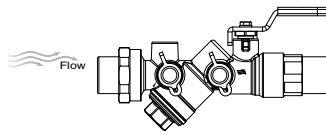
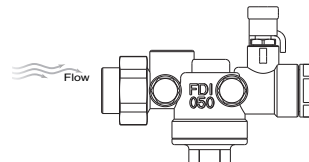


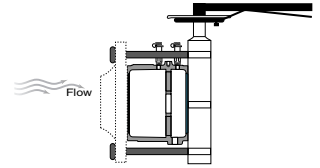
Model AC



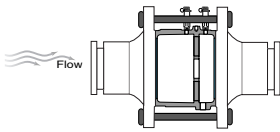
Model ACM



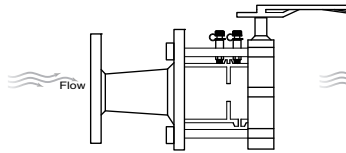
Model MC



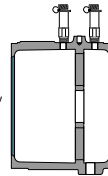
Model WB



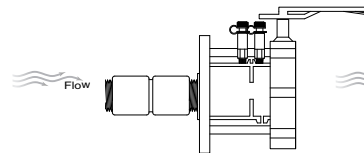
Model WG



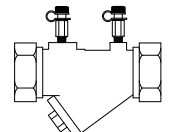
Model WR



Model WS



Model WT



Model YR

Descriptions

Model AC
1/2" - 2"
• AutoFlow regulator • Ball valve
• Port section • Union • Directional flow
• Dual P/T ports • SWT or FPT (ball end)
by SWT, FPT or MPT (union end)
One reduction size available on union end -
1/2" - 2" SWT, FPT or MPT

Model ACM
1/2" - 3/4"
• AutoFlow regulator • Ball valve
• Port section • Union • Directional flow
• Dual P/T ports • SWT or FPT (ball end)
by SWT, FPT or MPT (union end)

Model MC
1/2" - 3/4"
• AutoFlow regulator • Ball valve
• Port section • Union • Directional flow
• Dual P/T ports • SWT or FPT (ball end)
by SWT, FPT or MPT (union end)

Model WB
2" - 8"
• Model WS or WU flow control valve
with rods, nuts and Model BF butterfly valve.
• 4" - 8" models have spacer flanges between
valves • Shipped unassembled.
• Does not include mating flange.

Model WG
2 1/2" - 14"
• AutoFlow regulator • Grooved Ends
• Directional flow • Steel / Iron
• Dual P/T ports

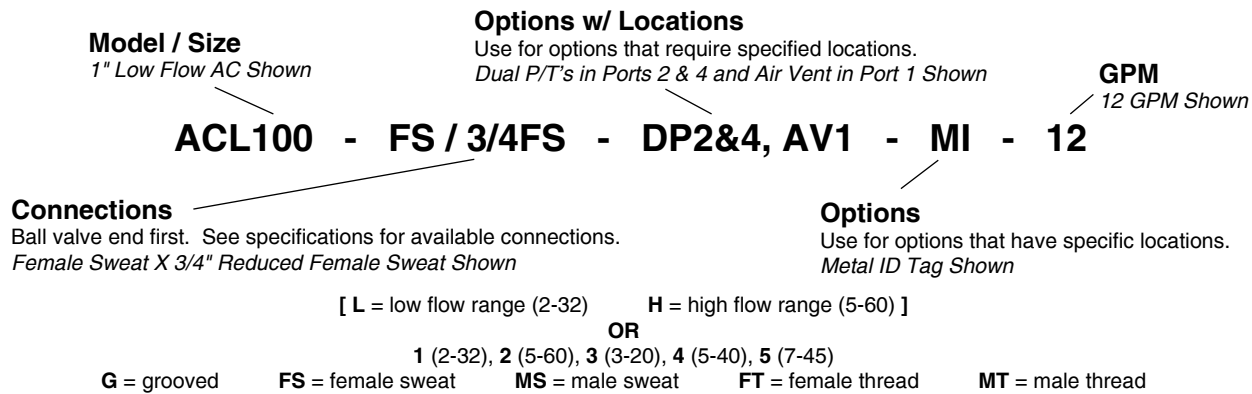
Model WR
3" - 6"
• AutoFlow regulator and butterfly valve
with reduced inlet flange designed to mate
with flanged ATC valve • Shipped assembled •
Dual P/T ports • Directional flow

Model WS
2 1/2" - 30"
• AutoFlow regulator • Ductile iron wafer body
(150# or 300#) • Directional flow
• Dual P/T ports • Wafer style • Shipped
with rods & nuts for use with customer-supplied
companion flanges
• 16" - 30" models have fabricated-steel wafer
body for 150# ASA flanges

Model WT
2 1/2" - 4"
• AutoFlow regulator and butterfly valve
with reduced threaded inlet designed to
mate with threaded brass ATC
• Dielectric fitting included • Directional flow
• Dual P/T ports • Shipped assembled

Model YR
1/2" - 2 1/2"
• AutoFlow regulator • Port section
• Directional flow • Dual P/T ports
• Brass body • 1/2" - 1" SWT X SWT or FPT X
FPT; 1 1/4" - 2 1/2" FPT X FPT SWT X SWT
available for 1 1/4" - 2" with addition of brass
sweat adapters

Model Designation Example:



Options Available

| | | |
|--|---|-------------------------------|
| AA Automatic Air Vent | EH Extended Handle with Memory Stop | PL Plug |
| AV Manual Air Vent | HN Hose End Drain Valve | SE Stem Extender |
| DX Dual XL P/T Ports (in lieu of std. ports) | PI Plastic Tag | T4 1/4" Accessory Port |

Installation

- There are no minimum straight-piping requirements for the inlet or the outlet.
- Valves may be installed in horizontal or vertical lines. The vertical flow can be up or down.
- The flow arrow on the valve body must be pointing in the direction of flow.
- Avoid placing the valve close to a pump discharge. Allow 10' before the valve if possible.
- The model number gives the following information: body style, line size, end connections, P/T ports, GPM flow settings.

