

truflo®

**TIF Series
Multi
Function
Batching
Paddle Wheel
Flow Meter**



truflo TIF Series Multi Function Batching Paddle Wheel Flow Meter Instruction Manual

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truflo®

truflo TIF Series Multi Function Batching Paddle Wheel Flow Meter



Product Usage Instructions

Safety Information

Before using the product, ensure to de-pressurize and vent the system. Confirm chemical compatibility, and do not exceed temperature or pressure limits. Always wear safety goggles during installation and service. Do not alter product construction.

Installation

1. Lubricate O-rings with provided silicone.
2. Carefully lower the sensor into the fitting using an alternating twisting motion. Do not force.
3. Ensure tab/notch are parallel to flow direction.
4. Hand-tighten the sensor cap. Do not use tools.

Correct Sensor Position Setup

Ensure there are no air bubbles and the pipe remains full for accurate flow measurement. Place the flow meter with a straight run pipe and minimum distance upstream and downstream of the flow sensor.

FAQ

Q: Can the product measure gas flow?

A: No, the product is designed to measure liquid media only.

Q: What should I do if I encounter air bubbles in the pipe?

A: Ensure there are no air bubbles in the pipe for accurate flow measurement. You may need to reposition the flow meter to eliminate air pockets.

PRODUCT FEATURE



Safety Information

- De-pressurize and vent system prior to installation or removal
- Confirm chemical compatibility before use
- DO NOT exceed maximum temperature or pressure specifications
- ALWAYS wear safety goggles or face-shield during installation and/or service
- DO NOT alter product construction

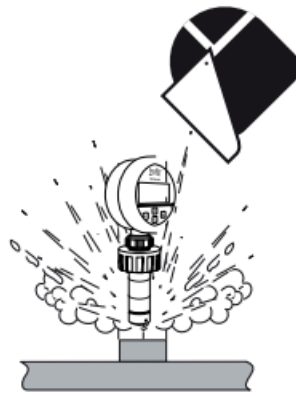
Warning | Caution | Danger

Indicates a potential hazard. Failure to follow all warnings may lead to equipment damage, personal injury, or death.

Note | Technical Notes

Highlights additional information or detailed procedure.

WARNING

**Hand Tighten Only**

Over tightening may permanently damage product.

Do Not Use Tools

Use of tool(s) may damage product beyond repair and potentially void product warranty.

Personal Protective Equipment (PPE)

Always utilize the most appropriate PPE during installation and service of Truflo products.

Pressurized System Warning

Sensor may be under pressure. Take caution to vent system prior to installation or removal. Failure to do so may result in equipment damage and/or serious injury.

General Information

Function/Description	Specification
Operating Voltage	10 – 30VDC
Current Compensation	60mA max.
Control Communication	RS-485 Modbus
Transmitter	4-20mA
Relay Output	10A 30VDC NO NC
Flow Rate GPM LPM	0.0 – 999.9
Fluid	H2O Liquid Chemical Media
Accuracy	± 0.5% of F.S. @25°C
Response Frequency	5K Hz
Max Flow Rate	10m/s 33ft/s
Min Flow Rate	0.1m/s 0.3ft/s
Materials of Construction	Rotor: ETFE Tefzel® Rotor Pin: Zirconium Ceramic Rotor Bushings: Ceramic Sensor Body: PVC/PP/PVDF/316SS
O-ring material	FPM EPDM* FFKM*
Operating Temperature	PVC < 60°C PP < 80°C PF < 100°C
Protection Rating	NEMA 4X IP66 General Purpose
Approval	CE RoHS

INSTALLATION

Very Important

- Lubricate O-rings with silicone (provided).
- Using an alternating twisting motion, carefully lower the sensor into the fitting. | Do Not Force | See Fig 5
- Ensure tab/notch are parallel to flow direction | See Fig-2

