FLOWSERVE

CONNECTION BULLETIN

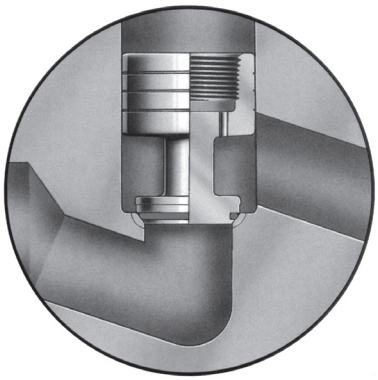
Vogt Valves

Zero Leakage Forged Steel
Check Valves Class 800

FCD VVABR1003-00 – 10/04 (Replaces CB-03)

Experience In Motion

Zero Leakage, Forged Steel Check Valves: Class 800



Vogt Series 701ZL Check Valve Internal Detail

The Connection for Zero Leakage Forged Steel Check Valves

Flowserve Vogt Valves check valves…world famous for performance…are available with ZL rings designed to provide zero leakage* even under low back-pressure conditions.

- Customized to meet Zero Leakage (ZL) service requirements.
- Choice of four different elastomeric ZL ring materials.
- Check valves with ZL rings are the logical selection for dry gas, low back-pressure liquids and other difficult applications.

ZL Maintenance

- Top-entry bolted-bonnet design for in-line repair.
- Color coded ZL rings for quick identification and replacement when necessary.

ZL Dependability

- Over 1,000,000 test cycles have verified zero leakage in low and high back-pressure applications.
- Service life expectancy far exceeds traditional metal-to-metal seating.
- Hard-faced integral seats never need replacement.

ZL Features

- Resilient ZL ring seals even with small sized foreign particles in the media.
- ZL ring cushions the closing shock while compensating for normal wear of seating surfaces.
- Precision-machined ring recess effectively retains the ZL ring and reduces the possibility of premature damage or blow-out.
- Metal-to-metal backup seat closure is ready in case of ring malfunction.
- ZL ring feature may be added to other Vogt piston check valves on special order. The Class 800 Series 70I ZL Check Valve is stocked with threaded ends for your immediate requirements.

Vogt ZL Check Valve Specifications

- Round bolted bonnet
- Spiral-wound gasket
- Horizontal type
- Piston check
- Soft insert ZL ring
- Integral hard-faced seat
- ASME B16.34

ZL Ring Soft Insert Compounds

Compound Material	Temperature Range	Maximum Pressure
Buna N	-20°F to 250°F	2000 psig
Viton	-20°F to 400°F	2000 psig
Ethylene Propylene (EPR)	-20°F to 300°F	2000 psig
Neoprene	-20°F to 240°F	2000 psig

See Page 3 for Compound Selection Guide.

** "Zero Leakage" is defined as a bubble-tight closure when pressurized with 100 psig back-pressure air underwater.*

Compound Selection Guide

For fluids commonly used with Flowserve Vogt ZL Check Valves

Fluid	Buna N	Viton	Ethylene Propolyene (EPR)	Neoprene
Acetone			•	
Acetylene	•	•	•	
Air	•	•	•	•
Alcohols	•	•		
Amines – Mixed			•	•
Ammonia (Anhydrous)			•	•
Ammonia (Aqueous)	•	•		
Ammonium Phosphate	•		•	•
Asphalt		•		
Barium Carbonate	•	•		•
Beet Sugar Liquors	•	•	•	
Benzene (Beneol)		•		
Butane	•	•		•
Cane Sugar Liquors	•	•	•	•
Carbon Bisulfide		•		
Castor Oil	•	•		•
Caustic Soda	•	•	•	•
Crude Oil	•	•		
Diesel Oils	•	•		
Dowtherms		•		
Ethyl Alcohol	•		•	•
Ethyl Chloride (Dry)	•	•		
Ethylene Glycol	•	•	•	•
Fish Oils	•			
Freon 12, 13, 22				•
Fuel Oil	•	•		

Fluid	Buna N	Viton	Ethylene Propolyene (EPR)	Neoprene
Furfural			•	
Gas, Manufactured	•			
Gas, Natural	•	•		•
Gasoline, Leaded	•	•		
Gasoline, Refined	•	•		
Gasoline, Sour	•	•		
Gasoline, Unleaded			•	•
Glucose	•	•	•	•
Glue	•	•		•
Glycerin	•	•	•	•
Hydraulic Oil	•	•		
Hydrocarbons	•	•		
Hydrogen Gas (Cold)	•	•	•	•
Hydrogen Sulfide (Dry)			•	
Jet Fuel	•	•		
Kerosene	•	•		
Linseed Oil	•	•		
Lubricating Oil	•	•		
Magnesium Hydroxide	•	•	•	•
Magnesium Hydrox. (Hot)	•	•	•	•
Magnesium Sulfate	•	•	•	•
Maleic Acid		•		
Mercury	•	•	•	•
Methane	•	•		

