** Red 1/4 x 1/4"

**Also available:**

**90365** Red 1/4 x 3/16"



## MANUAL SHUT-OFF BALL VALVES

For custom application, Mastercool offers swivel ball valves without the hoses. This valve may be used to add shut-off valves to recycling equipment, manifold sets, flushing equipment, etc.

**90430** 1/4 FL-F x 1/4 FL-M Swivel Ball Valve (less hose)

**82495** 1/2" ACME x 1/2" ACME R134a Ball Valve  
(automotive less hose)



90333-R



90335-R

**QUICK DISCONNECT**  
No Loss of Refrigerant

## AUTOMATIC SHUT-OFF VALVES

Valve simply screws onto hose end. Available in straight and 90° models. Meets SAE, EPA and UL requirements for containment of refrigerant.

**90333-R** 90° 1/4 FL-M x 1/4 FL-F

**90333-UV** 90° 1/4" FFL x 13mm

**90335-R** Straight 1/4 FL-M x 1/4 FL-F

**90337** Straight 1/4 FL-M x 3/16 FL-F

## SERVICE HOSE REPLACEMENT PARTS

|                | 1/4" SAE        |                 | 1/2" ACME       |                 | 14mm-M<br>O-RING | UNF 1/2 - 20"   |                 |
|----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|
|                | GASKET          | DEPRESSOR       | GASKET          | DEPRESSOR       |                  | GASKET          | DEPRESSOR       |
| Charging Hoses | <b>42010-10</b> | <b>42014-10</b> | <b>82010-10</b> | <b>42014-10</b> | <b>83341-10</b>  | <b>42010-10</b> | <b>42014-10</b> |
| Shut-Off Valve | <b>90336-10</b> | N/A             | <b>82336-10</b> | N/A             | N/A              | N/A             | N/A             |



**Mastercool®**  
"World Class Quality"

## COUPLERS



### ECONOMY COUPLERS

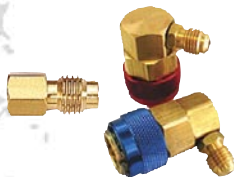
Specially designed to work in the tightest quarters. Attaches to your existing R12 hoses and snaps easily to A/C service ports.

**66434-R** High Side R134a 1/4" FL-M x 16mm Economy Coupler

**66534-R** Low Side R134a 1/4" FL-M x 13mm Economy Coupler

**60034-10** O-ring for 66434 (10 pcs)

**60134-10** O-ring for 66534 (10 pcs)



### 98370 R134a CONVERSION KIT

Includes High and Low Side R134a Couplers and R134a Tank Adapter.



### CONTROL VALVE

Ideal for use on charged systems. Eliminates refrigerant, oil or dye from spraying during connections. Brass body with 1/4" FFL swivel coupler.

**90328** 1/4" FFL x 1/4" MFL

## MANUAL COUPLERS

Patented manual couplers adjust easily to R134a service ports with varying dimensions. All metal construction for extra durability. Patented, spring loaded depressor will not damage service valves. Can be removed from service ports regardless of knob position without losing refrigerant. Meets SAE, UL and EPA requirements for containment of refrigerant. Color coded. **PATENT# 5,370,359**



**82834** High-Side Manual R134a  
14mm-F x 16mm Quick Coupler

**82934** Low-Side Manual R134a  
14mm-F x 13mm Quick Coupler



**82834-E** High-Side Manual R134a  
1/4" FL-M x 16mm Quick Coupler

**82934-E** Low-Side Manual R134a  
1/4" FL-M x 13mm Quick Coupler

### REPLACEMENT O-RINGS

**80034** O-ring for 16mm  
Quick Coupler (10 pcs)

**80134** O-ring for 13mm  
Quick Coupler (10 pcs)

## E-Z SNAP™ COUPLERS

This unique patented design easily snaps on and off the A/C systems service ports under any pressure. The E-Z Snap™ automatically adjusts to various service port dimensions allowing fast and immediate access into the A/C system. The swivel feature enables the user to easily access all service ports, even in the tightest quarters. Meets SAE, UL, and EPA requirements for containment of refrigerant. **PATENT# 5,244,010**



**82214** High-Side E-Z Snap R134a  
14 mm-F x 16mm Quick Coupler

**82224** Low-Side E-Z Snap R134a  
14mm-F x 13mm Quick Coupler



**82214-E** High-Side E-Z Snap R134a  
1/4" FL-M x 16mm Quick Coupler

**82224-E** Low-Side E-Z Snap R134a  
1/4" FL-M x 13mm Quick Coupler

### REPLACEMENT O-RINGS

**80034** O-ring for 16mm  
Quick Coupler (10 pcs)

**80134** O-ring for 13mm  
Quick Coupler (10 pcs)

## MALE X MALE CONNECTORS

| PART#        | DESCRIPTION                                |
|--------------|--------------------------------------------|
| <b>82734</b> | 14mm-M x 1/4" FL-M (7/16-20") Connector    |
| <b>82735</b> | 14mm-M x M10 x 1.5-M Connector             |
| <b>82736</b> | 14mm-M x M12 x 1.75-M Connector            |
| <b>82738</b> | 14mm-M x 3/8" FL-M Connector               |
| <b>83341</b> | O-Ring for 82733, 82734, 82735 and 82736   |
| <b>80234</b> | O-Ring for 82634, 82634-M, 90364 and 90365 |



## FEMALE X MALE CONNECTORS

| PART#          | DESCRIPTION                                              |
|----------------|----------------------------------------------------------|
| <b>82635</b>   | 1/2" ACME-F x 1/4" FL (7/16-20")-M R134a Adapter Coupler |
| <b>82733</b>   | 14mm-F x 1/2" ACME-M Connector                           |
| <b>90364</b>   | 1/4" (7/16-20")-F x M10 x 1.5-M Adapter                  |
| <b>90363</b>   | 1/2-20 UNF-F x 1/4" FL-M Connector                       |
| <b>82634</b>   | 1/4" FL-F (7/16-20") x 1/2" ACME-M Connector             |
| <b>82634-M</b> | 1/4" FL-F (7/16-20") x 1/2" ACME-M R134a Connector       |







## 91207 CHARGING AND DEPRESSOR ASSORTMENT

Replacement gaskets, o-rings and depressors for charging hoses and adapters. Consists of:

- 42010** 1/4" Gasket (3 pcs)
- 42014** 1/4" Depressor (3 pcs)
- 90368** 3/16" Depressor (3 pcs)
- 90369** 3/16" Gasket (3 pcs)
- 90341** 1/8" O-ring (3 pcs)



## 85200 DELUXE A/C SERVICE REPAIR KIT

Replacement gaskets, depressors, o-rings and nylon guides for charging hoses and adapters. Consists of:

- |                                              |                                             |
|----------------------------------------------|---------------------------------------------|
| <b>42010</b> 1/4" Gasket (10 pcs)            | <b>82010</b> Gasket for R134a Hose (10 pcs) |
| <b>42014</b> 1/4" Depressor (10 pcs)         | <b>82336</b> Gasket for 82335 (10 pcs)      |
| <b>80034</b> O-ring for 82834 (10 pcs)       | <b>83341</b> O-ring for R134a Hose (10 pcs) |
| <b>80034-1</b> High Side Nylon Guide (5 pcs) | <b>90336</b> Gasket for R12                 |
| <b>80134</b> O-ring for 82934 (10 pcs)       | Shut-off Valve (10 pcs)                     |
| <b>80134-1</b> Low Side Nylon Guide (5 pcs)  |                                             |



## 91334 CHARGING ADAPTER REPAIR KIT

55 piece assortment of replacement gaskets, o-rings and depressors for charging hoses and adapters. Consists of:

- 42010** 1/4" Gasket (10 pcs)
- 42014** 1/4" Depressor (10 pcs)
- 90368** 3/16" Depressor (10 pcs)
- 90369** 3/16" Gasket (10 pcs)
- 90341** 1/8" O-ring (10 pcs)
- 92107** Quick Disconnect Gasket (5 pcs)



## 91335 MASTER A/C CHARGING ADAPTER REPAIR KIT

126 piece assortment of replacement gaskets, o-rings and depressors for charging hoses and adapters. Also includes valve core removal tool and replacement valve cores. Consists of:

- |                                       |                                                   |
|---------------------------------------|---------------------------------------------------|
| <b>42010</b> 1/4" Gasket (20 pcs)     | <b>92107</b> Quick Disconnect Gasket (10 pcs)     |
| <b>42014</b> 1/4" Depressor (20 pcs)  | <b>0377-001</b> Refrigeration Valve Core (10 pcs) |
| <b>90368</b> 3/16" Depressor (20 pcs) | <b>90378</b> GM Large Bore Valve Core (5 pcs)     |
| <b>90369</b> 3/16" Gasket (20 pcs)    | <b>91290</b> Universal Valve Core Remover         |
| <b>90341</b> 1/8" O-ring (20 pcs)     |                                                   |



## 91336 FORD SPRING LOCK REPLACEMENT O-RING AND GARTER SPRING ASSORTMENT

Compatible with R12 and R134a systems. Consists of:

- |                                          |                                           |
|------------------------------------------|-------------------------------------------|
| <b>1336-006</b> #6 O-ring (10 pcs)       | <b>1336-018</b> #8 Garter Spring (5 pcs)  |
| <b>1336-008</b> #8 O-ring (10 pcs)       | <b>1336-110</b> #10 Garter Spring (5 pcs) |
| <b>1336-010</b> #10 O-ring (10 pcs)      | <b>1336-112</b> #12 Garter Spring (5 pcs) |
| <b>1336-012</b> #12 O-ring (10 pcs)      |                                           |
| <b>1336-016</b> #6 Garter Spring (5 pcs) |                                           |



## 91337 R12/R134a VALVE CORE REPAIR KIT

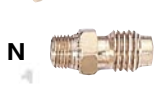
Replacement valve cores for valve core removers & installers. Consists of:

- 0377-001** Access Valve Core (20 pcs)
- 0378-001** Valve Core (10 pcs)
- 0531-001** R134a JRA High/Low Import Valve Core (10 pcs)
- 0768-001** R134a Domestic High Flow Valve Core M8 (5 pcs)
- 0769-001** R134a Domestic High Flow Valve Core M10 (5 pcs)
- 81290** R12/R134a Valve Core Remover/Installer (1 pc)



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# CHARGING ADAPTERS, REPLACEMENT GASKETS, DEPRESSORS & RETROFIT ADAPTERS



|   | 90° ADAPTERS | REPLACEMENT                                      | GASKET/O-RING | DEPRESSOR |
|---|--------------|--------------------------------------------------|---------------|-----------|
| A | 90333-R      | Shut-Off Valve 1/4" MFL x 1/4" FFL               | 90336         | -         |
| B | 90314*       | 1/4" MFL x 1/4" FFL                              | 42010         | 42014     |
| B | 90340*       | 1/4" MFL x 1/8" FFL (High Side) Ford 1977-1980   | 90341         | 90368     |
| B | 90354*       | 1/4" MFL x 3/16" FFL (High Side) GM 1976 & Later | 90369         | 90368     |

|   | 45° ADAPTERS |                                  |       |       |
|---|--------------|----------------------------------|-------|-------|
| C | 90924        | 1/4" MFL x 1/4" FFL              | 42010 | 42014 |
| C | 90927*       | 1/4" MFL x 3/16" FFL (High-Side) | 90369 | 90368 |

|   | STRAIGHT ADAPTERS |                                                                                    |             |       |
|---|-------------------|------------------------------------------------------------------------------------|-------------|-------|
| D | 82272*            | R134a 1/2" ACME-F x 13mm (Low-Side)                                                | 85511       | -     |
| E | 82335             | R134a Shut-Off Valve 1/2" ACME-M x 1/2" ACME-F                                     | 90330/90336 | -     |
| E | 90335-R           | Shut-Off Valve 1/4" MFL x 1/4" FFL                                                 | 90330/90336 | -     |
| E | 90337             | Shut-Off Valve 1/4" MFL x 3/16" FFL                                                | 90330/90331 | -     |
| F | 82634*            | 1/4" FFL x 1/2" ACME-M                                                             | 80234       | -     |
| F | 82634-M           | 1/4" FFL x 1/2" ACME-M Without Valve Core                                          | 80234       | -     |
| G | 82734             | 14mm-M x 1/4" MFL                                                                  | 83341       | -     |
| H | 90358*            | 1/4" MFL x 3/16" FFL (High-Side)                                                   | 42010       | 42014 |
| I | 90274             | 1/4" MFL x 1/4" FFL Swivel                                                         | 42010       | 42014 |
| I | 90332**           | 1/4" MFL x 1/4" FFL Anti-Blowback Fitting                                          | 42010       | 42014 |
| I | 90357             | 1/4" MFL x 3/16" FFL (High-Side) Swivel                                            | 90369       | 90368 |
| I | 91084*            | 1/4" MFL x 3/16" FFL (High-Side) Swivel Adapter GM 1976 & Later, Ford 1981 & Later | 90369       | 90368 |
| J | 90338*            | GM 1991 & Later Service Adapter                                                    | 90339       | -     |
| K | 90637             | 3/4" NPSF x 1/4" MFL Refrigeration Tank Adapter                                    | 90638       | -     |
| L | 90633             | 1/4" MFL x 1/4" MFL Union                                                          | -           | -     |
| L | 82633             | 1/2" ACME-M x 1/2" ACME-M Union                                                    | -           | -     |

|   | FLEX ADAPTERS |                                                                     |       |       |
|---|---------------|---------------------------------------------------------------------|-------|-------|
| M | 90355*        | 1/4" MFL x 3/16" FFL (High-Side) GM 1976 & Later, Ford 1981 & Later | 90369 | 90368 |
| M | 90356*        | 1/4" MFL x 1/4" FFL                                                 | 42010 | 42014 |
| M | 90373*        | 1/4" MFL x 1/8" FFL (High-Side) Ford 1977-1980                      | 90341 | 90368 |
| M | 90410         | 1/4" MFL x 1/2" -20 UNF-FFL                                         | 82010 | -     |

|   | ACCESS SERVICE TOOLS |                        |   |   |
|---|----------------------|------------------------|---|---|
| N | 90296*               | 1/4" MFL x 1/8" MPT    | - | - |
| N | 80296*               | 1/2" ACME-M x 1/8" MPT | - | - |

\* Includes Access Valve Core (0377-001) – (90-110 PSI Opening)

\*\* Includes Check Valve Core (0332-002) – (8-12 PSI Opening)

## RETROFIT ADAPTERS



**82357 GM HIGH FLOW ADAPTER W/ VALVE CORE & SERVICE PORT CAPS**  
GM High Flow Adapter



**INDIVIDUAL TERMINATION (BLOCK OFF CAPS)**  
**81297** 1/4" (7/16"-20)  
**81379** 3/16" (3/8"-24)

## STRAIGHT ADAPTERS W/VALVE CORE & SERVICE PORT CAPS

**82274** Low side, 1/4 (7/16"- 20) x 13mm  
**82332** High Side, 1/4 (7/16"- 20) x 16mm  
**82358** High Side, 3/16 (3/8"- 24) x 16mm



## 90° ADAPTERS W/VALVE CORE & SERVICE PORT CAPS

**82275** Low side, 1/4 (7/16"- 20) x 13mm  
**82333** High Side, 1/4 (7/16"- 20) x 16mm  
**82354** High Side, 3/16 (3/8"- 24) x 16mm





## 81174 UNIVERSAL RETROFIT ADAPTER ASSORTMENT

All **MASTERCool** retrofit adapters include built-in valves and caps. Universal A/C Retrofit Adapter Kit includes 15 low side adapters and 30 high side adapters. A larger quantity of high side retrofit adapters are included for the many different R12 high side service port configurations. This kit includes a selection of 90° adapters specially designed for tight quarters and 3 tools to make retrofitting easier. Kit includes:

### STRAIGHT ADAPTERS WITH VALVE CORE & SERVICE PORT ADAPTERS

| QTY. | PART#        | DESCRIPTION                        |
|------|--------------|------------------------------------|
| 10   | <b>82274</b> | Low Side, 1/4" (7/16"- 20) x 13mm  |
| 5    | <b>82332</b> | High Side, 1/4" (7/16"- 20) x 16mm |
| 5    | <b>82357</b> | GM High Flow Replacement           |
| 10   | <b>82358</b> | High Side, 3/16" (3/8"- 24) x 16mm |

### TERMINATION (BLOCK-OFF) CAPS

|   |              |                  |
|---|--------------|------------------|
| 5 | <b>81297</b> | 1/4" (7/16"- 20) |
| 5 | <b>81379</b> | 3/16" (3/8"- 24) |

### 90° ADAPTERS WITH VALVE CORE & SERVICE PORT CAPS

| QTY. | PART#        | DESCRIPTION                        |
|------|--------------|------------------------------------|
| 5    | <b>82275</b> | Low Side, 1/4" (7/16"- 20) x 13mm  |
| 5    | <b>82333</b> | High Side, 1/4" (7/16"- 20) x 16mm |
| 5    | <b>82354</b> | High Side, 3/16" (3/8"- 24) x 16mm |

### ACCESSORIES

|    |               |                                          |
|----|---------------|------------------------------------------|
| 10 | <b>81359</b>  | R134a Retrofit Information Labels        |
| 1  | <b>91338</b>  | GM Style High Flow Socket                |
| 1  | <b>91290</b>  | Universal Valve Core Remover & Installer |
| 1  | <b>91390</b>  | R12 Thread Repair Kit                    |
| 1  | <b>MC98RG</b> | Retrofit Guidelines Booklet              |



## SERVICE TOOLS



### 85530 3-IN-1 SIDE MOUNT CAN TAP VALVE (US STANDARD)

This unique design covers 2 7/8" (R134a), 2 1/2" and 2" (OIL) charge cans. Includes 1/2" ACME-M and 1/4" FL-M ports. Internal safety check valve prevents system back flow.

### 85510 R134a CAN TAP VALVE - SCREW-ON MODEL (US STANDARD)

Screw-on design for R134a ACME male can taps. Gasket assures leak proof operation. Built-in safety check. Exclusive "full grip" valve knob. 1/2" ACME-M.



### 90925 CONDENSER FIN COMB

Cleans and straightens condenser and evaporator fins. Six sided head for 8, 9, 10, 12, 14 and 15 fins per inch applications.



### 93000 SPRING LOCK COUPLING TOOL SET

Four sizes 3/8" (#6), 1/2" (#8), 5/8" (#10) and 3/4" (#12) used on Fords and Chryslers. Durable spring loaded design for long life and reliable fit.

#### Set includes:

|              |                  |
|--------------|------------------|
| <b>93098</b> | 3/8" (#6) Red    |
| <b>93099</b> | 1/2" (#8) Blue   |
| <b>93100</b> | 5/8" (#10) Black |
| <b>93101</b> | 3/4" (#12) Beige |



### 80011 HEAVY DUTY RATCHET HOSE CUTTER

Ratcheted action makes this cutter extremely easy to operate resulting in quick, clean cuts. Cutting blade is made of special alloy, heat treated steel for long life. Cuts all rubber hoses and PVC pipe up to 1/2" O.D. (Not recommended for PVC200)

**80111** Replacement blade for 80011



### 80013 AUTOMOTIVE REFRIGERANT HOSE CUTTER

Makes quick, clean cuts. Cuts rubber automotive refrigerant hoses up to 1 1/2" O.D.

**80113** Replacement blade for 80013



**Mastercool**<sup>®</sup>  
"World Class Quality"

## VALVE CORE REMOVER/INSTALLERS



### 58490 UNIVERSAL R12/R134a MASTER KIT

Allows the user to service valve cores without losing the systems charge. Kit covers all R12 & R134a system valve cores for Standard, JRA, Eaton and GM Large Bore.

PATENT# 6,253,436



**POPULAR**



### 58531 R134a STANDARD & JRA (M6) VALVE CORE KIT

Kit covers the most popular R134a valve cores.



### 58560 R134a EATON (M8 & M10) VALVE CORE KIT

Kit covers the Eaton style R134a valve cores.

## VALVE CORE REMOVERS/INSTALLERS AUTOMOTIVE/HVAC (1/4"FL)



### 91490 STANDARD VALVE CORE REMOVER/INSTALLER

Sturdy ball valve design controls refrigerant flow with 1/4 turn of the valve lever. Lever position also gives visual indication of whether valve is opened or closed.