Fig - 1

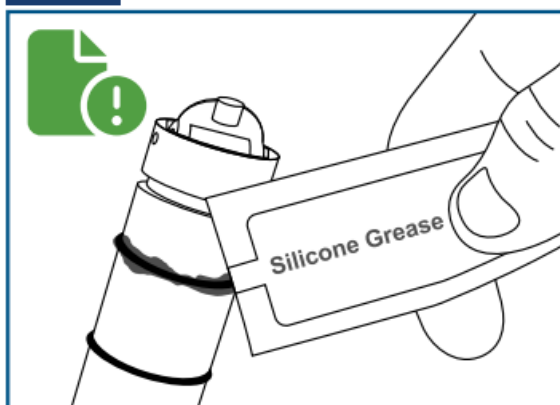
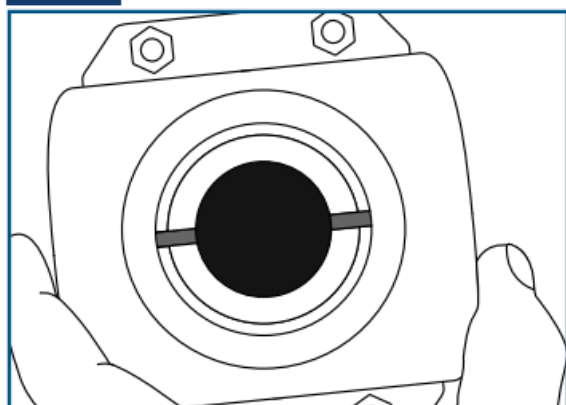


Fig - 2



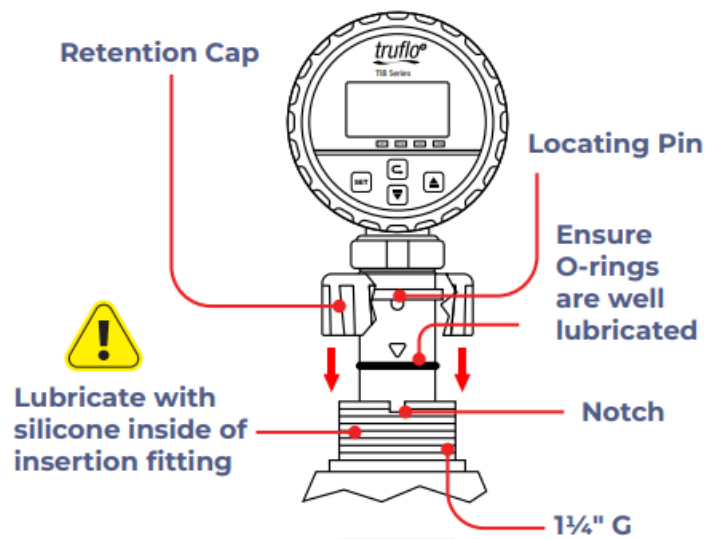


Fig - 3

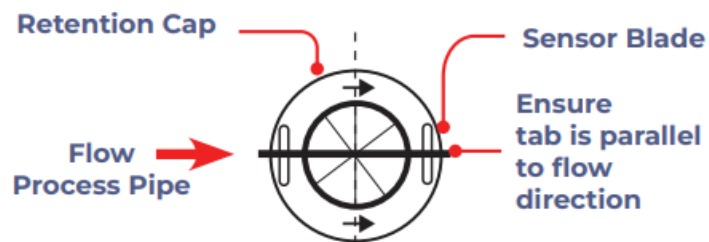


Fig - 4

Top View

Hand-tighten the sensor cap. DO NOT use tools.

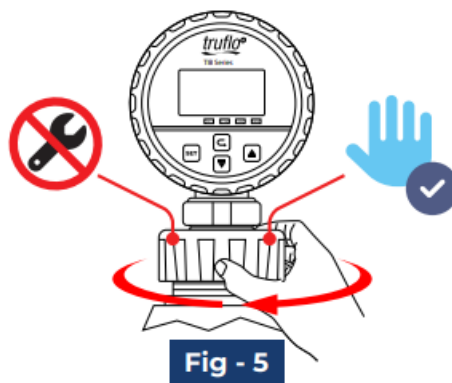
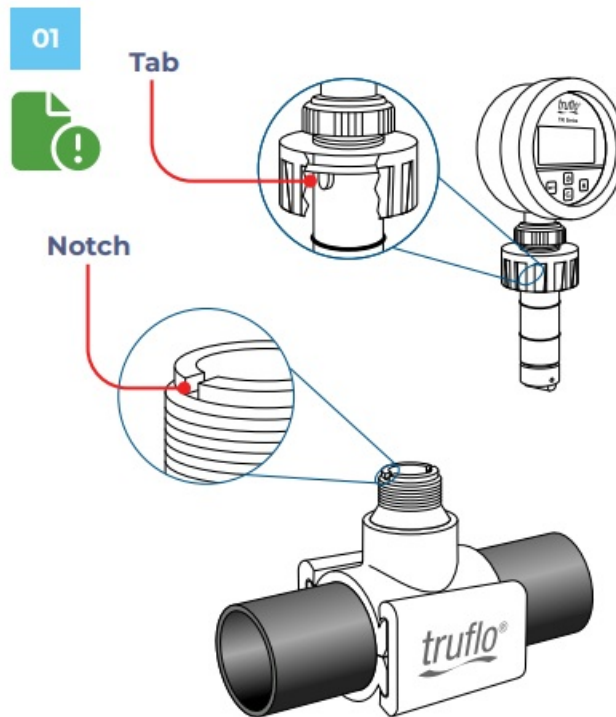


