Series 80 QR Valve

QUICK PRESSURE RELIEF VALVE

The Series 80 QR Valve is a pilot-operated, quick-acting pressure-relief valve, designed for pressure-surge protection of irrigation systems. The valves continuous pressure sensing action keeps a drip-tight closed position for superior performance and slow closing speed is regulated to prevent shuttering and pressure surges for maximum security pressure. Protect your farms bottom line and keep your irrigation system operating efficiently with the Series 80 QR Valve.

Maximum Security Pressure

Superior Performance & Durability

Easy Installation & Low Maintenance

Benefits & Features

→ Pilot-operated valve eliminates sticking, adds the reliability of opening and closing, and offers more flexibility and adjustment.

→ Fast opening and slow, regulated closure prevents shuttering and secondary surges
Leak-proof design ensures zero-leakage in high pressure applications
Extreme opening and closing accuracy at the same pressure setting
Constructed from rugged, corrosion-proof composite materials

→ Valve is preset at 70 psi
Compact lightweight design for easy installation
Easy adjustment with a wrench and applying small torque

Specifications & Recommendations

→ For surge control at pump and or filter installations in Agricultural or Landscape application

→ Size: 2" and 3"

→ Operating Pressure: 15-145 psi

→ Flow Ranges: 50-885 (GPM)
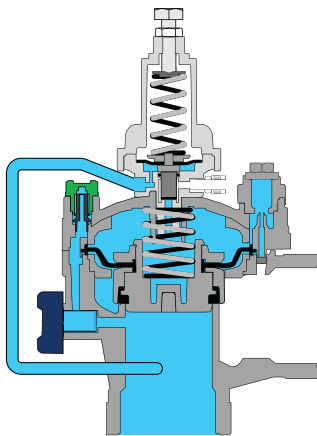
→ Connection - FPT

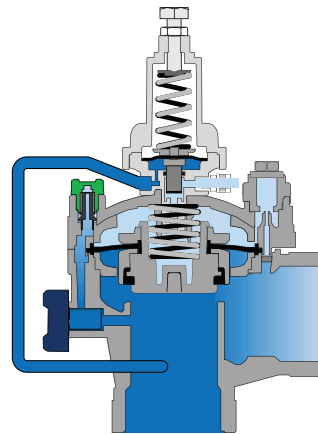→ Configuration - Angled Valve

Operations

→ PRINCIPLE OF OPERATION

Normal System Pressure
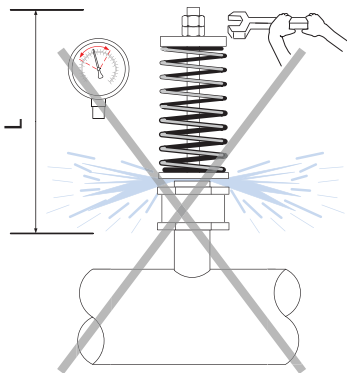The valve maintains a closed position as long as the system pressure is lower than the pre-set value
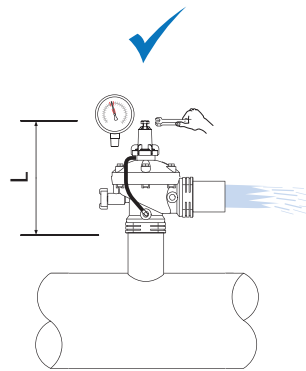
High Pressure
The valve instantly opens once the pressure reaches the pre-set value. The valve then re-closes at a slow, adjustable rate.

→ ADJUSTMENT OPERATION

Old Design

New 80A-QR

→ SPRING ADJUSTMENT RANGE

SPRING #	COLOR	RANGE (PSI)
72	YELLOW	15-115

/ Technical Information

→ HYDRAULIC PERFORMANCE

| VALVE SIZE	MAX FLOW RATE (GPM)	MINIMUM OPERATING PRESSURE (PSI)	MAXIMUM OPERATING PRESSURE (PSI)	MAXIMUM TEMPERATURE	CV
2" ANGLE	394	14.5	145	140º F	68
3" ANGLE	885				175

→ DIMENSIONS

VALVE SIZE	L1 (IN)	L2 (IN)	H1 (IN)	DF (IN)	WEIGHT (LBS)
2" ANGLE	3 3/8	2 11/16	7	6 3/8	2.4
3" ANGLE	6 3/16	5	8 5/8	7 5/8	8.82

