

# *Blancett*®

## **MODEL 900 IMPELLER-TYPE FLOW METER**

- For Water Applications -

### **INSTALLATION & INSTRUCTION MANUAL**



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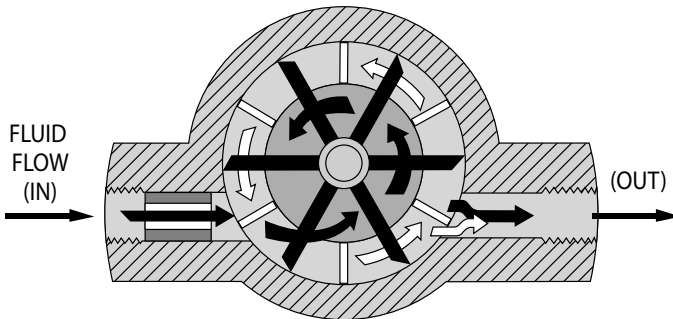
**NOTE:** *Blancett reserves the right to make any changes or improvements to the product described in this manual at any time without notice.*

# INTRODUCTION

The Blancett Model 900 impeller-type flow meter provides the petrochemical industry with an economically priced, higher pressure flow meter for low viscosity liquids. The Model 900 was designed for water flood and oil field service, but can be used wherever totalization is necessary. The meter is designed with wear resistant parts to provide trouble-free operation and long service life. The meter housing is made from stainless steel. Internal parts are constructed of stainless alloys and high strength engineering polymers to provide good chemical and abrasion resistance. Maintenance kits are available to allow quick and easy in-line repair.

# OPERATING PRINCIPLE

The liquid enters the measuring chamber through a precision inlet insert and separates into two equal streams. The streams cause the impeller assembly to rotate at a rate directly proportional to the flow rate. Both liquid streams are then combined at the meter outlet.



**Figure 1**  
*Operating Principle*

# SPECIFICATIONS

**FLOW RANGE:** Low Range - 68 to 172 BPD (2 to 5 GPM)  
Mid Range - 172 to 1543 BPD (5 to 45 GPM)  
High Range - 1543 to 3086 BPD (45 to 90 GPM)

## **MATERIALS of CONSTRUCTION:**

**Body:** Stainless Steel Body

**Internal Components:** Stainless steel alloys and high tech polymers  
for high chemical/abrasion resistance

**Connections:** 1" NPT female and 2" NPT male

## **OPERATING LIMITATIONS:**

**Temperature:** +30 °F to +200 °F (-1 °C to +93 °C)  
Not to be used on temperatures below the freezing  
point of liquid being measured.

**Pressure:** 5,000 psi maximum

**Accuracy:** ±2.0% of reading

**Repeatability:** ±0.1%

**Corrosion:** Contact Blancett at (1.800.235.1638) to determine if  
operating liquid is compatible with materials of construction.  
Incompatible fluids could deteriorate internal parts and  
cause the meter to read inaccurately.

### **Pulsation and**

**Vibration:** Severe pulsation and mechanical vibration will affect  
accuracy and shorten the life of the meter.

**Filtration:** A strainer capable of removing particles 0.020 inch  
(0.50mm) should be installed upstream of the meter.

## INSTALLATION INSTRUCTIONS

Before installation, the flow meter should be checked internally for foreign material, and be sure that the impeller spins freely. Also, the flow lines should be purged of all debris.