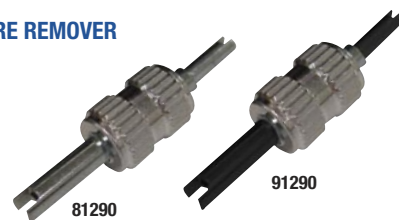
## VALVE CORE REMOVERS & INSTALLERS

### 81290 R12/R134a UNIVERSAL LARGE BORE VALVE CORE REMOVER

Used on R12/R134a Standard and JRA/EATON Large Bore R134a Valve Cores.

### 91290 UNIVERSAL VALVE CORE REMOVER

Double ended for easy replacement of Standard and GM R12 Large Bore Valve Cores.



### 90376 VALVE CORE REMOVER W/VALVE CORES FOR R12

Quickly removes valve cores. Storage area includes six replacement access valve cores.

**90377** Replacement Standard Valve Cores for 90376 (6 pcs of 0377-001)



**POPULAR**



### 91046-A A/C SYSTEM FLUSH KIT

Includes flush gun, hose, canister and canister adapter. Designed to work with any light weight flushing agent which can be mixed with pressurized air. Excellent for quickly and effectively removing refrigerant oil debris during retrofitting or compressor replacement.

### 91048 FLUSH CAPTURING UNIT

Special self adjusting tool to easily recover flush material for reuse or disposal. A unique rubber bladder coupler fits over the discharge lines of the component being flushed. As flush material leaves the A/C system, it is automatically collected for reuse or disposal.





# 30 LB. AND 50 LB. DOT-APPROVED RECOVERY CYLINDERS

**NEW!**

## Features:

- Powder coated cylinder for high gloss, durable finish
- Y-valve for liquid/vapor
- 3/4" NPT opening accepts 80% fill float switch shut-off device
- 1/4" opening for air purge valve
- Collar design for ease of handling
- Reusable and conforms to DOT-4BA400 specifications and ARI guidelines
- Australian Approved and TC Canadian (CAN/CSA-B339-02) Approved
- Pre-charged cylinder provides a clean, dry interior
- Storage and transport of recovered refrigerant gases
- Valve & Float Switch UL Listed

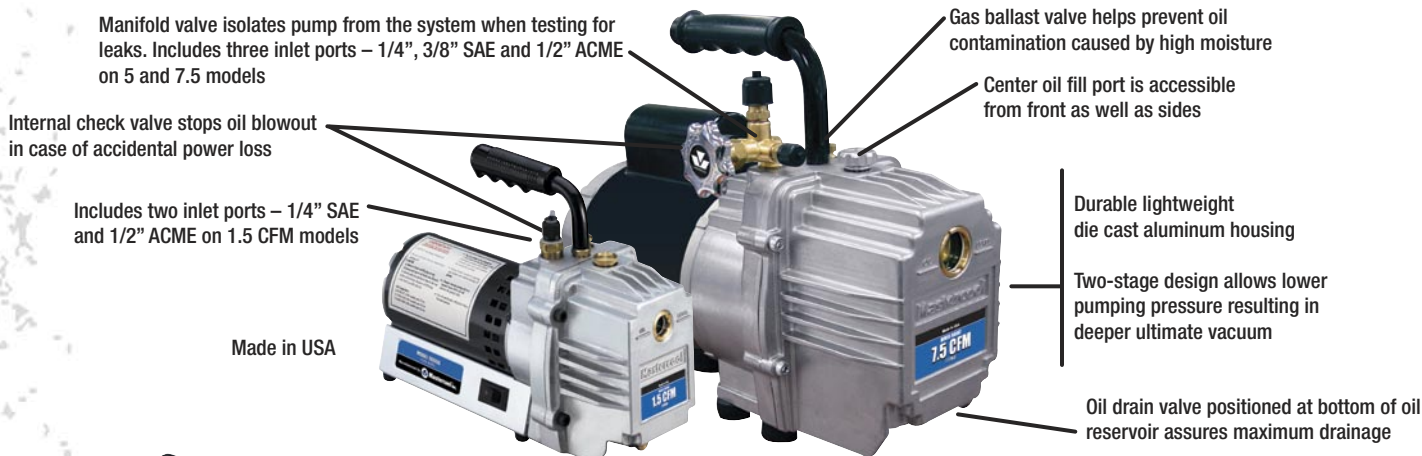
|                             | 30 lb.                                                                             |                                                                                    |                                                                                    |                                                                                     |                                                                                      |                                                                                      | 50 lb.                                                                              |                                                                                      |                                                                                      |                                                                                      |                                                                                      |                                                               |
|-----------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------|
|                             |  |  |  |  |  |  |  |  |  |  |  |                                                               |
| Model                       | 62010<br>without<br>float<br>switch                                                | 62011<br>with<br>float<br>switch                                                   | 62012<br>with<br>float<br>switch<br>& NCG<br>Port                                  | 64010<br>without<br>float<br>switch                                                 | 67010<br>with<br>float<br>switch                                                     | 67011<br>with<br>float<br>switch                                                     | 63010<br>without<br>float<br>switch                                                 | 65010<br>with<br>float<br>switch                                                     | 66010<br>without<br>float<br>switch                                                  | 66011<br>with<br>float<br>switch                                                     | 66012<br>with<br>float<br>switch<br>& NCG<br>Port                                    | 63010-AUS<br>without float switch<br>(Australian<br>standard) |
| Connection                  | 1/4" FL-M (7/16-20)                                                                |                                                                                    |                                                                                    | 1/2" ACME                                                                           |                                                                                      | 1/2" ACME                                                                            | 1/4" FL-M (7/16-20)                                                                 |                                                                                      | 1/2" ACME                                                                            |                                                                                      | 1/2" ACME                                                                            |                                                               |
| Size (w x h)                | 9.125" x 17.52"                                                                    |                                                                                    |                                                                                    | 9.125" x 17.52"                                                                     |                                                                                      | 9.125" x 17.52"                                                                      | 12.25" x 18.78"                                                                     |                                                                                      | 12.25" x 18.78"                                                                      |                                                                                      | 12.25" x 18.78"                                                                      |                                                               |
| Tare Weight                 | 17.99 LB                                                                           |                                                                                    |                                                                                    | 17.99 LB                                                                            |                                                                                      | 17.99 LB                                                                             | 28.71 LB                                                                            |                                                                                      | 28.71 LB                                                                             |                                                                                      | 28.71 LB                                                                             |                                                               |
| Standard Specification      | DOT - 4BA400<br>CAN/CSA-B339-02                                                    |                                                                                    |                                                                                    | DOT - 4BA400<br>CAN/CSA-B339-02                                                     |                                                                                      | DOT - 4BA400<br>CAN/CSA-B339-02                                                      | DOT - 4BA400<br>CAN/CSA-B339-02                                                     |                                                                                      | DOT - 4BA400<br>CAN/CSA-B339-02                                                      |                                                                                      | DOT - 4BA400                                                                         |                                                               |
| Nominal Water Capacity      | >26.2 LB / 11.9 L                                                                  |                                                                                    |                                                                                    | >26.2 LB / 11.9 L                                                                   |                                                                                      | >26.2 LB / 11.9 L                                                                    | >47.7 LB / 21.6L                                                                    |                                                                                      | >47.7 LB / 21.6L                                                                     |                                                                                      | >47.7 LB / 21.6L                                                                     |                                                               |
| Service Pressure            | 400 PSI / 2.7 MPa                                                                  |                                                                                    |                                                                                    | 400 PSI / 2.7 MPa                                                                   |                                                                                      | 400 PSI / 2.7 MPa                                                                    | 400 PSI / 2.7 MPa                                                                   |                                                                                      | 400 PSI / 2.7 MPa                                                                    |                                                                                      | 400 PSI / 2.7 MPa                                                                    |                                                               |
| Tank Test Pressure          | 800 PSI / 5.5 MPa                                                                  |                                                                                    |                                                                                    | 800 PSI / 5.5 MPa                                                                   |                                                                                      | 800 PSI / 5.5 MPa                                                                    | 800 PSI / 5.5 MPa                                                                   |                                                                                      | 800 PSI / 5.5 MPa                                                                    |                                                                                      | 800 PSI / 5.5 MPa                                                                    |                                                               |
| Relief Valve Pressure       | 600 PSI / 4.1 MPa                                                                  |                                                                                    |                                                                                    | 600 PSI / 4.1 MPa                                                                   |                                                                                      | 600 PSI / 4.1 MPa                                                                    | 600 PSI / 4.1 MPa                                                                   |                                                                                      | 600 PSI / 4.1 MPa                                                                    |                                                                                      | 600 PSI / 4.1 MPa                                                                    |                                                               |
| Air Tightness Test Pressure | 400 PSI / 2.7 MPa                                                                  |                                                                                    |                                                                                    | 400 PSI / 2.7 MPa                                                                   |                                                                                      | 400 PSI / 2.7 MPa                                                                    | 400 PSI / 2.7 MPa                                                                   |                                                                                      | 400 PSI / 2.7 MPa                                                                    |                                                                                      | 400 PSI / 2.7 MPa                                                                    |                                                               |
| Body Material               | HP295                                                                              |                                                                                    |                                                                                    | HP295                                                                               |                                                                                      | HP295                                                                                | HP325 or HP345                                                                      |                                                                                      | HP325 or HP345                                                                       |                                                                                      | HP325 or HP345                                                                       |                                                               |
| Color                       | yellow/gray                                                                        |                                                                                    |                                                                                    | blue                                                                                |                                                                                      | yellow/blue                                                                          | yellow/gray                                                                         |                                                                                      | yellow/gray                                                                          |                                                                                      | white                                                                                |                                                               |



**Mastercool®**  
"World Class Quality"

# VACUUM PUMPS

A good quality vacuum pump is an integral tool for complete A/C service. Mastercool vacuum pumps are durable and time tested. They stand up to the most grueling conditions and will provide years of reliable service. Mastercool offers a complete selection of pumps. Regardless of your service requirements, Mastercool has a model for your application.



## 90060 1.5 CFM VACUUM PUMP (TWO STAGE)

This lightweight and easy to store vacuum pump (12lbs) is ideal for less than 3lb capacity evacuation. The inlet ports include 1/4" FL and 1/2" ACME (for automotive R134a systems.)

| Model # | NO OF STAGES | FREE AIR DISPLACEMENT | ULTIMATE VACUUM | PUMP MOTOR | PUMP SPEED | ELECTRICAL SPECS | SHIPPING WEIGHT |
|---------|--------------|-----------------------|-----------------|------------|------------|------------------|-----------------|
| 90060   | 2            | 1.5 CFM               | 50 MICRONS      | 1/6HP      | 3450 RPM   | 110 / 60HZ       | 12 lbs          |



90060

## 90065 5 CFM VACUUM PUMP (TWO STAGE)

This model is an excellent choice for small to medium sized systems (2.5 lb to 10 lb charge capacity). This two stage pump features a manifold valve to isolate it from the system and three inlet ports: 1/4" flare, 3/8" flare and 1/2" ACME (for automotive R134a systems).

| Model # | NO OF STAGES | FREE AIR DISPLACEMENT | ULTIMATE VACUUM | PUMP MOTOR | PUMP SPEED | ELECTRICAL SPECS | SHIPPING WEIGHT |
|---------|--------------|-----------------------|-----------------|------------|------------|------------------|-----------------|
| 90065   | 2            | 5 CFM                 | 25 MICRONS      | 1/3HP      | 1725 RPM   | 110 / 60HZ       | 32 lbs          |



90067

## 90067 7.5 CFM VACUUM PUMP (TWO STAGE)

This model is the choice for medium sized and larger systems (5 lb and above charge capacity). The 1/2 horsepower motor makes cold condition start up quick and easy. This two stage pump features a manifold valve to isolate it from the system and three inlet ports: 1/4" flare, 3/8" flare and 1/2" ACME (for automotive R134a systems).

| Model # | NO OF STAGES | FREE AIR DISPLACEMENT | ULTIMATE VACUUM | PUMP MOTOR | PUMP SPEED | ELECTRICAL SPECS | SHIPPING WEIGHT |
|---------|--------------|-----------------------|-----------------|------------|------------|------------------|-----------------|
| 90067   | 2            | 7.5 CFM               | 25 MICRONS      | 1/2HP      | 1725 RPM   | 110 / 60HZ       | 34 lbs          |



90065

## 91200 AIR OPERATED LIGHT DUTY VACUUM PUMP

Requires 4.5 CFM/90 PSI shop air. No moving parts, no oil required, 1.3 CFM air displacement venturi type pump will pull up to 29 inches of vacuum (Hg.) at sea level. Includes 1/4" flare (R12) connection and 1/2" ACME (R134a) connection.



## REPLACEMENT CARTRIDGE

| SERVICE INFORMATION | 1.5 CFM | 5 CFM   | 7.5 CFM |
|---------------------|---------|---------|---------|
| OIL CAPACITY        | 10 oz   | 18 oz   | 24 oz   |
| REPL. CARTRIDGE     | 90160-R | 90165-R | 90167-R |

## 82031 VACUUM PUMP SWIVEL ADAPTER

"T" style adapter screws onto existing 1/4" flare fitting and converts to 1/4"-FL and 1/2" ACME





## ECONOMY SERIES

- High volume fan provides cool air to motor and pump
- Vapor discharge/oil fill port, easily removable, contains internal check valve to prevent escape of liquid oil
- Non-slip cushion handle
- Includes T-fitting with 1/4" flare and 1/2" ACME ports

- Cooling fins to keep temperature cooler during extended motor operation
- Manifold valve isolates pump from the system testing for leaks. Includes 3 inlet ports, 1/4", 3/8" SAE and 1/2" ACME.
- Gas ballast valve helps prevent oil contamination caused by high moisture (90066-2V-110 & 90070-2V-110)



|                              |                |
|------------------------------|----------------|
| <b>Model</b>                 | <b>90059-R</b> |
| <b>No. of Stages</b>         | 1              |
| <b>Free Air Displacement</b> | 1.5 CFM        |
| <b>Ultimate Vacuum</b>       | 100 Microns    |
| <b>Motor</b>                 | 1/6 HP         |
| <b>Pump Speed</b>            | 3450 RPM       |
| <b>Electrical Specs</b>      | 110 V/ 60 HZ   |
| <b>Shipping Weight</b>       | 16 lbs.        |



|                              |                |
|------------------------------|----------------|
| <b>Model</b>                 | <b>90062-A</b> |
| <b>No. of Stages</b>         | 1              |
| <b>Free Air Displacement</b> | 3 CFM          |
| <b>Ultimate Vacuum</b>       | 75 Microns     |
| <b>Motor</b>                 | 1/4 HP         |
| <b>Pump Speed</b>            | 1720 RPM       |
| <b>Electrical Specs</b>      | 110 V/ 60 HZ   |
| <b>Shipping Weight</b>       | 17 lbs.        |



|                              |                |
|------------------------------|----------------|
| <b>Model</b>                 | <b>90066-A</b> |
| <b>No. of Stages</b>         | 1              |
| <b>Free Air Displacement</b> | 6 CFM          |
| <b>Ultimate Vacuum</b>       | 75 Microns     |
| <b>Motor</b>                 | 1/4 HP         |
| <b>Pump Speed</b>            | 1720 RPM       |
| <b>Electrical Specs</b>      | 110 V/ 60 HZ   |
| <b>Shipping Weight</b>       | 22 lbs.        |

|                              |                      |
|------------------------------|----------------------|
| <b>Model</b>                 | <b>90066-2V-110</b>  |
| <b>No. of Stages</b>         | 2                    |
| <b>Free Air Displacement</b> | 6 CFM                |
| <b>Ultimate Vacuum</b>       | 15 Microns           |
| <b>Motor</b>                 | 1/3 HP               |
| <b>Pump Speed</b>            | 3440 RPM             |
| <b>Electrical Specs</b>      | 110/220V<br>50/60 HZ |
| <b>Shipping Weight</b>       | 24.6 lbs             |

90066-2V-110



|                              |                      |
|------------------------------|----------------------|
| <b>Model</b>                 | <b>90070-2V-110</b>  |
| <b>No. of Stages</b>         | 2                    |
| <b>Free Air Displacement</b> | 10 CFM               |
| <b>Ultimate Vacuum</b>       | 12 Microns           |
| <b>Motor</b>                 | 1/2 HP               |
| <b>Pump Speed</b>            | 3440 RPM             |
| <b>Electrical Specs</b>      | 110/220V<br>50/60 HZ |
| <b>Shipping Weight</b>       | 33 lbs.              |

90070-2V-110



## VACUUM PUMP OIL

| PART#   | DESCRIPTION                     |
|---------|---------------------------------|
| 90010-6 | Case of Six (10 oz bottles)     |
| 90018-6 | Case of Six (18 oz bottles)     |
| 90024-6 | Case of Six (24 oz bottles)     |
| 90032-6 | Case of Six (32 oz bottles)     |
| 90128-4 | Case of Four (1 gallon bottles) |



## 98061 Digital Vacuum Gauge in blow molded case 98061-C Digital Vacuum Gauge in clamshell

### SPECIFICATIONS:

- Response Time: 250 mSec.
- Thermocouple Sensor Cable: 6.5 ft
- Connection Fitting: 1/4" FL-F adapter
- Operating Temperature: 32 - 120°F
- Battery Life: 36 hours
- Range: 20,000 to 1 micron
- Power: 9V DC battery
- Vacuum Units: Micron, Torr, mTorr, mmHg, mBar, Pa
- Accuracy Range\*: ATM - 1000 Microns: ±5% of reading  
1000 - 100 Microns: ±3% of reading / 100 - 1 Micron: ±1.5% of reading

\*Unit accuracy established using calibrated instrument with NIST traceability.

### OPTIONAL ACCESSORIES

|                                    |
|------------------------------------|
| <b>98061-SENSOR</b>                |
| Replacement Sensor                 |
| <b>99334-110</b>                   |
| 110V AC/DC Adapter                 |
| <b>99333</b>                       |
| 1/4 FL-M x 1/4 FL-M x 1/4 FL-F Tee |
| <b>99334-220</b>                   |
| 220V AC/DC Adapter                 |



**Mastercool®**  
"World Class Quality"

## 98210-A ACCU-CHARGE II

Mastercool ACCU-CHARGE II, the most advanced electronic refrigerant scale in the market today. Constructed with a rugged aluminum cast body, the ACCU-CHARGE II now offers programming capabilities.



### FUNCTIONS:

**CHARGE PROGRAMMING:** Allows user to program desired quantities. Before charge is complete, an alarm will sound allowing user ample time to turn off refrigerant supply.  
**TANK CAPACITY PROGRAMMING:** Allows user to know the amount of refrigerant that is left in the tank at any time.  
**REPEAT:** Allows user to charge previously stored amount.

### SPECIFICATIONS:

- Capacity: 240 lbs (110 kg)
- Accuracy:  $\pm 0.01$  kg  
 $\pm 0.16$  oz  
 $\pm 0.01$  lb } or 0.1% of reading (whichever is greater)
- Resolution: 0.01 kg / 0.02 lb
- 3 hrs Auto Off Function
- Operating Temperature is 32 to 120°F (0 to 49°C)
- Battery Life (approximately 40 hrs)
- Works w/110 or 220V Transformer (not available)
- 9 x 9" (22 x 22 cm) Platform

## 98211-A ACCU-CHARGE III CERTIFIED REFRIGERANT SCALE (OIML & CE Approved, Legal for Trade)



**CHARGE PROGRAMMING:** Allows user to program desired quantities. Before charge is complete, an alarm will sound allowing user ample time to turn off refrigerant supply.

**PAUSE/CHARGE:** (Using the 98230 Charging Solenoid Module)

**TANK CAPACITY PROGRAMMING:** Allows user to know the amount of refrigerant that is left in the tank at any time.

**REPEAT:** Allows user to charge previously stored amount.

### SPECIFICATIONS:

- Complies with European (OIML) Standards
- Capacity: 110 lbs (50 kg)
- Accuracy:  $\pm 50$  g
- Resolution: 0.10 lbs (0.05 kg)
- 3 hrs AUTO OFF Function
- Operating Temperature is 32 to 120°F (0 to 49°C)
- Battery Life (approximately 40 hrs)
- 9 x 9" (22 x 22 cm) Platform

## 98230 CHARGING SOLENOID MODULE

The 98230 Charging Solenoid Module turns the 98210-A ACCU-CHARGE II & 98211-A ACCU-CHARGE III into Automatic Programmable Scales!

