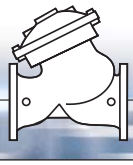


Pressure Reducing Valve

with Check Feature

- Flow and leakage reduction
- Cavitation damage protection
- Return flow prevention
- Throttling noise reduction
- Burst protection

The Model 720-20 Pressure Reducing Valve with Check Feature is a hydraulically operated, diaphragm actuated control valve that reduces higher upstream pressure to lower constant downstream pressure regardless of fluctuating demand or varying upstream pressure. The check feature prevents reverse flow through the valve.

Features and Benefits

- **Line pressure driven** – Independent operation
- **Check feature**
  - Replacing line sized check valve
  - Cost effective pumping
  - One-way zonal back-up
- **In-line serviceable** – Easy maintenance
- **Double chamber design**
  - Moderated valve reaction
  - Protected diaphragm
- **Flexible design** – Easy addition of features
- **Variety of accessories** – Perfect mission matching
- **"Y" or angle, wide body** – Minimized pressure loss
- **Semi-straight flow** – Non-turbulent flow
- **Stainless Steel raised seat** – Cavitation damage resistant
- **Obstacle free, full bore** – Uncompromising reliability
- **V-Port Throttling Plug** – Low flow stability

Major Additional Features

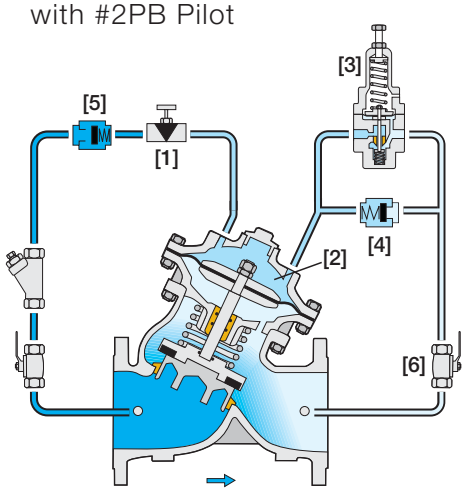
- Solenoid control & check valve – **720-25**
- Downstream over pressure guard – **720-20-48**
- High sensitivity pilot – **720-20-12**
- Electrically selected multi-level setting – **720-20-45**
- Electronic multi-level setting, Type 4T – **720-20-4T**
- Automatic regulation override – **720-20-09**

See relevant BERMAD publications.

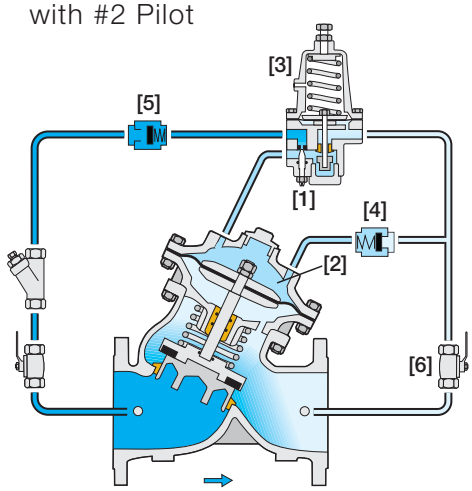
Operation

The Model 720-20 is a pilot controlled valve equipped with an adjustable, 2-Way, pressure reducing pilot and two check valves. The needle valve **[1]** continuously allows flow from 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 to accumulate in the upper control chamber, causing the main valve to throttle closed, decreasing downstream pressure to pilot setting.
Should downstream pressure exceed upstream pressure, check valve **[4]** allows downstream pressure into the upper control chamber while check valve **[5]** traps this pressure, together closing the main valve.
The needle valve controls the closing speed. The downstream cock valve **[6]** enables manual closing.

1½-10”
with #2PB Pilot



6-14”
with #2 Pilot



Note: For 16" valves and larger, see "Pilot Valve Selection" table at the last page.

Engineer Specifications

The Pressure Reducing Valve with Check Feature shall reduce higher upstream pressure to lower preset downstream pressure regardless of fluctuating demand or varying upstream pressure and shall prevent reverse flow.

