



# 30-X-PR/UL

## IOM

**I**nstallation • **O**peration • **M**aintenance



## Installation, Operation & Maintenance

This document specifies the operating concept of OCV Deluge Valve model 30-X-PR\UL (X refers to valve size in Inch), UL listed when trimmed per the following technical data sheet

Please review the safety instructions at the end of this document prior to commissioning the valve for use

## Installation, Operation & Maintenance

### VALVE MODEL 30-X-PR/UL

#### General description

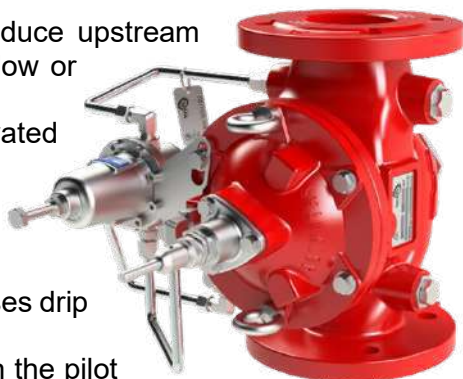
The 30-X-PR/UL model automatic control valve is designed to reduce upstream pressure to a steady, preset downstream pressure regardless of flow or pressure fluctuations.

The valve is hydraulically-operated, pilot controlled, diaphragm-activated resilient disk globe type.

When water flows through the valve, the valve modulates automatically to generate the pressure loss that is needed to maintain the required downstream pressure

Should downstream pressure exceed the preset value, the valve closes drip tight.

The downstream set-point is determined using one adjusting bolt on the pilot valve.



#### Operating range

- Minimum system pressure: 1.5 bar \ 22 psi
- Maximal upstream pressure: 25 bar \ 375 psi
- Minimal adjustable downstream pressure: 2 bar \ 30 psi
- Maximal adjustable downstream pressure: 11.5 bar \ 165 psi

#### Note:

- The minimal head loss across the valve reaches 1.2 bar (18 psi) at a maximal flow velocity of 5.5 m/s (18 ft/s).
- The valve maintains the preset downstream pressure at the adjusted value, unless upstream pressure drops below the designated downstream pressure + 1.2 bar (18 psi).
- Downstream pressure may exceed the adjusted value by 0.5 bar (7 psi) when the flow through the valve is stopped gradually.
- The minimal upstream pressure shall be at least 1.7 bar (25 psi) for setting purposes with the flow at ½ the maximal flow.

#### Maximal flow rates:

2" (50mm)	38 [m³/hr]	170 [gpm]
3" (80mm)	100 [m³/hr]	440 [gpm]
4" (100mm)	155 [m³/hr]	680 [gpm]
6" (150mm)	350 [m³/hr]	1550 [gpm]

## Installation, Operation & Maintenance

### VALVE MODEL 30-X-PR/UL

#### General description

##### Available end connections

- Flanged & Grooved: 2" – 6".

##### Available body & cover and trim materials

Body & Cover Materials	Valve Fitting Materials	Valve Tubing Materials
Ductile Iron A536	Brass	Super Duplex 2507
CF8M/ASTM A-316	SST316	Cu-Ni 90/10
Ni-Al-Bronze ASTM B148 gr.C95800	SST304 ASTM A 351	SST316
Cast Steel ASTM A 216 WCB	Super Duplex 2507	Copper
	Aluminum-Bronze	
	MONEL <sup>®</sup>	

