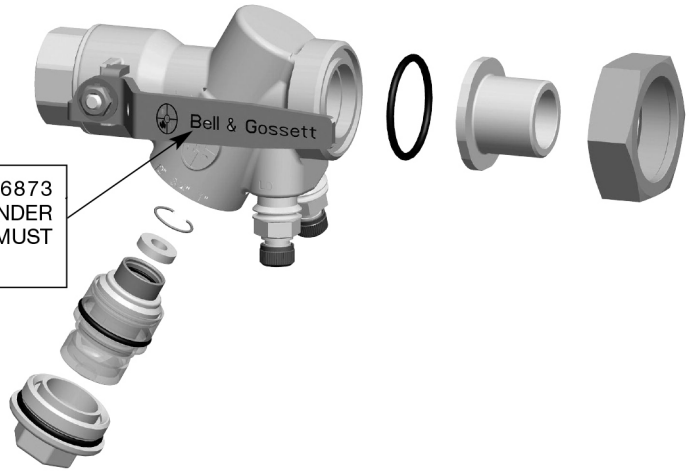
Bell & Gossett
a xylem brand

INSTRUCTION MANUAL
V58044
REVISION C



WARNING LABEL PART NO. V56873 INSTALLED IN THIS LOCATION (UNDER BELL & GOSSETT). IF MISSING IT MUST BE REPLACED.

Circuit Sentry™ Automatic Flow-Limiting Valve

INSTALLER: PLEASE LEAVE THIS MANUAL FOR THE OWNER'S USE.

SAFETY INSTRUCTION

This safety alert symbol will be used in this manual to draw attention to safety related instructions. When used, the safety alert symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.**

DESCRIPTION

The Bell & Gossett Automatic Flow Limiting Valves (AFLV) are designed to automatically control the flow in piping system to selected preset limit. As pressure differential increases, a cartridge inside the valve body reduces the flow area to accurately maintain the pre-selected flow rate.

NOTICE: This product is not intended for use in open systems. An open system is one that is exposed to atmospheric pressure at any point, such as a cooling tower system.

Operational Limits

Maximum Operating Temperature: 250°F (121°C)*
Maximum Operating Pressure: 300 psig (2069 kPa)*
Differential Pressure Flow Control
2 to 60 psig (14 to 414 kPa) nominal

INSTALLATION INSTRUCTIONS

1. **For installing NPT Connections:**
   a) Install the AFLV in the piping system/circuit where it is desired to maintain the flow at a preselected value. Apply pipe joint compound sparingly to the male pipe threads only.
   b) Install the unit so that the flow arrow on the body housing points in the direction of flow.
   c) Supports both sides of the unit with wrenches during installation to prevent putting stress on the joint joining the two sections.

CAUTION: The generous use of pipe joint compound when installing the AFLV will foul the valve operating mechanism preventing it from functioning properly. Pipe joint compound must be conservatively applied to male threads only. Failure to follow this instruction can result in moderate personal injury and/or property damage.

CAUTION: The use of PTFE impregnated pipe compound and PTFE tape on pipe threads provides lubricity, which can lead to overtightening and breakage. Do not overtighten. Failure to follow this instruction can result in moderate personal injury and/or property damage.

2. **For installing Sweat Connections:**
   a) Clean tube ends and valve connections thoroughly according to good piping practices with a fine grade emery cloth or fine grit sandpaper.

* Refer to chart A for solder joints for limitations.

b) For soldering, use 95-5 (Tin-Antimony) solder and a good grade of flux.
c) Use a torch with a sharp pointed flame.
d) When sweating the joints, first adjusting the Automatic Flow-Limiting Valve in the full open position, then wrap the valve with a cool wet rag and then direct the flame with care to avoid subjecting AFLV to excessive heat. Allow the valve to cool before touching or operating.
e) Check the soldered connection for leaks.

WARNING: Use of improper procedures to sweat valve model with union connection into system can damage valve. Before installing sweat union connection to valve, remove the union nut and O-ring from the valve body, the union tailpiece with nut must be sweated (soldered) into place. Failure to follow this instruction could result in property damage and/or moderate personal injury.

Chart A
(SOLDER TYPE LIMITS PER ASTM STD. B16.22-1989)

TYPE OF SOLDER	MAXIMUM LIMITATIONS	
	PRESSURE PSIG	TEMPERATURE °F
95-5 TIN-ANTIMONY	300	175
	250	200
	175	250

CAUTION: Heat associated with the use of silver solder may damage an Automatic Flow-Limiting valve and void the product warranty. Do not use silver solder. Failure to follow these instructions could result in property damage and/or moderate personal injury.

OPERATING INSTRUCTIONS

Operation of the Automatic Flow-Limiting Valve is fully automatic and does not require any adjustment. It automatically maintains the selected flow over the designed differential pressure range.

CAUTION: Hot uninsulated surfaces can cause burns to the skin. Do not touch hot surfaces. Failure to follow these instructions could result in moderate personal injury.

Before the system start up, remove cartridge from the valve. Flush the hydronic system and then reassemble cartridge into the valve and make sure cap is tightened properly. Start the system and check for the AFLV leak.

CAUTION: Hot uninsulated surfaces can cause burns to the skin. Do not touch hot surfaces. Failure to follow these instructions could result in moderate personal injury.

HOW TO USE AUTOMATIC FLOW-LIMITING VALVE PRESSURE TAPS TO DETERMINE PROPER FUNCTIONING OF VALVE.

1. Using Bell & Gossett Model RP-250 readout probes, attach a Bell & Gossett differential pressure readout kit to the readout valves on the Automatic Flow-Limiting Valve.

WARNING: Hot water leakage can occur from readout valve during probe insertion and during hookup of readout kit. Follow the instruction manual supplied with readout probes and readout kits for safe use. Failure to follow this instruction could result in serious personal injury and/or property damage.

2. Read the differential pressure across the Automatic Flow-Limiting Valve. This can be compared to system pump head to determine valve function, and system flow blockage.

SERVICE INSTRUCTIONS

Should the Automatic Flow-Limiting Valve require cleaning or changing the orifice, follow the following instructions.

WARNING: System fluid under pressure and/or at high temperature can be very hazardous. Before servicing, reduce system pressure to zero or isolate the pressure reducing from the system. Leave drain valve open. Allow system to cool below 100°F (38°C). Failure to follow these instructions could result in serious personal injury or death and property damage.

1. Loosen and remove the bonnet (cap) from the valve body.
2. Pull the cartridge assembly from the valve body for cleaning or change the new flow cartridge. Checking the cartridge by pushing the orifice washer in to the cartridge housing for several times to make sure spring is functional.
3. If you design to changing the orifice washer (for more or less flow rate). With a screwdriver, remove the clip ring from inside the cartridge housing. Pull the orifice washer out and replace with the new orifice that you have preferred.
4. Reinstall, or replace the clip ring in the cartridge housing groove and reassemble the bonnet with the O-ring.

WARNING: Corrosion or leakages are indications that the Automatic Flow Control Valve may be about to cause serious damage from leakage or rupture. It must be periodically inspected and if noted, it must be replaced. Failure to follow these instructions could result in serious personal injury or death and property damage.

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Let's Solve Water

Xylem Inc.
8200 N. Austin Avenue
Morton Grove, Illinois 60053
Phone: (847) 966-3700
Fax: (847) 965-8379
www.bellgossett.com