

For Health Applications

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

WATTS ACV 113-6RFP

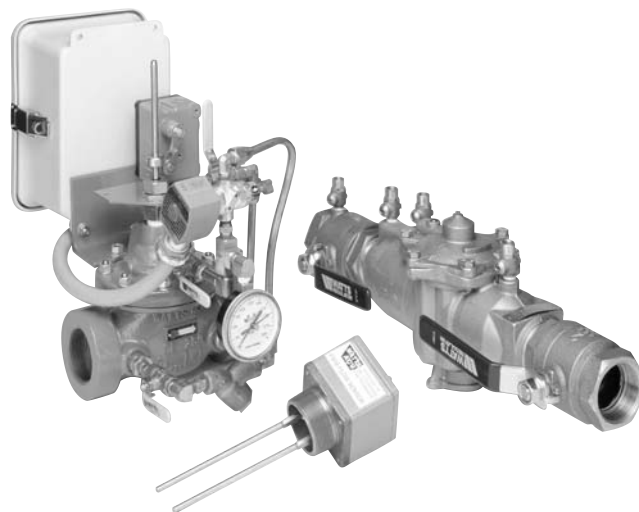
Flood Protection Shutdown Valve

The Watts 113-6RFP system prevents property damage due to relief valve discharge that can occur due to dirt and debris within the valve or a mechanical failure within the backflow prevention assembly. Typical conditions which can cause continuous relief valve discharge are: dirt/debris on first check seat of the reduced pressure backflow preventer, clogged relief valve sensing line, relief valve diaphragm failure and broken first check valve spring.

The Watts 113-6RFP control valve remains fully open under normal conditions. If the RPZ relief valve should open, excess flow through the drain pipe trips the flow sensor which energizes the solenoid on the 113-6RFP valve and it goes closed. Unlike a normal solenoid valve, the 113-6RFP cannot re-open if flow stops and/or the solenoid is de-energized. The Watts solution to intermittent dumping is a time delay relay located in the JB113 Junction Box between the flow sensor and the 113-6RFP to keep the control valve solenoid from energizing until required. A valve mounted Fig. 51 Limit Switch is supplied which sends out a remote signal to sound an alarm, indicating that the valve is closed. The 113-6RFP is equipped with manual reset to restore flow after the RPZ is repaired by the building maintenance engineer or backflow technician.

The 113-6FRP Flood Protection Valve comes complete with a valve mounted JB113 Junction Box, Fig. 51 Limit Switch, and FS99 Flow Sensor. The FS99 Flow Sensor accurately senses water flow in the drain pipe. The 113-6FRP can also be connected to a Flow Switch or various types of Float switches. Consult your Watts Representative for compatibility.

The Watts ACV 113-6RFP is totally fail safe for closure if the main valve and pilot diaphragms wear out. It is equipped with a gauge and a manual operator for periodic testing. The main valve has an anti-scale stem for protection if the valve is not tested for long periods of time.



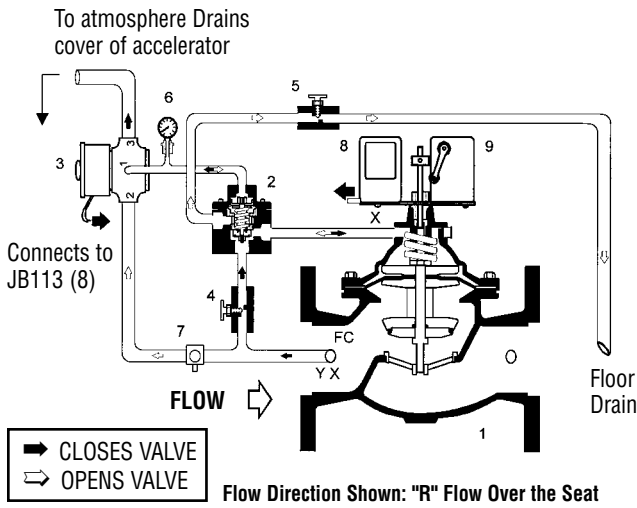
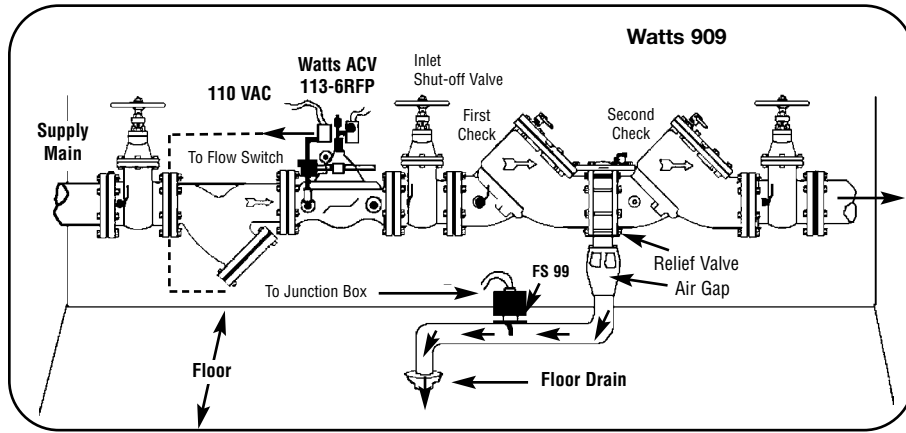
Features