Fig - 5

Correct Sensor Position

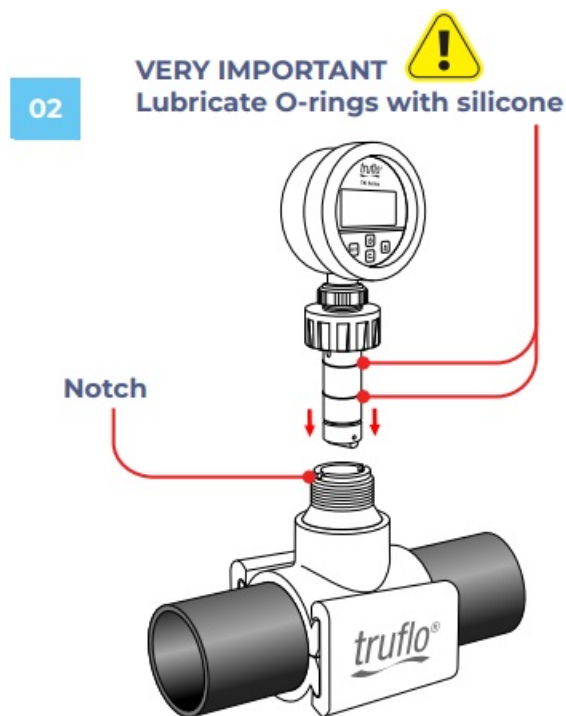
STEP 1

Locate the flow meter positioning tab and clamp saddle notch.



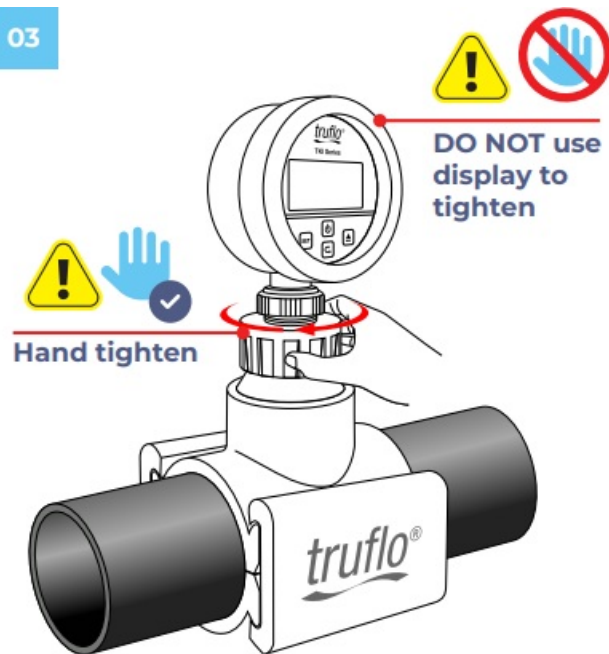
STEP 2

Engage one thread of the sensor cap, then turn the sensor until the alignment tab is seated in the fitting notch. Ensure tab is parallel to flow direction.