Main Valve: The main valve shall be a center guided, diaphragm actuated globe valve of either oblique (Y) or angle pattern design. The body shall have a replaceable, raised, stainless steel seat ring. The valve shall have an unobstructed flow path, with no stem guides, bearings, or supporting ribs. The body and cover shall be ductile iron. All external bolts, nuts, and studs shall be Duplex® coated. All valve components shall be accessible and serviceable without removing the valve from the pipeline.

Actuator: The actuator assembly shall be double chambered with an inherent separating partition between the lower surface of the diaphragm and the main valve. The entire actuator assembly (seal disk to top cover) shall be removable from the valve as an integral unit. The stainless steel valve shaft shall be center guided by a bearing in the separating partition. The replaceable radial seal disk shall include a resilient seal and shall be capable of accepting a V-Port Throttling Plug by bolting.

Control System: The control system shall consist of a 2-Way adjustable, direct acting, pressure reducing pilot valve, a needle valve, isolating cock valves, and a filter. All fittings shall be forged brass or stainless steel. The assembled valve shall be hydraulically tested and factory adjusted to customer requirements.

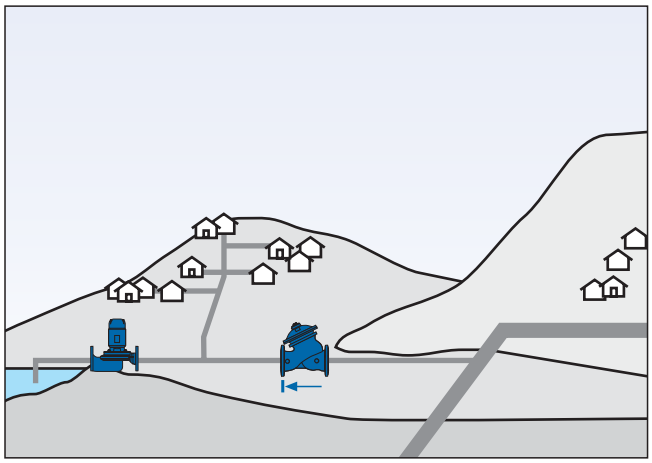
Quality Assurance: The valve manufacturer shall be certified according to the ISO 9001 Quality Assurance Standard. The main valve shall be certified as a complete drinking water valve according to NSF, WRAS, and other recognized standards.

Typical Applications

Cost Effective Pumping

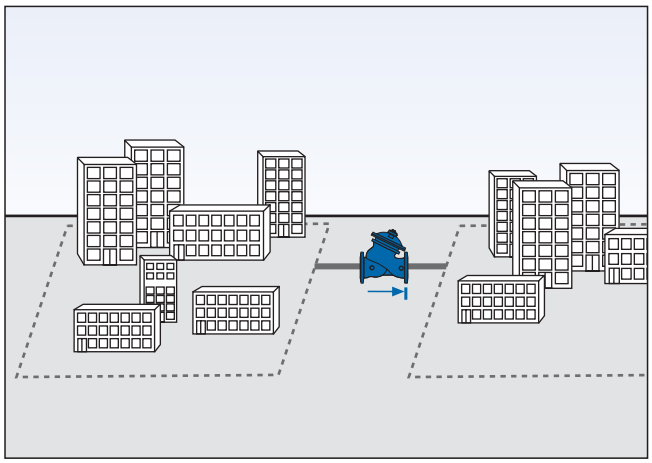
One zone of a distribution network has two supply sources. Setting the Model 720-20 Pressure Reducing Valve with Check Feature slightly higher than pump pressure, ensures pumping only when pressure provided from the network is insufficient.
The Model 720-20:

- Protects the zone from excessive network supply pressure
- Saves energy and lowers costs by off-hours pumping