## Installation, Operation & Maintenance

### VALVE MODEL 30-X-PR/UL

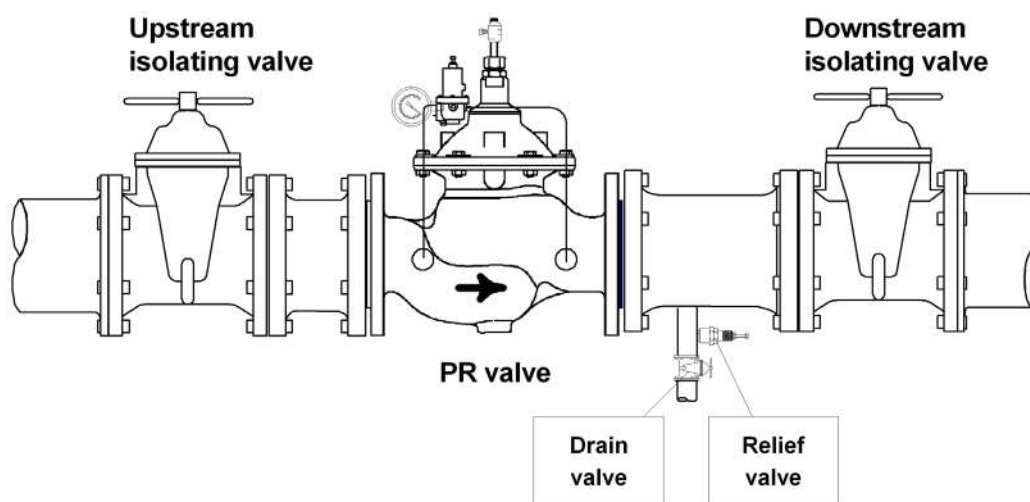
#### Installation

***All installation rules specified in NFPA 13, NFPA 14 and NFPA 25 standards should be followed when the valve is installed. These valves are set to provide downstream pressures and flows, and are to be tested after installation in accordance with NFPA 13 or NFPA 14 or both NFPA 13 and 14, whichever is applicable.***

- The pipeline should be flushed from any debris and other material before installing the valve.
- Horizontal assembly is recommended for maintenance purpose but vertical assembly is allowed, in case the system design demands it.
- Flow direction must match the engraved direction arrow on the valve body.
- Sufficient space around the valve is to be provided for easy maintenance (see dimensions table).
- Isolating valves (gate type, butterfly type or equivalent - not supplied), should be assembled upstream and downstream of the Pressure Reducing valve.
- A drain valve (not supplied), at least 1" (25mm) in size, should be installed on the pipeline, downstream of the Pressure Reducing valve.

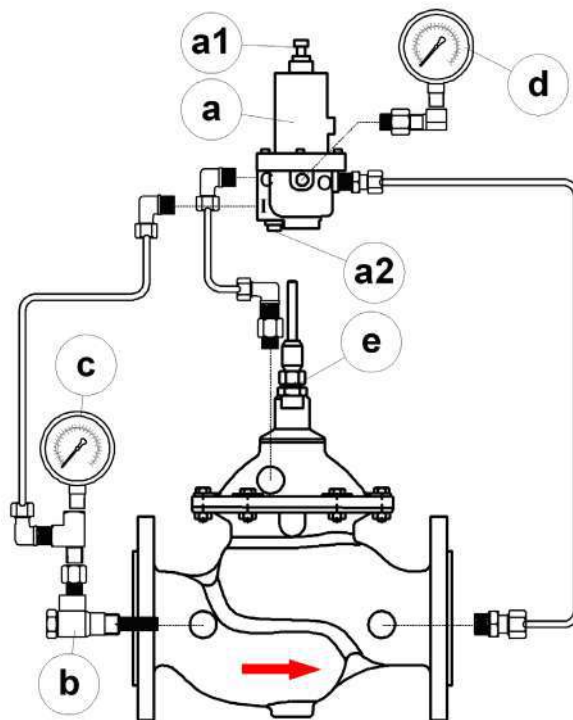
#### Valve assembly configuration-

*General drawing – not to scale*



## VALVE MODEL 30-X-PR/UL

**Fig. 1- General scheme**



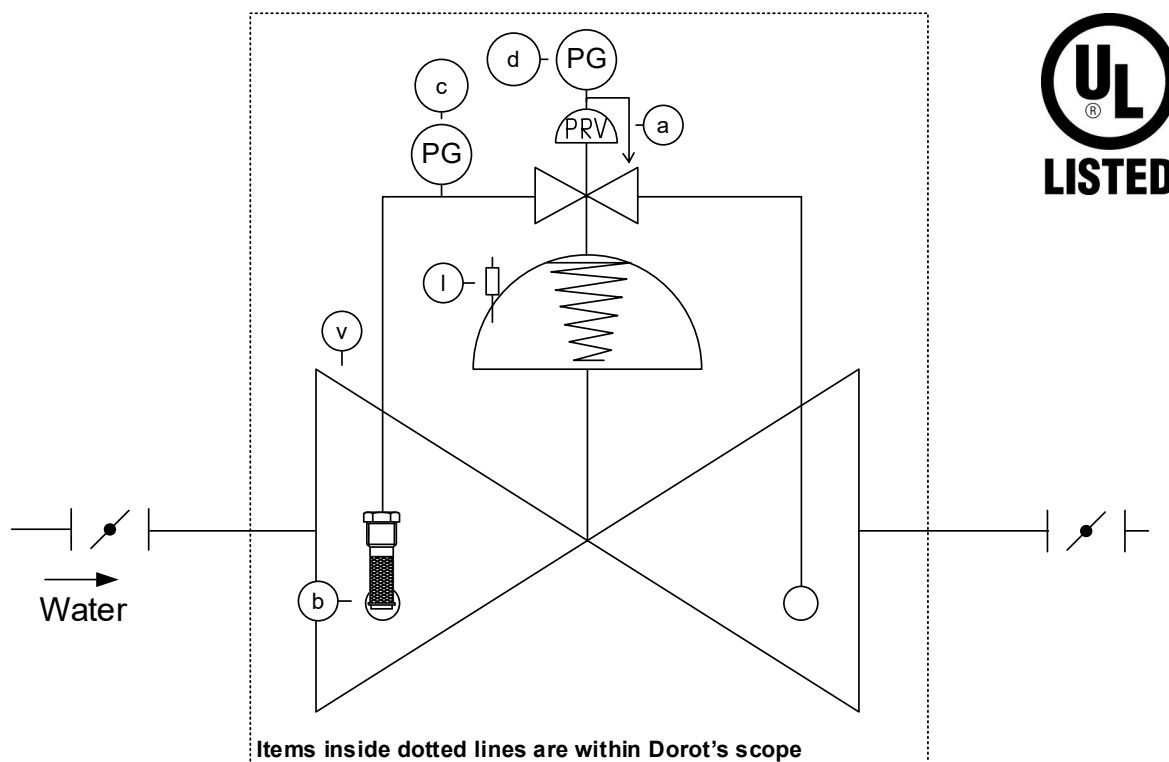
### Main components:

- a. CXPR pressure reducing pilot
  - a1. Adjusting bolt.
  - a2. Needle bolt.
- b. Self-flushing, inline filter.
- c. Upstream pressure gauge (optional).
- d. Downstream pressure gauge.
- e. Air release nut.

## Installation, Operation & Maintenance

### VALVE MODEL 30-X-PR/UL

**Fig. 2- System P&ID**



#### Integral system components

Item #	Description
v	Hydraulic valve
a	CXPR pressure reducing pilot
b	Self-flushing filter
d	Pressure gauge
f	1/2" tube
l	Indicator Rod

#### Optional system components

Item #	Description
c	Pressure gauge

## Installation, Operation & Maintenance

### VALVE MODEL 30-X-PRUL

**Start up and adjustment of the Pressure Reducing valve (refer to figure 1 – General scheme)**

***The procedures below are additional to the basic inspection, testing and maintenance procedures as specified in NFPA 25 standard. These valves are to be tested periodically after installation in accordance with NFPA 25.***

- 5.1. Open needle bolt [a2] by 1 turn and lock it with the locking nut.
- 5.2. Completely open the adjusting bolt [a1] on the pilot valve [a] counter-clockwise.
- 5.3. Slightly open the Pressure Reducing valve's downstream drain valve to a throttled position.
- 5.4. Open the manual isolating valve upstream of the control valve. The Pressure Reducing valve will open and water flow will be detected, since the control chamber of the main valve is still drained.
- 5.5. Wait until the Pressure Reducing valve closes. Open the air release nut [e] and close it when no air bubbles emerge from the control chamber.
- 5.6. Adjust downstream pressure by the adjusting bolt [a1]:
  - 5.6.1. Open the locking nut.
  - 5.6.2. Turn the adjusting bolt clockwise to increase downstream pressure until it reaches the required set-point value.
  - 5.6.3. In case the downstream pressure is too high, turn the adjusting bolt counter-clockwise to reduce downstream pressure.
  - 5.6.4. When the required pressure has been reached, lock the adjusting bolt by tightening the locking nut.
- 5.7. Check the valve's response by opening and then partially-closing the drain valve.
- 5.8. Adjust response time using the needle bolt [a2]. Opening the bolt accelerates valve response. Do not close the needle bolt [a2] all the way as it will prevent the Pressure Reducing valve from closing.
- 5.9. Close the downstream drain valve. Fully open the downstream isolating valve.
- 5.10. The Pressure Reducing valve is now ready for operation.



## Installation, Operation & Maintenance

### **VALVE MODEL 30-X-PR/UL**

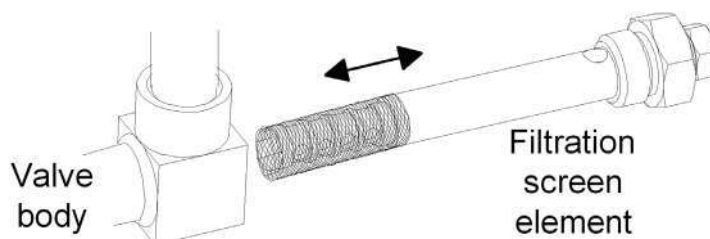
#### Maintenance

##### **6.1. Inspecting the downstream pressure**

- 6.1.1. Open the drain valve, set it to larger and smaller flows, examine the PR valve's response by inspecting the pressure as indicated on the downstream pressure gauge [d].
- 6.1.2. Close the drain valve (the downstream pressure will rise by approximately 0.5 bar).