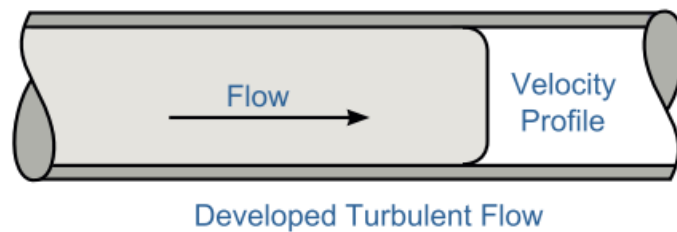
STEP 3

- Hand tighten
- DO NOT use tools
- Ensure meter is firmly in place

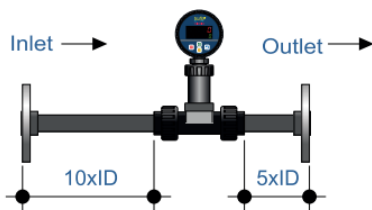


Correct Sensor Position Setup

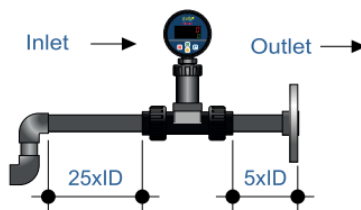
TI Series flow meters measure liquid media only. There should be no air bubbles and the pipe must always remain full. To ensure accurate flow measurement, the placement of the flow meter needs to adhere to specific parameters. This requires a straight run pipe with a minimum number of pipe diameters distance upstream and downstream of the flow sensor.



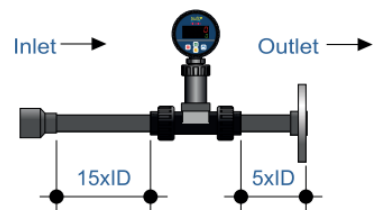
Flange



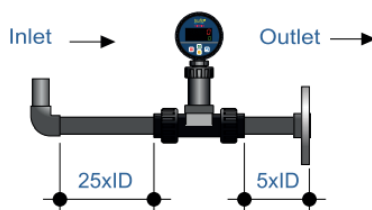
2x 90° Elbow



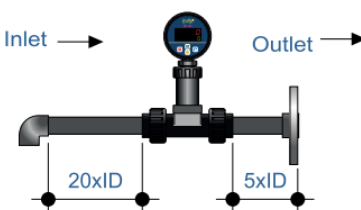
Reducer



90° Downward Flow



90° Elbow Flow Upward



Ball Valve

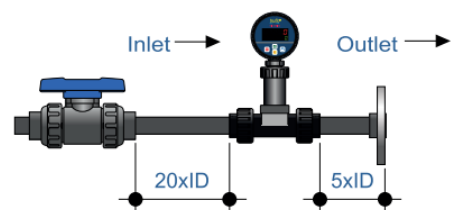
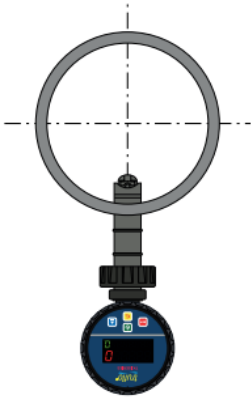


Figure - 1



Good if NO SEDIMENT present

Figure - 2



Good if NO AIR BUBBLES present

Figure - 3



Preferred installation if
SEDIMENT* or AIR BUBBLES
may be present

NOTE: Maximum % of solids $\leq 10\%$ with particle size not exceeding 0.5mm cross section or length.

Terminal Connections



Cable Grip Wire Connector Combo

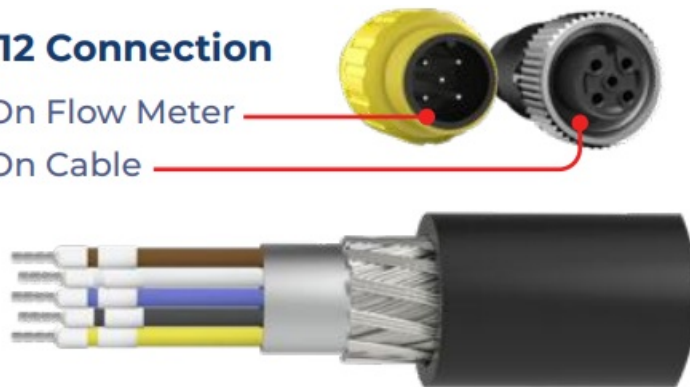


Terminal	Description	Color
1	+ VDC	Brown
2	Relay 2	White
3	- VDC	Blue
4	Relay 2	Black
5	Common	Yellow