This module allows the user to control the exact amount of refrigerant transferring to and from the A/C System. The compact design is battery powered (9V), lightweight, portable and works with all types of refrigerant. 98230 includes a short hose for tank connection, USB cord and 1/4"FL - 1/2" ACME adapters.





## SMART CHARGE™

The "Smart-Charge" scale does it all! Program and automatically transfer refrigerant to and from the A/C system. The capacity of over 700 models of cars from around the world is contained in the scale's memory. With the easy to use keypad you can retrieve almost any refrigerant capacity from automobiles made from 1989-UP.

**98300** 110 Volt  
**98300-220** 220 Volt

### SPECIFICATIONS

Capacity: 110 Lb or 176 Lb  
 Accuracy:  $\pm 1\%$  of reading  
 Resolution: .02 Lb at 110 Lb capacity or .04 Lb at 176 Lb capacity  
 Weight: 12 Lb  
 Size: 17 x 12 x 4"  
 Power: 115V or 220V  
 Platform: 8.6 x 8.6"

### FEATURES

**LANGUAGES:** The scale will display operating commands in seven different languages: English, Spanish, Portuguese, Italian, German, French and Swedish.

**MEMORY:** The scale will retain 3 weights in it's memory,  
 • Tare weight (weight of the empty cylinder)  
 • Net weight (weight of the refrigerant)  
 • Gross weight (Tare weight + Net weight)

At any time, the user can recall these three weights to determine the status of refrigerant.

**CHARGING:**

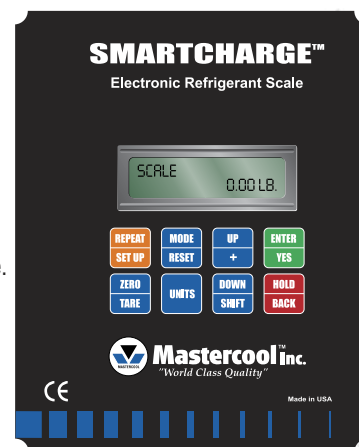
1. Unit can be programmed manually or by selecting one of over 700 vehicle refrigerant capacities stored in the memory.
2. Once programmed the unit will automatically stop the flow of refrigerant when the charge is complete.
3. The unit will also let you know if there is not enough refrigerant in the cylinder to supply the current charge.
4. If the same amount of charge is required, the "REPEAT" key can be used.

**RECOVERY:**

1. The unit will automatically monitor the amount of refrigerant that has been recovered.
2. If the cylinder is full, the unit will notify the user.

**VACUUM:**

1. Plug vacuum pump into the convenient outlet on the scale and program in your vacuum time.
2. Once the program time has ended the vacuum pump will shut off and the display will notify the user.



## ELECTRONIC TANK HEATER BLANKET

The Mastercool Refrigerant Tank Heater Blanket speeds up recharging time.

- Assures total discharge of refrigerant from 30 lb and 50 lb tanks of 125°F and maximum pressure of 185 PSI (R134a) and 170 PSI (R12)
- Quick working 300W heater element
- An excellent complement to all Mastercool Refrigerant Scales

**98250** 110V  
**98250-220** 220V



## 98100 AIR CONTENT ANALYZER

When an A/C system leaks, refrigerant is lost and air enters the system. Your refrigerant recycler cannot tell the difference between refrigerant and air - it recycles both from partially filled systems. You end up with an unknown quantity of efficiency robbing air in your supply tank. Excess actual pressure in your supply tank, indicates the pressure of air also called "non-condensable gases" or NCG's. When you release the excess pressure, you are releasing air. The result is purer refrigerant, which will work more efficiently.

The Mastercool Air Content Analyzer is more accurate than most automatic purging systems. It can be left on your supply tank for regular monitoring or it can be removed to check all your tanks.



**Mastercool®**  
 "World Class Quality" Inc.

## REFRIGERANT RECOVERY SYSTEM

Mastercool's professional recovery systems are compact, lightweight and work with all refrigerants. They're ideal for commercial, residential or industrial appliance applications. Our recovery systems offer a state-of-the-art 1/2 HP oil-less compressor with a built-in high volume cooling fan. This new innovative design delivers maximum cooling efficiency which keeps the compressor working at high capacities in even the hottest climates. The compressor is also protected by an automatic low pressure cut-off switch that shuts off the unit once the recovery is complete. This AUTO SHUT-OFF feature eliminates the risk of compressor failure and reduces the user's need to monitor the entire recovery system. All of our recovery systems offer our newest color-coded gauges with pressure readings in PSI, BAR and Mpa. Our stainless steel ball valve designed manifold controls the flow smoothly and quickly with only a 1/4 turn. With all of this protected by a reinforced hard plastic case, Mastercool's new recovery systems will meet all your refrigerant recovery needs.

**69000** 115V – 60Hz **69000-220** 220V – 50/60Hz

**POPULAR**



### FEATURES:

- High performance oil-less compressor
- High volume cooling fan design
- Automatic low pressure Cut-Off Switch
- Liquid compatible head-valve system
- Safety high pressure Cut-Off Switch
- Fully reinforced hard plastic casing
- Made in USA

### SPECIFICATIONS:

- 1/2 HP oil-less compressor
- Recovery Rate
  - direct vapor up to 3/4 lb/m
  - direct liquid up to 2 1/2 lb/m
  - push-pull up to 12 lb/m
- Operating temp. range: 32 to 122°F
- Weight: 38 lbs • Dim.: 17" L x 10" W x 12" H
- Refrigerants: CFC's, HCFC's, HFC's

## 69100 COMPLETE A/C RECOVERY SYSTEM

The 69100 Professional Recovery System is compact, lightweight and works with all refrigerants. It offers a State of the Art 1/2 hp Oil-less Compressor with a built-in High Volume Cooling Fan. This innovative design delivers maximum cooling efficiency which keeps the compressor working at high capacities in even the warmest climates. The Compressor is protected by an Automatic Low Pressure Cut-off Switch that Shuts Off the Unit once the recovery is complete. This Auto Shut-off Feature eliminates the risk of compressor failure and reduces

the user's need to monitor the entire recovery process. The 69100 also includes an Oil Separator and Filter Dryer to cleanse the refrigerant during the recovery process. The Mastercool Recovery System offers our newest color-coded gauges with Pressure Readings in PSI, BAR and MPA. The Stainless Steel Ball Valve designed Manifold controls the refrigerant flow smoothly and quickly with only a 1/4 turn. All of the internal components have been arranged and isolated to ensure a smooth and quiet performance. With all of this protected by a reinforced hard plastic case, Mastercool's Recovery System will meet all of your refrigerant needs.

**POPULAR**



### FEATURES & BENEFITS:

- High performance oil-less compressor
- High volume cooling fan design
- Automatic low pressure Cut-Off Switch
- Liquid compatible head-valve system
- Safety high pressure Cut-Off Switch
- Fully reinforced hard plastic casing
- Made in USA

**Design Certified to Meet SAE J2810**

## 69110 AUTOMOTIVE A/C RECOVERY SYSTEM

- Includes Recovery Unit, 30 lb DOT Tank, a 60" Yellow Service Hose, 72" Blue and Red Conversion Hoses, UL Approved High and Low Side R134a Manual Couplers and Oil Purge Bottle
- Designed to meet SAE J2810 and works with all refrigerants.
- Recovers and removes oil from refrigerant.
- All internal components have been arranged and isolated to ensure smooth and quiet performance.
- State of the art 1/2 hp oil-less compressor with built-in high volume cooling fan.
- Delivers maximum cooling efficiency, keeping compressor working at high capacities even in warmest climates.
- Compressor protected by automatic low pressure cut-off switch eliminating risk of compressor failure and reducing need to monitor entire recovery process.
- Stainless steel ball valve design manifold controls refrigerant flow smoothly and quickly with only 1/4 turn.
- Gauges provide pressure readings in PSI, BAR and MPA.

### SPECIFICATIONS:

- Refrigerant R134a
- High Side Design Pressure 500 psig
- Low Side Design Pressure 174 psig
- 115 Volts AC
- 1 PH, 60 HZ., 8.6 Amps, 1.25 S/F
- Service Factor 10.75 AMP
- Made in USA

**NEW!**



### SPECIFICATIONS:

- 69100: 115V – 60Hz
- 69100-220: 220V – 50/60 Hz
- 1/2 HP Oil-less Compressor
- Recovery Rate
  - direct vapor up to: 3/4 lb/m (.34 kg/m)
  - direct liquid up to: 2 1/2 lb/m (1.13 kg/m)
  - push-pull up to: 12 lb/m (5.5 kg/m)
- Operating temp range: 32-122°F/0 to 50°C
- Refrigerants: All
- Weight: 38 lbs
- Dimensions: 17" L x 10" W x 12" H





## TWIN TURBO

REFRIGERANT RECOVERY MACHINE

**69300** 115V - 60 HZ

**69300-220** 220V - 50/60 HZ



### Specifications:

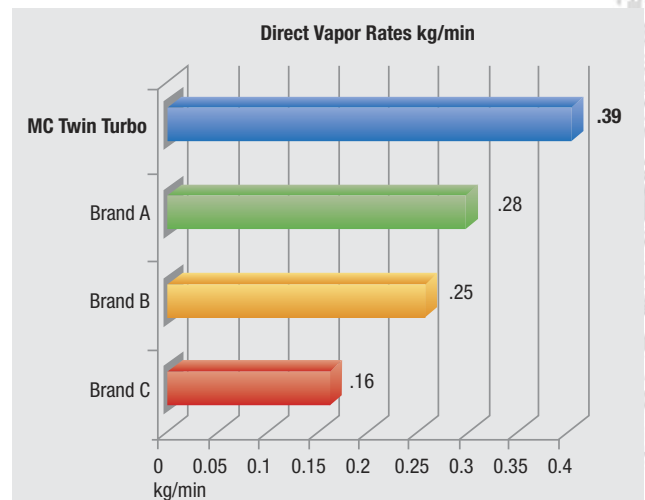
- 1/2 hp oil less compressor
- Recovery rate:
  - Direct vapor up to .39 kg/min
  - Direct liquid up to 3.1 kg/min
  - Push pull up to 8.1 kg/min
- Operating Temperature: 0 to 50°C
- Weight: 11 kg (25 lbs)
- Dimensions: 457mm (l) x 254mm (w) x 356mm (h) (18" (l) x 10" (w) x 14" (h))
- Case Material is HDPE (High Density Polyethylene)
- Compatible refrigerants: All CFC, HCFC, and HFC's

Mastercool introduces its newest addition to the recovery machine lineup. Taking the reliability of the 69000 series machines, Mastercool has enhanced those features to allow for maximum recovery capacity while at the same time decreasing size and weight. The design of the new double piston compressor and cooling by the largest fan and condenser in the market makes the new 69300 series the most complete solution to your recovery needs!

### Features & Benefits:

- Revolutionary double piston oil-less compressor
- Auto low pressure switch for durability of compressor
- Safety high pressure switch
- Simple internal structure for field service
- Largest volume recovery rate in market
- For use with all refrigerants including R410A
- Injection molded high density polyethylene case for maximum durability
- Large ergonomically positioned gauges for easy reading
- Front cover has bumper guards built in to reduce damage to the control knobs

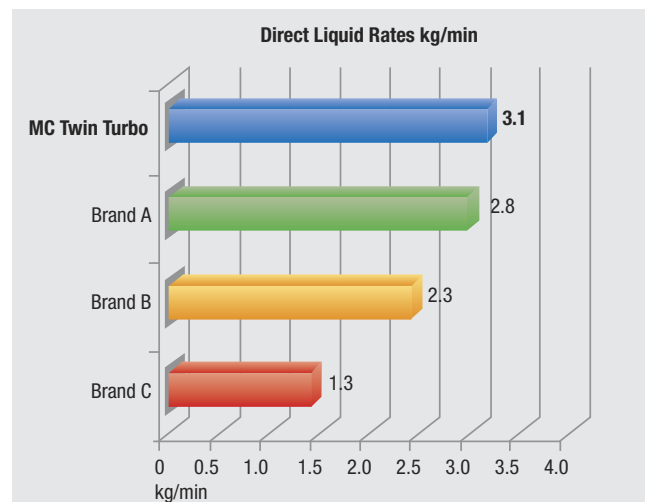
### RECOVERY RATE MARKET COMPARISONS



**69360** 115V - 60HZ  
**69360-220** 220V - 50/60 HZ

This unit offers all the same functions and features as the 69300 in addition it has an oil separation module, filter dryer and sight glass.

**69500-DR** Replacement Filter Dryer



**Mastercool® Inc.**  
 "World Class Quality"



## 69500 RECOVERYMATE

**Speed up the recovery process!** Remove unwanted moisture and separate oil from Recovered Refrigerant. (Use with any Recovery Machine.)

### SPECIFICATIONS:

- Lightweight and easy to carry
- 4-Way Ball Valve Manifold controls the flow smoothly and quickly with only 1/4 turn
- Large capacity oil separator
- High Performance Dryer eliminates moisture from recovered refrigerant
- Extra large sight glass monitors refrigerant flow and changes color when a dryer change is necessary
- Rugged carrying case can stand on its own or be mounted on a wall or bench
- Length: 15" / Width: 4" / Height: 17"
- Weight: 5.5 kg (12.25 lbs)

## PORTABLE ELECTRONIC CHARGING STATIONS

A lightweight, durable, steel frame cart that contains all the necessary tools to quickly and conveniently charge the A/C system. No need for different sized charging cylinders with Mastercool's rugged die cast electronic scale. Simply place the refrigerant cylinder on the scale and charge.

### FEATURES:

- A rugged, lightweight steel cart with wheels and convenient storage pocket for scale and hoses allows this portable charging station to be taken almost anywhere
- 240 lb capacity scale with long lasting 9V battery (60 hrs)
- Deep micron, rotary vane vacuum pumps.
- Extruded aluminum manifold with long lasting valve design

### 2 STAGE PORTABLE ELECTRONIC CHARGING STATION

- Large 3 1/8" gauges make it easy to read the pressure and temperature scales
- Deep micron, rotary vane vacuum pumps  
Available in 1.5, 5 and 7.5 CFM
- Includes set of 72" hoses

Also available:

- Refrigerant tank heater blanket #98250 and #98250-220
- D.O.T. cylinder #62010-R12 w/o float

\* R134a Automotive Service Couplers not included

\* 220V units with metric gauges are available. Please specify.

|                  | 1.5 CFM<br>110V | 5 CFM<br>110V | 7.5 CFM<br>110V |
|------------------|-----------------|---------------|-----------------|
| VACUUM PUMP      |                 |               |                 |
| MANIFOLD         |                 |               |                 |
| 2 Way Alum Block | <b>91580</b>    | <b>91585</b>  | <b>91587</b>    |
| 4 Way Alum Block | <b>91581</b>    | <b>91586</b>  | <b>91588</b>    |



## MOBILE ELECTRONIC CHARGING STATION

Keeping the same ideals in mind as the Portable Electronic Charging Station, Mastercool introduces its new mobile unit directed towards the garage technician. With an enlarged carry cart and larger wheels, this new unit can get around the shop with the greatest of ease!

|                  |              |
|------------------|--------------|
| VACUUM PUMP      | 1.5 CFM      |
| MANIFOLD         | 110V         |
| 2 Way Alum Block | <b>91680</b> |
| 4 Way Alum Block | <b>91681</b> |

|                  |              |
|------------------|--------------|
| VACUUM PUMP      | 5 CFM        |
| MANIFOLD         | 110V         |
| 2 Way Alum Block | <b>91685</b> |
| 4 Way Alum Block | <b>91686</b> |

|                  |              |
|------------------|--------------|
| VACUUM PUMP      | 7.5 CFM      |
| MANIFOLD         | 110V         |
| 2 Way Alum Block | <b>91687</b> |
| 4 Way Alum Block | <b>91688</b> |

### SINGLE STAGE PORTABLE ELECTRONIC CHARGING STATION

- 2 1/2" gauges
- Deep micron, rotary vane vacuum pumps.  
Available in 1.5, 3 and 6 CFM

Also available:

- Refrigerant tank heater blanket #98250 and #98250-220

| 91580-A                          | 91580-B                        | 91585-B                        |
|----------------------------------|--------------------------------|--------------------------------|
| R134a 2-way Manifold             | R134a 2-way Manifold           | R134a 2-way Manifold           |
| 1.5 CFM Single Stage Vacuum Pump | 3 CFM Single Stage Vacuum Pump | 6 CFM Single Stage Vacuum Pump |
| Electronic Charging Scale        | Electronic Charging Scale      | Electronic Charging Scale      |
| Manual Couplers                  | Manual Couplers                | Manual Couplers                |
| Set of Hoses                     | Set of Hoses                   | Set of Hoses                   |



**NEW!**

91580-B







## 69788 RECOVERY/RECYCLE/RECHARGE

- Quality Performance Year after Year
- Design Certified for Compliance with SAE J2788  
New A/C systems are smaller. Machines must charge within .5 oz and recover 95% of the refrigerant.
- Automatic/Programmable or Manual  
The 69788 can be programmed to complete a continuous recovery/recycle, vacuum, vacuum leak test and recharge. The machine can also be set to run each operation individually.
- Includes Refrigerant Capacity Database (over 1000 vehicles)  
Includes refrigerant capacities for US and Import makes and models from 1998 to 2010. The 69788 is capable of software upgrades as well.
- Auto Vacuum Leak Test  
Pauses cycle and monitors vacuum level to inform the technician of possible leaks.
- Auto Oil Discharge  
Oil is automatically discharged during the recovery process into a graduated container clearly displaying the amount of oil that was removed during the recovery process.
- Auto Air Purge  
Automatically purges air from the tank upon initial start-up or when the tank pressure is too high.
- Auto Filter Alarm  
The machine's LCD and alarm will warn that a filter change is required.
- Compact Footprint  
The machine's compact design makes it easy to maneuver and requires minimal shop space.

### SPECIFICATIONS:

- 115 V / 60 Hz
- 6 CFM Vacuum Pump
- Internally mounted 30 lb. DOT tank
- Dimensions: 41" H x 24" W x 22" D
- Weight: 187 lbs.