- Prevents property damage due to relief valve discharges
- Time delay relay prevents false alarms
- Fail safe control valve shutdown
- Control valve limit switch provides visual or audible indication of valve closure
- Sizes 1¼" - 10" available

WATTS®
REGULATOR

USA: 815 Chestnut St., No. Andover, MA 01845-6098; www.wattsreg.com
Canada: 5435 North Service Rd., Burlington, ONT. L7L 5H7; www.wattscanada.ca

ISO 9001
CERTIFIED



VALVE FUNCTION

- Electrically operated ON/OFF (OPEN/CLOSED) valve
- High capacity controls for fast response
- Main valve is in the open position until solenoid is energized
- Main valve flows in the 'R' direction for positive closure upon main valve diaphragm failure
- Main valve is equipped with anti-scale stem
- Limit Switch stem serves as a position indicator
- A pressure gauge is supplied to show trapped Fig. 22-1 cover pressure when the valve is reset

COMPONENTS

- | | |
|--------------------------------------|--|
| 1. Main Valve | 6. Gauge for re-setting opening pressure |
| 2. Fig. 22-1 Accelerator Control | 7. Manual Reset |
| 3. 3-Way Solenoid w/manual operator | 8. JB113 Junction Box w/Time Delay |
| 4. Needle Valve – Adj. Closing Speed | 9. Fig. 51 Limit Switch |
| 5. Needle Valve – Adj. Opening Speed | |

ACCESSORIES

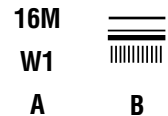
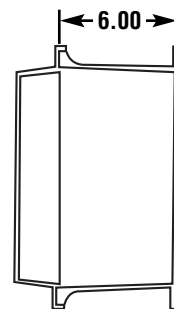
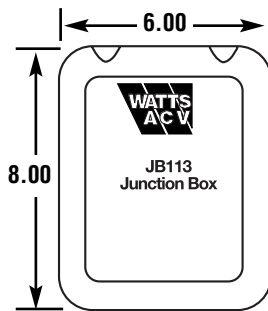
- X - Isolation Cocks
- 'Y' Strainer (Flo-clean)

(4" and larger)

JB113 Junction Box (valve mounted)

- NEMA 4X fiberglass junction box
- 120 VAC power supply

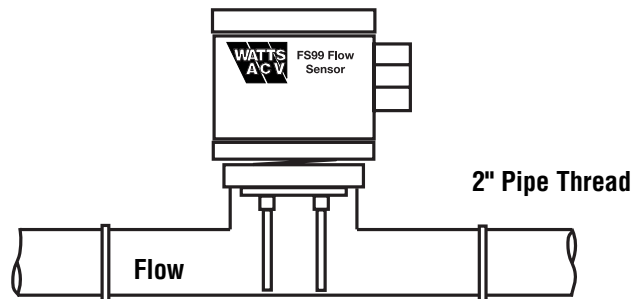
* Certified electrician to connect main power. FS99 Flow Sensor to JB113 Junction Box



- A = 16M**
- B = Time Delay Relay**
- C = Terminal Stop**

FS99 Flow Sensor

The FS99 Flow Sensor SS probes should be cut to length to fit within drain pipe requirements by the installation contractor. Client to furnish the actual installation tee. The FS99 is to be installed in a horizontal position, as shown. If a Flow Switch, Float Switch, or other type of sensor is used, please contact Watts for compatibility.