M12 Connection

On Flow Meter

On Cable



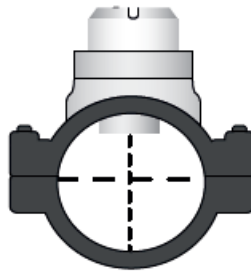
Fittings and K-Factor

TEE FITTINGS



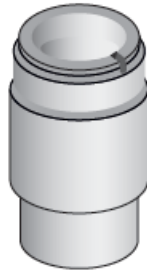
Tee Fitting		K-Factor		Sensor Length
IN	DN	LPM	GPM	
3/4"	20	160.0	604.0	S
1"	25	108.0	408.0	S
1½"	40	37.0	140.0	S
2"	50	21.6	81.7	L
2½"	65	14.4	54.4	L
3"	80	9.3	35.0	L
4"	100	5.2	19.8	L

CLAMP-ON SADDLES



Clamp Saddles		K-Factor		Sensor Length
IN	DN	LPM	GPM	
2"	50	21.6	81.7	S
3"	80	9.3	35.0	S
4"	100	5.2	19.8	S
6"	150	2.4	9.2	L
8"	200	1.4	5.2	L

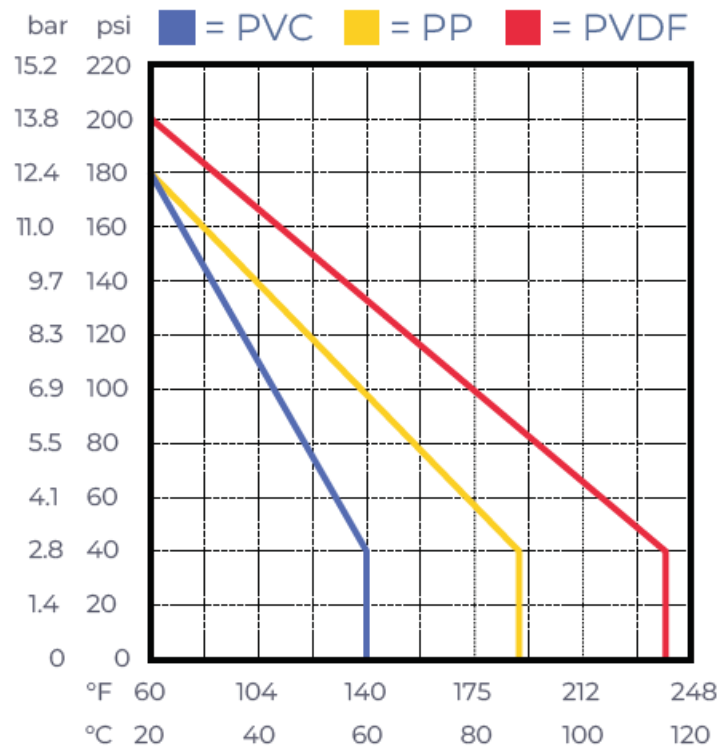
CPVC SOCKET WELD-ON ADAPTERS



Adapter		K-Factor		Sensor Length
IN	DN	LPM	GPM	
2"	50	14.4	54.4	S
2½"	65	9.3	35.5	S
3"	80	9.3	35.0	S
4"	100	5.2	19.8	S
6"	150	2.4	9.2	L
8"	200	1.4	5.2	L
10"	250	0.91	3.4	L
12"	300	0.65	2.5	L
14"	400	0.5	1.8	L
16"	500	0.4	1.4	L
18"	600	0.3	1.1	L
20"	800	0.23	0.9	L
24"	1000	0.16	0.6	L