→ MATERIAL

#	PART	MATERIAL
1	BODY	GLASS REINFORCE POLYPROPYLENE (GRP)
2	DIAPHRAGM ASSEMBLY	GRP+NATURAL RUBBER
3	MAIN SPRIING	STAINLESS STEEL
4	PILOT-VALVE BONNET	GLASS REINFORCE POLYPROPYLENE
5	CONTROL TUBE	POLYPROPYLENE
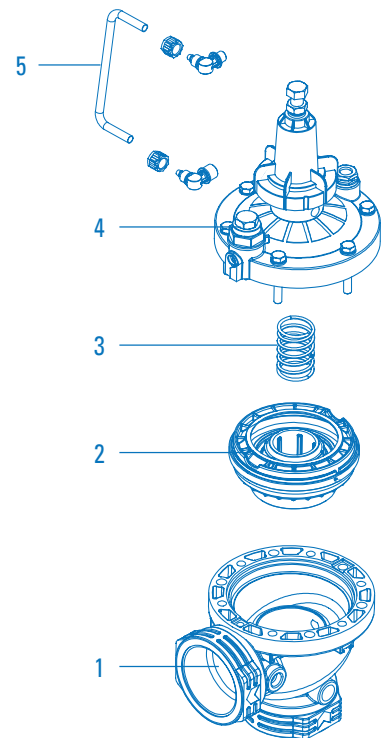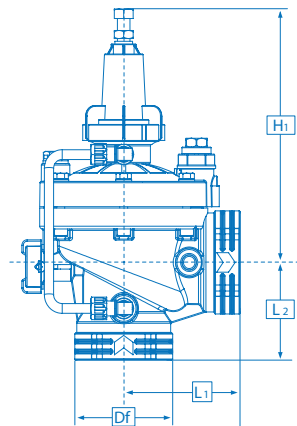
→ ORDERING INFORMATION

MODEL	MODEL NUMBER	QUANITY P/BOX UNIT	BOX SIZES (IN)	BOX WEIGHT (LBS)	BOXES P/PALLET
2" ANGLE	61QR2PLS80-AN-Y	6	10 X 11 X 19	17.64	24
3" ANGLE	61QR3PLS80-AN-Y	1	12 X 9 X 10	7.72	45

→ QUICK SELECTION GUIDE

VALVE SIZE	MINIMUM PILOT PRESSURE (PSI)	PRESET PILOT PRESSURE (PSI)	MAXIMUM PILOT PRESSURE (PSI)	MINIMUM FLOW RATE (PSI)	PRESET FLOW RATE (GPM)	MAXIMUM FLOW RATE (GPM)
2" ANGLE	15	70	115	50	307	394
3" ANGLE				150	691	885

Quick Sizing Formula: The valve should be sized to match the expected relief flow at the set opening pressure:

D[inch] = SQRT [0.109 x Flow (GPM) / SQRT Pressure (psi)]

$$D[inch] = \sqrt{\dfrac{0.109 \times Flow\ (GPM)}{\sqrt{P\ (psi)}}}$$

→ SIZING EXAMPLE

Pipeline: 6″

Required Flow Rate: 500 GPM

Valve set to relief pressure at 70 psi. First determine the numerator: 0.109 x Flow (GPM) = 0.109 x 500 GPM ≈ 54.5. Then determine the denominator: The square root of 70 ≈ 8.37. The square root of (54.5/8.37) = sqrt (6.51) = 2.55

The size of the valve should be the larger immediate size meaning we would recommend a 3″ QR valve for this example. Please note: If we had the same amount of flow, 500 GPM at a pressure of 140 psi, we would still need a 3″ QR Valve. Also in this example, if the flow is 800 GPM at 100 psi, we would still need a 3″ QR Valve.

Due to the nature of the formula having square roots, the same size valve covers a relatively large range of flows and pressures. Most of the traditional systems will be covered with either a 2″ or 3″ QR Valve.

See chart below for full range.

→ FLOW RATE vs PRESSURE

GPM/PSI	PRESSURE (PSI)																				
FLOW (GPM)	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115
50	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″
100	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″
150	3″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″
200	3″	3″	3″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″
250	3″	3″	3″	3″	3″	3″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″
300	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″	2″
350		3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	2″	2″	2″	2″	2″	2″
400			3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	2″
450				3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″
500						3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″
550							3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″
600									3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″
650										3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″	3″
700												3″	3″	3″	3″	3″	3″	3″	3″	3″	3″
750														3″	3″	3″	3″	3″	3″	3″	3″
800																	3″	3″	3″	3″	3″
850						Requires 4″ or larger Cast Iron QR Valve													3″	3″	3″
900																					3″
950																					
1000																					

Recommended Flow/Pressure combination for 2″ S80 QR Valve

Recommended Flow/Pressure combination for 3″ S80 QR Valve

Recommended 4″ or larger Cast Iron QR Valve