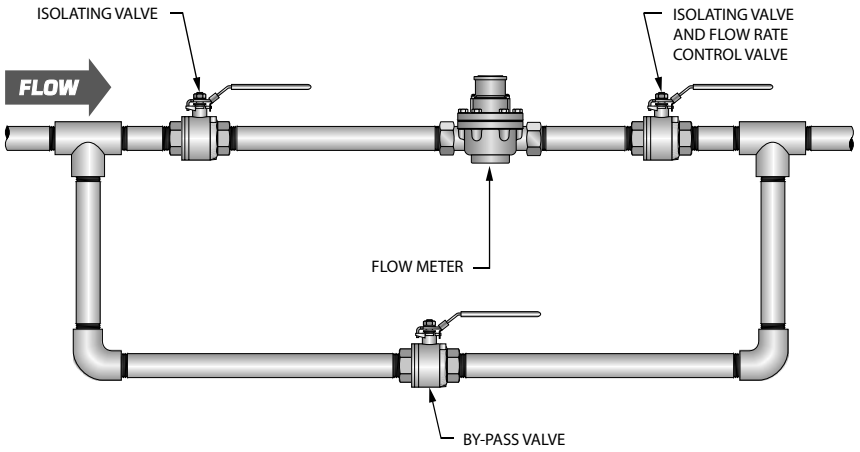
The flow meter must be installed with the flow indication arrow, cast on the meter body, pointing in the correct direction of flow. The preferred mounting orientation is to have the meter installed in horizontal piping with the register facing upward.

The liquid that is to be measured must be free from any large particles that may obstruct the rotation of the impeller. If particles are present, a mesh strainer should be installed upstream before operation of the flow meter. Some sand and small particles are permissible. A 30 × 30 mesh strainer is recommended (0.020 opening).

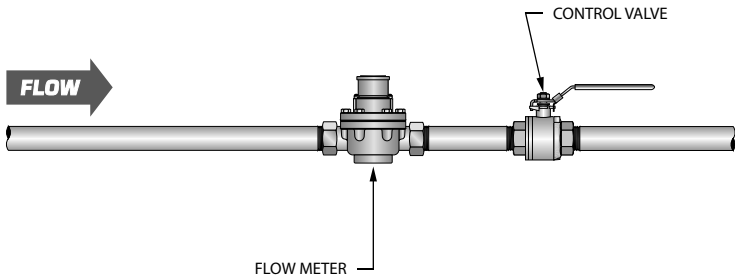
The preferred plumbing setup is one containing a by-pass line that allows meter inspection and repair without interrupting flow. If a by-pass line is not utilized, it is important that all control valves be located downstream of the flow meter. (See **Figures 2 and 3** on page 6.)

**CAUTION:** *Open valves slowly to ensure that entrapped air does not cause meter to rotate at an excessive speed. Damage can be caused by striking an empty meter with a high velocity flow of gas or liquid.*

This is true with any restriction in the flow line that may cause the liquid to flash. If necessary, air eliminators should be installed to ensure that the meter is not incorrectly measuring entrained air or gas. Do not locate the flow meter close to a pump, because severe pulsation may negatively effect accuracy and flow meter life.



**Figure 2**  
*Meter installation utilizing a by-pass line*



**Figure 3**  
*Meter installation without utilizing a by-pass line*

## OPERATIONAL START-UP

The following practices should be observed when installing and starting the meter.

**WARNING:** *Make sure that fluid flow has been shut off and pressure in the line released before attempting to install the meter in an existing system.*

1. After meter installation, close the isolation valves, and open the by-pass valve. Flow liquid through the by-pass valve for sufficient time to eliminate any air or gas in the flow line.

**CAUTION:** *Damage can be caused by striking an empty meter with a high velocity flow stream.*

2. Open upstream isolating valve slowly to eliminate hydraulic shock while charging the meter with the liquid. Open the valve to full open.
3. Open downstream isolating valve to permit operation.
4. Close the by-pass valve to a full closed position.
5. Adjust the downstream valve to provide the required flow rate through the meter.

**Note:** Downstream valve may be used as a control valve.

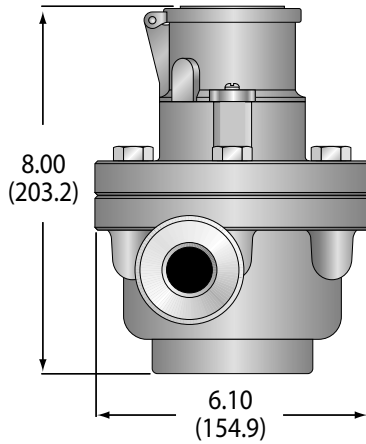
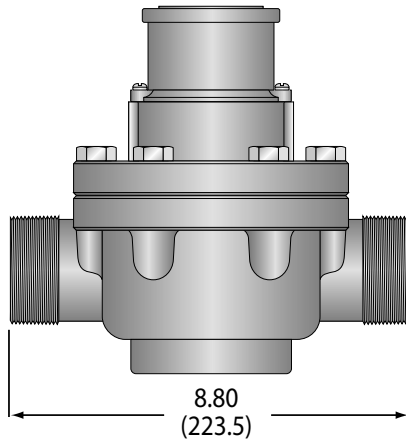
## TROUBLESHOOTING GUIDE