### 69788-FLTRPK

Filter pack for 69788



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"World Class Quality"

## COMPACT UV LEAK LOCATOR KITS

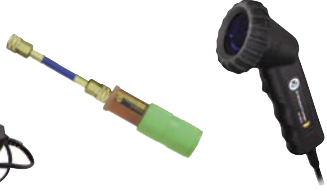
**Leading the way in UV LEAK DETECTION**, Mastercool offers a variety of compact UV Leak Locator Kits. Each kit offers a powerful inspection lamp, a "Refillable" or "Cartridge Type" Dye Injector and accessories. All kits are packaged in a clamshell or custom molded carrying case.



|                                                                                    | TYPE OF INJECTOR / TYPE OF LIGHT                                                                   | KIT PART# | CONTENTS OF EACH KIT                                                                                                                                                                                                                    | VOLTAGE/WATT                        |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|    | 53123/53012<br>   | 53100     | High Intensity Swivel Head Light, W/ Refillable 2 oz Dye Injector, 2 oz Concentrated Universal A/C Fluorescent Dye (25 Appl.), 4 oz Dye Remover, 25 Service Information Labels & UV Enhancing Safety Glasses                            | 12V/100 WATT                        |
|   | 53223/53012<br>  | 53100-C   | Same as 53100, but with Replaceable 2 oz Dye Cartridge (25 Applications)                                                                                                                                                                | 12V/100 WATT                        |
|  | 53123/53411<br> | 53450     | High Intensity Cordless Rechargeable Light W/ Battery Charger, Refillable 2 oz Dye Injector, 2 oz Concentrated Universal A/C Fluorescent Dye (25 Applications), 4 oz Dye Remover, 25 Service Info. Labels & UV Enhancing Safety Glasses | 12V/50 Watt<br>110V Battery Charger |
|  | 53223/53411<br> | 53450-C   | Same as 53450, but with Replaceable 2 oz Dye Cartridge (25 Applications)                                                                                                                                                                | 12V/50 Watt<br>110V Battery Charger |





|                                                                                     |             |                                                                                     |         |                                                                                                                                                                                                                                                                                         |                              |
|-------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|    | 53123/53312 |    | 53500   | High Intensity Mini Light W/Refillable 2 oz Dye Injector, 2 oz Concentrated Universal A/C Fluorescent Dye (25 Applications), 4 oz Dye Remover, 25 Service Info. Labels. & UV Enhancing Safety Glasses                                                                                   | 12V/50 WATT                  |
|    | 53223/53312 |    | 53500-C | Same as 53500, but with Replaceable 2 oz Dye Cartridge (25 Applications)                                                                                                                                                                                                                | 12V/50 WATT                  |
|   | 53809/53515 |   | 53580   | MACH IV Flexible LED UV Light W/1 oz Dye Injector, W/Replaceable 1 oz Dye Cartridge (10 Application), Low-Side Hose W/R134a Coupler, R12 Adapter, 10 Service Info. Labels & UV Enhancing Safety Glasses                                                                                 | 2 - CR2 Lithium 3V Batteries |
|  | 53809/53515 |  | 53585   | Same as above, but W/1 oz OIL/ATF/Gas (53610) & Diesel Fluorescent Dye and 1 oz (30ml) Engine Coolant Fluorescent Dye (53609)                                                                                                                                                           | 2 - CR2 Lithium 3V Batteries |
|  | 53809/53312 |  | 53351   | High Intensity Mini Light with Replaceable 1 oz (10 application) Dye Cartridge, A/C Connection Hose w/R134a Coupler, R12 Adapter, 1 oz OIL/ATF/Gas and Diesel Fluorescent Dye, 1 oz Engine Coolant Dye, 4 oz Dye Remover, 25 Service Information Labels and UV Enhancing Safety Glasses | 12V/50 WATT                  |



**Mastercool®**  
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## 53012 UV SWIVEL HEAD LIGHT (12V/100 WATTS)

- 180° Swivel Heads Get Into Tight Places
- Instant ON
- Heavy Duty Metal Construction
- Includes UV Enhancing Safety Glasses



## 53312 UV MINI LIGHT (12V/50 WATTS)

- High Intensity
- 16ft. Cord
- Compact & Lightweight
- Includes UV Enhancing Safety Glasses
- Instant ON



## RECHARGEABLE UV LIGHT

### 53411 (12V/50 WATTS)

- High Intensity
- Compact & Portable
- Cordless with Rechargeable Battery
- Includes UV Enhancing Safety Glasses



### 53412 (12V/50 WATTS)

- Same as 53411 (less battery cartridge and glasses)

## 53515 MACH IV FLEXIBLE UV LIGHT

The Mach IV flexible UV light has **4 TRUE UV LEDS** delivering a brilliant fluorescent glow.

- Gets into tight areas easily.
- Rugged Ergonomic Grip
- Includes UV Enhancing Safety Glasses.

**PATENT NO. 6,647,761**



## 53413 BATTERY CARTRIDGE (12V/50 WATT)

- This powerful rechargeable battery charger holds a charge equal to 30 minutes of continuous use.



### BATTERY CHARGER

**53414** 110V/60 HZ  
**53414-220** 220V/50-60 HZ



## ACCESSORIES

**53314 DYE REMOVER** - 4oz (120ml)

**53315 SERVICE LABELS** -

25 per pack, bright yellow label indicating that the system has been charged with UV Dye

**92398 UV ENHANCING SAFETY GLASSES** -

This is a must for protection against ultraviolet light during leak detection.

| LIGHT PART# | LIGHT BULB PART# | LENS PART# |
|-------------|------------------|------------|
| 53012       | 53012-B          | 53012-L    |
| 53112       | 53012-B          | 53110-L    |
| 53312       | 53312-B          | 53312-L    |
| 53411       | 53312-B          | 53312-L    |
| 53515       | 53515-B          | -          |





## 53809 MINI DYE INJECTOR

"Cartridge Type" Dye Injector (10 Applications) Concentrated Dye.



## 53223 "CARTRIDGE TYPE" UNIVERSAL DYE/OIL INJECTOR

Adding dye with the 53223 is fast and easy, simply connect the injector to the low side of the A/C system and twist the handle to the next application line. The replaceable cartridge provides 25 applications of universal dye that is compatible with R12/22/502 and R134a systems. The injector hose comes complete with a R134a coupler and auto shut-off valve adapter for 1/4" FL systems.



## REFILLABLE UNIVERSAL DYE/OIL INJECTOR

To inject the oil or dye, simply connect the injector to the low side of the A/C system and twist the handle until you reach the desired amount. The injector hose comes complete with a R134a coupler and auto shut-off valve adapter for 1/4" FL systems.

### 53123 REFILLABLE UNIVERSAL DYE INJECTOR

with 2 oz Bottle of Concentrated A/C Dye (25 Apps)

### 53123-A REFILLABLE UNIVERSAL DYE/OIL INJECTOR (w/o dye)

### 53134 REFILLABLE DYE INJECTOR

with (R134a 13 mm Connection) and 2 oz Bottle of Concentrated A/C Dye (25 Applications)

### 53322 REFILLABLE DYE INJECTOR

with (1/4" Auto Shut-off Valve Connection) and 2 oz Bottle of Concentrated A/C Dye (25 Apps)

## ULTRAVIOLET DYES

### STANDARD UNIVERSAL A/C DYES

Pack 1/4 oz - 1 Application

**92699 Standard Universal Dye** - Six 1/4 oz Packs (6 pcs)

8 oz Bottle - 32 Applications

**92708 Standard Universal Dye**

32 oz Bottle - 128 Applications

**92732 Standard Universal Dye**

### CONCENTRATED UNIVERSAL DYES

**53825 Universal Dye Cartridge**

Replaceable Cartridge - 25 Applications

**53810 Concentrated Dye Cartridge**

Replaceable Cartridge - 10 Applications

**53625 Universal Dye**

2oz Bottle - 25 Applications



## STANDARD

### 82375

1/2" ACME-M x 1/2" ACME-F (R134a)

### 90375

1/4" FFL x 1/4" MFL



## EASY CONNECT

### 82374

13mm-M x 13mm-F Low-Side Coupler (R134a)

### 92376

1/4" FFL x 1/4" MFL



## FLUORESCENT DYE

**53609 ENGINE COOLANT FLUORESCENT DYE** (1 oz. bottle)

- 1 oz for 1 vehicle application per 16 quarts of fluid

**53610 OIL/AFT/GAS FLUORESCENT DYE** (1 oz. bottle)

- Engine Oil (Gas & Diesel)  
1 vehicle application per 4-5 quarts of oil
- Automatic Transmission Fluid  
1 vehicle application per 4-5 quarts of fluid
- Gasoline & Diesel Fuel  
1 vehicle application per 2 gallons of fuel



## COMPRESSOR OILS

Maximum protection with excellent thermal & oxidative stability. Moisture tolerant. OEM approved.

**53826 PAG 100 Oil** (2 oz cartridge)

**53827 Ester Oil** (2 oz cartridge)

**92709 PAG 100 Oil** (8 oz bottle)

**92710 Ester Oil** (8 oz bottle)

**92711 PAG 100 Oil** (32 oz bottle)

**92712 Ester Oil** (32 oz bottle)



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## 55100 ELECTRONIC LEAK DETECTOR

The 55100 offers an accurate and reliable solution to Electronic Leak Detection.

### SPECIFIC FEATURES:

- 3 Levels Of Sensitivity (5 Levels Of Detection)
- Visual Leak Level Indicator
- Detects Leaks As Small As 3 gr (1/10 oz) Per Year
- Detects All Refrigerants, CFC'S, HCFC'S, HFC'S

### 55100-SEN

Sensor Tip for 55100, 55200, 55300 & 55400



## Mastercool introduces the "Next Generation" in Electronic Leak Detection!

The 55200 "INSPECTOR" and 55100 offer revolutionary new features and state of the art micro processing technology. The new design sensor delivers an accurate and instantaneous response. Both units come in a heavy duty custom molded carrying case and meet SAE J1627 and CE conformity.

### 55200 / 55100 GENERAL FEATURES / SPECIFICATIONS

- Digital Signal Micro Processor
- Auto Release Feature
- Keypad Control
- Detects All Halogenated Refrigerants
- Battery Test Feature
- Power Supply (2 "C" Batteries)
- Meets SAE J1627 / CE Conformity
- Flexible 16" Probe
- Variable Frequency Audible Alarm
- Includes Custom Molded Carrying Case

## 55200 "INSPECTOR" 2 IN 1 ELECTRONIC / UV LEAK DETECTOR



PATENT# 6,647,761

This revolutionary new design allows the user to perform Electronic and UV Leak Detection all with one tool. The "INSPECTOR" offers six levels of sensitivity (15 levels of detection) with a tri-colored LED indicator. This allows the "INSPECTOR" to pin-point leaks as small as 1/10 oz per year. The ultra bright UV light is built into the end of the probe allowing easy access into tight areas. Incorporating both electronic and UV technology into one unit insures that even the toughest leaks can be found.

### SPECIFIC FEATURES

- 6 Levels Of Sensitivity (15 Levels Of Detection)
- Detects Leaks As Small As 1/10 oz Per Year
- Detects All Refrigerants, CFC'S, HCFC'S, HFC'S
- Ultra Bright UV/Blue LED Light
- UV Safety Glasses
- Tricolored Visual Leak Level Indicator
- Mute Function

### 53515-B

LED Bulb for 55200, 55300 & 55400



## 55310 COMPLETE ELECTRONIC & UV LEAK DETECTION KIT

This kit offers the "INSPECTOR" along with our UV Dye Injection System. Our cartridge type dye injector is fast and easy to use. Just twist the handle to inject the appropriate amount of dye. The 55310 kit is the ultimate solution for all your A/C leak detection needs.

### SPECIFIC FEATURES

- 55200 "INSPECTOR" Electronic Leak Detector
- UV Dye Injector W/10 Application Dye Cartridge
- Dye Injector Connection Hose W/R12 Adapter
- Dye Cleaner & UV Safety Glasses
- Comes In A Custom Molded Carrying Case

### 55300 - Same as 55310

(with 25 application Dye Cartridge)



## 55400 COMPLETE ELECTRONIC & UV LEAK DETECTION KIT

This kit offers the "INSPECTOR" along with our UV Dye Injection System. Our refillable dye injector is fast and easy to use. Just twist the handle to inject the appropriate amount of dye. The 55400 kit is the ultimate solution for all your A/C leak detection needs.

### SPECIFIC FEATURES

- 55200 "INSPECTOR" Electronic Leak Detector
- Refillable Dye Injector
- Dye Injector Connection Hose W/R12 Adapter
- 2 oz Bottle of Concentrated Universal Dye
- UV Safety Glasses & Dye Cleaner
- Comes In A Custom Molded Carrying Case





**ELECTRONIC LEAK DETECTOR W/HEATED SENSOR**

Mastercool broadens it's line by introducing it's Heated Sensor Electronic Leak Detector. The HEATED SENSOR technology delivers fast and accurate results while eliminating non-refrigerant false alarms. The flexible 15" probe has a patented UV Blue Light built into the tip allowing dual UV and Electronic Leak Detection.

**55500** Electronic Leak Detector W/110V Battery Charger

**55500-220** Electronic Leak Detector W/220V Battery Charger

**SPECIFICATIONS:**

- Operating Temp: 32-125°F
- Power Supply: 2 C-Size 1.5V Ni-MH Battery
- Battery Life: 8 hrs per cycle (1000 cycles)
- Warm-Up Time: 25 Seconds
- Probe/Core Length: 15"
- Dimension: 7 x 7"
- Weight: 1.10 lbs
- Ultimate Sensitivity: 1/10 oz per year

**FEATURES:**

- Six Sensitivity Levels
- Automatic Warm Up
- Reset Function
- Dual-colored Visual LED Leak Size Display
- Blue UV LED Light
- Rechargeable Ni-MH Battery
- Low Battery Indicator
- High Volume Pump
- Meets and Exceeds SAE J1627
- 3 Year Limited Warranty
- Detects all Refrigerants (CFC's, HCFC's, HFC's)
- Made in USA

**Part# Description**

**53515-B** LED Bulb for 55500

**55500-SEN** Replacement Sensor



PATENT# 6,647,761

**COMBUSTIBLE GAS LEAK DETECTOR**

Mastercool introduces it's hand-held combustible gas leak detectors. Offering the most advanced sensor technology with a state-of-the-art microprocessor, these units detect leaks fast and accurately. The flexible 15" probe has a bright LED light built into the tip for easy viewing in hard to reach locations. The membrane switch panel offers easy one touch control and operation. Each of the six levels of sensitivity has an audible alarm and visual indicator to identify leak activity. These units include the newest rechargeable Ni-MH battery (nearly double the power of existing Ni-Cad batteries) and comes in a custom molded case.

**55750** Combustible Gas Leak Detector W/110V Battery Charger

**55750-220** Combustible Gas Leak Detector W/220V Battery Charger

**SPECIFICATIONS:**

- Operating Temp: 32-125°F
- Power Supply: 2 C-Size 1.5V Ni-MH Battery
- Battery Life: 8 hrs per cycle (1000 cycles)
- Warm-Up Time: 25 seconds
- Probe/Core Length: 15"
- Dimension: 7 X 7"
- Weight: 1.10 lbs
- Ultimate Sensitivity: 50 – 1000 ppm

**FEATURES:**

- Six Sensitivity Levels
- Reset Function
- Automatic Warm Up
- Bright LED Light
- Audible Leak Alarm & Visual Leak Size Indicator
- Rechargeable Ni-MH Battery
- Low Battery Indicator
- Custom Molded Carrying Case
- Made in USA

**DETECTS:**

Acetone, Acetylene, Ammonia, Benzene, Butane, Butanol, Chlorine, Ethane, Ethanol, Gasoline, Hexane, Hydrogen, Hydrogen Sulfide, Isobutane, Methane (natural gas), Methanol, Methyl Acetate, Methyl Chloride, Methyl Ether, Naptha, N-Butane, Pentane, Propane, Propanol, Sulfur Dioxide and Trichloroethane

PATENT# 6,647,761

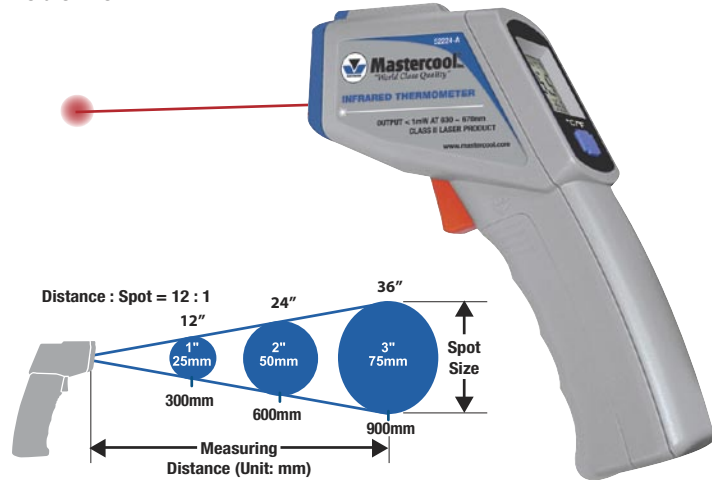


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## 52224-A INFRARED THERMOMETER W/LASER

Temperature Range: -58°F to 932°F (-50°C to 500°C)

Field of View: 12 : 1



The 52224-A offers laser targeting accuracy, enhanced back-lit LCD Display and an expanded temperature range. The compact design is simple to use and easy to store.

### SPECIFICATIONS:

|                                 |                                                   |
|---------------------------------|---------------------------------------------------|
| <b>Non-Contact Temp. Range:</b> | -58 to 932°F (-50 to 500°C)                       |
| <b>Field of View:</b>           | 12 : 1                                            |
| <b>Display Illumination:</b>    | Backlit LCD display                               |
| <b>Target Indicator:</b>        | Single Laser Spot                                 |
| <b>Emissivity:</b>              | 0.98                                              |
| <b>Resolution:</b>              | 0.5°F / 0.5°C                                     |
| <b>Accuracy:</b>                | 4°F (±2°C) or ±2% of reading                      |
| <b>Response Time:</b>           | 0.5 seconds                                       |
| <b>Power Off:</b>               | Automatic after 15 seconds                        |
| <b>Battery Life:</b>            | Approx. 180 hrs.                                  |
| <b>Included Accessories:</b>    | 2 AAA batteries, instruction manual, plastic case |



## 52224-C INFRARED THERMOMETER W/DUAL LASER

Temperature Range: -58°F to 932°F (-50°C to 500°C)

Field of View: 12 : 1



The Mastercool 52224-C accurately hits your target with dual laser technology. It features an enhanced back-lit LCD Display and an expanded temperature range of -58°F to 932°F (-50°C to 500°C). The compact design is simple to use and easy to store.

### SPECIFICATIONS:

|                                 |                                                   |
|---------------------------------|---------------------------------------------------|
| <b>Non-Contact Temp. Range:</b> | -58 to 932°F (-50 to 500°C)                       |
| <b>Field of View:</b>           | 12 : 1                                            |
| <b>Display Illumination:</b>    | Backlit LCD display                               |
| <b>Target Indicator:</b>        | Dual Laser Spot                                   |
| <b>Emissivity:</b>              | 0.98                                              |
| <b>Resolution:</b>              | 0.5°F / 0.5°C                                     |
| <b>Accuracy:</b>                | 4°F (±2°C) or ±2% of reading                      |
| <b>Response Time:</b>           | 0.5 seconds                                       |
| <b>Power Off:</b>               | Automatic after 15 seconds                        |
| <b>Battery Life:</b>            | Approx. 180 hrs.                                  |
| <b>Included Accessories:</b>    | 2 AAA batteries, instruction manual, plastic case |

## 52225-A DUAL TEMP PLUS INFRARED THERMOMETER

Non-Contact Temperature Range: -76 to 1400°F (-60 to 760°C)

Field of View: 30 : 1



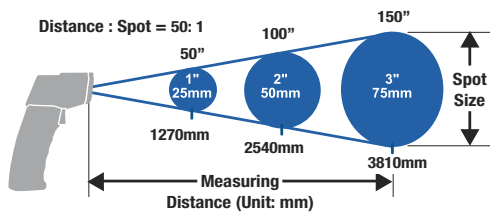
3 ft. (1m) Wire Thermocouple Included

Features both infrared and contact thermometer technologies. Includes programmable HI/LO alarms and Lock Mode to capture temperature readings. The contact function offers a built-in K type jack and wire thermocouple.

### SPECIFICATIONS:

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| <b>Non-Contact Temp. Range:</b>  | -76 to 1400°F (-60 to 760°C)                                                       |
| <b>Thermocouple Temp. Range:</b> | -83 to 1999°F (-64 to 1400°C)                                                      |
| <b>Field of View:</b>            | 30 : 1                                                                             |
| <b>Display Illumination:</b>     | Backlit LCD display                                                                |
| <b>Target Indicator:</b>         | Single Laser Spot                                                                  |
| <b>Emissivity:</b>               | 0.10(10E) to 1.0 (100E)                                                            |
| <b>Resolution:</b>               | 0.1°F / 0.1°C                                                                      |
| <b>Modes:</b>                    | MIN, MAX, DIFF & AVG                                                               |
| <b>Accuracy:</b>                 | ±2% of reading                                                                     |
| <b>Response Time:</b>            | 1 second                                                                           |
| <b>Power Off:</b>                | Automatic after 60 seconds                                                         |
| <b>Battery Life:</b>             | Approx. 180 hrs.                                                                   |
| <b>Included Accessories:</b>     | 2 AAA batteries, 3 ft thermocouple probe, instruction manual, plastic case         |
| <b>Optional Accessories:</b>     | 10ft Wire Thermocouple Probe, Piercing Penetration Probe, Surface Probe, Air Probe |





## SPECIFICATIONS:

|                                  |                                                                                                                   |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Non-Contact Temp. Range:</b>  | -76 to 1832°F (-60 to 1000°C)                                                                                     |
| <b>Thermocouple Temp. Range:</b> | -83 to 1999°F (-64 to 1400°C)                                                                                     |
| <b>Field of View:</b>            | 50 : 1                                                                                                            |
| <b>Display Illumination:</b>     | Backlit LCD display                                                                                               |
| <b>Target Indicator:</b>         | Dual Laser Spot                                                                                                   |
| <b>Emissivity:</b>               | 0.95                                                                                                              |
| <b>Resolution:</b>               | 0.1°C / 0.1°F                                                                                                     |
| <b>Modes:</b>                    | MIN, MAX, DIFF & AVG                                                                                              |
| <b>Accuracy:</b>                 | ±2% of reading                                                                                                    |
| <b>Response Time:</b>            | 1 second                                                                                                          |
| <b>Power Off:</b>                | Automatic after 60 seconds                                                                                        |
| <b>Battery Life:</b>             | Approx. 180 hrs.                                                                                                  |
| <b>Included Accessories:</b>     | 2 AAA batteries, instruction manual, plastic case                                                                 |
| <b>Optional Accessories:</b>     | 3ft, 10ft Wire Thermocouple Probes, Piercing Penetration Probe, Surface Probe, Air Probe, Removable Magnetic Base |

## 52225-B ULTRA TEMP DUAL LASER THERMOMETER

**Non-Contact Temperature Range: -76 to 1832°F (-60 to 1000°C)**

**Field of View: 50 : 1**

Features both infrared and contact thermometer technologies. Includes programmable HI/LO alarms, and Lock Mode to capture temperature readings. The built-in K type jack offers optional contact functions. Illuminates working area with built-in LED light.



