

Pressure Management Valve

Flow Compensated Pressure Reducing Valve

7PM

- Flow and Leakage Reduction
- Burst Prevention
- Extends System Service life
- Environmentally Efficient
- Water and Energy Saving

The model 7PM Flow Compensated Pressure Reducing Valve is a hydraulically operated, diaphragm actuated control valve that automatically and continuously optimizes downstream pressure, correlating valve setting with demand

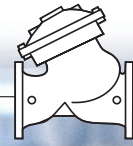


Features and Benefits

- **Self Contained Hydro-mechanical**
 - Does not rely on electrical power supply
 - Does not require additional pipeline accessories
- **Universal fitting**
 - Applicable to all sizes
 - Easily retro-fitted
 - Low maintenance and installation costs
- **Simple Design**
 - Does not require specialist commissioning
 - Fits all "sites"
- **Double chamber design**
 - Moderated valve reaction
 - Protected diaphragm
- **V-Port Throttling Plug**
 - Very stable at low flow
 - Increased valve travel
- **Obstacle free, full bore** – Free flow pass
- **In-line Serviceable** – Easy maintenance

Major Additional Features

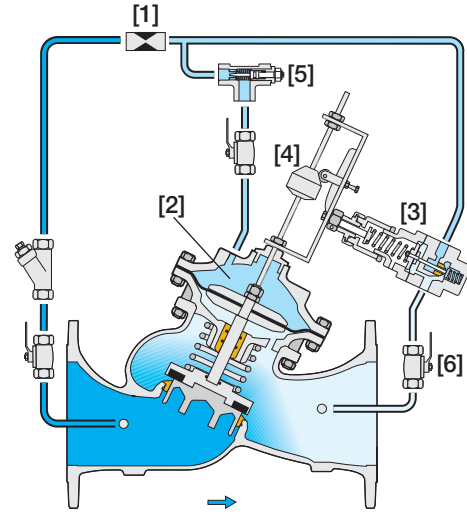
- Electric Override – 720-59
- Electrically selected two level setting – 720-45
- Electrically selected two level setting type 4R – 720-45-4R
- Electronic multi level setting type 4R – 720-4R
- Electronic multi level setting type 4T – 720-4T
- Motorized pilot controlled – 720-4S
- Electronic controlled valve - 718-03



Operation

The model 7PM Flow Compensated Pressure Reducing Valve is a pilot controlled valve equipped with an adjustable, 2-way pressure reducing pilot linked to an automatically adapting flow compensating pressure adjusting system.

The restriction [1] continuously allows flow from the valve inlet into the upper control chamber [2]. The pilot [3] senses downstream pressure. Should this pressure rise above pilot setting, the pilot throttles, enabling pressure in the upper control chamber to accumulate, causing the main valve to throttle closed, decreasing downstream pressure to pilot setting. Should downstream pressure fall below pilot setting, the pilot releases accumulated pressure, and the main valve modulates open. The pilot setting is automatically adjusted according to flow by the cam [4] on the valve indicator stem. The integral orifice between the lower control chamber and valve outlet moderates valve reactions. The one-way flow control needle valve [5] stabilizes the valve's reaction in hard regulation conditions, by restricting the flow out of the control chamber. The downstream cock valve [6] enables manual closing.



Model 7PM Technical Specifications

Main valve – See page 4

Control System

Pilot Standard Materials:

Body: Stainless Steel 316 or Bronze

Elastomers: Synthetic Rubber

Springs: Galvanized Steel or Stainless Steel

Tubing & Fittings:

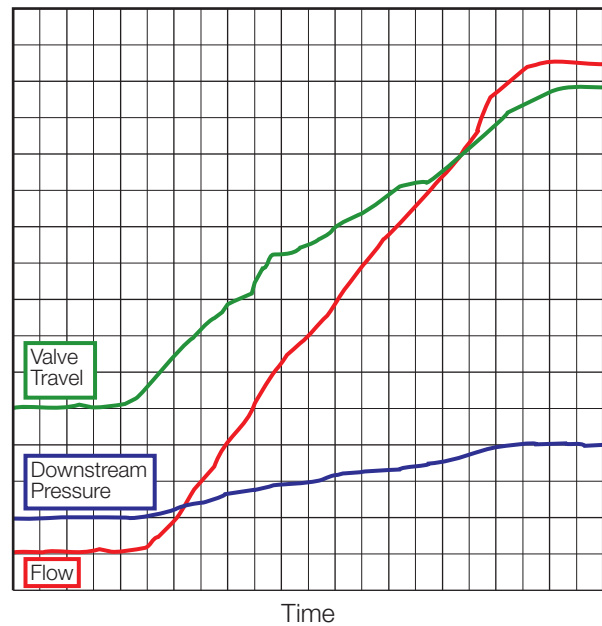
Stainless Steel 316 or Copper & Brass

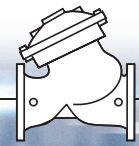
Accessories:

Stainless Steel 316, Brass and Synthetic Rubber elastomers

Performance Graph

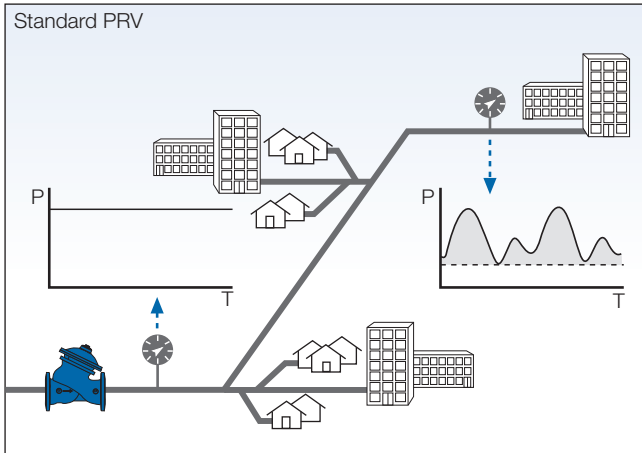
Automatic correlation of downstream pressure setting with demand



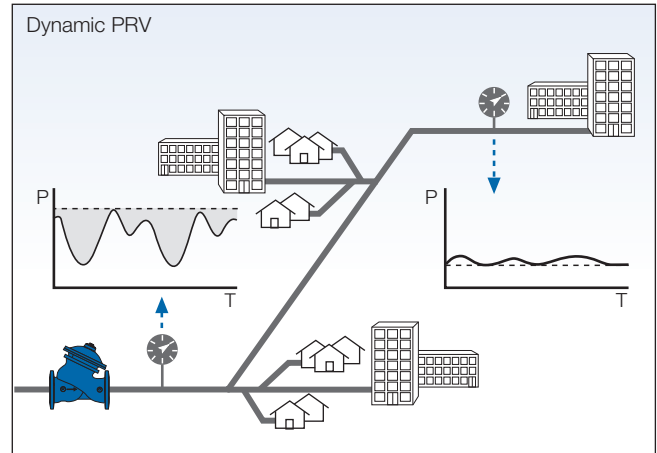


Pressure Management

A well-planned pressure management program can significantly reduce not only volumes of real loss, but also maintenance costs by reducing occurrence of bursts and thereby extending the life of the system.



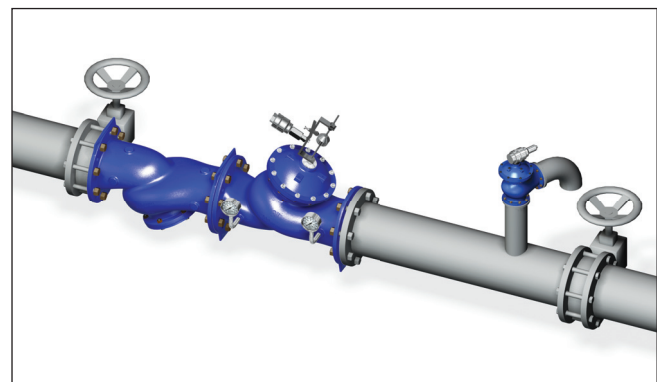
Fixed Outlet PRVs are set to maintain a constant low downstream pressure, ensuring sufficient pressure at the system's critical point during peak demand (when line friction head loss is highest). The shaded area represents the hours and levels when pressure is higher than required.



The Flow Compensated Pressure Reducing Valve, Bermad Model 7PM is designed to automatically and continuously optimise downstream pressure, correlating valve setting with demand. As a result, the average network pressure dramatically decreases, reducing system leakage, bursts, maintenance, and energy costs. The shaded area represents the hours and levels of reduced leakage.

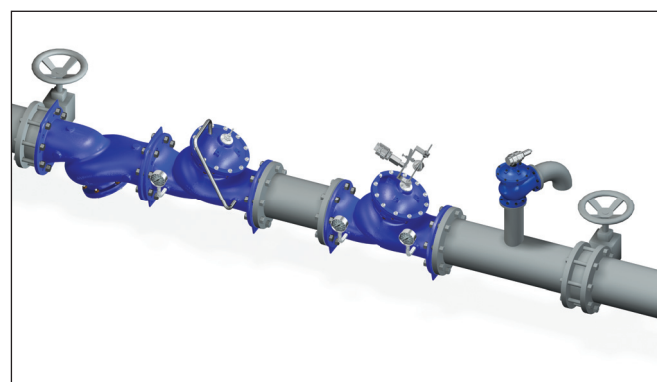
Flow Compensated Pressure Reducing System

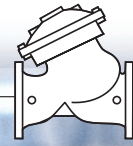
Upgrading a fixed outlet PRV Bermad model 720 to Bermad Model 7PM can be done "live" i.e. under pressure. Other instruments or equipment such as electronic controllers, flow meters or flow sensors are not required.



