



# LEHRY VALVES

Where flow and pressure meets quality

## PRESSURE RELIEF CONTROL VALVE

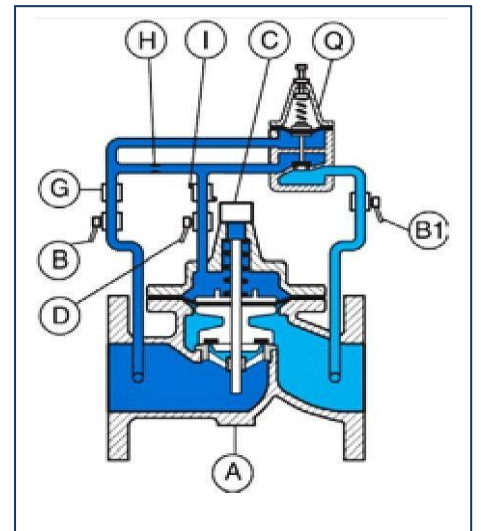
**LEHRY** Pressure Relief Valve, Sustaining or Backpressure Control Valve is designed to permitting flow when upstream pressure is above the adjustable set point of the control pilot, and throttle toward closed when upstream pressure falls below the adjustable set point..

It is controlled by a normally closed control pilot designed to: 1) Open (allowing fluid out of the main valve cover chamber) when upstream pressure is above the adjustable set point, and, 2) Close (allowing fluid to fill the main valve cover chamber) when upstream pressure is below the adjustable set point. An increase in upstream pressure causes the valve to modulate toward an open position. A decrease in upstream pressure causes the valve to modulate toward a closed position



### Materials of Valves:

P No	Name	Material
A	Body	Cast Iron, Ductile Iron
B	Ball	Brass
B1	Ball	Brass
C	Exhaust Valve	Brass
D	Ball	Brass
G	Filter	Brass
H	Reducing Orifice	Stainless Steel
I	Throttle Valve	Brass, Stainless Steel
M	Priority Valve	Stainless Steel
	Vertical Installation Spring Assembly (Optional)	Stainless Steel
	Working Pressure	PN16, PN25



### Description & Materials

Technical Specification	Part Name	Material	Part Name	Material
Design Standard : BS EN 1567 Face to Face : EN558-1	Body	DI	Diaphragm	Nylon + EPDM
	Spring	SS	O-Ring	EPDM
Flange Drilling : EN1092-2 / ANSI	Seat	NBR	Guide Bush	Brass
	Stem	Bronze	Coating	Epoxy resin

### Basic Information of Main Valve

Medium	Standards	Connection
Medium : Water Temp: - 90°C	Design Standards BSEN 1567	Face to Face EN 558-1
Pressure Range: PN16, PN25 ANSI CL150/300	Test Standard EN 1226-1	Flange Drilling EN 1092-2 ANSI / 150 & 300#

### Working Principle :-

When downstream pressure is lower than setting pressure, pilot **M** opens automatically, the pressure contained in the by-pass circuit doesn't apply any force on the membrane of main valve **A**. Thus the closing system is released and lifted. The valve throttles to open position to increase downstream pressure to the desired level.

When downstream pressure is higher than setting pressure, pilot **M** is closed automatically, the pressure contained in the membrane of main valve **A**. Thus the closing system drop down and the valve throttles to closed position to reduce downstream pressure to the desired level.