Optional Wire Thermocouple

All thermometers include pocket holder and clip.

## POCKET ANALOG DESIGNS

| Item# | Dial Size | Temperature Scale |
|-------|-----------|-------------------|
| 52220 | 1"        | 0 to 220°F        |
| 52161 | 1 3/8"    | -40 to 160°F      |
| 91120 | 1 3/4"    | 0 to 220°F        |

## POCKET DIGITAL DESIGN

| Item#   | Dial Size | Temperature Scale |
|---------|-----------|-------------------|
| 52223-A | 1"        | -58 to 302°F      |

Battery operated (1.5V, life of 5000 hours), on/off and auto shut-off after 10 minutes.



## 52226

### DUAL TEMP INFRARED/PROBE THERMOMETER

The 52226 Dual Temp Thermometer offers both infrared and contact probe technologies.

- Infrared Temp Range: -67 to 428°F (-55 to 220°C)
- Probe Temp Range: -67 to 626°F (-55 to 330°C)
- Field of View Ratio 1 : 1
- Adjustable Emissivity
- Lock Mode for hands free scanning
- Minimum / Maximum capture mode
- Contact Probe locks safely on the side of the unit



## 52227

### POCKET INFRARED THERMOMETER

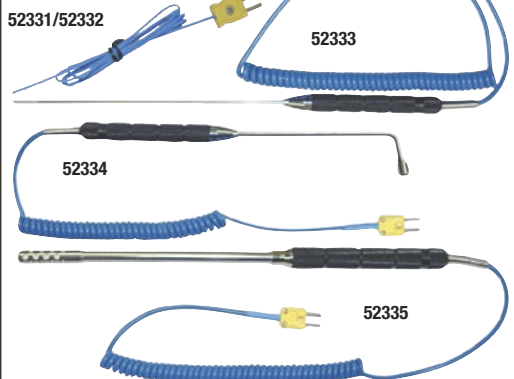
The 52227 Pocket Infrared Thermometer offers accurate non-contact temperature measurement in a compact and easy to use size.

- Temp Range: -67 to 428°F
- Field of View Ratio 1 : 1
- Adjustable Emissivity
- Backlit LCD Display
- Minimum/Maximum capture mode
- Lithium Battery



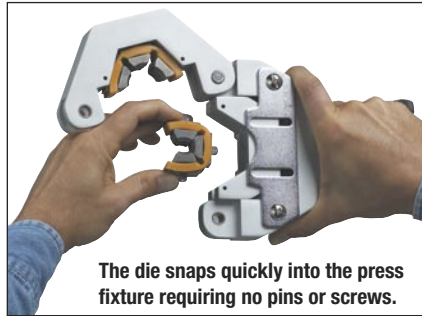
## OPTIONAL PROBES

- 52331 Wire Thermocouple Probe - 3ft (1m)
- 52332 Wire Thermocouple Probe - 10ft (3m)
- 52333 Piercing Penetration Probe
- 52334 Surface Probe
- 52335 Air Probe



**Mastercool®**  
"World Class Quality"

**POPULAR**



The die snaps quickly into the press fixture requiring no pins or screws.

Fabricating A/C Hoses Just Got Easier With The...

## 71500 HYDRA-KRIMP

Mastercool's Patented "Hydra - Krimp" makes crimping barbed and beaded fittings as easy as 1 - 2 - 3! The lightweight hand-held hydraulic press is very portable and ideal for shop and field applications. The kit comes with a complete set of dies covering hose sizes #6, #8, #10, #12 and reduced barrier #6, #8, #10 and #12. The dies snap quickly into the press fixture requiring no pins or screws. Kit comes in a custom molded case and includes:

| Part#         | Description                                                   |
|---------------|---------------------------------------------------------------|
| 71500 - 001A  | Hydra - Krimp Pump                                            |
| 71500 - 001B  | Hydra - Krimp Yoke                                            |
| 71500-001C    | Complete Die Set Assembly (7 pc. set)                         |
| 71500 - 6     | Die Set - #6 (5/16")<br>Die Set - #8 (13/32") Reduced Barrier |
| 71500 - 8     | Die Set - #8 (13/32")                                         |
| 71500 - 10    | Die Set - #10 (1/2")                                          |
| 71500 - 12    | Die Set - #12 (5/8")                                          |
| 71500 - 6SRB  | Die Set - #6 (5/16") Reduced Barrier                          |
| 71500 - 10SRB | Die Set - #10 (1/2") Reduced Barrier                          |
| 71500 - 12SRB | Die Set - #12 (5/8") Reduced Barrier                          |
| 71500 - PB    | Custom Molded Box                                             |

PATENT# 6,324,884



**POPULAR**

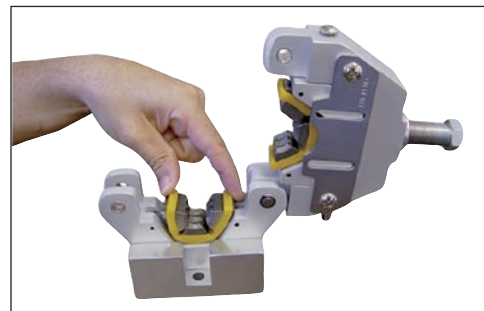


PATENT# 6,324,884

## 71550 A/C HOSE CRIMPER

The 71550 is our "manual style" A/C hose crimper. The dies snap quickly into place requiring no pins or screws. The unit can be easily mounted to a bench using the holding fixture or held securely in a vice. This kit comes with a complete set of dies covering standard hose sizes #6, #8, #10 and #12. \*Optional reduced barrier sizes are available.

| Part#       | Description                 |
|-------------|-----------------------------|
| 71550 - 001 | Yoke Assembly               |
| 71550 - 002 | Arbor Assembly              |
| 71550 - 003 | Holding Fixture Assembly    |
| 71550 - 6   | Die Set - #6 (5/16")        |
| 71550 - 8   | Die Set - #8 (13/32")       |
| 71550 - 10  | Die Set - #10 (1/2")        |
| 71550 - 12  | Die Set - #12 (5/8")        |
| 71550 - PB  | Custom Molded Carrying Case |



The die snaps quickly into the press fixture requiring no pins or screws.





**71475 UNIVERSAL HYDRAULIC FLARING TOOL SET**

This kit fabricates Push Connect 1/4, 5/16 and 3/8"; GM Fuel Line Flare, Brake Lines and Transmission 5/16 and 3/8"; Flare/Double Flare 3/16, 1/4, 5/16, 3/8 and 1/2"; Metric Bubble Flare 4.75, 6, 8, and 10mm. Comes in a custom molded box.

|                                          |                                     |                                          |                  |
|------------------------------------------|-------------------------------------|------------------------------------------|------------------|
| <b>71201</b>                             | Hydra-flare Yoke & Pump Assembly    | <b>71097-01</b>                          | 45° Flaring Cone |
| <b>Push-Connect Adapters</b>             |                                     | <b>Push-Connect Die Sets</b>             |                  |
| <b>71204</b>                             | 1/4" Adapter                        | <b>71214</b>                             | 1/4" Die Set     |
| <b>71205</b>                             | 5/16" Adapter                       | <b>71215</b>                             | 5/16" Die Set    |
| <b>71206</b>                             | 3/8" Adapter                        | <b>71216</b>                             | 3/8" Die Set     |
| <b>GM Fuel Line Adapters</b>             |                                     | <b>GM Fuel Line Die Sets</b>             |                  |
| <b>71405</b>                             | 5/16" Adapter                       | <b>71415</b>                             | 5/16" Die Set    |
| <b>71406</b>                             | 3/8" Adapter                        | <b>71416</b>                             | 3/8" Die Set     |
| <b>45° &amp; Double Flaring Adapters</b> |                                     | <b>45° &amp; Double Flaring Die Sets</b> |                  |
| <b>71097-03</b>                          | 3/16" Adapter                       | <b>71097-13</b>                          | 3/16" Die Set    |
| <b>71097-04</b>                          | 1/4" Adapter                        | <b>71097-14</b>                          | 1/4" Die Set     |
| <b>71097-05</b>                          | 5/16" Adapter                       | <b>71097-15</b>                          | 5/16" Die Set    |
| <b>71097-06</b>                          | 3/8" Adapter                        | <b>71097-16</b>                          | 3/8" Die Set     |
| <b>71097-08</b>                          | 1/2" Adapter                        | <b>71097-18</b>                          | 1/2" Die Set     |
| <b>Metric Bubble Flaring Adapters</b>    |                                     | <b>Metric Bubble Flaring Die Sets</b>    |                  |
| <b>71475-4M</b>                          | 4.75mm Adapter                      | <b>71475-14M</b>                         | 4.75mm Die Set   |
| <b>71475-6M</b>                          | 6mm Adapter                         | <b>71475-16M</b>                         | 6mm Die Set      |
| <b>71475-8M</b>                          | 8mm Adapter                         | <b>71475-18M</b>                         | 8mm Die Set      |
| <b>71475-10M</b>                         | 10mm Adapter                        | <b>71475-110M</b>                        | 10mm Die Set     |
| <b>71475-PB</b>                          | Custom Molded Plastic Box for 71475 |                                          |                  |

**POPULAR**

Push Connect

GM Fuel Line

45° Double Flare

Metric Bubble Flare



PATENT# 5,782,128

**71400 GM FUEL LINE FLARING KIT**

This kit fabricates the special flares found on most GM fuel lines and some GM truck power steering pump return lines (5/16"). Kit comes in a custom molded carrying case and includes:

|                                            |                                  |
|--------------------------------------------|----------------------------------|
| <b>71201</b>                               | Hydra-flare Yoke & Pump Assembly |
| <b>GM Fuel Line Adapters and Die Sets:</b> |                                  |
| <b>71405</b>                               | 5/16" Adapter                    |
| <b>71415</b>                               | 5/16" Die Set                    |
| <b>71406</b>                               | 3/8" Adapter                     |
| <b>71416</b>                               | 3/8" Die Set                     |
| <b>71200-PB</b>                            | Custom Molded Carrying Case      |



GM Fuel Line

**71450 DOUBLE FLARE & METRIC BUBBLE FLARING TOOL SET**

This kit fabricates flare/double flare 3/16, 1/4, 5/16, 3/8 and 1/2"; and metric bubble flare 4.75, 6, 8 and 10mm. Comes in a custom molded carrying case and includes:

|                                                        |                                  |                                                     |                  |
|--------------------------------------------------------|----------------------------------|-----------------------------------------------------|------------------|
| <b>71201</b>                                           | Hydra-flare Yoke & Pump Assembly | <b>71097-01</b>                                     | 45° Flaring Cone |
| <b>45° &amp; Double Flaring Adapters and Die Sets:</b> |                                  | <b>Metric Bubble Flaring Adapters and Die Sets:</b> |                  |
| <b>71097-03</b>                                        | 3/16" Adapter                    | <b>71097-13</b>                                     | 3/16" Die Set    |
| <b>71097-04</b>                                        | 1/4" Adapter                     | <b>71097-14</b>                                     | 1/4" Die Set     |
| <b>71097-05</b>                                        | 5/16" Adapter                    | <b>71097-15</b>                                     | 5/16" Die Set    |
| <b>71097-06</b>                                        | 3/8" Adapter                     | <b>71097-16</b>                                     | 3/8" Die Set     |
| <b>71097-08</b>                                        | 1/2" Adapter                     | <b>71097-18</b>                                     | 1/2" Die Set     |
| <b>71475-4M</b>                                        | 4.75mm Adapter                   | <b>71475-14M</b>                                    | 4.75mm Die Set   |
| <b>71475-6M</b>                                        | 6mm Adapter                      | <b>71475-16M</b>                                    | 6mm Die Set      |
| <b>71475-8M</b>                                        | 8mm Adapter                      | <b>71475-18M</b>                                    | 8mm Die Set      |
| <b>71475-10M</b>                                       | 10mm Adapter                     | <b>71475-110M</b>                                   | 10mm Die Set     |
| <b>71450-PB</b>                                        | Custom Molded Carrying Case      |                                                     |                  |



45° Double Flare

Metric Bubble Flare



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## 71480 37° FLARING AND DOUBLE FLARING HYDRAULIC TOOL KIT

This kit fabricates factory style 37° and 37° double flare found on aviation and specialty automotive applications. The handheld hydraulic pump operates easily with all steel and light stainless tubing.

Includes: 3/16, 1/4, 5/16, 3/8 and 1/2" dies 3/16, 1/4, 5/16, 3/8 and 1/2" double flare adapters and 37° Cone

|                                                   |                                  |                 |                            |
|---------------------------------------------------|----------------------------------|-----------------|----------------------------|
| <b>71201</b>                                      | Hydra-flare Yoke & Pump Assembly | <b>71098-01</b> | 37° Cone                   |
| <b>37° Double Flaring Adapters &amp; Die Sets</b> |                                  |                 |                            |
| <b>71098-03</b>                                   | 3/16" Double Flare Adapter       | <b>71098-13</b> | 3/16" Double Flare Die Set |
| <b>71097-04</b>                                   | 1/4" Double Flare Adapter        | <b>71098-14</b> | 1/4" Double Flare Die Set  |
| <b>71097-05</b>                                   | 5/16" Double Flare Adapter       | <b>71098-15</b> | 5/16" Double Flare Die Set |
| <b>71097-06</b>                                   | 3/8" Double Flare Adapter        | <b>71098-16</b> | 3/8" Double Flare Die Set  |
| <b>71097-08</b>                                   | 1/2" Double Flare Adapter        | <b>71098-18</b> | 1/2" Double Flare Die Set  |

## 71098 37° FLARING & DOUBLE FLARING ADAPTER SET

- Dies: 3/16, 1/4, 5/16, 3/8 and 1/2"
- Double Flare Adapters: 3/16, 1/4, 5/16, 3/8 and 1/2"
- 37° Cone



## 71300 PUSH-CONNECT, 45° & DOUBLE FLARING SET WITH "HYDRA-FLARE"

Fabricates "production quality" flares quickly and easily with hand held convenience. Flaring die sets for five sizes: 3/16, 1/4, 5/16, 3/8 and 1/2" O.D. tubing; five double flaring adapters cover 3/16, 1/4, 5/16, 3/8 and 1/2" O.D. tubing. Set includes:

|                                                        |                                  |                 |                  |
|--------------------------------------------------------|----------------------------------|-----------------|------------------|
| <b>71201</b>                                           | Hydra-flare Yoke & Pump Assembly | <b>71097-01</b> | 45° Flaring Cone |
| <b>Push-Connect Adapters and Die Sets:</b>             |                                  |                 |                  |
| <b>71204</b>                                           | 1/4" Adapter                     | <b>71214</b>    | 1/4" Die Set     |
| <b>71205</b>                                           | 5/16" Adapter                    | <b>71215</b>    | 5/16" Die Set    |
| <b>71206</b>                                           | 3/8" Adapter                     | <b>71216</b>    | 3/8" Die Set     |
| <b>45° &amp; Double Flaring Adapters and Die Sets:</b> |                                  |                 |                  |
| <b>71097-03</b>                                        | 3/16" Adapter                    | <b>71097-13</b> | 3/16" Die Set    |
| <b>71097-04</b>                                        | 1/4" Adapter                     | <b>71097-14</b> | 1/4" Die Set     |
| <b>71097-05</b>                                        | 5/16" Adapter                    | <b>71097-15</b> | 5/16" Die Set    |
| <b>71097-06</b>                                        | 3/8" Adapter                     | <b>71097-16</b> | 3/8" Die Set     |
| <b>71097-08</b>                                        | 1/2" Adapter                     | <b>71097-18</b> | 1/2" Die Set     |



Push Connect

45° Double Flare

## 70092 45° FLARING, DOUBLE FLARING & CUTTING TOOL SET



45° Double Flare



Includes heavy duty tube cutter **70033** for 1/8 to 1 1/8" O.D. tubing; standard 45° flaring tool **70051** flares 7 sizes: 3/16, 1/4, 5/16, 3/8, 7/16, 1/2 and 5/8" O.D. tubing; five double flaring adapters **70192** cover 3/16, 1/4, 5/16, 3/8 and 1/2" O.D. tubing.

Also available:

**70097** Same as 70092, less 70033 tube cutter

**70192** Set of 5 double flaring adapters for 3/16, 1/4, 5/16, 3/8 and 1/2" O.D. tubing.

**70092-M** Metric Flaring, Double Flaring & Cutting Tool Set  
Flares 7 metric sizes: 4, 6, 8, 10, 12, 15 and 16mm O.D. tubing.

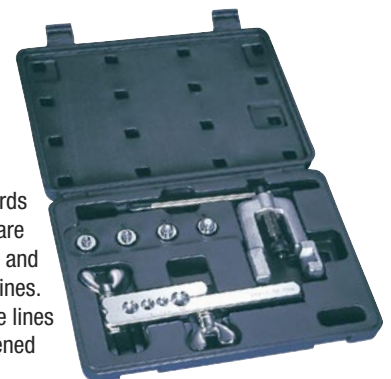
**70192-M** Metric Double Flaring Adapter Set Covers 4.75, 5, 6, 8 and 10mm O.D. tubing.

**70097-M** Same as 70092-M, less 70033 tube cutter.

## 71100 METRIC BUBBLE FLARING TOOL SET



Metric Bubble Flare



Fashions International Standards Organization (I.S.O.) bubble flare found on European, Japanese and some domestic model brake lines. Flares without removing brake lines from a vehicle. Includes hardened steel bar and carrying case.

Set includes: Adapters for 4.75, 6, 8 and 10mm O.D. tubing.

Also available:

**71101** Set of four bubble flaring adapters for 4.75, 6, 8 and 10mm O.D. tubing.

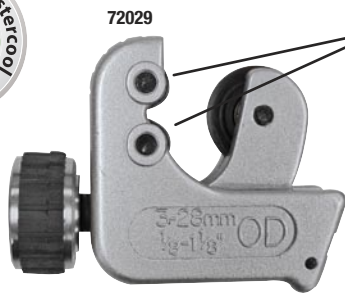




## BALL BEARING CUTTERS

Mastercool's New EZ Tube Cutters offer the latest "Reduced Friction" technology! Our new reduced friction design incorporates ball bearings into the cutter wheel, tube rollers and a control knob. Reducing the resistance in these high friction areas allows the cutter to roll fast and easy as it slices through the tube. The new "Reduced Friction" design is sure to save time and reduce fatigue!

- 72029** "REDUCED FRICTION" TUBE CUTTER for 1/8 to 1 1/8" (3-28mm)
- 72035** "REDUCED FRICTION" TUBE CUTTER for 1/4 to 1 1/2" (6-38mm)
- 72030** REPLACEMENT CUTTING WHEEL for 72029
- 72034** REPLACEMENT CUTTING WHEEL for 72035



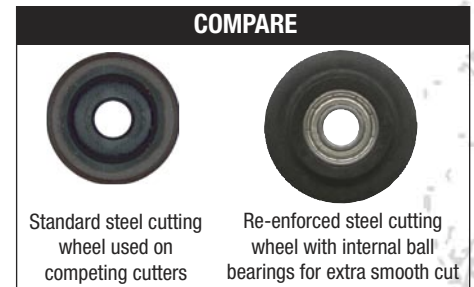
72029

Each cutter includes up to 8 ball bearings for easy operation and extra smooth cut.



