Bell & Gossett
a xylem brand

INSTRUCTION MANUAL
V59074
REVISION C

Low Flow Circuit Sentry

Model ACL Flow Limiting Valves

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

NOTE: This product is not intended for use in potable water applications.

WARNING: This product may contain a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm.

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 THE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.

OPERATIONAL LIMITS

WORKING PRESSURE & TEMPERATURE LIMITS
(SOLDER TYPE LIMITS FOR ANSI STD. B.16.18)

COIL HOOKUP VALVE	TEMP °F (°C)	PRESSURE PSI (KPA)
Union Ended Ball Valve (NPT)	250° (121°)	400° (2758°)
Union Ended Ball Valve (sweat)	Based on solder type ASTM Std. B16.18	

TYPE OF SOLDER	MAXIMUM LIMITATIONS 1/2" - 3/4"	
	PRESSURE PSI (kPa)	TEMP ° F (° C)
95-5 TIN-ANTIMONY	300 (2069) 250 (1724) 200 (1379)	200° (93°) 225° (107°) 250° (121°)

DESCRIPTION

Low Flow Circuit Sentry Model ACL valve is designed to automatically control the flow in piping systems to a selected preset limit. As pressure differential increases, a cartridge inside the valve body reduces the flow area to accurately maintain the preselected flow rate.

Flow Operating Range: 0.25 – 3.8 GPM

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.

INSTALLATION INSTRUCTIONS

Low Flow Circuit Sentry Model ACL Flow Limiting Valves are uni-directional valves and can be installed in most orientations; Low Flow Circuit Sentry valves should be mounted in the return pipe where temperatures are lower and where the sealing gland is less affected by pipe strain. Installation of strainers and isolation ball valves is recommended. Be sure to install the Low Flow Circuit Sentry ACL valve with the arrow pointing in the direction of flow. Provide enough space around the valve to ensure the flow cartridge can be removed for flow adjustment or system commissioning.

LOW FLOW CIRCUIT SENTRY MODEL ACL VALVES WITH SWEAT CONNECTIONS

For installing sweat connections, make sure that the flow limiting cartridge has not yet been installed in the valve. When confirmed, proceed as follows:

a) Clean tube ends and valve connections thoroughly per good piping practices with a fine grade emery cloth or fine grit sandpaper.

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, adjust the valve to the full open position, then wrap the valve with a cool wet rag and then direct the flame with care to avoid subjecting the valve 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, then union tailpiece with union nut must be sweated (soldered) into place. Failure to follow these instructions could result in property damage and/or moderate personal injury.

CAUTION: Heat associated with the use of silver solder may damage valve components 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.

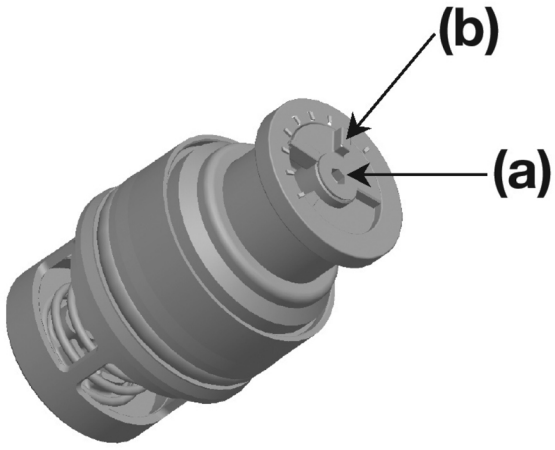
CAUTION: Excessive use of solder or flux may result in damage to the shutoff valve seat and ball. Do not use excessive solder or flux. Failure to follow these instructions can result in moderate personal injury and/or property damage.

LOW FLOW CIRCUIT SENTRY MODEL ACL VALVES WITH NPT CONNECTIONS

Apply pipe compound conservatively to male connecting fittings only. After installation, check all the joints for leakage and re-tighten if necessary.

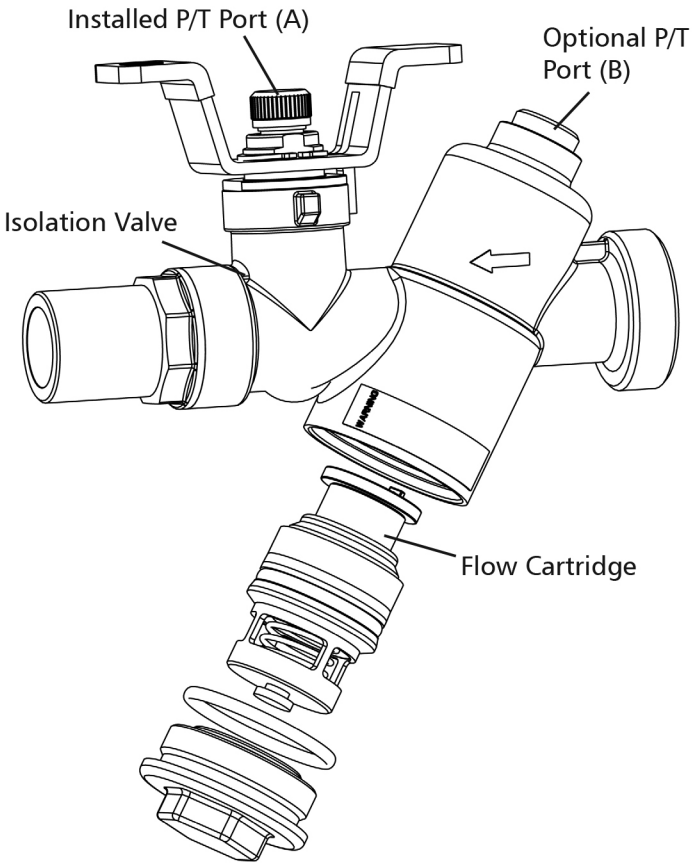
CAUTION: The use of PTFE impregnated pipe compound and PTFE tape on pipe threads provides lubricity. Care should be taken to prevent over tightening which may damage the valve body. Failure to follow these instructions can result in personal injury and/or property damage.

