CLA-VAL™

— MODEL — 100-42

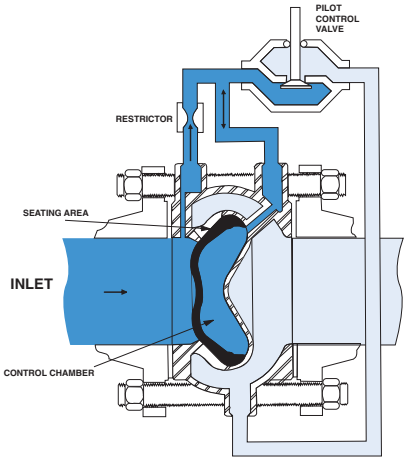
700 SERIES

ROLL SEAL

- **Compact Design, Proven Reliable**
- **Light Weight Materials**
- **High Pressure Rating Availability**
- **Easy Installation and Maintenance**

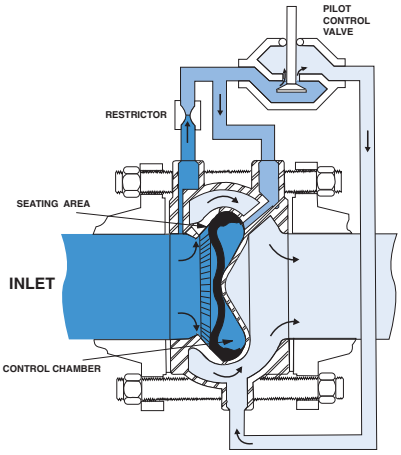
The Cla-Val Model 100-42 Roll Seal valve is a hydraulically operated valve used to control liquid flow by means of a flexible control element: the liner.
The basic valve consists of only two parts: a one piece, investment cast body and an elastomeric liner. The valve body is constructed with internal ribs and slots forming a grillwork which surrounds the liner to provide support. A normally closed type valve is formed by the installed liner which covers the grillwork and seats against the raised seating surface in the valve body.
Upstream pressure actuates the valve to produce valve opening by rolling the liner off the seating surface and the slotted grillwork.
The valve is actuated by upstream pressure as the loading pressure (pressure supplied to the control chamber) is varied by an external pilot control system.
A typical pilot control system used to operate the Model 100-42 valve consists of a restriction and a suitable pilot connected to the valve.

Principle of Operation



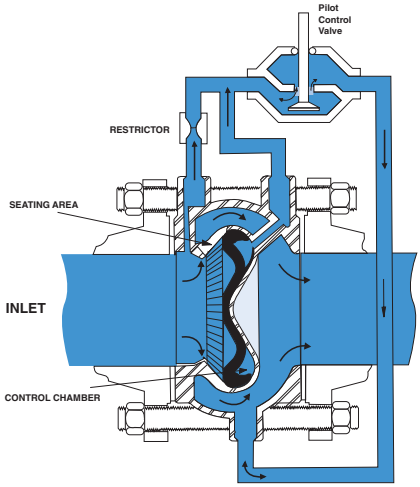
Model 100-42 Valve in Closed Position

Upstream pressure is introduced to the control chamber (the chamber formed behind the liner) of the Cla-Val Model 100-42 Roll Seal valve through the control piping and restrictor. When the pilot is closed, full inlet pressure is supplied to the control chamber, thus balancing the force developed by inlet pressure acting on the upstream face on the liner. Under these conditions, the liner remains in the fully closed position.
Since the operating pressure in the control chamber is greater than the outlet pressure, an additional closing force is developed across the liner, pressing the liner against the surrounding slotted grillwork area and seating surface.



Model 100-42 Valve in Partially Open Position

As loading pressure is lowered slightly below inlet pressure, the central portion of the liner is forced to invert and come to rest against the tip of the control chamber cavity. Reducing the loading pressure further (but still higher than outlet pressure) causes the liner to drape over the cone shaped portion of the control chamber cavity. This action causes the outer section of the liner to roll off the seating surface and a portion of the grillwork to partially open the valve.



Model 100-42 Valve in Fully Open Position

The valve is fully opened when loading pressure is sufficiently reduced to allow the liner to roll back completely and expose the full slot area. Restoring loading pressure reverses the liner rolling action to return the liner to the fully closed position.