72035

Includes a detachable swivel deburring tool for smooth surface



COMPARE



Standard steel cutting wheel used on competing cutters



Re-enforced steel cutting wheel with internal ball bearings for extra smooth cut

## TUBE CUTTERS

MASTERCOOL tube cutters are lightweight yet durable. Carbide steel cutting wheels work with hard and soft copper, aluminum, brass, thin wall steel and stainless steel. All cutters feature rollers with flare cut-off grooves to salvage as much old tubing material as possible.

- 70027** MINI TUBE CUTTER for 1/8 to 5/8" O.D. Tubing (1/8 to 1/2" Nominal).
- 70029** MINI TUBE CUTTER for 3/8 to 1 1/8" O.D. Tubing (1/4 to 1" Nominal).
- 70033** HEAVY DUTY TUBE CUTTER for 1/8 to 1 1/8" O.D. Tubing (1/4 to 1" Nominal).
- 70035** HEAVY DUTY TUBE CUTTER for 1/4 to 1 5/8" (1/4 to 1 1/2" Nominal).
- 70037** SLIDING RATCHET TUBE CUTTER for 1/4 to 2 5/8" O.D. Tubing (1/4 to 2 3/4" Nominal), Triple Chrome Plated.
- 70038** SLIDING RATCHET TUBE CUTTER for 1/4 to 3 1/2" O.D. Tubing (1/4 to 1 1/2" Nominal).



70027



70029



70033



70037

## REPLACEMENT CUTTER WHEELS

- 70028** Replacement Cutting Wheels for 70027 (10 pcs).
- 70034** Replacement Cutting Wheels for 70029, 70033, 70035 and 70037 (10 pcs + 1 holding screw).
- 70128** Carbide Cutting Wheel & Screw Set for 70027 includes: 2 Spare Cutting Wheels and 1 Holding Screw.
- 70134** Carbide Cutting Wheel and Screw Set for 70029, 70035, and 70037. Includes: 2 Spare Cutting Wheels and 1 Holding Screw.
- 70138** Replacement Cutting Wheel for 70038 (1 per pkg.) Cut Hard and Soft Copper, Aluminum, Brass, Thin Wall Steel and Stainless Steel.
- 70237** PVC Cutting Wheel for 70037. Cuts PVC and ABS.
- 70238** Oversize PVC Cutting Wheel for 70038. Wheel is 1 5/8" Diameter. Cuts PVC and ABS.

## TUBE CONSTRICTOR WHEEL

- 70233** Used with 70033 or 70035.



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## RATCHET STYLE TUBE CUTTER

- 70030** When you don't have swing room, ratchet action allows cutting all the way around the tubing easy (1/4 to 7/8" O.D. Tubing)
- 70031** (5/16 to 1 1/8" O.D. Tubing)



## 80021 PLUMBERS TYPE MINI CUTTER

Designed for applications with limited working space. Cuts soft copper, aluminum and thin wall steel tubing. Tube Cutter for 1/8 to 7/8" (4-22mm) O.D. Tubing. (1/8 to 3/4" nom.)

- 80121** Spare Cutting Wheel for 80021

## INNER-OUTER REAMERS



- 70085** Inner/Outer Reamer for 3/16 to 1 1/2" O.D. Tubing.



- 71685** Designed to remove inner burrs easily. Full metal grip. Includes one spare tungsten blade for long use.
- 71686-2** Two spare blades for 71685 (2 pcs).



## 70069-A 4-IN-1 LEVER STYLE TUBE BENDER

Complete 180° bend all metal multi-purpose tube bender for 3/16, 1/4, 5/16 and 3/8" O.D. Tubing.

## SPRING STYLE TUBE BENDERS

Economical and effective tools for bending soft copper or aluminum tubing without kinks. Special nickel plated, spring steel is flared on one end for quick tube insertion. Each tool bends one size.

| MODEL# | SIZE  | LENGTH |
|--------|-------|--------|
| 70071  | 1/4"  | 10"    |
| 70072  | 5/16" | 10"    |
| 70073  | 3/8"  | 10"    |
| 70074  | 1/2"  | 12"    |
| 70075  | 5/8"  | 14"    |
| 70077  | 3/4"  | 14"    |



## 70076 SPRING STYLE TUBE BENDER SET

Set of 5 spring benders for 1/4, 5/16, 3/8, 1/2 and 5/8" O.D. tubing.



## RATCHET WRENCHES

- 70081** Steel forged wrench with reversible ratchet. 9/16", 1/2" hex, 1/4" and 3/16" square.
- 70082** Compact chrome plated wrench specially designed for use in hard to reach places. 1/4, 3/8, 3/16 and 5/16" square ratchet.



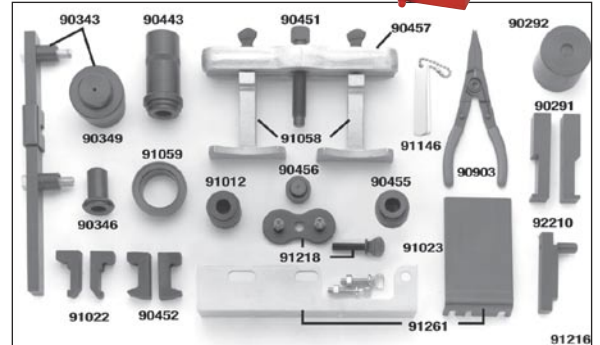
## 91274 MASTER CLUTCH SERVICE TOOL SET

The Set contains all the tools needed to service clutches on the following compressors: General Motors A6, R4, and DA6; 6 Pole R4, V5 and HR-6; Ford FS6; Chrysler C171; Nippondenso 6P 148A; Sanden 507, 508 and 510 and Pitts and Warner clutches.

Contains:

|              |                                       |              |                              |
|--------------|---------------------------------------|--------------|------------------------------|
| <b>90291</b> | Coil Puller Jaws                      | <b>91012</b> | Shaft Protector Pilot        |
| <b>90292</b> | Coil Installer                        | <b>91022</b> | Rotor & Bearing Puller Jaws  |
| <b>90343</b> | Compressor Holding Fixture & Hardware | <b>91023</b> | Rotor & Bearing Puller Arbor |
| <b>90346</b> | Rotor & Bearing Pilot                 | <b>91047</b> | Tool Box                     |
| <b>90349</b> | Clutch Assembly Installer             | <b>91058</b> | Pulley Remover Jaws          |
| <b>90443</b> | Pulley Bearing Remover & Driver       | <b>91059</b> | Bearing & Pulley Installer   |
| <b>90451</b> | Pulley Arbor                          | <b>91146</b> | Feeler Gauge Set             |
| <b>90452</b> | Pulley Removal Jaws                   | <b>91183</b> | A/C Service Manual           |
| <b>90455</b> | Pulley Removal Pilot                  | <b>91216</b> | Coil Installer Tie Bolt Set  |
| <b>90456</b> | Pulley Hub Removal Pilot              | <b>91218</b> | GM Compressor Test Plate     |
| <b>90457</b> | Puller Body                           | <b>91261</b> | Holding Fixture and Hardware |
| <b>90903</b> | External Retaining Ring Pliers        | <b>92210</b> | Clutch Bearing Staking Tool  |

**All tools available individually.**



## 91268 MASTER SEAL SERVICE TOOL SET

The set includes all the tools from 91269, 91270, 91271, 91272 and 91273 in a rugged metal tool box. Easy to understand instruction manual will show you step-by-step how to service all the popular compressors.

Contains:

|              |                                       |              |                              |
|--------------|---------------------------------------|--------------|------------------------------|
| <b>90383</b> | Internal Snap Ring Pliers             | <b>90906</b> | Seal Remover & Installer     |
| <b>90412</b> | O-Ring Seal Sleeve Remover            | <b>90907</b> | Seal Protector Sleeve        |
| <b>90414</b> | Seal Seat Remover                     | <b>90910</b> | Clutch Plate Installer       |
| <b>90415</b> | Seal Remover & Installer              | <b>91047</b> | Tool Box                     |
| <b>90431</b> | York & Tecumseh Oil Level Dipstick    | <b>91052</b> | Clutch Plate Installer       |
| <b>90432</b> | Chrysler Oil Level Dipstick           | <b>91060</b> | Seal Seat Remover            |
| <b>90440</b> | 5/8" x 2" x 11 NC Clutch Remover      | <b>91061</b> | Seal Seat Installer          |
| <b>90441</b> | 5/8" x 2" x 18 SAE Clutch Remover     | <b>91122</b> | Clutch Plate Remover         |
| <b>90454</b> | Clutch Plate Remover                  | <b>91183</b> | A/C Service Manual           |
| <b>90458</b> | Clutch Plate Installer                | <b>91195</b> | Clutch Plate Remover Arbor   |
| <b>90460</b> | O-Ring Installation Guide             | <b>91202</b> | O-Ring Installation Guide    |
| <b>90462</b> | Seal Seat Installer                   | <b>91208</b> | Seal Remover & Installer     |
| <b>90473</b> | Seal Remover                          | <b>91211</b> | Shaft Protector              |
| <b>90474</b> | Seal Installer & Plate Alignment      | <b>91212</b> | Clutch Plate Remover         |
| <b>90484</b> | Seal Protector                        | <b>91213</b> | Clutch Plate Installer       |
| <b>90486</b> | Ceramic Seal Seat Remover & Installer | <b>91214</b> | O-Ring & Snap-Ring Installer |
| <b>90499</b> | Universal Clutch Holding Tool         | <b>91215</b> | O-Ring Installation Guide    |
| <b>90902</b> | Clutch Plate Puller                   |              |                              |

**All tools available individually.**



## 91267 MASTER SEAL & CLUTCH SERVICE TOOL SET

The set includes all Seal Service Tools contained in 91268 and Clutch Service Tools contained in 91274. Tools are stored in a sturdy tool chest (92275) and organized in two drawers with a chart showing which tools are used for a specific compressor. The top part of the tool chest serves as a storage area for fittings and air conditioning test equipment. Space is reserved in the third drawer for an optional Foreign Compressor Seal and Clutch Service Tool Set (91323).



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## 91323 IMPORT SEAL & CLUTCH SERVICE TOOL SET

Designed to be included with tool set 91267. When used with tools in the 91267 Master Clutch & Seal set, will service the following compressors:

|                      |                                                                          |              |                                          |              |                                                  |
|----------------------|--------------------------------------------------------------------------|--------------|------------------------------------------|--------------|--------------------------------------------------|
| <b>Diesel Kiki -</b> | DKS-12B & DKS-15B;<br>13S, 15S, 17S                                      | <b>90396</b> | Ogura/York 6" Clutch Bearing Installer   | <b>91106</b> | Ogura Seal Remover/Installer                     |
| <b>Ford -</b>        | FX-15 / FS-10                                                            | <b>90901</b> | Ogura/Sankyo Clutch Holding Tool         | <b>91134</b> | Diesel Kiki Clutch Puller Thrust Pin             |
| <b>Hitachi -</b>     | C-3817; MJS-130, MJS-157,<br>MJS-170, MJ-123, MJ-167,<br>WP-123, SWP-167 | <b>90905</b> | Sanden Seal Seat Remover & Installer     | <b>91135</b> | Diesel Kiki Snap-Ring, O-Ring,<br>Felt Installer |
| <b>Mitsubishi -</b>  | SA430, SA439                                                             | <b>90916</b> | Sanden Oil Level Dipstick                | <b>91137</b> | Diesel Kiki Pulley Pilot                         |
| <b>Nippondenso -</b> | 6P-148A, 10P-13A, 10P-15C                                                | <b>90917</b> | Sanden Clutch & Pulley Removal Jaws      | <b>91138</b> | Diesel Kiki Seal Remover/Installer               |
| <b>Ogura -</b>       | OW-100, OW-135                                                           | <b>90922</b> | Sanden Pilot Studs                       | <b>91139</b> | Diesel Kiki Seal Seat Remover/Installer          |
| <b>Sanden -</b>      | SD 505, SD 507, SD 508,<br>SD 510, SD 575                                | <b>90926</b> | Sanden Clutch Installer Pilot            | <b>91171</b> | Mitsubishi Seal Seat Remover Lock<br>Sleeve      |
| <b>Seiko-Seiki -</b> | SS 808S                                                                  | <b>91043</b> | Diesel Kiki Valve Plate Remover          | <b>91190</b> | Mitsubishi Pulley Puller Pilot                   |
| <b>Tecumseh -</b>    | HR-980                                                                   | <b>91044</b> | Diesel Kiki Lock Nut Remover & Installer | <b>91289</b> | Diesel Kiki Seal Protector                       |
| Contains:            |                                                                          | <b>91045</b> | Diesel Kiki Drive Plate Remover          | <b>91316</b> | Diesel Kiki Clutch Plate Puller                  |
| <b>90311</b>         | Tecumseh HR-980 Clutch Pulley Retaining<br>Nut Remover/Installer         | <b>91073</b> | Sanden 505 Seal Seat Remover & Installer | <b>91326</b> | FX-15 / FS-10 Shaft Seal Remover                 |
| <b>90312</b>         | Tecumseh HR-980 Dust Cap Remover                                         | <b>91074</b> | Sanden 505 Bearing & Pulley Installer    | <b>91327</b> | FX-15 / FS-10 Shaft Seal Installer               |
| <b>90385</b>         | York Seal Remover & Installer                                            | <b>91075</b> | Sanden 505 Seal Protector Sleeve         | <b>91328</b> | FX-15 / FS-10 Seal Protector                     |
| <b>90390</b>         | Ogura/York Bearing Driver                                                | <b>91076</b> | Sanden 505 Pulley & Clutch Removal Jaws  | <b>91329</b> | FX-15 / FS-10 Internal Snap Ring<br>Remover      |
|                      |                                                                          | <b>91077</b> | Sanden 505 Shaft Protector Pilot         |              | <b>All tools available individually.</b>         |
|                      |                                                                          | <b>91090</b> | Mitsubishi Seal Seat Remover             |              |                                                  |
|                      |                                                                          | <b>91091</b> | Mitsubishi Seal Remover & Installer      |              |                                                  |
|                      |                                                                          | <b>91104</b> | Ogura Retaining Nut Remover/Installer    |              |                                                  |
|                      |                                                                          | <b>91105</b> | Ogura Seal Seat Remover/Installer        |              |                                                  |

## 91333 IMPORT COMPRESSOR SEAL & CLUTCH SERVICE TOOL SET

Contains all tools in set 91323 (IMPORT COMPRESSOR SEAL AND CLUTCH TOOL SET) and comes with 91183 air conditioning manual in a rugged metal flat tool box.



## 91340 UNIVERSAL SEAL & CLUTCH SERVICE TOOL SET

Contains all tools in sets 91323 (IMPORT COMPRESSOR SEAL AND CLUTCH TOOL SET), 91268 (MASTER SEAL SERVICE TOOL SET) and 91274 (MASTER CLUTCH SERVICE TOOL SET) and comes in a rugged metal three drawer tool box.

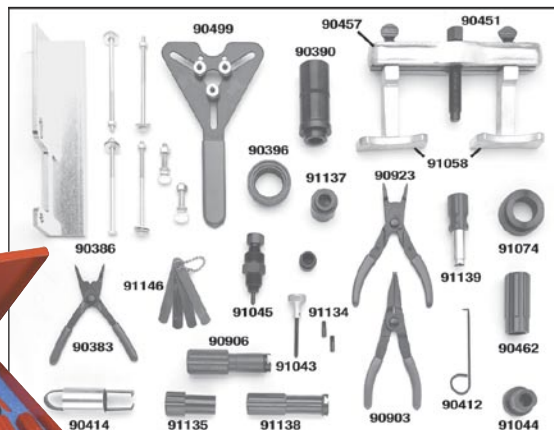


## 91141 DIESEL KIKI (ZEXEL) SEAL AND CLUTCH TOOL SET

Serves standard Diesel Kiki and York compressor models DKS 12 and DKS 15. Complete with tool box and instructions.

Contains:

|              |                               |              |                                          |
|--------------|-------------------------------|--------------|------------------------------------------|
| <b>90383</b> | Internal Snap-Ring Pliers     | <b>91058</b> | Pulley Removal Jaws                      |
| <b>90386</b> | Compressor Holding Fixture    | <b>91074</b> | Bearing & Pulley Installer               |
| <b>90390</b> | Pulley Bearing Driver         | <b>91134</b> | Thrust Bolt Shim Gauge                   |
| <b>90396</b> | 6" Clutch Bearing Installer   | <b>91135</b> | Snap-Ring, O-Ring, Felt Installer        |
| <b>90412</b> | O-Ring Seal Sleeve Remover    | <b>91137</b> | Pulley Puller Pilot                      |
| <b>90414</b> | Seal Seat Remover             | <b>91138</b> | Seal Remover & Installer                 |
| <b>90451</b> | Pulley Puller Arbor           | <b>91139</b> | Seal Remover & Installer                 |
| <b>90457</b> | Universal Puller Body         | <b>91146</b> | Universal Feeler Gauge Set               |
| <b>90462</b> | Seal Seat Installer           |              | <b>All tools available individually.</b> |
| <b>90499</b> | Universal Clutch Holding Tool |              |                                          |
| <b>90903</b> | External Snap-ring Pliers     |              |                                          |
| <b>90906</b> | Seal Remover & Installer      |              |                                          |
| <b>90910</b> | Clutch Plate Installer        |              |                                          |
| <b>90923</b> | Internal Snap-Ring Pliers     |              |                                          |
| <b>91047</b> | Tool Box                      |              |                                          |
| <b>91043</b> | Valve Plate Remover           |              |                                          |
| <b>91044</b> | Lock Nut Remover & Installer  |              |                                          |
| <b>91045</b> | Clutch Plate Remover          |              |                                          |





## 91292 MASTER SANDEN COMPRESSOR SERVICE TOOL SET

All specialized tools necessary to service seal, clutch and clutch bearing on Sanden 505, 507, 508, 510 and 575. Complete with tool box and instructions.

Contains:

|              |                                     |                                          |                                       |
|--------------|-------------------------------------|------------------------------------------|---------------------------------------|
| <b>90381</b> | Holding Fixture & Hardware          | <b>90923</b>                             | Internal Retaining Ring Plier         |
| <b>90383</b> | Internal Snap Ring Plier            | <b>90926</b>                             | Clutch Installing Pilot               |
| <b>90385</b> | York Seal Remover/Installer         | <b>91047</b>                             | Metal Tool Box                        |
| <b>90412</b> | O-Ring Seal Sleeve Remover          | <b>91052</b>                             | Clutch Plate Installer                |
| <b>90414</b> | Seal Seat Remover                   | <b>91059</b>                             | Bearing & Pulley Installer            |
| <b>90443</b> | Pulley Bearing Remover/Driver       | <b>91073</b>                             | Sanden 505 Seal Seat Remover          |
| <b>90451</b> | Pulley Arbor                        | <b>91074</b>                             | Sanden 505 Bearing & Pulley Installer |
| <b>90457</b> | Puller Body                         | <b>91075</b>                             | Sanden 505 Seal Protector Sleeve      |
| <b>90901</b> | Clutch Holder                       | <b>91076</b>                             | Pulley & Clutch Remover Jaws          |
| <b>90902</b> | Clutch Plate Puller                 | <b>91077</b>                             | Shaft Protector Pilot                 |
| <b>90903</b> | External Retainer Remover/Installer | <b>91146</b>                             | Feeler Gauge Set                      |
| <b>90905</b> | Seal Retainer Remover/Installer     | <b>All tools available individually.</b> |                                       |
| <b>90906</b> | Seal Remover & Installer            |                                          |                                       |
| <b>90907</b> | Seal Protector Sleeve               |                                          |                                       |
| <b>90910</b> | Clutch Plate Installer              |                                          |                                       |
| <b>90916</b> | Oil Level Checker                   |                                          |                                       |



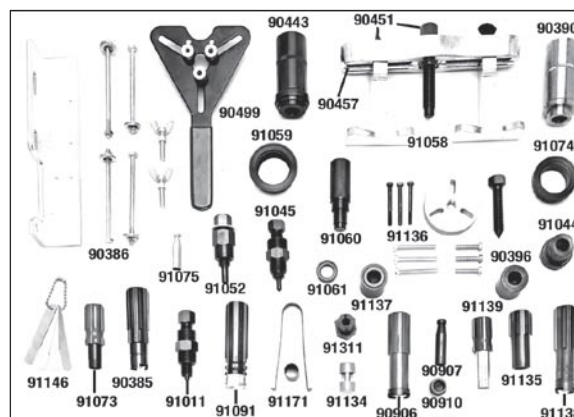
## 91295 MASTER IMPORT COMPRESSOR CLUTCH, SEAL & BEARING SERVICE TOOL SET

Includes all the tools necessary to replace seals, clutches and clutch bearing on Diesel Kiki (Zexel), Hitachi, Mitsubishi, Nippondenso, Seiko-Seiki and Sanden 505, 507, 508, 510, 575, 708 and 709.