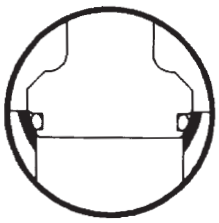
Fluid	Buna N	Viton	Ethylene Propolyene (EPR)	Neoprene
Methyl Alcohol	•		•	•
Mineral Oil	•	•		
Mustard	•			
Naphtha		•		
Naphthalene		•		
Natural Gas	•	•		•
Nitrogen	•	•	•	•
Oils, Animal	•	•		
Oils, Fuel	•	•		
Oils, Mineral	•	•		
Oils, Petroleum (Refined)	•	•		
Oils, Petroleum (Sour)	•	•		
Oxygen (Cold)		•	•	•
Palmitic Acid	•	•		
Pentane	•	•		
Potassium Carbonate	•	•		•
Potassium Cyanide	•	•	•	•
Potassium Hydroxide	•	•		
Potassium Nitrate	•	•	•	•
Potassium Permanganate	•	•		
Potassium Phosphate	•	•		•
Potassium Sulfate	•	•	•	•
Potassium Sulfide	•	•		•
Potassium Sulfite	•	•	•	•

Fluid	Buna N	Viton	Ethylene Propolyene (EPR)	Neoprene
Propane	•	•		
Pyrogallic Acid		•		
Shellac (Bleached)	•			
Shellac (Orange)	•			
Soap Solutions (Stearates)	•	•	•	
Sodium Carbonate	•	•	•	•
Sodium Chromate	•	•		
Sodium Cyanide	•		•	•
Sodium Hydroxide	•	•	•	•
Sodium Metaphosphate	•	•	•	
Sodium Nitrate			•	
Sodium Perborate		•	•	
Sodium Silicate	•	•	•	•
Sodium Sulfate	•	•	•	•
Sodium Sulfide	•	•	•	•
Sodium Sulfite	•	•	•	•
Sodium Thiosulfat (Hypo)	•	•	•	•
Steam (212°F)			•	
Sulfur Dioxide (Dry)			•	
Tar & Tar Oil		•		
Toluene		•		
Vegetable Oils	•	•		
Xylene		•		
Zinc Hydrosulfite	•	•	•	•

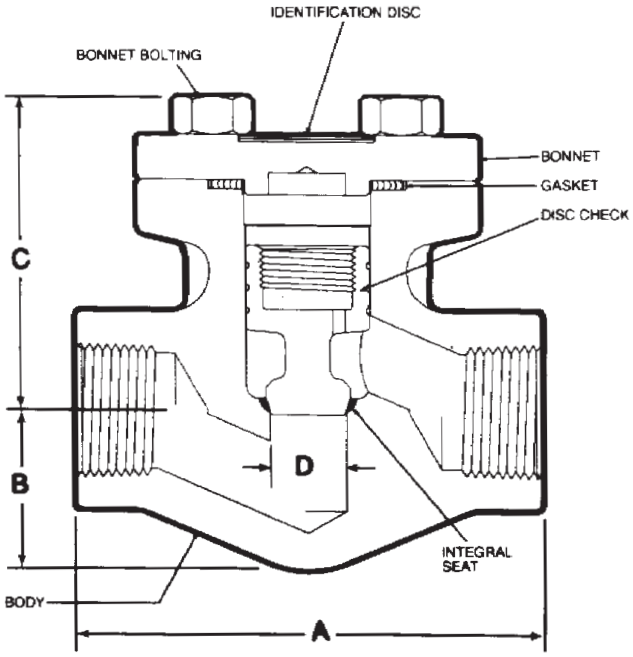
• Indicates the ZL ring material suggested for use in a given fluid or service application.
NOTE: Because of the influence of contaminants in corrosive chemical solutions, this table is intended only as a general guide and does not constitute a recommendation nor guarantee.

Class 800 Conventional Port

- 2000 psi @ 100°F
- See page 3 for ZL ring limitations



Soft Insert ZL Ring
Zero Leakage



Valve Size	Weight (lb.)	End-to-End (in.) A	Center-to-Bottom (in.) B	Center-to-Top (in.) C	Seat Dia. (in.) D
½	3.23	3.75	1.00	2.56	.50
¾	3.38	4.00	1.12	2.56	.50
1	6.05	4.62	1.56	3.06	.75
1¼	16.9	6.25	2.25	4.50	1.28
1½	16.5	6.25	2.25	4.50	1.28
2	25.3	7.75	2.69	4.94	1.53

Order by size and these series numbers.

Series Number	Material		
Threaded Ends	Body/Bonnet	Trim	ZL Rings
701ZLB	Carbon Steel	13% Cr.*	Buna N
701ZL	Carbon Steel	13% Cr.*	Viton
701ZLE	Carbon Steel	13% Cr.*	Ethylene Propylene
701ZLN	Carbon Steel	13% Cr.*	Neoprene

Carbon steel material conforms to ASTM A105.
**Integral seats are hard faced.*

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