One-way Zonal Backup

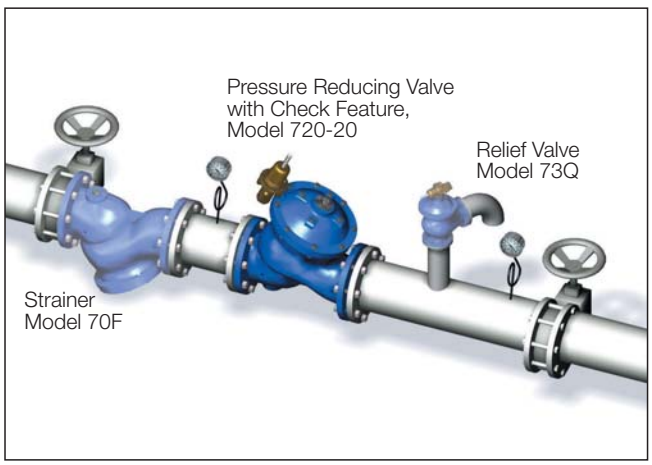
The Model 720-20 Pressure Reducing Valve with Check Feature, installed between two pressure zones, permits one zone to backup pressure supply to another zone while preventing reverse flow.



Typical Installation

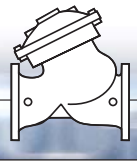
In addition to the Model 720-20 Pressure Reducing Valve with Check Feature, BERMAD recommends the system also include:

- Strainer Model 70F, preventing debris from damaging valve operation
- Relief Valve Model 73Q, providing:
  - Protection against momentary pressure peaks
  - Visual indication of need for maintenance



For more information on BERMAD Pressure Reducing Systems, see BERMAD publication 720, Pressure Reducing Valve.

BERMAD Waterworks



700 Series

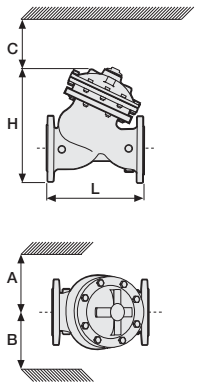
Model 720-20

Technical Data

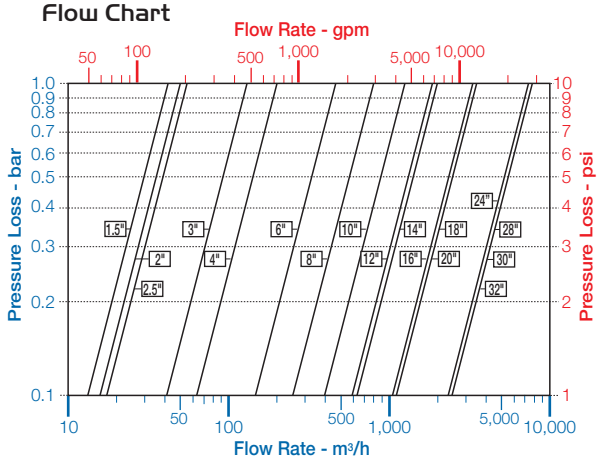
Dimensions and Weights

Size		A, B		C		L		H		Weight	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
40	1½"	350	14	180	7	205	8.1	239	9.4	9.1	20
50	2	350	14	180	7	210	8.3	244	9.6	10.6	23
65	2½"	350	14	180	7	222	8.7	257	10.1	13	29
80	3"	370	15	230	9	250	9.8	305	12.0	22	49
100	4"	395	16	275	11	320	12.6	366	14.4	37	82
150	6"	430	17	385	15	415	16.3	492	19.4	75	165
200	8"	475	19	460	18	500	19.7	584	23.0	125	276
250	10"	520	21	580	23	605	23.8	724	28.5	217	478
300	12"	545	22	685	27	725	28.5	840	33.1	370	816
350	14"	545	22	685	27	733	28.9	866	34.1	381	840
400	16"	645	26	965	38	990	39.0	1108	43.6	846	1865
450	18"	645	26	965	38	1000	39.4	1127	44.4	945	2083
500	20"	645	26	965	38	1100	43.3	1167	45.9	962	2121

Data is for Y-pattern, flanged, PN16 valves
Weight is for PN16 basic valves
"C" enables removing the actuator in one unit
"L", ISO standard lengths available
For more dimensions and weights tables, refer to Engineering Section