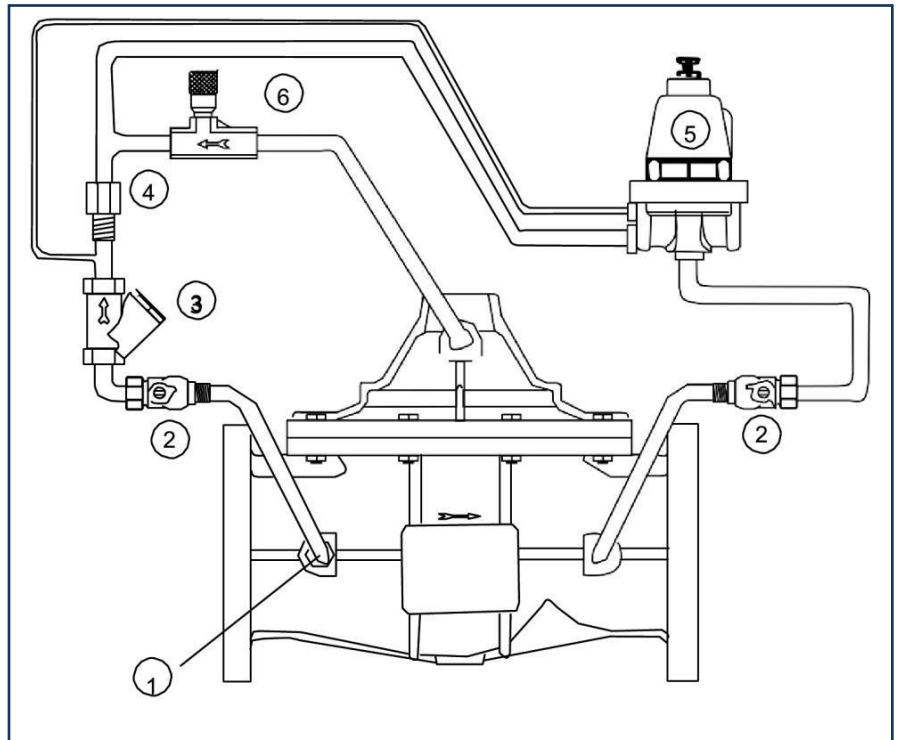
- ❖ Control and Maintain a preset pressure.
- ❖ This valve prevent over pumping of a pump if the system demand exceeds the pumping capacity.

The upper reaches of the pressure range: 0.00-2.76 Bar, 1.72 – 8.62 bars, 6.89 – 17.23 Bar, 17.23 – 27.23 bar

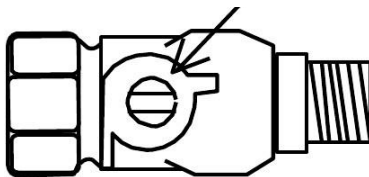
## Pressure Relief Valve

### Part List

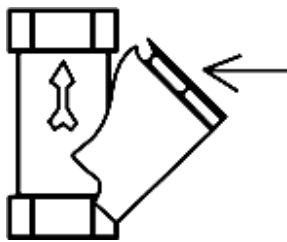
- ❖ Finger Strainer ( Standard)
- ❖ Shut – Off Valve (Two Places)
- ❖ Y Strainer (Optional)
- ❖ Orifice Pilot (Closing Speed Control)
- ❖ Pilot Valve
- ❖ Flow Control (Adj. Opening) Optional 4" and Larger