Trouble	Possible Cause	Remedy
No indication on register	<ul style="list-style-type: none"> <li>• Debris in measuring chamber</li> <li>• Broken magnet in magnetic drive</li> <li>• Broken teeth on drive or driven gear</li> <li>• Broken gears or shaft in register assembly</li> </ul>	<ul style="list-style-type: none"> <li>• Disassemble meter, clean out debris and inspect for worn parts</li> <li>• Replace magnetic drive</li> <li>• Replace gear(s)</li> <li>• Replace register</li> </ul>
Low flow indication	<ul style="list-style-type: none"> <li>• Flow rate is too low</li> <li>• By-pass valves are leaking</li> </ul>	<ul style="list-style-type: none"> <li>• Increase flow above minimum rated GPM</li> <li>• Close valves completely, repair or replace</li> </ul>
High flow indication	<ul style="list-style-type: none"> <li>• Gas in liquid</li> <li>• Debris covering a portion of the meter inlet</li> <li>• Liquid is leaking around the inlet insert</li> </ul>	<ul style="list-style-type: none"> <li>• Install gas eliminator ahead of meter</li> <li>• Remove meter from line and clean out debris</li> <li>• Remove meter from line, remove insert and reset with RTV</li> </ul>

## REPAIR KIT INFORMATION

<b>Part Number</b>	<b>Repair Kit Description</b>
B250-921	Complete Repair Kit; 42 Gallon Barrel; Low Range
B250-925	Complete Repair Kit; 42 Gallon Barrel; Mid Range
B250-923	Complete Repair Kit; 42 Gallon Barrel; High Range
B250-927	Complete Repair Kit; US Gallons
B250-931	Complete Repair Kit; Cubic Meters
B250-922	Repair Kit less Register; 42 Gallon Barrel; Low Range
B250-926	Repair Kit less Register; 42 Gallon Barrels; Mid Range
B250-924	Repair Kit less Register; 42 Gallon Barrels; High Range
B250-932	Repair Kit less Register; US Gallons
B250-928	Repair Kit less Register; Cubic Meters

## DIMENSIONS



**Figure 4**  
*Dimensions*

## STATEMENT OF WARRANTY

Blancett Flow Meters, Division of Racine Federated Inc. warrants to the end purchaser, for a period of one year from the date of shipment from the factory, that all flow meters manufactured by it are free from defects in materials and workmanship. This warranty does not cover products that have been damaged due to defects caused by misapplication, abuse, lack of maintenance, modified or improper installation. Blancett's obligation under this warranty is limited to the repair or replacement of a defective product, at no charge to the end purchaser, if the product is inspected by Blancett and found to be defective. Repair or replacement is at Blancett's discretion. A return goods authorization (RGA) number must be obtained from Blancett before any product may be returned for warranty repair or replacement. The product must be thoroughly cleaned and any process chemicals removed before it will be accepted for return.

The purchaser must determine the applicability of the product for its desired use and assumes all risks in connection therewith. Blancett assumes no responsibility or liability for any omissions or errors in connection with the use of its products. Blancett will under no circumstances be liable for any incidental, consequential, contingent or special damages or loss to any person or property arising out of the failure of any product, component or accessory.

All expressed or implied warranties, including **the implied warranty of merchantability and the implied warranty of fitness for a particular purpose or application are expressly disclaimed** and shall not apply to any products sold or services rendered by Blancett.

The above warranty supersedes and is in lieu of all other warranties, either expressed or implied and all other obligations or liabilities. No agent or representative has any authority to alter the terms of this warranty in any way.

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