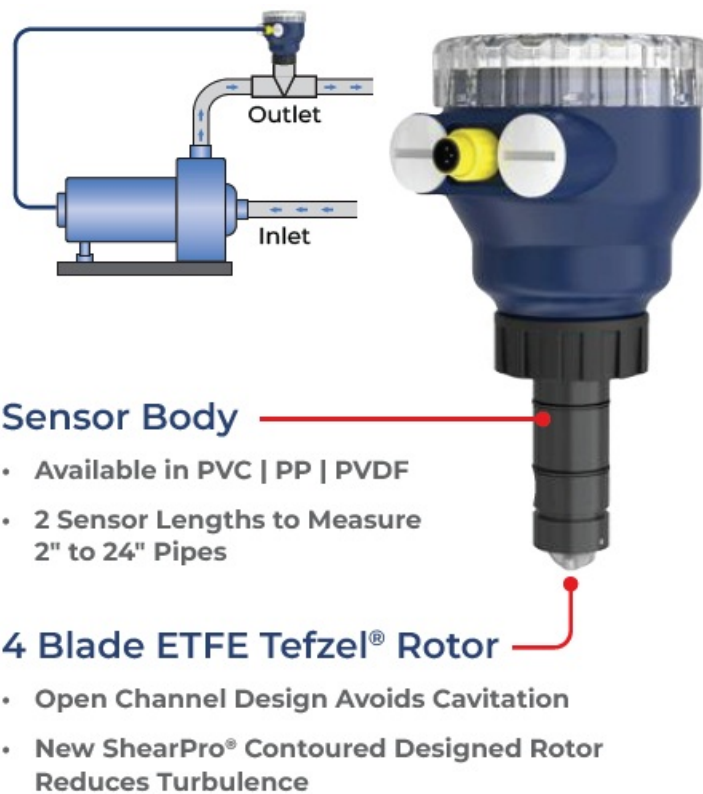
Pressure vs. Temperature

Note: During system design the specifications of all components must be considered. | Non-Shock



Example

- Prevent Pumps from Running Dry
- Notification for Filter | Strainer Change-Out
- Output to Alarm | Shut Off Pump



The TIF Series is equipped with a zirconium ceramic rotor pin and 2 bushings. The TIF Series also incorporates a contoured, 'Low Drag' paddle wheel leading to reduced drag, longer wear and higher accuracy.

Ceramic Rotor | Bushings

- High Chemical Resistance
- Long Life – 40 years/m/s
- Self Cleaning Design



Programming

















Select/Save/Continue










Move selection left
















Change digit value

STEPS	DISPLAY	OPERATION
<div>1</div> <div>Press and Hold SET</div> <div> SET +  3 SEC</div>		Home Screen
<div>2</div> <div>Pasword</div> <div> SET</div>		Factory Default: Lk = 10 Otherwise meter will enter Lockout Mode* Press  /  to change Press SET to save
<div>3</div> <div>Units of Flow</div> <div> SET</div>		Ut.G = Gallons (Factory default) Ut.L = Liters Ut.KL = Kiloliters Press  to change Press SET to save
<div>4</div> <div>K Factor</div> <div> SET</div>		Enter K Factor Value Refer to Page 6 for K-Factor Values
<div>5</div> <div>Transmitter Range</div> <div> SET</div>		Factory Default — 4mA = 0, 20mA = 100** **This can be change to suit application

Programming Frequency Pulse Relay Output

STEPS	DISPLAY	OPERATION
1 Press and Hold SET  SET +  3 SEC		Home Screen
2 Flow Rate Pulse Output  SET		CV - Program Value of (Flow Rate) Pulse (NPN) Output Preset Value of Flow Rate Change to a Value that meets your Flow Rate Pulse Output SV - CV > SV ► Flow Rate Pulse Output ON CV < SV ► Flow Rate Pulse Output OFF
3 Flow Total Pulse Output  SET		CV - Program Value of Flow Totalizer Pulse (NPN) Output SV: Preset Value of Flow Total SV - CV > SV ► Flow Rate Pulse Output ON 2000 Default can be changed to desired value. Refer to "Programming OP2 Output" for totalizer options Flow Totalizer Pulse - (Step #2 - Next)



Programming Relay Output

STEPS	DISPLAY	OPERATION
1 Press and Hold SET  SET +  3 SEC		Home Screen
2 OP2 Output Pulse Control (Frequency)  SET		Con = n: OP2 Manual Reset (Press  for 3 sec to reset) CV < SV: Relay 2 on (OP2 on) CV < SV: Relay 2 off (OP2 off)
3 Pulse Relay  SET		Refer to Relay Selection Mode Below
4 Hysteresis  SET		Press  to change Press SET to save (Hysteresis is a buffer around the programmed set point)
5 Time Delay  SET		