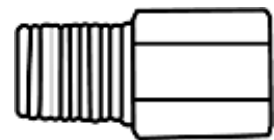
Open Position



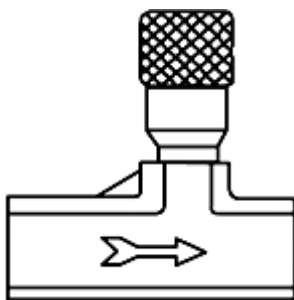
2) Shut off Valve



3) Y-Strainer  
Removable Screen

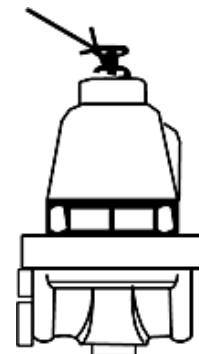


4) Orifice Pilot



6) Flow Control  
C.W. to Close  
C.C.W to Open

Adjustment Screw



5) Pilot Valve

### Operating Pressure : -

PN.16 Flanged : 17 Bar  
150# Flanged : 21 Bar  
300# Flanged : 28 Bar

### Operating Temperature: -

EPDM : 80°C

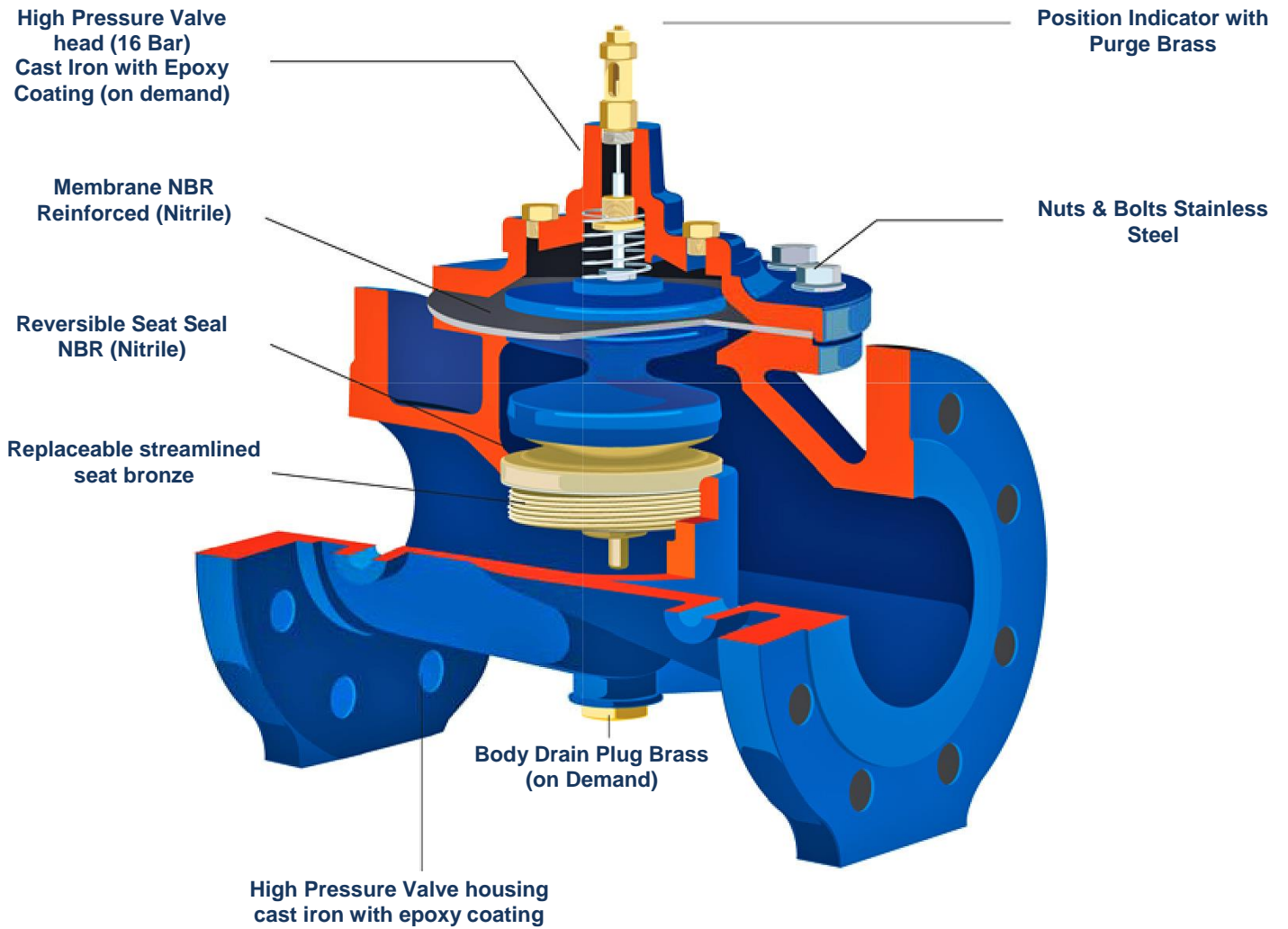
### Pilot System

1.5 – 6 bar (Low)  
6 – 12 Bar (Standard)  
12 – 18 Bar (High)