Complete with tool box and instructions.

Contains:

|              |                                       |                                          |                                           |
|--------------|---------------------------------------|------------------------------------------|-------------------------------------------|
| <b>90385</b> | York Seal Remover & Installer         | <b>91091</b>                             | Mitsubishi Seal Remover & Installer       |
| <b>90386</b> | Compressor Holding Fixture            | <b>91134</b>                             | Diesel Kiki Clutch Puller Thrust Pin      |
| <b>90390</b> | Diesel Kiki Bearing Drive             | <b>91135</b>                             | Diesel Kiki Retainer Ring Installer       |
| <b>90396</b> | Diesel Kiki Clutch Installer          | <b>91136</b>                             | Mitsubishi/Sanden Clutch Plate Remover    |
| <b>90443</b> | Pulley Bearing Remover & Installer    | <b>91137</b>                             | Diesel Kiki Pulley Puller Pilot           |
| <b>90451</b> | Pulley Arbor                          | <b>91138</b>                             | Diesel Kiki Seal Remover & Installer      |
| <b>90457</b> | Puller Body                           | <b>91139</b>                             | Diesel Kiki Seal Seat Remover & Installer |
| <b>90499</b> | Universal Clutch Holding Tool         | <b>91146</b>                             | Universal Feeler Gauge Set                |
| <b>90906</b> | Seal Remover & Installer              | <b>91171</b>                             | Mitsubishi Seal Remover Lock Sleeve       |
| <b>90907</b> | Seal Protector Sleeve                 | <b>91183</b>                             | Air Conditioning Manual                   |
| <b>90910</b> | Clutch Plate Installer                | <b>91311</b>                             | Hitachi Spanner Plug Remover & Installer  |
| <b>91011</b> | Nippondenso Clutch Plate Remover      | <b>All tools available individually.</b> |                                           |
| <b>91047</b> | Metal Tool Box                        |                                          |                                           |
| <b>91044</b> | Diesel Kiki Nut Remover               |                                          |                                           |
| <b>91045</b> | Diesel Kiki Plate Remover             |                                          |                                           |
| <b>91052</b> | Sanden Plate Installer                |                                          |                                           |
| <b>91058</b> | Pulley Removal Jaws                   |                                          |                                           |
| <b>91059</b> | Bearing & Pulley Installer            |                                          |                                           |
| <b>91060</b> | Seal Seat Remover                     |                                          |                                           |
| <b>91061</b> | Seal Seat Installer                   |                                          |                                           |
| <b>91073</b> | Sanden 505 Seal Seat Remover          |                                          |                                           |
| <b>91074</b> | Sanden 505 Bearing & Pulley Installer |                                          |                                           |
| <b>91075</b> | Sanden 505 Seal Protector Sleeve      |                                          |                                           |
| <b>91090</b> | Mitsubishi Seal Seat Remover          |                                          |                                           |



**Mastercool® Inc.**  
"World Class Quality"



## 91269 SEAL SERVICE KIT

General Motors A6, R4, Late DA6, HR-6, V5, 6 Pole R4 Seal Set Includes the tools needed to replace seals on GM compressors from the early sixties through the current model year as well as Tecumseh HR-980.

Contains:

- 90383** Internal Snap Ring Pliers
- 90412** O-Ring Seal Sleeve Remover
- 90414** Seal Seat Remover
- 90415** Seal Remover & Installer
- 90454** Clutch Plate Remover (Coarse Thread)
- 90458** Clutch Plate Installer (Coarse Thread)
- 90460** O-Ring Installation Guide
- 90462** Seal Seat Installer
- 90484** Seal Protector
- 90486** Ceramic Seal Installer

- 90499** Universal Clutch Holding Tool
- 91195** Clutch Plate Removal Arbor



## 91270 SPECIAL GM DA6 SEAL SET

For carbon type seals used with tools from Set 91269.

Contains:

- 91208** Seal Remover & Installer
- 91211** Shaft Protector
- 91212** Clutch Plate Remover (Metric Thread)
- 91213** Clutch Plate Installer (Metric Thread)
- 91214** O-Ring & Snap-Ring Installer
- 91215** O-Ring Installation Guide

## 91271 FORD FS6, CHRYSLER C171, NIPPONDENSO 6P 148A, TECUMSEH HR-980 SEAL SET

All specialized tools needed when replacing seals on the above compressors. Used with tools from Set 91269. Contains:

- 91052** Clutch Plate Installer
- 91060** Seal Seat Remover
- 91061** Seal Seat Installer
- 91122** Clutch Plate Remover
- 91202** O-Ring Installation Guide

## 91002 GM & FORD ORIFICE TUBE REMOVER/INSTALLER

Used on all GM (CCOT) and Ford (FOTCC) systems with evaporator inlet orifice tube.



## 91008 FORD (FOTCC) REMOVER/INSTALLER

Used for Ford systems produced after 1980.



## 91009 GM (CCOT) & FORD (FOTCC) SCREEN EXTRACTOR

Used with 91002 and 91008



## 91010 FORD AEROSTAR EXPANSION TUBE REMOVER/INSTALLER

Special design for condenser mounted tube.

## 91273 SANDEN 507/508/510 SEAL SET

All specialized tools needed when replacing seals on Sanden Model 507, 508 and 510 compressors. Used with tools from Set 91269. Contains:

- 90902** Clutch End Plate Puller
- 90906** Seal Remover & Installer
- 90907** Seal Protector Sleeve
- 90910** Clutch Face Plate Installer



**POPULAR**

## 91000-A DELUXE CLUTCH HUB PULLER/INSTALLER KIT



Kit contains a complete offering of A/C compressor clutch hub pullers and installers for GM, Ford, Chrysler and Imports. Includes a compressor identification chart and comes in a custom molded case.

## 90499 UNIVERSAL CLUTCH HOLDING TOOL



## 92329 TOYOTA A/C DISCONNECT TOOL

The new Toyota spring lock A/C hose couplings require this special disconnect tool. Simply insert the end of the tool into the coupling to disengage the hose.



## 91320 NIPPONDENSO 10 PA17 SEAL SET

Includes all tools necessary to replace seals on Nippondenso. Used with tools from Set 91269.

Contains:

- 91317** Shaft Seal Remover
- 91318** Shaft Seal Installer
- 91319** Shaft Protector
- 91329** Internal Snap-Ring Remover
- 91352** Plastic Box



## 92311 DELUXE ORIFICE TUBE SERVICE KIT

This 5 piece universal kit will remove and install any style orifice tube. Comes in custom molded box.



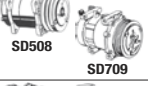
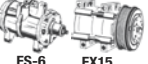
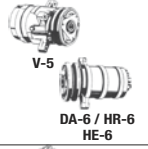
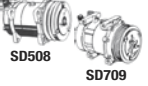
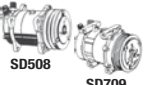
## 91332 FORD FX-15/FS-10 SERVICE SEAL SET

Includes all special tools needed to replace the seals on FX-15/FS-10 compressor. Contains:

- 91326** Shaft Seal Remover
- 91327** Shaft Seal Installer
- 91328** Shaft Protector (16 Spline)
- 91329** Internal Snap-Ring Remover
- 91352** Plastic Box

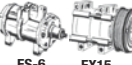
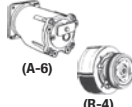
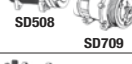
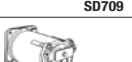




| VEHICLE                 | COMPRESSOR MFG.     | COMPRESSOR MODEL NUMBER                        | CLUTCH HUB     |           | CLUTCH PULLEY  |           | CLUTCH COIL             |           | SHAFT SEAL                                         |                                                    | CLUTCH BEARING          |           |                                                                                                                  |
|-------------------------|---------------------|------------------------------------------------|----------------|-----------|----------------|-----------|-------------------------|-----------|----------------------------------------------------|----------------------------------------------------|-------------------------|-----------|------------------------------------------------------------------------------------------------------------------|
|                         |                     |                                                | Remover        | Installer | Remover        | Installer | Remover                 | Installer | Remover                                            | Installer                                          | Remover                 | Installer |                                                                                                                  |
| <b>Acura / Honda</b>    | Nippondenso         | 6P Series 69127<br>10913 / 15                  | 91011          | 91052     | 90450<br>91012 | 91059     |                         |           | 91060<br>90499                                     | 91061                                              | 91059<br>91065          | 91059     |  10P15                        |
| <b>Audi</b>             | Delphi / Harrison   | Harrison / GM A-6                              | 90454          | 90458     | 90450<br>90455 | 91059     |                         |           | 90414<br>90415<br>90499<br>90462                   | 90414<br>90415<br>90486<br>90486                   | 90350<br>90460<br>90412 | 90349     |  (A-6)                        |
|                         | Zexel (Diesel Kiki) | DGW                                            | 91045          |           | 90917<br>90450 | 90910     |                         |           | 91138<br>90499                                     | 91138                                              | 90443                   | 91059     |  Diesel Kiki                  |
| <b>Audi / VW</b>        | Nippondenso         | 10PA-17 / 10P15                                | 91011          | 91052     | 90450<br>91012 | 91059     |                         |           | 91319<br>91317                                     | 91318<br>91319                                     | 91059<br>91065          | 91059     |  10P15<br>10P17               |
|                         | Sanden              | TRS90 / 105                                    | 90902          | 90910     | 90926<br>90917 | 91059     |                         |           | 90914                                              | 90414<br>90415                                     | 90443<br>90906          | 91059     |  SD508                        |
|                         |                     | SD507 / 508 / 510 / 708<br>709 / 7H15 Lip Seal | 90902          | 90910     | 90450          | 91059     |                         |           | 90412                                              | 90908                                              |                         |           |                                                                                                                  |
| <b>BMW</b>              | Nippondenso         | 10PA-17 / 10P15                                | 91011          | 91052     | 90450<br>91012 | 91059     |                         |           | 91319<br>91317                                     | 91318<br>91319                                     | 91059<br>91065          | 91059     |  10P15<br>10P17               |
| <b>Chrysler / Dodge</b> | Nippondenso         | 6C17                                           | 91303<br>91304 |           | 90450<br>91012 | 91059     |                         |           | 91302<br>91302                                     | 91301<br>91065                                     | 91059                   | 91059     |                                                                                                                  |
|                         | Sanden              | Sanden TRS90 / 105                             | 90902          | 90910     | 90902<br>90917 | 91059     |                         |           | 90914<br>90415                                     | 90414<br>90906                                     | 90443                   | 91059     |  SD508<br>SD709               |
|                         |                     | SD507 / 508 / 510 / 708<br>709 / 7H15 Lip Seal | 90902          | 90910     | 90450          | 91059     |                         |           | 90412                                              | 90908                                              | 90443                   | 91059     |                                                                                                                  |
| <b>Ford / Lincoln</b>   | Ford                | FS-6                                           | 91122          | 91052     | 91012          | 91059     | 90450                   | 91331     | 90499                                              |                                                    | 91327                   | 91065     |  FS-6<br>FX15                 |
|                         |                     | FS-10 (R134a) / FX-15                          | 91122          | 91052     | 90450<br>91012 | 91059     | 91330                   | 91331     | 91326<br>91328                                     |                                                    | 91327                   | 91065     |                                                                                                                  |
|                         | Nippondenso         | 6P148                                          | 91011          | 91052     | 90450<br>91012 | 91059     |                         |           | 91060<br>90499                                     | 91061                                              | 91059<br>91065          | 91059     |  10P15                       |
|                         |                     | 10PA-17 / 10P15                                | 91011          | 91052     | 90450<br>91012 | 91059     |                         |           | 91319<br>91317                                     | 91318<br>91319                                     | 91059<br>91065          | 91059     |                                                                                                                  |
| <b>General Motors</b>   | Delphi / Harrison   | Harrison / GM A-6                              | 90454          | 90458     | 90450<br>90455 | 91059     |                         |           | 90414<br>90415<br>90486<br>90499<br>90462          | 90414<br>90415<br>90412<br>90486                   | 90460                   | 90349     |  (A-6)                      |
|                         |                     | R-4 Concave Shaft Tip                          | 90454          | 90458     | 90346          | 90349     | 90346<br>90450          | 90292     | 90414<br>90415                                     | 90414<br>90415                                     |                         |           |  R-4                        |
|                         |                     | Pointed Shaft Tip                              | 91196          | 90458     | 90347          | 90349     | 90910                   | 90292     | 90412<br>90499                                     | 90460<br>90484                                     |                         |           |                                                                                                                  |
|                         |                     | V-5 & V-7 DA6 HR6 / HR6HE                      | 91212          | 91213     | 90450<br>90453 | 91059     | 90450<br>90455<br>90291 | 90292     | 90486<br>91208<br>90412<br>90499<br>91170<br>90499 | 90486<br>91208<br>91214<br>90183<br>91211<br>91270 | 90350                   | 90349     |  V-5<br>DA-6 / HR-6<br>HE-6 |
| <b>Honda</b>            | Sanden              | 10PA-17 / 10P15                                | 91011          | 91052     | 90450<br>91012 | 91059     |                         |           | 91319<br>91317                                     | 91318<br>91319                                     | 91059<br>91065          | 91059     |  10P15                      |
| <b>Hyundai</b>          | Zexel (Diesel Kiki) | DKS15-BH                                       |                |           | 90450          |           |                         |           | 90499                                              |                                                    |                         |           |                                                                                                                  |
|                         | Sanden              | Sanden TRS90 / 105                             | 90902          | 90910     | 90926<br>90917 | 91059     |                         |           | 90414<br>90415                                     | 90414<br>90906                                     | 90443                   | 91059     |  SD508<br>SD709             |
|                         |                     | SD507 / 508 / 510 / 708<br>709 / 7H15 Lip Seal | 90902          | 90910     | 90450          | 91059     |                         |           | 90412                                              | 90908                                              | 90443                   | 91059     |                                                                                                                  |
|                         | Ford                | FX15 / 10PA / 10P15                            | 91011          | 91052     | 90450<br>91012 | 91059     |                         |           | 91319<br>91317                                     | 91318<br>91319                                     | 91059<br>91065          | 91059     |  FX15                       |
| <b>Isuzu</b>            | Delphi / Harrison   | R-4 Concave                                    | 90454          | 90458     | 90346          | 90349     | 90346<br>90450          | 90292     | 90414<br>90415                                     | 90414<br>90415                                     | 90350                   | 90349     |  R-4                        |
|                         |                     | Pointed Shaft Tip                              | 91196          | 90458     | 90347          | 90349     | 90910                   | 90292     | 90412<br>90499                                     | 90460<br>90484                                     | 90350                   | 90349     |                                                                                                                  |
|                         | Zexel (Diesel Kiki) | DKS 13/14/17<br>DGW / DKS15-BH                 |                |           | 90450          |           |                         |           | 90499                                              |                                                    |                         |           |  Diesel Kiki                |
| <b>Jaguar</b>           | Sanden              | SD5 & 7 Series Sanden<br>TRS90 / 105           | 90902          | 90910     | 90926          | 91059     |                         |           | 90914<br>90906                                     | 90414                                              | 90443                   | 91059     |  SD508<br>SD709             |
|                         |                     | SD507 / 508 / 510 / 708<br>709 / 7H15 Lip Seal | 90902          | 90910     | 90917<br>90450 | 91059     |                         |           | 90415<br>90412                                     | 90908                                              | 90443                   | 91059     |                                                                                                                  |



# COMPRESSOR TOOL CHART

| VEHICLE                                     | COMPRESSOR MFG.     | COMPRESSOR MODEL NUMBER                     | CLUTCH HUB     |                | CLUTCH PULLEY  |                | CLUTCH COIL    |                | SHAFT SEAL                       |                                           | CLUTCH BEARING |                                                                                       |                                                                                       |
|---------------------------------------------|---------------------|---------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------------------|-------------------------------------------|----------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                             |                     |                                             | Remover        | Installer      | Remover        | Installer      | Remover        | Installer      | Remover                          | Installer                                 | Remover        | Installer                                                                             |                                                                                       |
| Jeep / Chrysler                             | Sanden              | SD5 & 7 Series Sanden TRS90 / 105           | 90902          | 90910          | 90926          | 91059          |                |                | 90914                            | 90414<br>90906                            | 90443          | 91059                                                                                 |    |
|                                             |                     | SD507 / 508 / 510 / 708 709 / 7H15 Lip Seal | 90902          | 90910          | 90917<br>90450 | 91059          |                |                | 90415<br>90412                   | 90908                                     | 90443          | 91059                                                                                 |                                                                                       |
| Mazda                                       | Nippondenso         | 10PA-17 / 10P15                             | 91011          | 91052          | 90450<br>91012 | 91059          |                |                | 91319<br>91317                   | 91318<br>91319                            | 91059<br>91065 | 91059                                                                                 |    |
|                                             | Ford                | FS-6                                        | 91122          | 91052          | 91012          |                |                |                | 90499                            |                                           | 91065          |                                                                                       |    |
|                                             |                     | FS-10 (R134a) / FX-15                       |                |                |                | 90450<br>91012 | 91059          | 90450<br>91330 | 91331                            | 91326<br>91328                            | 91327          |                                                                                       |                                                                                       |
|                                             | Sanden              | SD5 & SD7 Sanden TRS90 / 105                | 90902          | 90910          | 90926          | 91059          |                |                | 90914                            | 90414<br>90906                            | 90443          | 91059                                                                                 |    |
|                                             |                     | SD507 / 508 / 510 / 708 709 / 7H15 Lip Seal | 90902          | 90910          | 90917<br>90450 | 91059          |                |                | 90415<br>90412                   | 90908                                     | 90443          | 91059                                                                                 |                                                                                       |
| Mercedes Benz                               | Delphi / Harrison   | A-6 & R-4                                   | 90454          | 90458          | 90450<br>90455 | 91059          |                |                | 90414<br>90415<br>90486<br>90499 | 90414<br>90415<br>90412<br>90486<br>90462 | 90460          | 90349                                                                                 |    |
|                                             | Nippondenso         | 10P15 / 1710PA-17                           | 91011          | 91052          | 90450<br>91012 | 91059          |                |                | 91319<br>91317                   | 91318<br>91319                            | 91059<br>91065 | 91059                                                                                 |    |
| Mitsubishi                                  | Mitsubishi          | CH Series FX105                             | 92260<br>90902 |                | 90917<br>90450 | 90910          |                |                | 91338<br>90499                   | 91138                                     | 90443          | 91059                                                                                 |    |
|                                             | Nippondenso         | 10P15-17 / 10PA-17                          | 91011          | 91052          | 90450<br>91012 | 91059          |                |                | 91319<br>91317                   | 91318<br>91319                            | 91059<br>91065 | 91059                                                                                 |    |
| Nissan / Infiniti                           | Zexel (Diesel Kiki) | DKV-14C CH Series                           | 92260<br>90902 |                | 90917<br>90450 | 90910          |                |                | 91328<br>90499                   | 91138                                     | 90443          | 91059                                                                                 |    |
|                                             |                     | DKS-16H CH Series                           | 92260<br>90902 |                | 90917<br>90450 | 90910          |                |                | 91328<br>90499                   | 91138                                     | 90443          | 91059                                                                                 |                                                                                       |
| Nissan                                      | Ford                | FS-10 FS-6 FS-10 (R134a) FX-15              | 91122          | 91052          | 91012<br>90450 | 91059          | 90450<br>91330 | 91331          | 90499<br>91328                   | 91327                                     | 91065          |                                                                                       |   |
|                                             | Hitachi             | MJS170 6P Series                            | 91011          | 91052          | 90450<br>91012 | 91059          |                |                | 91060<br>90499                   | 91061                                     | 91059<br>91065 | 91059                                                                                 |  |
| Porsche                                     | Nippondenso         | 10P 10PA-17 10P15                           | 91011          | 91052          | 90450<br>91012 | 91059          |                |                | 91319<br>91317                   | 91318<br>91319                            | 91059<br>91065 | 91059                                                                                 |  |
|                                             | Hitachi             | 10P                                         | 91011          | 91052          | 90450<br>91012 | 91059          |                |                | 91060<br>90499                   | 91061                                     | 91059<br>91065 | 91059                                                                                 |                                                                                       |
|                                             | Sanden              | SD5 Sanden TR594105                         | 90902          | 90910          | 90926          | 91059          |                |                | 90914                            | 90414<br>90906                            | 90443          | 91059                                                                                 |  |
| SD507 / 508 / 510 / 708 709 / 7H15 Lip Seal |                     | 90902                                       | 90910          | 90917<br>90450 | 91059          |                |                | 90415<br>90412 | 90908                            | 90443                                     | 91059          |  |                                                                                       |
| Saab                                        | *Sanden Seiko Seiki | SD5 Series / SS170 Sanden TR59105           | 90902          | 90910          | 90926          | 91059          |                |                | 90914                            | 90414<br>90906                            | 90443          | 91059                                                                                 |  |
|                                             |                     | SD507 / 508 / 510 / 708 709 / 7H15 Lip Seal | 90902          | 90910          | 90917<br>90450 | 91059          |                |                | 90415<br>90412                   | 90908                                     | 90443          | 91059                                                                                 |                                                                                       |
| Saturn                                      | Zexel (Diesel Kiki) | DKV CH Series                               | 92260<br>90902 |                | 90917<br>90450 | 90910          |                |                | 91328<br>90499                   | 91138                                     | 90443          | 91059                                                                                 |  |
| Subaru                                      | Zexel (Diesel Kiki) | *92 Model / 93 CH Series                    | 92260<br>90902 |                | 90917<br>90450 | 90910          |                |                | 91328<br>90499                   | 91138                                     | 90443          | 91059                                                                                 |                                                                                       |
| Suzuki                                      | Nippondenso         | 10P8 10PA-17 10P15                          | 91011          | 91052          | 90450<br>91012 | 91059          |                |                | 91319<br>91317                   | 91318<br>91319                            | 91059<br>91065 | 91059                                                                                 |  |
| Toyota / Lexus                              | Nippondenso         | 10P13 / 15 / 17 10PA-17 10P15               | 91011          | 91052          | 90450<br>91012 | 91059          |                |                | 91319<br>91317                   | 91318<br>91319                            | 91059<br>91065 | 91059                                                                                 |  |
| MB/Porsche/VW                               | York                | 206 / 209 / 210 York / Tecumseh             | 90440          |                |                |                |                |                |                                  |                                           | 90443          | 91059                                                                                 |  |
| Volvo                                       | Zexel (Diesel Kiki) | DKS-15 CH Series                            | 92260<br>90902 |                | 90917<br>90450 | 90910          |                |                | 91328<br>90499                   | 91138                                     | 90443          | 91059                                                                                 |  |
|                                             | Sanden              | SD508 / 510 / 709 Sanden TR594105           | 90902          | 90910          | 90926          | 91059          |                |                | 90914                            | 90414<br>90906                            | 90443          | 91059                                                                                 |  |
|                                             |                     | SD507 / 508 / 510 / 708 709 / 7H15 Lip Seal | 90902          | 90910          | 90917<br>90450 | 91059          |                |                | 90415<br>90412                   | 90908                                     | 90443          | 91059                                                                                 |  |
| Volvo / Jaguar                              | Delphi / Harrison   | A-6 & R-4 CH Series                         | 90454          | 90458          | 90450<br>90455 | 91059          |                |                | 90414<br>90415<br>90486<br>90499 | 90414<br>90415<br>90412<br>90486<br>90462 | 90460          | 90349                                                                                 |  |





