Model 'L' Series, LG / LB / LD / LF / LP Lined Control Valves with V Series Actuators

Valution's 'L' series of lining valves are used in many industries to provide stable operation and long life in corrosive and toxic environments. The valves are suitable for both high purity process applications and harsh chemical services. The lining material itself is inert to most chemicals, including strong acid, alkali, solvents, refrigerants, and other fluids that are not generally compatible with traditional metals such as carbon steel or stainless steel.

- LG : Lined Globe
- LB : Lined Ball
- LD : Lined Diaphragm
- LF : Lined Butterfly
- LP : Lined Plug

Lining valves provide exceptional sealing capacity and strength for industrial, chemical, and food processing applications. This lining valve is designed to withstand robust operating conditions, and the lining structure prevents damage caused by corrosive media. Lining materials include PFA, PTFE, FEP, EPDM, and NBR lining valves.

Lining materials are available in a variety of options for the ptfe coated butterfly valve to handle most working environments. Lining protects the valve's internal mechanical parts and external surfaces from damage or damage caused by aggressive materials or high temperature/pressure applications. Our lining valve selection is designed for maximum performance and durability, providing reliable operation in the system.

This model is capable of applying a spring diaphragm, cylinder, and electric motor type actuators.
It mainly performs modulating functions with traditional E/P, smart and HART positioners.

1. Numbering System

V10	-	LG	1	2	1	1

Actuator Type	Model	Body Type	Lined Type	Flow Characteristics	Disc Type
V10. Lin-Spring Diaphragm V20. Lin-Cylinder, Double Act V30. Lin-Spring Cylinder V40. Spring Diaphragm V50. Spring Cylinder Rack & Pinion V60. Cylinder, Double Rack & Pinion V70. Spring Cylinder Scotch Yoke V80. Cylinder, Double Scotch Yoke V90. Electric Motor V01. Other Type	**LG** **LB** **LD** **LF** **LP**	1. RF Flanged 2. Wafer (Flangeless) 3. Lug 4. Other	0. Undefined 1. PFA 2. PTFE 3. FEP 4. EPDM 5. NBR 6. Other	0. Undefined 1. Linear 2. EQ-% 3. Ball 4. Butterfly 5. Quick Open 6. Other	0. Undefined 1. Contoured 2. V-Port 3. Ball 4. Butterfly 5. Weir 6. Plug 7. Other

2. Lining Materials (1/2)

PFA

Perfluoroalkoxyalkane(PFA) is a fluoropolymer. These are copolymers of tetrafluoroethylene(C2F4) and perfluoroether(C2F3ORF), where Rf is a perfluorinated group such as trifluoromethyl (CF3). The properties of these polymers are similar to polytetrafluoroethylene(PTFE). Compared to PTFE, PFA has less scratch resistance, but also has anti-adhesion properties and high chemical resistance.

■ Characteristic

Unlike PTFE, alkoxy substituents allow polymers to melt. At the molecular level, PFA polymers have shorter chain lengths and higher chain entanglement than other fluoropolymers. Moreover, their branches contain oxygen atoms. This results in materials that are more translucent, improve flow and creep resistance, and close to or exceed PTFE in thermal stability. Therefore, PFA is preferred when extended services are required in hostile environments involving chemical, thermal, and mechanical stresses. PFA provides high melt strength, stability at high processing temperatures, excellent crack and stress resistance, and low coefficients of friction. Similarly improved processing properties are found in fluorinated ethylene propylene(FEP), a copolymer of tetrafluoroethylene and hexafluoropropylene. However, FEP is 10 times less capable of withstanding repetitive bending without destruction than PFA.

■ Applications

PFA is commonly used for fitting piping materials and aggressive chemicals, as well as for corrosion-resistant linings of ships in the chemical processing industry. Common uses include the construction of gas scrubbers, reactors, containment containers and piping.[6] In coal-fired power plants, it is used for lining heat exchangers. By supplying crude oil through the PFA line devices, the gas stream can be cooled below the condensing temperature without damaging the heat exchanger. The use of PFA lines contributes to increasing the efficiency of the entire plant.

PFAs are used for sampling equipment and geochemical or environmental field studies in the field of analytical chemistry, and it is especially important to avoid chemical contamination caused by trace levels of metal ions.