### Tubing & Fittings

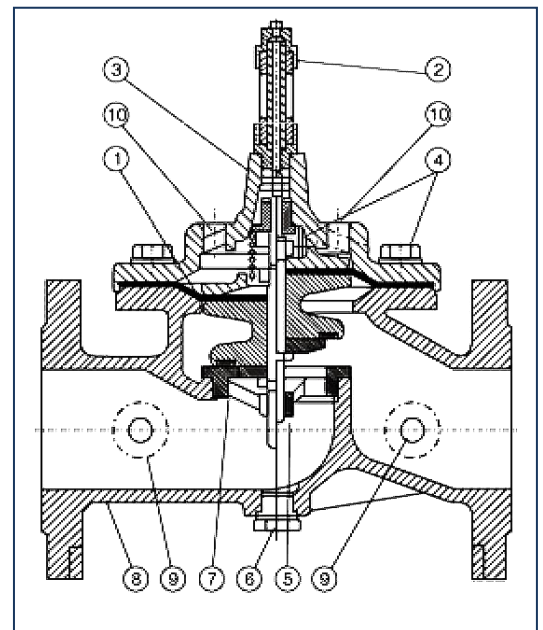
Copper / Brass (Std.)

## MAIN VALVE

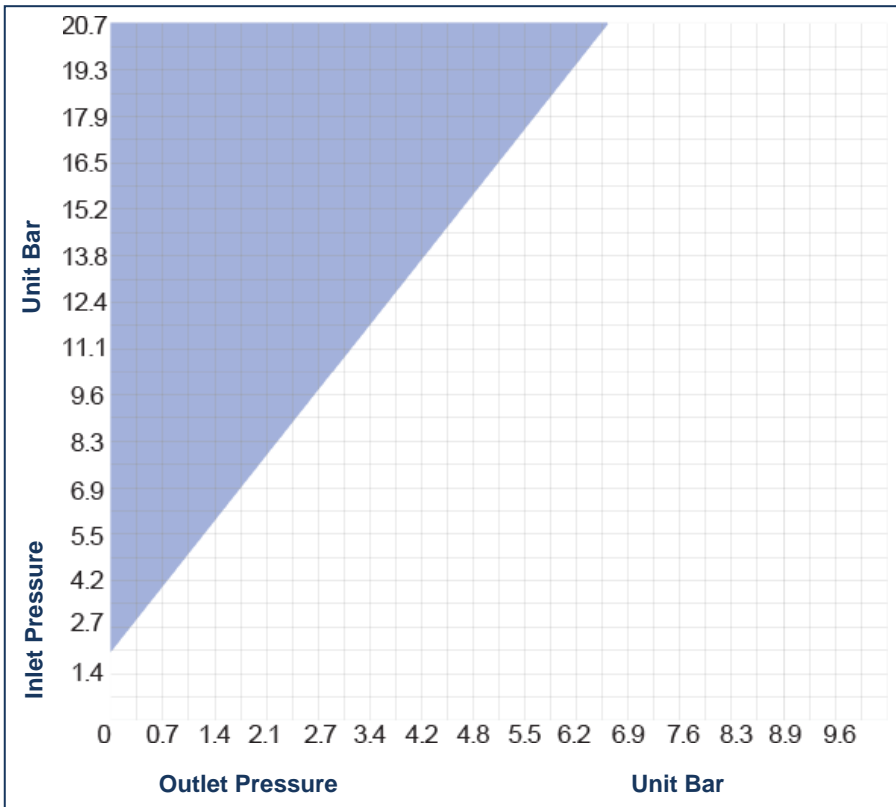


### Material of Main Parts :-

Part No	Name	Material
1	Membrane	Reinforced NBR
2	Drain Cock on top cap	Brass
3	(PN 16) High Pressure to cap	Cast iron
4	Nuts, Bolts Screws	Stainless Steel
5	Replaceable streamlined seat	Bronze
6	Body drain plug	Brass
7	Reversible seat seal	NBR
8	High Pressure Body	Cast iron
9 & 10	Holes for Pressure Gauges	