Design Specification

Sizes:	2 - 6 inch/50 - 150 mm wafer style 6 - 12 inch/150 - 300 mm flanged
End Detail Wafer:	Fits ANSI B16.5 class 125,150, 250, and 300 flanges
End Detail Flanged:	ANSI B16.5 class 150 (fits class 125) or ANSI B16.5 class 300 (fits class 250)
Operating Pressure:	720 psi maximum
Maximum Differential:	150 psid continuous, 225 psid intermittent*
Reverse Pressure:	125 psid maximum
Temperature Range:	32 to 160 degrees F*
Flange Operating Pressure:	Class 125-175 psi maximum Class 150-275 psi maximum Class 250-300 psi maximum Class 300-720 psi maximum

*Standard natural rubber 65 durometer in water service.
Temperature range depends on liner material. Higher differential pressure ratings available.

For other than standard ANSI flanges consult factory

Din drilling available on all sizes

Performance Specification

Capacity:	See Technical Data Sheet
C_f Factor:	0.9
Cavitation:	See Technical Data Sheet
Rangeability:	500:1
Bearing Friction:	No friction from slip-type bearings

Material Specification

Body:	316L Stainless Steel
Flanges: (Slip on)	Carbon Steel/Clear Cad. Plated
Bolt Kit:	Carbon Steel/Zinc Plated
Liner:	Natural Rubber, 65 duro (standard) Viton, EPDM, Nitrile, Silicone (available)
Liner Retainer:	316 Stainless Steel

Optional Materials

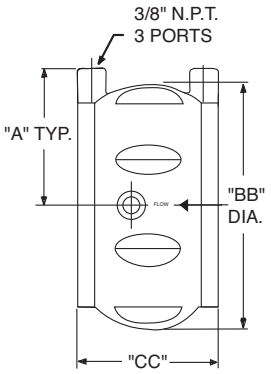
Escoloy 45D
Duplex Stainless Steel
Super Duplex Stainless Steel
Nickel Aluminum Bronze
Titanium

Dimensions (100-42 Main Valve)

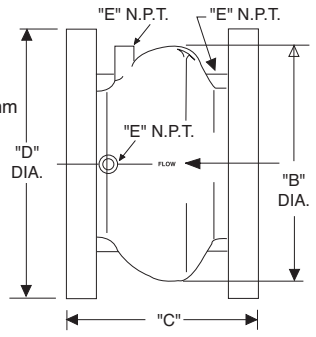
Valve Size (Inches)	**2**	**3**	**4**	**6**	**8**	**10**	**12**
A	2.88	3.56	4.13	5.25	—	—	—
B	—	—	—	10.88	14.38	18.00	21.63
BB	4.38	5.88	7.38	9.81	—	—	—
C	—	—	—	9.00	11.00	13.00	15.25
CC	2.50	3.25	4.00	5.50	—	—	—
D 150 ANSI	—	—	—	11.00	13.50	16.00	19.00
D 300 ANSI	—	—	—	12.50	15.00	17.50	20.50
E Ports NPT	—	—	—	0.38	0.38	0.50	0.50
Approx. Wt. Lbs. (150 lbs.)	4	7.5	14	58	115	190	290
Approx. Wt. Lbs. (150 lbs.) with Studs & Nuts	6	10	22	—	—	—	—
Approx. Wt. Lbs. (300 lbs.)	4	7.5	14	87	155	250	375
Approx. Wt. Lbs. (300 lbs.) with Studs & Nuts	11	14	26	—	—	—	—
Max. Continuous Flow (gpm)	224	469	794	1787	3177	4964	7148

Valve Size (mm)	**50**	**80**	**100**	**150**	**200**	**250**	**300**
A	73	90	105	133	—	—	—
B	—	—	—	276	356	457	549
BB	111	149	187	249	—	—	—
C	—	—	—	229	279	330	387
CC	64	83	102	140	—	—	—
D 150 ANSI	—	—	—	279	343	406	483
D 300 ANSI	—	—	—	318	381	445	521
E Ports NPT	—	—	—	0.38	0.38	0.50	0.50
Approx. Wt. Kg. (150 lbs.)	1.81	4	6	30	54	89	152
Approx. Wt. Kg. (150 lbs.) with Studs & Nuts	3	5	10	—	—	—	—
Approx. Wt. Kg. (300 lbs.)	1.81	4	6	42	73	117	191
Approx. Wt. Kg. (300 lbs.) with Studs & Nuts	5	6	12	—	—	—	—
Max. Continuous Flow (l/s)	14	30	50	113	200	301	451

Wafer Style
2", 3", 4" and 6"
50, 80, 100 and 150 mm



Flanged Style
6", 8", 10" and 12"
150, 200, 250 and 300 mm



When Ordering Please Specify:

1. Catalog No. 100-42
2. Valve Size
3. Fluid Being Handled
4. Fluid Temperature Range
5. Inlet Pressure Range
6. Outlet Pressure Range
7. Maximum Differential Pressure
8. Minimum Differential Pressure
9. Maximum Flow Rate

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