PTFE

Polytetrafluoroethylene (PTFE) is a synthetic fluoropolymer of tetrafluoroethylene, which has various uses due to its chemically inert nature. The commonly known brand name for PTFE-based compositions is Teflon by Chemours, a spin-off from DuPont, which first invented the compound in 1938. Polytetrafluoroethylene is a fluorocarbon solid because it is a polymer composed only of carbon and fluorine. PTFE is hydrophobic: Due to the low electrical polarization rate of fluorine, neither water nor any material containing water gets wet in PTFE. PTFE has the lowest coefficient of friction among all solids.

Polytetrafluoroethylene is used as a non-stick coating for pans and other cookware. It is often used in containers and pipework for reactive and corrosive chemicals, in part because of its non-reactive nature due to the strength of the carbon-fluorine bond. When used as a lubricant, PTFE reduces friction, wear, and energy consumption of the machine. It is used as a grafting material during surgery and is also used as a coating for catheters.

PTFE and the chemicals used in its production are some of the most well-known and widely used persistent organic pollutants, PFAS. PTFE accounts for more than half of the total fluoropolymer production, followed by polyvinylidene fluoride (PVdF).

For decades, DuPont used perfluorooctanoic acid (PFOA or C8) during its production of PTFE, but it was subsequently discontinued due to legal action against the ecotoxic and health effects of PFOA exposure. DuPont's spin-off chemical manufactures PTFE using an alternative chemical today called GenX, another PFAS. Although GenX is designed to last less in the environment compared to PFOA, it has proven to be a "regrettable alternative." The effect can be detrimental, or even more harmful, on par with the chemical it is trying to replace.

FEP

FEP (fluorinated ethylene propylene) is a tough, flexible copolymer of tetrafluoroethylene and hexafluoropropylene. It is often used for flexible tubing and fluid processing equipment when chemical resistance, high purity, and low stiffness are required. FEP has outstanding electrical properties and UV resistance.
The maximum continuous working temperature is −200 ~ +200℃. The melting point is around 250~295℃.

■ Features

Excellent heat resistance, cold resistance, and chemical resistance
Excellent light transmittance and weather resistance
Excellent electrical characteristics such as low dielectric constant and small dielectric loss
Injection molding and extrusion molding are possible

2. Lining Materials (2/2)

FEP

Excellent weather resistance, so there is no change in age
Inert to most chemicals, solvents
Suitable for high-temperature environments, such as around the furnace and the engine. They are also suitable for cryogenic environments or those that are exposed to drugs, such as chemical plants.
FEP is mainly used for internal wiring of electrical and electronic devices that require heat resistance.

■ Performance Chracteristics
Chemically inert to a wide range of industrial chemicals and solvents
Good electrical properties
Low coefficient of friction
Stress crack resistance
Outdoor weathering resistance

■ Applications
Fluid handling and chemical processing equipment
Pump housings and pipe linings
Semiconductor wet bench equipment
Food processing and packaging equipment
Medical components

3. Lined Globe Control Valve, 'LG'

■ General Specifications

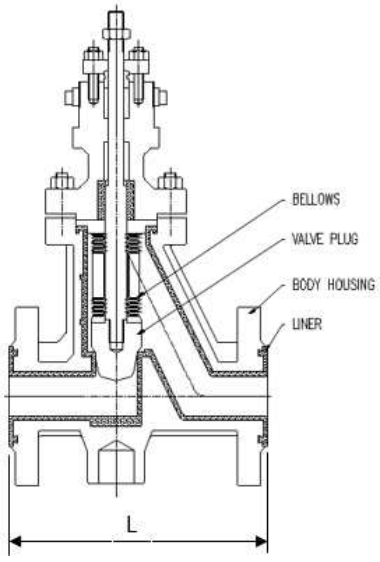
Size Range	3/4" ~ 6" (other sizes are available)
Pressure Range	ASME 150#, Max. 0.9 MPa
Temperature Range	-30 ~ +200 ℃ ... depending on the materials
Body Materials	A351 CF8, CF8M
Lining Materials	PFA, PTFE, FEP, EPDM, NBR & others
Trim Design	Un-balanced, Contoured
Trim Characteristics	E-Q%, Modified%, Linear
Cv Ratio	50 : 1(standard)
Seat Leakage Class	ANSI/FCI 70-2, Class V, VI according to the spec.
Applicable Actuators	Pneumatic Diaphragm, Cylinder, Electric Motor, others
Applicable Instruments	P/P & E/P & Smart Positioners, SOV & other Relays
Options	Handwheel, Limit Stopper, Bellows Bonnet, Special NDT