Relay Selection Mode

ALT NO.	Description
ALT = 0	CV > SV ► ON: CV < SV – HyS ► OFF “Normally Closed Relay”
ALT = 1	CV < SV ► ON: CV > SV + HyS ► OFF “Normally Open Relay”
ALT = 2	SV + HyS > CV > SV – HyS ► ON: CV > SV + HyS or CV < SV – HyS ► OFF
ALT = 3	SV + HyS > CV > SV – HyS ► OFF: CV > SV + HyS or CV < SV – HyS ► ON
HyS = Hysteresis — Acts like a buffer ± around pulse output (measured in GPM)	
CV: Current Value = Flow Rate SV = Selected or Programmed Value	

Reset Flow Totalizer

Press  +  keys for 3 seconds to reset the flow totalizer.

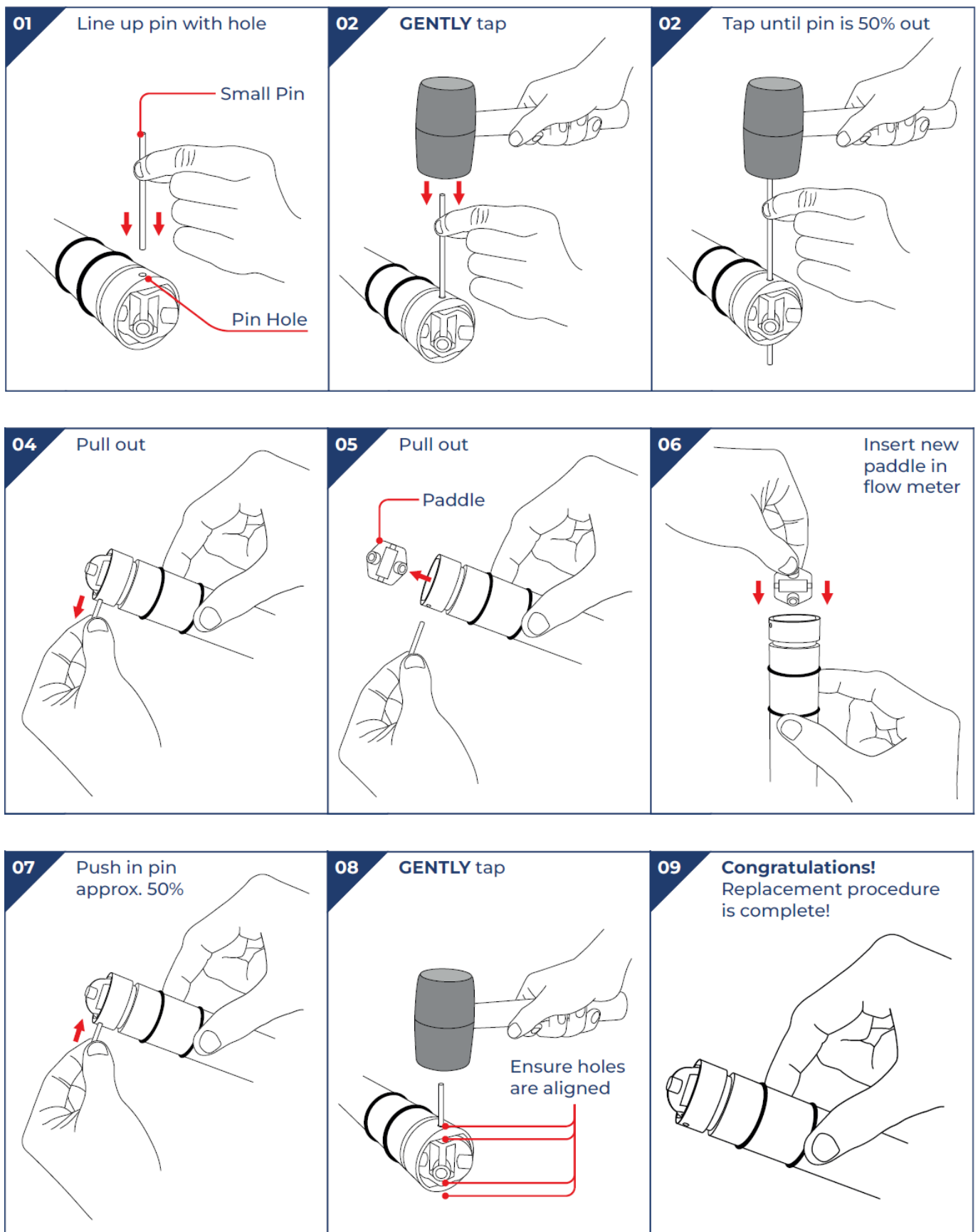
Min | Max Flow Rates

PIPE SIZE	GPM	LPM
½" DN15	1.0 3.5	32 120
¾" DN20	1.5 5	45 170
1" DN25	2.5 9	79 300
1½" DN40	6.5 25	225 850
2" DN50	10.5 40	357 1350

PIPE SIZE	GPM	LPM
3" DN80	24 90	739 2800
4" DN100	33 125	1149 4350
6" DN150	60 230	1997 7590
8" DN200	82 315	2735 10395

Replacement

Rotor Pin | Paddle Replacement



Warranty, Returns and Limitations

Warranty

Icon Process Controls Ltd warrants to the original purchaser of its products that such products will be free from defects in material and workmanship under normal use and service in accordance with instructions furnished by Icon Process Controls Ltd for a period of one year from the date of sale of such products. Icon Process Controls Ltd obligation under this warranty is solely and exclusively limited to the repair or replacement, at Icon Process Controls Ltd option, of the products or components, which Icon Process Controls Ltd examination determines to

its satisfaction to be defective in material or workmanship within the warranty period. Icon Process Controls Ltd must be notified pursuant to the instructions below of any claim under this warranty within thirty (30) days of any claimed lack of conformity of the product.

Any product repaired under this warranty will be warranted only for the remainder of the original warranty period. Any product provided as a replacement under this warranty will be warranted for the one year from the date of replacement.

Returns

Products cannot be returned to Icon Process Controls Ltd without prior authorization. To return a product that is thought to be defective, submit a customer return (MRA) request form and follow the instructions therein. All warranty and non-warranty product returns to Icon Process Controls Ltd must be shipped prepaid and insured. Icon Process Controls Ltd will not be responsible for any products lost or damaged in shipment.

