

# Mesurflo™ Automatic Balancing Valve Technical Data

## HOW THE MESURFLO™ CONTROLS FLOW

For a pressure differential range of 2 to 80 psid, as the pressure drop increases, the rubber diaphragm will flex into the contoured orifice plate to decrease flow path. Both the rubber diaphragm and the contoured orifice plate are rigidly controlled to provide a constant flow rate over the pressure differential range. The “flexing” of the rubber diaphragm against the fixed orifice plate makes the Mesurflo™ difficult to clog and resistant to cavitation damage. The “flexing” action actually chews up debris preventing clogging. Outside of the pressure drop window, the controller performs similar to a fixed orifice.

### NOTE TO PIPING DESIGNERS:

The Mesurflo™ is a constant flow rate device. Since it is a variable orifice that changes to govern the flow, it can not be described with the Cv or a pressure drop at a given flow for piping system design purposes. Conversely, the designer may assume a constant flow rate over the differential pressure.

## MesurFlo Automatic Balancing Valves meet the Gold Standard:

- MesurFlo Cartridges have a Lifetime Warranty
- Silent Operation - History of use in US Naval vessels & submarines, luxury hotels, medical buildings, and educational facilities. Noise tested based on ANSI & AHRI standards.
- Single Large Operating Range – Pressure independent from 2-80 psid
- Clog-Resistant Design – Anti-clogging design uses no springs
- Accurate – Better than ± 10% of rated flow from 2 – 80 psi differential
- Temperature Range – 35° to 220° F
- Self-Dampening – unaffected by flow transient pressures
- Corrosion Resistant Construction



Figure 1  
0 PSID



Figure 2  
2-80 PSID



Figure 3  
Reverse Flow



## FLOW CARTRIDGE DESIGN COMPARISONS



### Spring Based Design

Fatigues Over Time  
5 Year Warranty  
Smaller Operating Ranges  
Multiple Spring Ranges  
2-32 PSID Most Common  
Noisy  
Metal on Metal design  
Chatters  
Clog Prone  
Tight Sliding Components  
Seize on small debris  
Cannot Back Flush

### Diaphragm and Orifice Plate Based Design

Rugged and Resilient Components  
Lifetime Warranty  
Single Large Operating Range  
2-80psid  
Quiet  
Self Dampening Components  
Virtually silent  
Clog Resistant  
2 piece construction  
No tight fitting or sliding components  
Back Flush Allowed

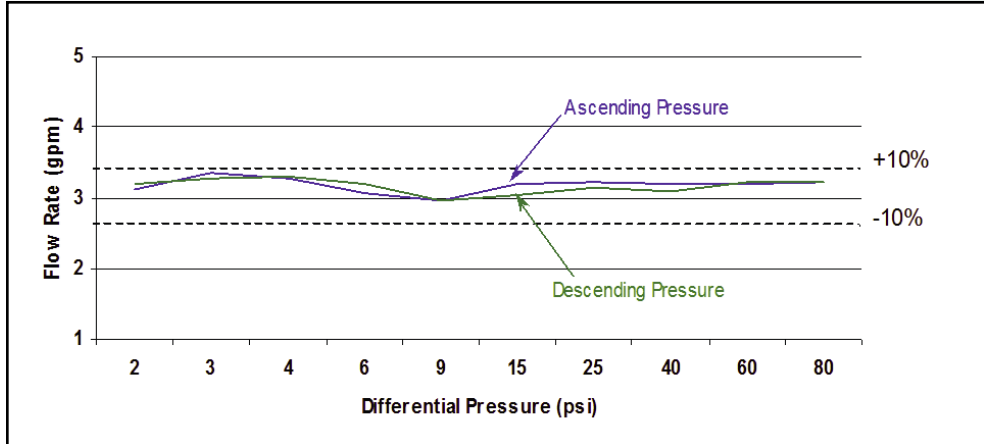
Manufactured by Hays Fluid Controls  
Patent 6,311,712. Mesurflo™, U.S. Registered Trademark of Hays Fluid Controls.

# Flow Control Accuracy

MesurFlo controls the fluid flow rate to better than  $\pm 10\%$  of rated flow from 2 – 80 psi differential. The test data below shows the response of the MesurFlo to changing differential pressure.

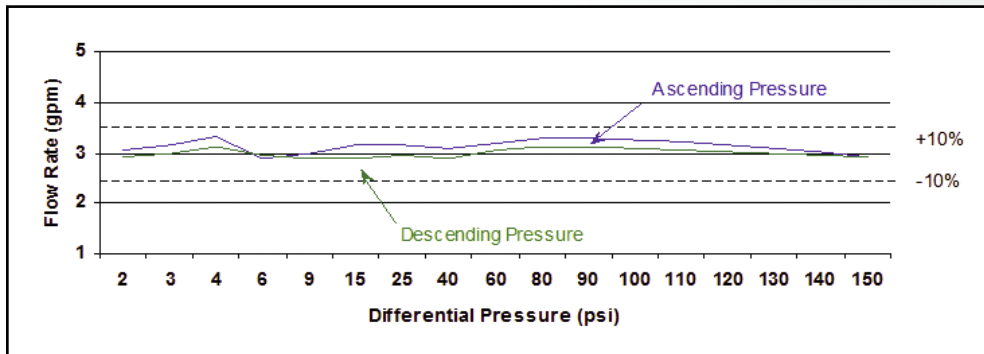
**Test #1**

Flow vs. Differential Pressure (each differential pressure increment held for 24 hour duration)  
3 GPM MesurFlo



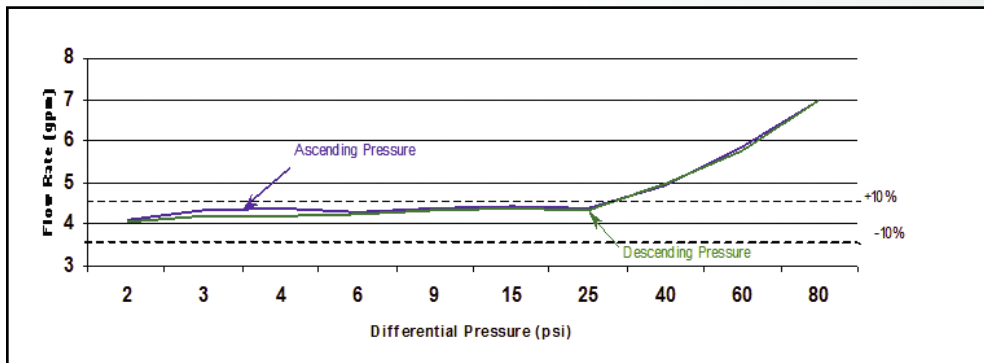
**Test #2**

Flow vs. Differential Pressure (each differential pressure increment held for 30 second duration)  
3 GPM MesurFlo



**Test #3**

Flow vs. Differential Pressure (each differential pressure increment held for 30 second duration)  
4 GPM Competitor Brand X



# MesurFlo Temperature Effects

The test data below shows how temperature impacts the 3 GPM control point from 40°F to 200°F fluid temperatures with varying Glycol solutions. All data points are the average of ascending and descending flow. The MesurFlo shows excellent stability for use with normal hot water temperature ranges.