■ Technical Specifications

Valve Size (mm / in)	**20, 25 (3/4" & 1")**		**32 (1-1/4")**		**40 (1-1/2")**		**50 (2")**		**65 (2-1/2")**		**80 (3")**		**100 (4")**		**125 (5")**		**150 (6")**
Port Size (mm)	20	25	25	32	32	40	40	50	50	65	65	80	80	100	100	110	125
Rated Cv	5	10	10	16	16	24	24	44	44	68	68	125	125	165	165	195	330
Face to Face (L)	184		210		222		254		276		298		352		410		451
Rated Travel (mm)	20				25				40				50		60		

■ Part Name & Materials

No.	Part Name	Q`ty (EA)	Materials
1	Body Base	1	CF8 or CF8M
2	Body Lined	1	PFA, PTFE, FEP, EPDM, NBR & others
3	Valve Plug	1	PFA, PTFE, FEP, others
4	Valve Stem	1	304SS, 316(L)SS, others
5	Bellows	1	PFA or PTFE
6	Bonnet	1	Lined CF8, CF8M
7	Bonnet Bolt / Nut	4~8	B8 or B8M / 8 or 8M
8	Gasket	1	PTFE
9	Packing	1	PTFE
10	Gland	1	304SS, 316(L)SS, others
11	Gland Flange	1	CF8
12	Gland Bolt / Nut	2	B8 or B8M / 8 or 8M



4. Lined Ball Control Valve, 'LB'

■ General Specifications

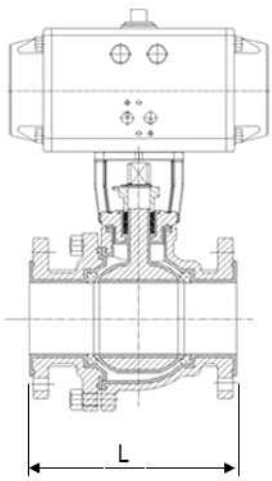
Size Range	1/2" ~ 6" (other sizes are available)
Pressure Range	ASME 150#, Max. 0.9 MPa
Temperature Range	-30 ~ +200 ℃ ... depending on the materials
Body Materials	A351 CF8, CF8M
Lining Materials	PFA, PTFE, FEP, EPDM, NBR & others
Trim Design	Concentric & Eccentric Ball
Trim Characteristics	Ball, Quick Open
Cv Ratio	50 : 1(standard)
Seat Leakage Class	ANSI/FCI 70-2, Class V, VI according to the spec.
Applicable Actuators	Pneumatic Cylinder, Electric Motor, others
Applicable Instruments	P/P & E/P & Smart Positioners, SOV & other Relays
Options	Handwheel, Limit Stopper, Special NDT

■ Technical Specifications

Valve Size (mm/in)	**15 (1/2")**	**20 (3/4")**	**25 (1")**	**32 (1-1/4")**	**40 (1-1/2")**	**50 (2")**	**65 (2-1/2")**	**80 (3")**	**100 (4")**	**125 (5")**	**150 (6")**
Port Size (mm)	Full Port										
Rated Cv	16	25	40	65	80	95	140	195	390	690	990
Face to Face (L) 150# RF (mm)	140	140	150	165	180	200	220	250	280	320	360
Rated Travel	90°										

■ Part Name & Materials

No.	Part Name	Q`ty (EA)	Materials
1	Body Housing	1	CF8 or CF8M
2	Body Liner	1	PFA, PTFE, FEP, EPDM, NBR
3	Ball	1	316SS + PFA, PTFE, FEP
4	Valve Stem	1	316SS + PFA, PTFE, FEP
5	Seat	1	PFA, PTFE, FEP
6	Cover Housing	1	Lined CF8, CF8M
7	Bonnet Bolt / Nut	4~8	B8 or B8M / 8 or 8M
8	Gasket	1	PTFE
9	Packing	1	PTFE
10	Gland	1	304SS, 316(L)SS, others
11	Gland Flange	1	CF8
12	Gland Bolt / Nut	2	B8 or B8M / 8 or 8M