NOTE: Client to Supply installation Tee

FLOW DATA-ACV 100 (Globe)/1100 (Angle)

Full ported valves. (Seat size equal to line size.)

VALVE SIZE - INCHES	1 1/4	1 1/2	2	2 1/2	3	4	6	8	10	12	14	16
MAXIMUM CONTINUOUS FLOW RATE GPM (WATER)	93	125	208	300	460	800	1800	3100	4900	7000	8500	11000
MAXIMUM INTERMITTENT FLOW RATE GPM (WATER)	115	158	260	370	570	1000	2300	3900	6000	8600	10500	14000
Cv FACTOR GLOBE G.P.M.	37	40	55	95	125	220	460	840	1400	1730	2300	2950
Cv FACTOR ANGLE G.P.M.	41	45	66	107	150	260	570	990	1600	2500*	3060*	4210*

*Estimated

Maximum continuous flow based on pipe line velocity of 20 ft. per second.

Maximum intermittent flow based on pipe line velocity of 25 ft. per second.

The Cv factor of a valve is the flowrate in USGPM at 60 degrees F that will cause a one psi drop in pressure.

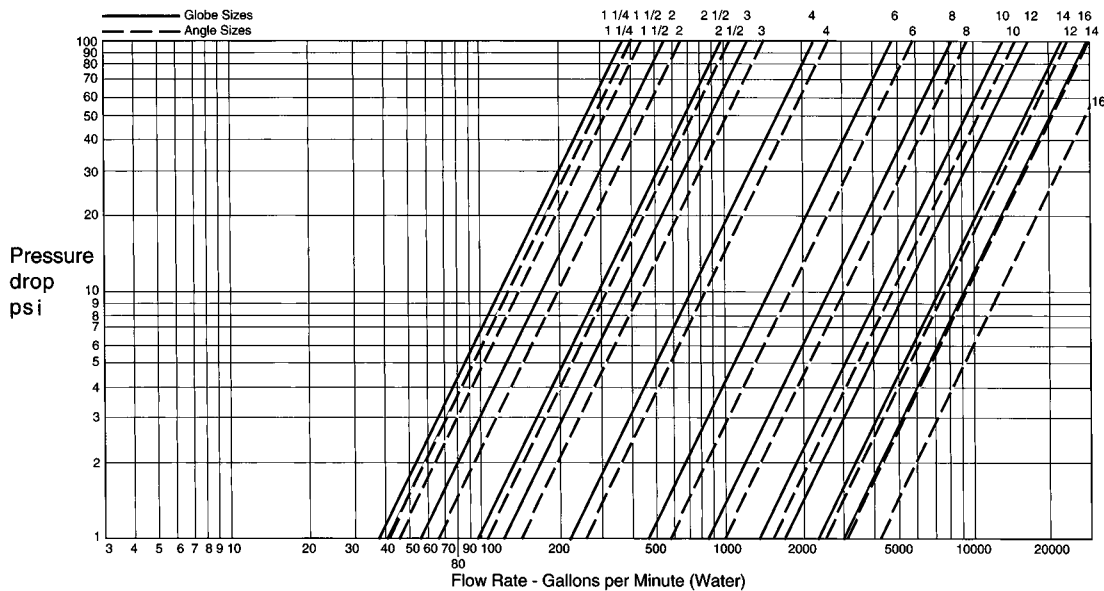
The factors stated are based upon a fully open valve.

Cv factor can be used in the following equations to determine flow (Q) and Pressure Drop (ΔP):

$$Q \text{ (flow)} = C_v \sqrt{\Delta P}$$

$$\Delta P \text{ (pressure drop)} = (Q/C_v)^2$$

PRESSURE DROP CHART-ACV 100 (Globe)/1100 (Angle)



NOTE: The use of the Watts Flood Protection - Shutdown Valve will stop all flow to the system or building and consideration should be given to the effects on equipment and processes located downstream of valve. If relief valve discharge due to a failure of the backflow preventer second check valve is a concern, a second Flood Protection - Shutdown Valve should be located immediately downstream of the backflow prevention assembly.