LOW FLOW CIRCUIT SENTRY MODEL ACL VALVES FLOW LIMITING CARTRIDGE INSTALLATION



Prior to coil commissioning and operating the Flow Limiting Valve, adjust cartridge to the desired flow rate between 0.25 GPM to 3.8 GPM.

1. Loosen screw (a) position.
2. Rotate plastic dial (b) to the desired flow rate. Increments marked on variable orifice are in GPM.
3. Re-tighten screw (a) with dial set at the desired flow rate.
4. Install the cartridge as shown below.



CAUTION: Make sure Valve Cap is properly assembled. Failure to follow these instructions can result in personal injury and/or property damage.

OPERATION INSTRUCTIONS

HOW TO USE BELL & GOSSETT LOW FLOW CIRCUIT SENTRY MODEL ACL FLOW LIMITING VALVES FOR PRE-SET FLOW BALANCING

Operation of the Flow Limiting Valve is fully automatic. It automatically maintains the selected flow over the designed differential pressure range.

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

Before system start up, remove the flow limiting cartridge from the valve, if previously installed. Flush the hydronic system as part of commissioning and then reassemble cartridge into the valve. Make sure the valve cap is tightened properly. Start the system and inspect the Low Flow Circuit Sentry ACL valve for leakage.

HOW TO USE PRESSURE TAPS (P/T PORTS) TO MEASURE SYSTEM OPERATING CONDITIONS

Using Bell & Gossett Model RP-250B, readout probes, attach Bell & Gossett differential pressure readout kit to the readout valves (P/T ports) on the Low Flow Circuit Sentry ACL valve.

WARNING: Hot water leakage can occur from readout valves (P/T ports) during probe insertion and during hookup of readout kit. Follow the instruction manuals supplied with readout probes and readout kits for safe use. Failure to follow these instructions could result in serious personal injury or death and property damage.

Read the differential pressure from the coil inlet isolation valve (typically strainer) to coil isolation valve (typically a flow limiting balancing valve). The differential value minus the pressure drops across the coil and installed control valves should be less than 60 psi for proper flow control.

If more accurate readings are desired, a pressure readout valve (B&G P/N V58050) may be installed (B) in the barrel above the cartridge chamber of the flow limiting valve. Pressure readings should then be taken from the P/T valve located in the isolation valve (A) and the P/T valve located in the barrel of the cartridge (B). The differential valve should be less than 60 psi for proper control.

SERVICE INSTRUCTIONS

Periodically inspect the Low Flow Circuit Sentry Model ACL Flow Limiting Valve for signs of leakage or corrosion. Replace valve cap o-ring (V57754), if necessary

WARNING: Corrosion or leakage are indications that the Low Flow Circuit Sentry Model ACL Flow Limiting Valve must be replaced. Failure to follow these instructions could result in serious personal injury or death and property damage.

Due to the different types of material used, the Low Flow Circuit Sentry Model ACL Flow Limiting Valve must be disassembled prior to disposal. Special handling of certain valve components may be required by law or may be sensible from an ecological point of view.

Should the Flow Limiting Valve require cleaning or changing the flow rate, follow the instructions below:

1. Loosen and remove the cap from the valve body.
2. Pull the cartridge assembly from the valve body for cleaning or flow adjustment.
3. Check the cartridge by pushing the orifice washer into the cartridge housing several times to make sure spring is functional and to dislodge any possible debris. Rinse with water if necessary.
4. Once clean, return flow cartridge to valve following installation instructions above.
5. Replace with a new flow cartridge (V58564) if necessary.

INSULATION

Bell & Gossett recommends that insulation be attached to the Low Flow Circuit Sentry Model ACL Flow Limiting Valve after the system has been balanced.

NOTE: Tape or other acceptable means should be used to secure the insulation to the Low Flow Circuit Sentry Model ACL Flow Limiting Valve.

Patent Pending

Xylem |'zīləm|

1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services, and agricultural settings. With its October 2016 acquisition of Sensus, Xylem added smart metering, network technologies and advanced data analytics for water, gas and electric utilities to its portfolio of solutions. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xyleminc.com

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Let's Solve Water

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