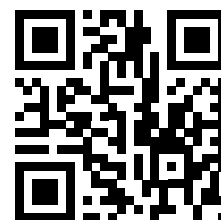


Circuit Sentry™

Automatic Flow Limiting Valve

www.xylem.com/bellgossett



1 Introduction and Safety

Installer

NOTICE:

PLEASE LEAVE THIS MANUAL FOR OWNER'S USE



SAFETY INSTRUCTIONS

This safety alert symbol will be used in this manual and on the unit safety instruction decals 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.

2 Product Description

2.1 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.

2.2 Specifications

Maximum operating temperature: 250°F (121°C)*

Maximum operating pressure: 250 psig (1724 kPa)*

Flow control, differential pressure: Min: Varies on valve size and flow. See submittal A-606.22. Max: 60 psi (414 kPa)

* See [Table 1](#) on page 1 for solder joints for limitations.

3 Installation

3.1 Installation of NPT Connections

1. 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.
2. Install the unit so that the flow arrow on the body housing points in the direction of flow.
3. Support both sides of the unit with wrenches during installation to prevent putting stress on the joint while joining the two sections.



CAUTION:

The generous use of pipe joint compound when installing the adapter or P/T 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.

3.2 Installation of Sweat Connections

1. Clean tube ends and valve connections thoroughly according to good piping practices with a fine grade emery cloth or fine grit sandpaper.
2. When sweating the joints, first adjust the valve to the full open position. Wrap the valve with a cool wet rag and direct the flame with care to avoid subjecting AFLV to excessive heat. Allow the valve to cool before touching or operating.
For soldering,
– use 95–5 (Tin-Antimony) solder and a good grade of flux.
– Use a torch with a sharp pointed flame.
3. Check the soldered connection for leaks.



CAUTION:

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

Table 1: Solder type limits per ASTM Standard B16.22–1989

Type of solder	Pressure PSIG	Temperature °F
95–5 Tin-Antimony	300	175
	250	200
	175	250

NOTICE:

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.

4 Operation

4.1 Operation 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 insulated 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.

4.2 How to use automatic flow-limiting valve pressure taps to determine proper functioning of valve

1. Using Bell & Gossett 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 hook-up of readout kit. Follow 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.

5 Maintenance

5.1 Service instructions

Should the Automatic Flow-Limiting Valve require cleaning or changing the orifice, consult 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. 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 to change the new flow cartridge. Check the cartridge by pushing the orifice washer in to the cartridge housing several times to make sure the spring is functional.
3. If you desire to change 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 prefer.
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 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.

Xylem Inc.
8200 N. Austin Avenue
Morton Grove IL 60053
Tel: (847) 966-3700
Fax: (847) 965-8379
www.xylem.com/bellgossett
Bell & Gossett is a trademark of Xylem Inc or one of its subsidiaries.
© 2022 Xylem Inc

xylem
Let's Solve Water