High Differential Flow Compensated Pressure Reducing System

For High inlet pressure a 720-PD will divide the load between two valves.





Engineering Data

Size Range: DN40-900 mm (1½-36")

End Connections (Pressure Ratings):

Flanged: ISO PN16, PN25 (ANSI Class 150, 300)

Threaded: BSP or NPT

Others: Available on request

Valve Patterns: "Y" (globe), globe & angle

Working Temperature: Water up to 80°C (180°F)

Standard Materials:

Body & Actuator: Ductile Iron

Internals: Stainless Steel, Bronze & coated Steel

Diaphragm: Synthetic Rubber Nylon fabric-reinforced

Seals: Synthetic Rubber

Coating: Fusion Bonded Epoxy, RAL 5005 (Blue) approved for drinking water or Electrostatic Polyester Powder, RAL 5010 (Blue)

Flow Data

Differential Pressure (ΔP) calculation (for fully open valve)

$$\Delta P = \frac{Q}{(Kv; Cv)^2}$$

ΔP = Differential Pressure (bar; psi)

Q = Flow rate (m³/h; gpm)

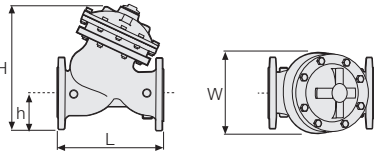
Kv = Metric system - valve flow coefficient
(flow in m³/h at 1 bar ΔP with 15°C water)

Cv = US system - Valve flow coefficient
(flow in gpm at 1 psi ΔP with 60°F water)

$$Cv = 1.155 Kv$$

Flow Data & Dimensions

DN / Size		40	1.5"	50	2"	65	2.5"	80	3"	100	4"	150	6"	200	8"	250	10"	300	12"	350	14"	400	16"	450	18"	500	20"		
Flow data	700 & 700ES	Kv / Cv - Flat																											
	700EN	Kv / Cv - V-Port																											
	700ES	Kv / Cv - "Y" Flat																											
	700EN	Kv / Cv - "Y" V-Port																											
700-ES	PN16; 25	L (mm / inch)																											
	PN16; 25	W (mm / inch)																											
	PN16; 25	h (mm / inch)																											
	PN16; 25	H (mm / inch)																											
700-EN	PN16; 25	L (mm / inch)																											
	PN16; 25	W (mm / inch)																											
	PN16; 25	h (mm / inch)																											
	PN16; 25	H (mm / inch)																											
700 Flanged	"Y" PN16	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
	"Y" PN25	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
	"Y" PN16; 25	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
700 Threaded	Angle PN16; 25	L (mm / inch)																											
		W (mm / inch)																											
		R (mm / inch)																											
		h (mm / inch)																											



Specify when ordering:

- Size
- Main model
- Additional features
- Pattern
- Body material
- End connection
- Coating
- Voltage & main valve position
- Tubing & Fittings materials
- Operational data (according to model)
- Pressure data
- Flow data
- Reservoir level data
- Settings

* Use Bermad's Waterworks ordering guide

DN / Size		600	24"	700	28"	750	30"	800	32"	900	36"
Globe PN16	L (mm / inch)	1450	57.1	1650	65	1750	68.9	1850	72.8	1850	72.8
	W (mm / inch)	1250	49.2	1250	49.2	1250	49.2	1250	49.2	1250	49.2
	h (mm / inch)	470	18.5	490	19.3	520	20.5	553	21.8	600	23.6
	H (mm / inch)	1965	77.4	1985	78.1	2015	79.3	2048	80.6	2095	82.5
	Weight (Kg/lb)	3250	7150	3700	8140	3900	8580	4100	9020	4250	9350
Globe PN25	L (mm / inch)	1500	59.1	1650	65	1750	68.9	1850	72.8	1850	72.8
	W (mm / inch)	1250	49.2	1250	49.2	1250	49.2	1250	49.2	1250	49.2
	h (mm / inch)	470	18.5	490	19.3	520	20.5	553	21.8	600	23.6
	H (mm / inch)	1965	77.4	1985	78.1	2015	79.3	2048	80.6	2095	82.5
	Weight (Kg/lb)	3500	7700	3700	8140	3900	8580	4100	9020	4550	10010