Flange and Groove Body Products

Most flange products are not furnished with flange gaskets or bolts, and unless specified otherwise have 150# raised-face flanges. Standard installation techniques covering flanged products should be followed. All products have a flow direction arrow. Care must be taken to locate the valve so that the arrow is pointed in the direction of the flow.

Grooved end products are to be installed using a "Victaulic-style coupling". The same installation techniques used to install standard "Victaulic" products should be followed. Care must be taken to assure the flow direction arrow is in the proper location.

Installation *(continued)*

Wafer Body Valves (Model WB, WG, WR, WS, WT)

1. Make sure the long bolts and nuts to secure the wafer body are included with the valve.
2. Install the wafer body between 150# or 300# flanges making sure the flow arrow is in the direction of flow.
3. Make sure the inside diameter of the customer-supplied gaskets does not interfere with the flow.
4. The pressure temperature ports should be vertical up. These ports can be used to vent air from each side of the body after filling and start-up.

Operation

General

Flow control valves are purchased for a specific GPM flow rate and are equipped with a spring-loaded piston to maintain that flow rate. Five spring ranges are available for WB, WG, WR, WS AND WT only (AC - 2 ranges). The first number is the differential pressure (psi) needed to achieve the GPM rating. The second number is the maximum D.P. where the rated GPM will be maintained. The model number will show the spring range of the product.

Example:

Model XX (-)

(-) can be L = 2-32, H = 5-60 or 1 (2-32), 2 (5-60), 3 (3-20), 4 (5-40), 5 (7-45)

Verifying Flow

The flow can be verified by measuring the DP (differential pressure) across the valve using the ports provided. If it measures between 2-32 (or other) the flow is usually in the specified flow range. Debris plugging one of the flow ports will cause the DP to read high, so make sure the unit is clean when verifying flow. There are several ways to measure DP:

- a. A pressure gauge with a P/T adapter can measure the pressure on each side of the valve. The differences between these readings is the DP.

- b. A differential pressure gauge can simultaneously measure from each port and read the DP directly.

Using a Strainer

A Y-strainer is recommended to prevent clogging. A 40-mesh screen is recommended for flows 1.5 GPM or less.

Accuracy

Accuracy is rated at 5% of the specified flow rate. Accuracy will vary with the temperature of the incoming fluid and specific gravity of the fluid. Rated flow rates are suitable for glycol solutions up to 50 percent.

Air Purge

AutoFlow valves will not work properly if air is trapped in the housing. Models with wafer bodies will always have a small amount of air because its body is higher than the top of the pipe. Air can cause a clicking noise in some valves.

Air can easily be vented using the pressure temperature ports. On small valves, 2" and under, the upstream port can be used. On larger steel valves, both ports should be purged because air can reside on both sides of the mid-plate. A simple way to purge air with PT ports is to use a 1/4" manual air vent (Model AV) with a long gauge adapter (Model GA30).

Maintenance

- There is no maintenance required on Flow Control valves.
- If inlet strainers are used they should be inspected and cleaned after start-up and every six months thereafter.
- The controlled flow rate can be changed in the field, on 1/2" - 2 1/2" AC, ACM, KY, MC & YR Models, by replacing the cartridge assembly in the control valve. This

requires removing the cartridge from the controller. Specific instructions for making the change come with new cartridge assemblies. The change takes only 5 to 15 minutes with ordinary tools. Changing cartridges on larger valves should be done at the factory.

Call for an RMA number before returning equipment to the factory.

See next page for Troubleshooting information

Troubleshooting Guide

Possible Cause

Possible Solution

• PROBLEM: Low Water Flow

- | | |
|--------------------------------------|--|
| 1) Strainer clogged | 1) Back-flush or manually clean the coil strainer. |
| 2) Wrong location | 2) Make sure the valve is in the proper location with the correct GPM. |
| 3) Low system pressure | 3) If possible, check the pressure at the hook-up supply and return valves. The drop through the coil and ATC valve may be too large for the available head. |
| 4) Balance valve plugged | 4) The AutoFlow valve may have debris. Remove cartridge, clean and replace. |
| 5) ATC valve port closed or wrong Cv | 5) Make sure the ATC is wide open and has proper Cv. |
| 6) System valve is partially closed | 6) Open all manual system valves. |

• PROBLEM: High Water Flow

- | | |
|-----------------------------|---|
| 1) Wrong location | 1) Make sure the valve is in the proper location with the correct GPM. |
| 2) System pressure too high | 2) Check the differential pressure across the AutoFlow valve. If larger than 32 psi, close the return-side ball valve until the difference is less than 32 psi. The spring range on the cartridge could be changed to 5-60 psi which will also solve the problem. |
| 3) AutoFlow valve backward | 3) Check the flow arrow and reverse valve if necessary. |

• PROBLEM: Noise or Vibration

- | | |
|-------------------------------------|--|
| 1) AutoFlow valve clicking or noisy | a) Check the Delta P across the AutoFlow valve. If at or near the maximum, it may be necessary to replace the cartridge with a different spring range. |
| | b) Make sure the air is purged from the system. Air can cause a clicking noise. WS valves require air purging on each side of the mid-plate. |
| | c) Two AutoFlow valves close coupled in series can cause pulsing. |

Disclaimer: The products, texts, photographs, graphics and diagrams in this submittal may be subject to alteration by Flow Design Inc. without prior notice or reason being given.