Limitations

This warranty does not apply to products which: 1) are beyond the warranty period or are products for which the original purchaser does not follow the warranty procedures outlined above; 2) have been subjected to electrical, mechanical or chemical damage due to improper, accidental or negligent use; 3) have been modified or altered; 4) anyone other than service personnel authorized by Icon Process Controls Ltd have attempted to repair; 5) have been involved in accidents or natural disasters; or 6) are damaged during return shipment to Icon Process Controls Ltd reserves the right to unilaterally waive this warranty and dispose of any product returned to Icon Process Controls Ltd where: 1) there is evidence of a potentially hazardous material present with the product, or 2) the product has remained unclaimed at Icon Process Controls Ltd for more than 30 days after Icon Process Controls Ltd has dutifully requested disposition. This warranty contains the sole express warranty made by Icon Process Controls Ltd in connection with its products.

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IN NO EVENT SHALL Icon Process Controls Ltd BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING PERSONAL OR REAL PROPERTY OR FOR INJURY TO ANY PERSON.

THIS WARRANTY CONSTITUTES THE FINAL, COMPLETE AND EXCLUSIVE STATEMENT OF WARRANTY TERMS AND NO PERSON IS AUTHORIZED TO MAKE ANY OTHER WARRANTIES OR REPRESENTATIONS ON BEHALF OF Icon Process Controls Ltd. This warranty will be interpreted pursuant to the laws of the province of Ontario, Canada.

If any portion of this warranty is held to be invalid or unenforceable for any reason, such finding will not invalidate any other provision of this warranty.

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info@valuetesters.com

Documents / Resources



[truflo TIF Series Multi Function Batching Paddle Wheel Flow Meter](#) [pdf] Instruction Manual TIF-PP-S, TIF Series Multi Function Batching Paddle Wheel Flow Meter, TIF Series, Multi Function Batching Paddle Wheel Flow Meter, Function Batching Paddle Wheel Flow Meter, Batching Paddle Wheel Flow Meter, Paddle Wheel Flow Meter, Wheel Flow Meter, Flow Meter

References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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