### Cavitation Area



### Flow Criteria

DN	Mini (M <sup>3</sup> /h)	Maxi (M <sup>3</sup> /h)
40	0.5	20
50	0.5	36
65	1.15	45
80	1.15	45
100	3.45	92
125	9.15	165
150	9.15	165
200	13.7	365
250	24.7	715
300	50.6	1001.2

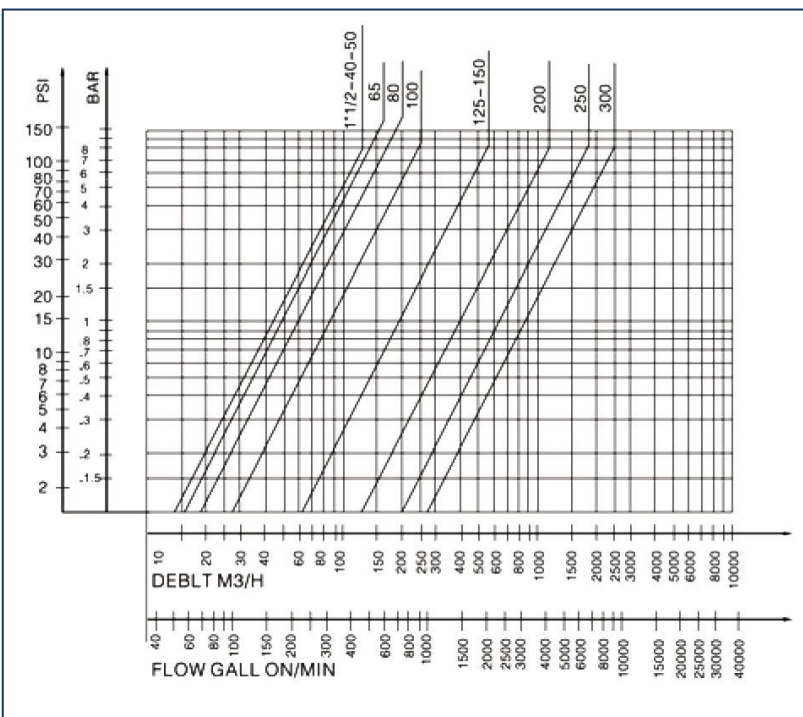
### Cavitation Guide Chart

After selecting the valve size, locate inlet and outlet pressure on this chart. If the intersection point falls in the shade area, cavitation can occur. Operation of valve continually in the cavitation zone should be avoided.

### Anti-Cavitation Solution

The Anti-Cavitation mold is designed for application where there is a high potential for damage from cavitation, which provides optimum internal pressure control through a unique anti-cavitation trim design. Relieving the damage of cavitation with multi-stage pressure reducing