5. Lined Diaphragm Control Valve, 'LD'

■ General Specifications

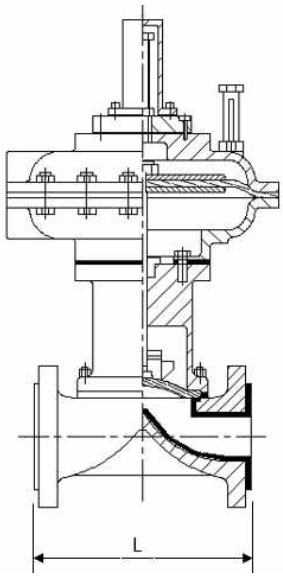
Size Range	3/4" ~ 8" (other sizes are available)
Pressure Range	ASME 150#, Max. 0.9 MPa
Temperature Range	-30 ~ +200 ℃ ... depending on the materials
Body Materials	WCB, A351 CF8, CF8M
Lining Materials	PFA, PTFE, FEP, EPDM, NBR & others
Trim Design	Weir Diaphragm
Trim Characteristics	Modified - Linear
Cv Ratio	50 : 1(standard)
Seat Leakage Class	ANSI/FCI 70-2, Class V, VI according to the spec.
Applicable Actuators	Pneumatic Diaphragm, Cylinder, Electric Motor, others
Applicable Instruments	P/P & E/P & Smart Positioners, SOV & other Relays
Options	Handwheel, Limit Stopper, Bellows Bonnet, Special NDT

■ Technical Specifications

Valve Size (mm / in)	20 (3/4")	25 (1")	32 (1-1/4")	40 (1-1/2")	50 (2")	65 (2-1/2")	80 (3")	100 (4")	125 (5")	150 (6")	200 (8")
Rated Cv	6.5	11	16	31	58	82	146	270	380	505	1110
Face to Face (L) 150# RF (mm)	117	127	146	159	190	216	254	305	356	460	570

■ Part Name & Materials

No.	Part Name	Q`ty (EA)	Materials
1	Body Housing	1	FCD45, WCB, CF8 or CF8M
2	Body Liner	1	PFA, PTFE, FEP, EPDM, NBR
3	Diaphragm	1	PFA, PTFE, FEP, EPDM, NBR
4	Valve Stem	1	630SS, 304SS, 316(L)SS, others
5	Compressor	1	CS or 304SS
6	Bonnet	1	FCD45, WCB, CF8, CF8M
7	Bonnet Bolt / Nut	4~8	B7, B8, B8M / 2H, 8, 8M
8	Gasket	1	PTFE



6. Lined Butterfly Control Valve, 'LF'

■ General Specifications

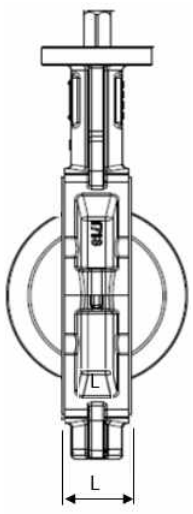
Size Range	1.5"(DN40) ~ 20"(DN500) (other sizes are available)
Pressure Range	ASME 150# Wafer, Max. 0.9 MPa
Temperature Range	-30 ~ +200 ℃ ... depending on the materials
Body Materials	A351 CF8, CF8M
Lining Materials	PFA, PTFE, FEP, EPDM, NBR & others
Trim Design	Concentric Butterfly
Trim Characteristics	Butterfly, Quick Open
Cv Ratio	50 : 1(standard)
Seat Leakage Class	ANSI/FCI 70-2, Class V, VI according to the spec.
Applicable Actuators	Pneumatic Cylinder, Electric Motor, others
Applicable Instruments	P/P & E/P & Smart Positioners, SOV & other Relays
Options	Handwheel, Limit Stopper, Special NDT

■ Technical Specifications

Valve Size (mm/in)	**40 (1.5")**	**50 (2")**	**65 (2.5")**	**80 (3")**	**100 (4")**	**125 (5")**	**150 (6")**	**200 (8")**	**250 (10")**	**300 (12")**	**350 (14")**	**400 (16")**	**450 (18")**	**500 (20")**
Rated Cv	80	95	140	195	390	690	990	2100	4200	6300	8000	9500	11500	15200
Face to Face (L) 150# WF (mm)	91	102	118	135	158	184	214	270	330	384	448	510	602	657
Rated Travel	90°													
Torque(N·m)	35	40	48	56	82	120	170	298	390	590	810	1260	1470	1800