##### **6.2. Inspecting of self- flushing filter**

- 6.2.1. Close both upstream and downstream isolating valves.
- 6.2.2. Extract the screen element of the self-flushing filter [b] as described in the drawing:



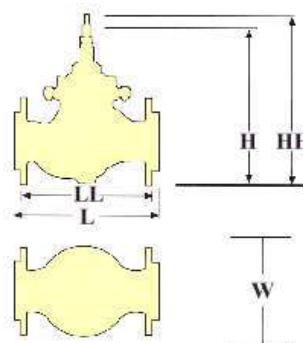
- 6.2.3. Clean and then reassemble the screen element into its housing.
- 6.2.4. Open the isolating valves.
- 6.2.5. Open the drain valve, set it to larger and smaller flows, inspect the Pressure Reducing valve's response by registering pressures as indicated on the downstream pressure gauge [d].
- 6.2.6. Close the drain valve.

## Installation, Operation & Maintenance

### VALVE MODEL 30-X-PR/UL

#### Dimensions

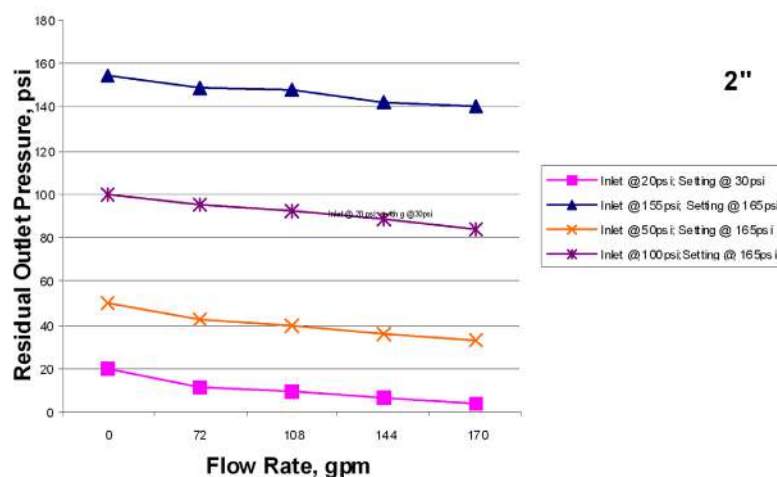
Valve	30-2-PR	30-3-PR	30-4-PR	30-6-PR
L(mm)	230	310	350	480
L(inch)	9 <sup>1</sup> / <sub>16</sub>	12 <sup>3</sup> / <sub>16</sub>	13 <sup>3</sup> / <sub>4</sub>	18 <sup>7</sup> / <sub>8</sub>
LL(mm)	224	304	344	474
LL(inch)	8 <sup>13</sup> / <sub>16</sub>	11 <sup>15</sup> / <sub>16</sub>	13 <sup>9</sup> / <sub>16</sub>	18 <sup>11</sup> / <sub>16</sub>
H(mm)	200	341	368	506
H(inch)	7 <sup>7</sup> / <sub>8</sub>	13 <sup>7</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	19 <sup>15</sup> / <sub>16</sub>
HH(mm)	236	402	428	558
HH(inch)	9 <sup>5</sup> / <sub>16</sub>	15 <sup>13</sup> / <sub>16</sub>	16 <sup>7</sup> / <sub>8</sub>	21 <sup>15</sup> / <sub>16</sub>
Width space (mm)	560	600	620	685
For easy maintenance (inch)	22	23	25	27