Flow Chart



Data is for Y-pattern, flat disk valves
For more flow charts, refer to Engineering Section

Main Valve

Valve Patterns: "Y" (globe) & angle
Size Range: 1½–32" (40-800 mm)
End Connections (Pressure Ratings):
Flanged: ISO PN16, PN25 (ANSI Class 150, 300)
Threaded: BSP or NPT
Others: Available on request
Working Temperature:
Water up to 80°C (180°F)
Standard Materials:
Body & Actuator: Ductile liron
Internals:
Stainless Steel, Bronze & coated Steel
Diaphragm:
NBR Nylon fabric-reinforced
Seals: NBR
Coating:
Fusion Bonded Epoxy, RAL 5005 (Blue) NSF & WRAS approved or Electrostatic Polyester Powder, RAL 6017 (Green)

Control System

Standard Materials:
Accessories:
Bronze, Brass, Stainless Steel & NBR
Tubing: Copper or Stainless Steel
Fittings: Forged Brass or Stainless Steel
Pilot Standard Materials:
Body: Brass, Bronze or Stainless Steel
Elastomers: NBR
Springs: Galvanized Steel or Stainless Steel
Internals: Stainless Steel

Pilot Valve Selection

Valve Size	Pilot Setting (bar)	Pilot Type		
		#2PB	#2	#2HC
1½-10"	<15	■		
40-250 mm	>15		●	
6-14"	<15		■	
150-350 mm	>15		●	
16 -32"	<15			■
400-800 mm	>15			●

■ Standard model ● with high pressure setting kit

How to Order

Please specify the requested valve in the following sequence: (for more options, refer to Ordering Guide)

Sector	Size	Primary Feature	Additional Feature	Pattern	Body Material	End Connections	Coating	Voltage & Position	Tubing & Fittings	Additonal Attributes
WW	6"	720	20	Y	C	16	EB	–	CB	VI

Sector: WW — Waterworks

Size: 6" — 1½ - 32"

Primary Feature: 720 — Pressure Reducing

Additional Feature: 20

No Additional Feature	00
Closing and Opening Speed Control	03
Automatic Regulation Override	09
High sensitivity pilot	12
Check Valve	20
Solenoid Controlled & Check Valve	25
Multi-Setting Levels - Electrically Selected	45
Downstream Over Pressure Guard	48
Hydraulic Control	50
Solenoid Controlled	55
Electric Override	59

Multiple choices permitted

Pattern: Y

Oblique (up to 20")	Y
Angle (up to 18")	A
Globe (24-32" only)	G

Body Material: C

Ductile Iron Standard	C
Cast Steel	S
St. Steel 316	N
Nickel Alumin. Bronze	U

End Connections: 16

ISO-16	16
ISO-25	25
ANSI-150	A5
ANSI-300	A3
JIS-16	J6
JIS-20	J2

Coating: EB

Epoxy FB Blue	EB
Polyester Green	PG
Polyester Blue	PB
Uncoated	UC

Voltage & Position: –

24VAC/50Hz - N.C.	4AC
24VAC/50Hz - N.O.	4AO
24VDC - N.C.	4DC
24VDC - N.O.	4DO
24VDC - L.P.	4DP
220VAC/50-60Hz N.C.	2AC
220VAC/50-60Hz N.O.	2AO

Use when additional electric control feature is selected

Tubing & Fittings: CB

Copper Tubing & Brass Fittings	CB
Plastic Tubing & Brass Fittings	PB
St. St. 316 Tubing & Fittings	NN

Additonal Attributes: VI

Valve Position Indicator	I
V-Port Throttling Plug	V
Large Control Filter	F
Electric Limit Switch	S
3-Way Control Loop	X
Valve Position Transmitter	Q
St. St. 316 Control Accessories	N
St. St. 316 Internal Trim (Closure & Seat)	T
St. St. 316 Actuator Internal Assembly	D
Delrin Bearing	R
Viton Elastomers for Seals & Diaphragm	E
Pressure Gauge	6

Multiple choices permitted

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