■ Part Name & Materials

No.	Part Name	Q`ty (EA)	Materials
1	Body Housing	1	WCB, CF8, CF8M
2	Body Liner	1	PFA, PTFE, FEP, EPDM, NBR
3	Disc	1	304SS or 316SS + PFA, PTFE, FEP
4	Valve Stem	1	304SS, 316SS
5	Seat	1	PFA, PTFE, FEP
6	Cover Housing	1	Lined CF8, CF8M
7	Bonnet Bolt / Nut	4~8	B8 or B8M / 8 or 8M
8	Gasket	1	PTFE
9	Packing	1	PTFE
10	Gland	1	304SS, 316(L)SS, others
11	Gland Flange	1	CF8
12	Gland Bolt / Nut	2	B8 or B8M / 8 or 8M



7. Lined Plug Control Valve, 'LP'

■ General Specifications

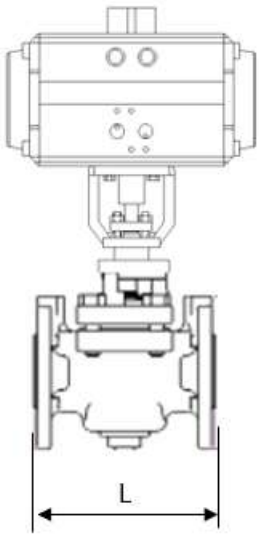
Size Range	3/4"(DN20) ~ 12"(DN300) (other sizes are available)
Pressure Range	ASME 150#, Max. 0.9 MPa
Temperature Range	-30 ~ +200 ℃ ... depending on the materials
Body Materials	A351 CF8, CF8M
Lining Materials	PFA, PTFE, FEP, EPDM, NBR & others
Trim Design	Concentric Plug
Trim Characteristics	Plug, Quick Open
Cv Ratio	50 : 1(standard)
Seat Leakage Class	ANSI/FCI 70-2, Class V, VI according to the spec.
Applicable Actuators	Pneumatic Cylinder, Electric Motor, others
Applicable Instruments	P/P & E/P & Smart Positioners, SOV & other Relays
Options	Handwheel, Limit Stopper, Special NDT

■ Technical Specifications

Valve Size (mm / in)	**20 (3/4")**	**25 (1")**	**40 (1.5")**	**50 (2")**	**80 (3")**	**100 (4")**	**150 (6")**	**200 (8")**	**250 (10")**	**300 (12")**
Port Size (mm)	**Full Port**									
Rated Cv	**28**	**40**	**64**	**76**	**156**	**310**	**790**	**1680**	**3360**	**5040**
Face to Face (L) 150# RF (mm)	**117**	**127**	**165**	**178**	**203**	**229**	**267**	**292**	**330**	**356**
Rated Travel	**90°**									

■ Part Name & Materials

No.	Part Name	Q`ty (EA)	Materials
1	Body Housing	1	CF8 or CF8M
2	Body Liner	1	PFA, PTFE, FEP, EPDM, NBR
3	Plug	1	316SS + PFA, PTFE, FEP
4	Valve Stem	1	316SS + PFA, PTFE, FEP
5	Seat	1	PFA, PTFE, FEP
6	Cover Housing	1	Lined CF8, CF8M
7	Bonnet Bolt / Nut	4~8	B8 or B8M / 8 or 8M
8	Gasket	1	PTFE
9	Packing	1	PTFE
10	Gland	1	304SS, 316(L)SS, others
11	Gland Flange	1	CF8
12	Gland Bolt / Nut	2	B8 or B8M / 8 or 8M



valution

■ Applicable Instruments

- **Positioners**
  : Smart, E/P, P/P Positioners for Single/Double Acting

- **Instruments**
  : Transfer(Trip) Valves, Volume Booster Relay, Lock-up Valves, Check Valves
  Air Regulators(Air Set), Speed Control Valves, Volume Tanks

- **limit Switches & Stoppers**

- **Solenoid Valves**

*. Note

1. All data shown in this product specification are currently standard specifications of Valution and can be customized by order specification.
2. All data shown above are subject to change without notice.
3. The standard warranty period for all Valution products is one year after shipment, and we are not responsible for defects caused by arbitrary modification or customer error.

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