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| 0378-001 | 13   | 41961    | 10   | 47961     | 10   | 53500         | 27         | 70028    | 37     | 71214       | 35, 36 | 80296    | 14     |
| 0531-001 | 13   | 41962    | 10   | 47962     | 10   | 53500-C       | 27         | 70029    | 37     | 71215       | 35, 36 | 80636    | 8      |
| 0768-001 | 13   | 41963    | 10   | 47963     | 10   | 53515         | 28         | 70030    | 38     | 71216       | 35, 36 | 80661    | 8      |
| 0769-001 | 13   | 42010    | 13   | 47964     | 10   | 53515-B       | 28, 30, 31 | 70031    | 38     | 71300       | 36     | 80772    | 8      |
| 1336-006 | 13   | 42010-10 | 11   | 48364     | 10   | 53580         | 27         | 70033    | 36, 37 | 71400       | 35     | 81113    | 8      |
| 1336-008 | 13   | 42014    | 13   | 48604     | 10   | 53585         | 27         | 70034    | 37     | 71405       | 35     | 81174    | 15     |
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| 1336-012 | 13   | 45336    | 10   | 48964     | 10   | 53610         | 29         | 70037    | 37     | 71415       | 35     | 81297    | 14, 15 |
| 1336-016 | 13   | 45360    | 10   | 49236-36  | 10   | 53625         | 29         | 70038    | 37     | 71416       | 35     | 81359    | 15     |
| 1336-018 | 13   | 45361    | 10   | 49262-36  | 10   | 53809         | 29         | 70051    | 36     | 71450       | 35     | 81379    | 14, 15 |
| 1336-110 | 13   | 45362    | 10   | 49262-60  | 10   | 53810         | 29         | 70069-A  | 38     | 71450-PB    | 35     | 82010    | 13     |
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| 32161    | 8    | 45396    | 10   | 49263-72  | 10   | 53827         | 29         | 70073    | 38     | 71475-110M  | 35     | 82214    | 12     |
| 32172    | 8    | 45601    | 10   | 49264-36  | 10   | 55100         | 30         | 70074    | 38     | 71475-14M   | 35     | 82214-E  | 12     |
| 32636    | 8    | 45602    | 10   | 49264-60  | 10   | 55100-SEN     | 30         | 70075    | 38     | 71475-16M   | 35     | 82224    | 12     |
| 32661    | 8    | 45603    | 10   | 49264-72  | 10   | 55200         | 30         | 70076    | 38     | 71475-18M   | 35     | 82224-E  | 12     |
| 32772    | 8    | 45721    | 10   | 49265-36  | 10   | 55300         | 30         | 70077    | 38     | 71475-4M    | 35     | 82272    | 14     |
| 33103    | 8    | 45722    | 10   | 49265-60  | 10   | 55310         | 30         | 70081    | 38     | 71475-6M    | 35     | 82274    | 14, 15 |
| 33113    | 8    | 45723    | 10   | 49265-72  | 10   | 55400         | 30         | 70082    | 38     | 71475-8M    | 35     | 82275    | 14, 15 |
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| 33636    | 8    | 46336    | 10   | 52224-A   | 32   | 55750         | 31         | 70097    | 36     | 71500-001A  | 34     | 82336    | 13     |
| 33661    | 8    | 46360    | 10   | 52224-C   | 32   | 55750-220     | 31         | 70097-M  | 36     | 71500-001B  | 34     | 82336-10 | 11     |
| 33772    | 8    | 46361    | 10   | 52225-A   | 32   | 58490         | 16         | 70128    | 37     | 71500-001C  | 34     | 82354    | 14, 15 |
| 34215    | 8    | 46362    | 10   | 52225-B   | 33   | 58531         | 16         | 70134    | 37     | 71500-10    | 34     | 82357    | 14, 15 |
| 34216    | 8    | 46363    | 10   | 52226     | 33   | 58560         | 16         | 70138    | 37     | 71500-10SRB | 34     | 82358    | 14, 15 |
| 35136    | 8    | 46364    | 10   | 52227     | 33   | 60034-10      | 12         | 70192    | 36     | 71500-12    | 34     | 82374    | 29     |
| 35161    | 8    | 46372    | 10   | 52331     | 33   | 60134-10      | 12         | 70192-M  | 36     | 71500-12SRB | 34     | 82375    | 29     |
| 35172    | 8    | 46396    | 10   | 52332     | 33   | 62010         | 17         | 70233    | 37     | 71500-6     | 34     | 82495    | 11     |
| 35636    | 8    | 46601    | 10   | 52333     | 33   | 62011         | 17         | 70237    | 37     | 71500-6SRB  | 34     | 82633    | 14     |
| 35661    | 8    | 46602    | 10   | 52334     | 33   | 62012         | 17         | 70238    | 37     | 71500-8     | 34     | 82634    | 12, 14 |
| 35772    | 8    | 46603    | 10   | 52335     | 33   | 63010         | 17         | 71097-01 | 35, 36 | 71500-PB    | 34     | 82634-M  | 12, 14 |
| 36136    | 8    | 46604    | 10   | 53012     | 28   | 63010-AUS     | 17         | 71097-03 | 35, 36 | 71550       | 34     | 82635    | 12     |
| 36161    | 8    | 46721    | 10   | 53012-B   | 28   | 64010         | 17         | 71097-04 | 35, 36 | 71550-001   | 34     | 82733    | 12     |
| 36172    | 8    | 46722    | 10   | 53012-L   | 28   | 65010         | 17         | 71097-05 | 35, 36 | 71550-002   | 34     | 82734    | 12, 14 |
| 36636    | 8    | 46723    | 10   | 53100     | 26   | 66010         | 17         | 71097-06 | 35, 36 | 71550-003   | 34     | 82735    | 12     |
| 36661    | 8    | 46724    | 10   | 53100-C   | 26   | 66011         | 17         | 71097-08 | 35, 36 | 71685       | 38     | 82736    | 12     |
| 36772    | 8    | 46961    | 10   | 53110-L   | 28   | 66012         | 17         | 71097-13 | 35, 36 | 71686-2     | 38     | 82738    | 12     |
| 37136    | 8    | 46962    | 10   | 53112     | 28   | 66434-R       | 12         | 71097-14 | 35, 36 | 72029       | 37     | 82834    | 12     |
| 37161    | 8    | 46963    | 10   | 53123     | 29   | 66534-R       | 12         | 71097-15 | 35, 36 | 72030       | 37     | 82834-E  | 12     |
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| 37636    | 8    | 47336    | 10   | 53134     | 29   | 66661         | 8          | 71097-18 | 35, 36 | 72035       | 37     | 82934-E  | 12     |
| 37661    | 8    | 47360    | 10   | 53223     | 29   | 67010         | 17         | 71098    | 36     | 80011       | 15     | 83136    | 8      |
| 37772    | 8    | 47361    | 10   | 53312     | 28   | 67011         | 17         | 71098-01 | 36     | 80013       | 15     | 83161    | 8      |
| 40336    | 10   | 47362    | 10   | 53312-B   | 28   | 69000         | 22         | 71098-03 | 36     | 80021       | 38     | 83172    | 8      |
| 40360    | 10   | 47363    | 10   | 53312-L   | 28   | 69000-220     | 22         | 71098-13 | 36     | 80034       | 12, 13 | 83341    | 12, 13 |
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| 41361    | 10   | 47396    | 10   | 53315     | 28   | 69300         | 23         | 71098-16 | 36     | 80111       | 15     | 83461    | 8      |
| 41362    | 10   | 47601    | 10   | 53322     | 29   | 69300-220     | 23         | 71098-18 | 36     | 80113       | 15     | 83472    | 8      |
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| 41601    | 10   | 47603    | 10   | 53411     | 28   | 69360         | 23         | 71101    | 36     | 80134       | 12, 13 | 84161    | 8      |
| 41602    | 10   | 47604    | 10   | 53412     | 28   | 69500         | 24         | 71200-PB | 35     | 80134-1     | 13     | 84172    | 8      |
| 41603    | 10   | 47721    | 10   | 53413     | 28   | 69788         | 25         | 71201    | 35, 36 | 80136       | 8      | 84336    | 10     |
| 41721    | 10   | 47722    | 10   | 53414     | 28   | 69788-FL-TRPK | 25         | 71204    | 35, 36 | 80161       | 8      | 84360    | 10     |
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| 84772   | 8       | 90165-R      | 18     | 90381  | 41                     | 91011    | 41, 43, 44             | 91250   | 6, 8, 9        | 92136   | 7    | 96772           | 7    |
| 84961   | 10      | 90167-R      | 18     | 90383  | 39, 40, 41, 42         | 91012    | 39, 43, 44             | 91253-E | 6, 9           | 92161   | 7    | 97136           | 7    |
| 84962   | 10      | 90183        | 43     | 90385  | 40, 41                 | 91022    | 39                     | 91261   | 39             | 92172   | 7    | 97161           | 7    |
| 84963   | 10      | 90259        | 11     | 90386  | 40, 41                 | 91023    | 39                     | 91267   | 39             | 92210   | 39   | 97172           | 7    |
| 84964   | 10      | 90262        | 11     | 90389  | 11                     | 91043    | 40                     | 91268   | 39             | 92260   | 44   | 97636           | 7    |
| 84965   | 10      | 90262-36     | 10     | 90390  | 40, 41                 | 91044    | 40, 41                 | 91269   | 42             | 92311   | 42   | 97661           | 7    |
| 85103   | 7       | 90262-60     | 10     | 90396  | 40, 41                 | 91045    | 40, 41, 43             | 91270   | 42, 43         | 92329   | 42   | 97772           | 7    |
| 85113   | 7       | 90262-72     | 10     | 90410  | 14                     | 91046-A  | 16                     | 91271   | 42             | 92376   | 29   | 98061           | 19   |
| 85136   | 7       | 90263        | 11     | 90412  | 39, 40, 41, 42, 43, 44 | 91047    | 39, 40, 41             | 91273   | 42             | 92398   | 28   | 98061-C         | 19   |
| 85161   | 7       | 90263-36     | 10     | 90414  | 39, 40, 41, 42, 43, 44 | 91048    | 16                     | 91274   | 39             | 92636   | 7    | 98061-SENSOR    | 19   |
| 85172   | 7       | 90263-60     | 10     | 90415  | 39, 42, 43, 44         | 91052    | 39, 41, 42, 43, 44     | 91289   | 40             | 92661   | 7    | 98100           | 21   |
| 85200   | 13      | 90263-72     | 10     | 90430  | 11                     | 91058    | 39, 40, 41             | 91290   | 13, 15, 16     | 92699   | 29   | 98210-A         | 20   |
| 85215   | 7       | 90264        | 11     | 90431  | 39                     | 91059    | 39, 41, 43, 44         | 91292   | 41             | 92708   | 29   | 98211-A         | 20   |
| 85216   | 7       | 90264-36     | 10     | 90432  | 39                     | 91060    | 39, 41, 42, 43, 44     | 91295   | 41             | 92709   | 29   | 98230           | 20   |
| 85253-E | 9       | 90264-60     | 10     | 90440  | 39, 44                 | 91061    | 39, 41, 42, 43, 44     | 91301   | 43             | 92710   | 29   | 98250           | 21   |
| 85350   | 8, 9    | 90264-72     | 10     | 90441  | 39                     | 91065    | 43, 44                 | 91302   | 43             | 92711   | 29   | 98250-220       | 21   |
| 85500   | 8, 9    | 90265        | 11     | 90443  | 39, 41, 43, 44         | 91073    | 40, 41                 | 91303   | 43             | 92712   | 29   | 98251-E         | 6, 9 |
| 85510   | 15      | 90265-36     | 10     | 90450  | 43, 44                 | 91074    | 40, 41                 | 91304   | 43             | 92732   | 29   | 98300           | 21   |
| 85530   | 15      | 90265-60     | 10     | 90451  | 39, 40, 41             | 91075    | 40, 41                 | 91311   | 41             | 92772   | 7    | 98300-220       | 21   |
| 85636   | 7       | 90265-72     | 10     | 90452  | 39                     | 91076    | 40, 41                 | 91316   | 40             | 93000   | 15   | 98364           | 10   |
| 85661   | 7       | 90269        | 11     | 90453  | 43                     | 91077    | 40, 41                 | 91317   | 42, 43, 44     | 93098   | 15   | 98370           | 12   |
| 85772   | 7       | 90274        | 14     | 90454  | 39, 42, 43, 44         | 91084    | 14                     | 91318   | 42, 43, 44     | 93099   | 15   | 98604           | 10   |
| 86103   | 6       | 90279        | 11     | 90455  | 39, 43, 44             | 91090    | 40, 41                 | 91319   | 42, 43, 44     | 93100   | 15   | 98660           | 7    |
| 86350   | 6, 8, 9 | 90289        | 11     | 90456  | 39                     | 91091    | 40, 41                 | 91320   | 42             | 93101   | 15   | 98661           | 7    |
| 86436   | 6       | 90291        | 39, 43 | 90457  | 39, 40, 41             | 91097-05 | 36                     | 91323   | 40             | 93103   | 7    | 98724           | 10   |
| 86461   | 6       | 90292        | 39, 43 | 90458  | 39, 42, 43, 44         | 91097-06 | 36                     | 91326   | 40, 42, 43, 44 | 93113   | 7    | 98964           | 10   |
| 86472   | 6       | 90296        | 14     | 90460  | 39, 42, 43, 44         | 91097-08 | 36                     | 91327   | 40, 42, 43, 44 | 93136   | 7    | 99134-A         | 5    |
| 86500   | 6, 8, 9 | 90311        | 40     | 90462  | 39, 40, 42, 43, 44     | 91104    | 40                     | 91328   | 40, 42, 43, 44 | 93161   | 7    | 99134-A-UPDT-10 | 5    |
| 86536   | 6       | 90312        | 40     | 90473  | 39                     | 91105    | 40                     | 91329   | 40, 42         | 93172   | 7    | 99333           | 19   |
| 86561   | 6       | 90314        | 14     | 90474  | 39                     | 91106    | 40                     | 91330   | 43, 44         | 93253-E | 9    | 99334-110       | 19   |
| 86572   | 6       | 90328        | 12     | 90484  | 39, 42, 43             | 91120    | 33                     | 91331   | 43, 44         | 93350   | 8, 9 | 99334-220       | 19   |
| 86936   | 6       | 90332        | 14     | 90486  | 39, 42, 43, 44         | 91122    | 39, 42, 43, 44         | 91332   | 42             | 93500   | 8, 9 | 99860-A         | 5    |
| 86961   | 6       | 90333-R      | 11, 14 | 90499  | 39, 40, 41, 42, 43, 44 | 91134    | 40, 41                 | 91333   | 40             | 93503-E | 9    | 99872-A         | 5    |
| 86972   | 6       | 90333-UV     | 11     | 90633  | 14                     | 91135    | 40, 41                 | 91334   | 13             | 93553-E | 9    | MC98RG          | 15   |
| 88136   | 7       | 90335-R      | 11, 14 | 90637  | 14                     | 91136    | 40, 41                 | 91335   | 13             | 93636   | 7    |                 |      |
| 88161   | 7       | 90336        | 13     | 90901  | 40, 41                 | 91137    | 40, 41                 | 91336   | 13             | 93661   | 7    |                 |      |
| 88172   | 7       | 90336-10     | 11     | 90902  | 39, 41, 42, 43, 44     | 91138    | 40, 41, 43, 44         | 91337   | 13             | 93772   | 7    |                 |      |
| 88436   | 7       | 90337        | 11, 14 | 90903  | 39, 40, 41             | 91139    | 40, 41                 | 91338   | 15, 44         | 95103   | 6    |                 |      |
| 88461   | 7       | 90338        | 14     | 90905  | 40, 41                 | 91141    | 40                     | 91340   | 40             | 95136   | 6    |                 |      |
| 88472   | 7       | 90340        | 14     |        |                        |          |                        | 91352   | 42             | 95161   | 6    |                 |      |
| 89136   | 7       | 90341        | 13     |        |                        |          |                        | 91390   | 15             | 95172   | 6    |                 |      |
| 89161   | 7       | 90343        | 39     |        |                        |          |                        | 91490   | 16             | 95236   | 6    |                 |      |
| 89172   | 7       | 90346        | 39, 43 |        |                        |          |                        | 91500   | 6, 8, 9        | 95261   | 6    |                 |      |









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