Main Valve Specifications:

Automatic control valve(s) shall be fluid actuated and have a single moving assembly. A flexible, nylon fabric reinforced synthetic elastomer diaphragm shall be integral with this assembly to form a sealed chamber operating free of drag or wear. The diaphragm shall not be used as a seating surface. This assembly shall have a stem which is fully guided by separated upper and lower bearings to preclude binding or deflection. When the valve is in the closed position, a sealing at the seat shall be accomplished by the contact between one edge of a securely retained elastomer quad seal and a smooth seat surface. The seat design shall be removable and not have edges that will induce seal cutting or wear at low flows. All internal valve components shall be removable and repairable while the valve body remains in line. Progressive throttling of flow shall be accomplished by a characterized profile quad seal retainer washer.

Flange/Material:

Threaded:

ANSI B16.42 / Max. 300psig / Ductile Iron ASTM 536 GR 65-45-12

150#FF Flange:

ANSI B16.42 / Max. 250psig / Ductile Iron ASTM 536 GR 65-45-12

300#RF Flange:

ANSI B16.42 / Max. 300 psig / Ductile Iron ASTM 536 GR 65-45-12

Main Valve Construction and Trim:

Main valve trim (seat and retainer plate) shall be stainless steel for lead-free construction. All valve elastomers shall be of FDA approved materials. Main valve body, cover, diaphragm washer, and seat retainer shall be fusion bonded epoxy coated 100% inside and out with an epoxy coating powder that has FDA and NSF-61 approvals. Valve shall be equipped with Anti-Scale stem protection and flow over the seat for closure upon diaphragm failure.

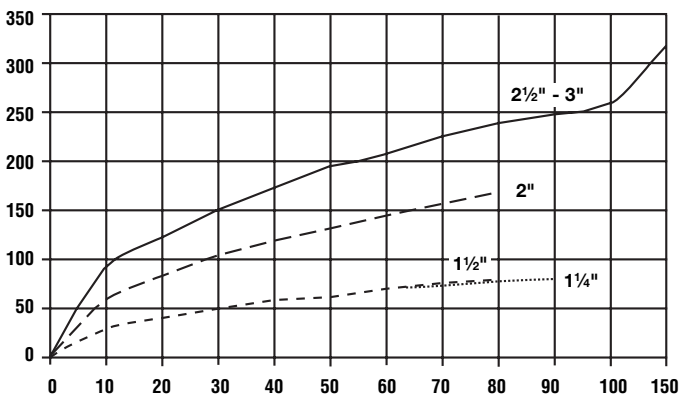
Pilot System Construction and Tubing:

Bronze pilot with copper tubing and brass fittings

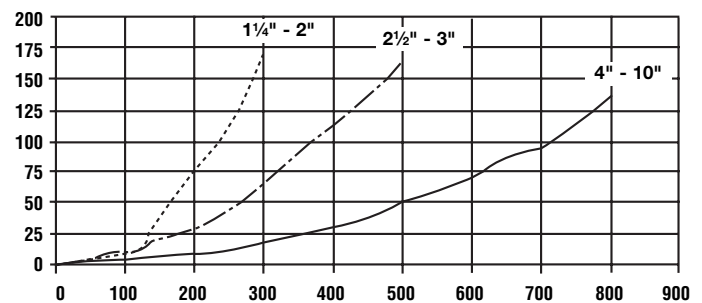
Operation Specifications:

This valve shall be designed to be normally open and located upstream of an RPZ backflow assembly. It will automatically close if the RPZ relief valve begins to discharge. If excess discharge does occur, this causes the Watts FS99 Flow Sensor to send a signal to the Watts ACV JB113 Junction Box which in turn sends a signal to energize the solenoid on the 113-6RFP to shut down the main valve. A Time Delay is supplied in the JB113 Junction Box to prevent the 113-6RFP from closing on intermittent discharges from the RPZ relief valve. Once closed, the 113-6RFP valve must be manually reset. The main valve stem shall be equipped with a limit switch for remote signaling. Valve shall be WATTS ACV Model 113-6RFP with JB113 Junction Box to be valve mounted. The WATTS FS99 Flow-Sensor is included with the 113-6RFP main valve package and is to be installed by the client in a horizontal plane to avoid turbulence of piping bends and elbows. The flood Protection - Shutdown valve, Junction Box, Flow Sensor, and Reduced Pressure Backflow Preventer shall be of the same manufacturer and covered by a single warranty policy.

Series 009 Relief Valve Discharge Rates



Series 909 Relief Valve Discharge Rates



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