### VALVE MODEL 30-X-PR/UL

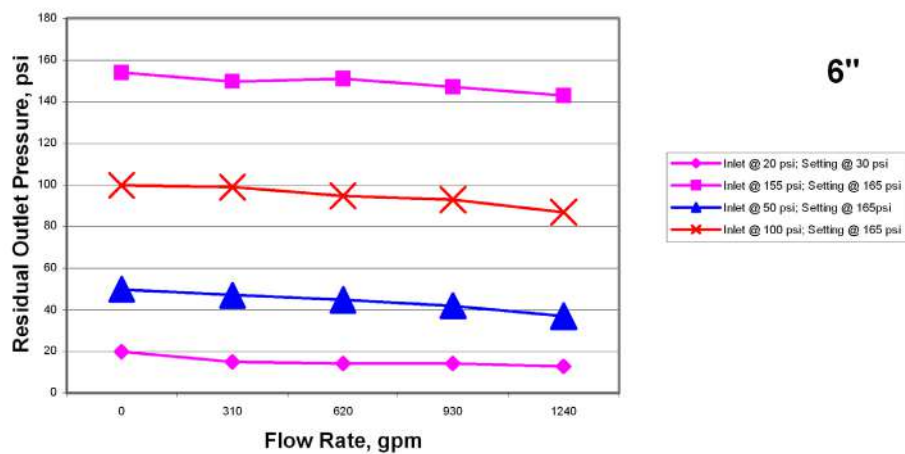
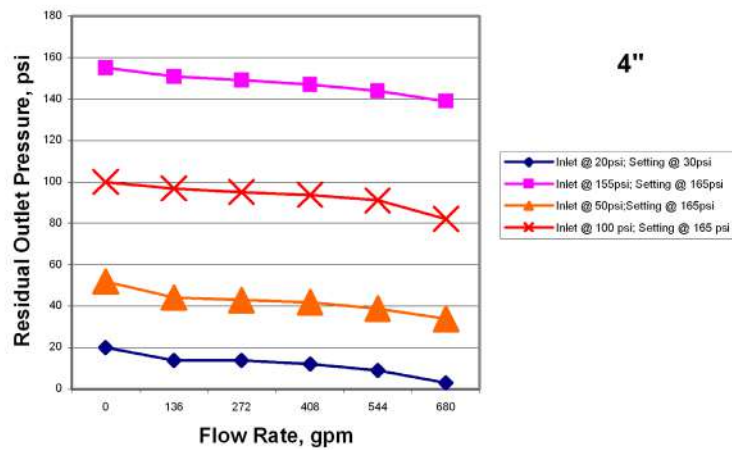
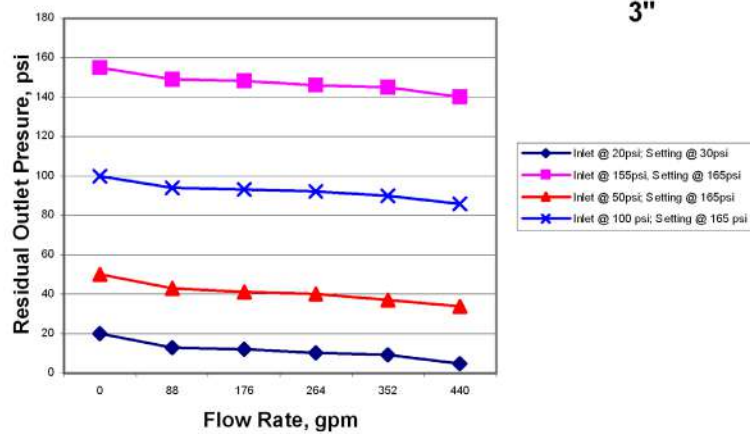
#### Hydraulic data

Flow rate when upstream pressure is below downstream pressure setting



## Installation, Operation & Maintenance

### **VALVE MODEL 30-X-PR/UL** Hydraulic data



## Installation, Operation & Maintenance

### **Safety Instructions:**

#### **PLEASE NOTE**

- Before using this product, read and understand the instructions.
- All Procedures must be carried out by qualified personnel.
- Make sure that all applicable safety precautions have been taken.
- Read this manual along with all the provided data.
- Save these instructions for future reference.

#### **Before disassembly of any accessory or component:**

- All internal pressures must be relieved and all liquid drained from the system in accordance with all applicable procedures.
- Pressure must be 0 (zero) bar/psi.

#### **Before Installation:**

- **Flush the lines upstream of the pressure reducing valve. If anti-corrosion, anti-freeze or any other type of additives are used, please consult the documentation or OCV FP division concerning potential damage to the valve and its components.**
- Remove all external and internal packaging along with any temporary protective material.
- Carefully inspect the valve to ensure that no damage has occurred in transit or during subsequent handling.
- Ensure that the valve is the correct type and size and that the identification markings show that the material and pressure/temperature rating is suitable for the required service conditions.
- Read the installation instructions carefully and follow them.
- Ensure that the valve is lifted safely into position without damaging the valve.
- Ensure that the valve is installed so that it can be safely operated and maintained without putting any people at risk.
- Make sure that a firm footing is provided for the person installing the valve with adequate space around the valve to meet operating and maintenance requirements.
- Ensure that there is adequate lighting for valve installation.
- The valve can be installed in any position, but flow direction should match the engraved arrow on the bonnet.

*Failure to follow the instructions set forth in this publication could result in property damage, personal injury, or death from hazards that may be associated with this type of equipment.*