### Head Loss Chart



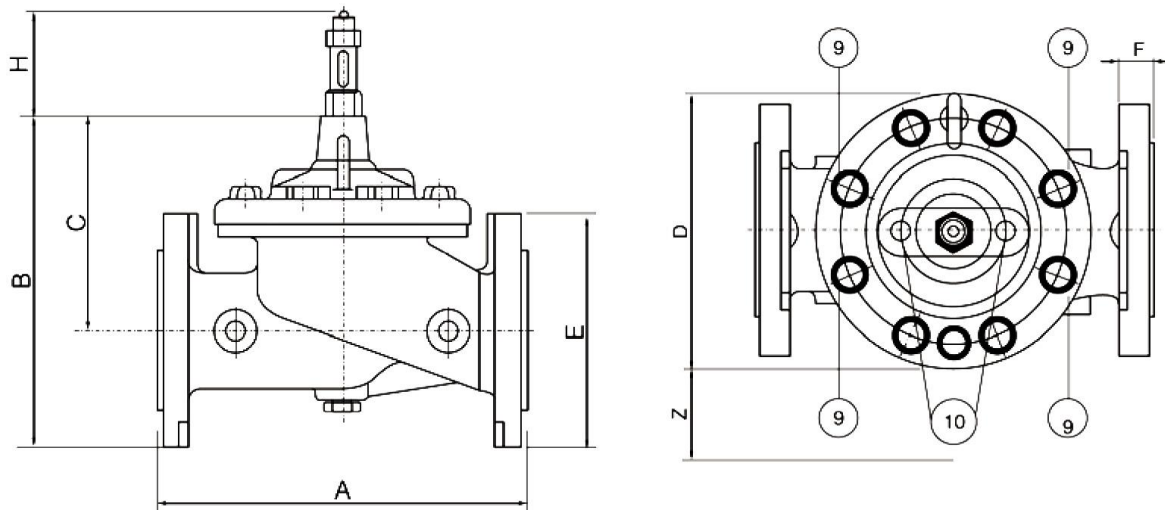
### KV Value

Valve Size	M <sup>3</sup> /h	L/s
40-50	45.6	12.6
65	48.33	13.43
80	55.4	1.39
100	86.6	24.05
125	194.66	54.07
150	194.66	54.07
200	397.5	110.41
250	900	249.9
300	919.4	255.4

KV: 15°C, 1 bar, (m<sup>3</sup>/h)

Quantity of flow (in m<sup>3</sup>/h) of water at 15°C passing through a device creating a head loss of 1bar

## Main Valve



9 & 10) Holes for Pressure Gauge

## Dimensions

(All Dimensions are in mm)

Size		A	B	C	D	E	F	H	Z	NT WT (Kg) (Pn16 & 25)
DN	Inch									
40	1 ½"	237	240	160	169.9	167	16	42	254	10.8
50	2"	243	240	160	169.9	167	16	42	254	14.6
65	2 ½"	276	255	160	169.9	192	18	42	254	18.2
80	3"	276	255	160	169.9	200	18	42	254	18.2
100	4"	306	315	205	205	233	24	42	254	33
125	5"	416	370	240	279.5	250	25	42	254	58.5
150	6"	416	380	240	279.5	283	26	42	254	61.7
200	8"	520	490	330	363	345	28	42	254	97.4
250	10"	755	690	490	479.5	410	33	42	254	302.5
300	12"	764	720	490	693	480	34	42	254	322.5

## Note: -

- ❖ Connection PN16-PN25 Flange drilling to be indicated when ordering. Threaded Connection on request ANSI – ASI drilling on request.
- ❖ Contact us for the vertical installation of control valves above DN200. & DN 350 an above.

## Installations:-

- ❖ Flush the pipeline before inserting the valve
- ❖ Install the valve with the "arrow" on body pointing towards the reduced pressure area (or with the flange tagged "INLET" toward the high pressure are.)
- ❖ Attached subassemblies to main valve if necessary.
- ❖ Allow enough clearance above valve for removal of piston assembly.

## Start - Up:-

- ❖ Install Pressure Gauges for inlet and outlet.
- ❖ Open both shut-off valves on the control assembly.
- ❖ Open air bleeder at the top of the valve. (Reclose after step 4 or step 5)
- ❖ Open Main line shut-off valve (usually a gate or butterfly valve) on the outlet side of the main valve about ¼ open.
- ❖ Slowly open main line shut-off valve on the inlet side and observe pressure gauges.
- ❖ When the outlet pressure gauge shows that the downstream pressure is being controlled, this shut-off valve may be opened more rapidly.
- ❖ If the outlet pressure requires adjustment, turn the adjusting screw of the pilot valve counter clock – wise to decrease, clockwise to increase. Caution: any adjustments should be done slowly.

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