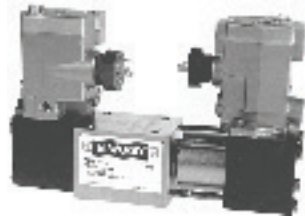


Packed Spool Directional Control Valves

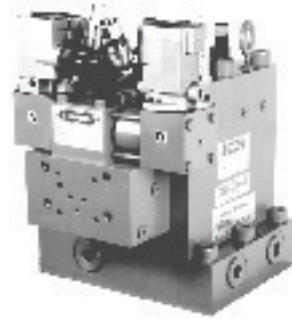
- Directional Valve for a range of applications
- Up to 46 GPM (32 GPM nominal)
- 3000 PSI (207 bar) and 6000 PSI (414 bar)



- Air Solenoid Operated
- 3-position spring centered
- 2-position spring offset
- 2-position momentary contact

Brochure 82

Poppet Type Directional Control Valves



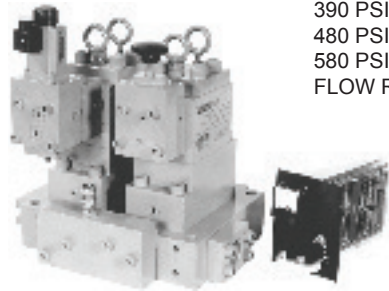
- Capacities to 1600 GPM (6057 LPM)
- 3000 PSI (207 bar), 4500 PSI (310 bar) and 6000 PSI (414 bar) models are available
- Built-in flow control
- Manifold mounted, NPT, socket weld or flanged

Brochure 395

Proportional Pressure Control System

Controlled Pressure Ranges:

390 PSI (27 bar) to 1500 PSI (103 bar)
 480 PSI (33 bar) to 3000 PSI (207 bar)
 580 PSI (40 bar) to 6000 PSI (414 bar)
 FLOW RATE: To 1000 GPM (3785 LPM)



Brochure 104

Modular ISO-Lock

- Isolates manifold mounted directional control valves
- Reduces maintenance time - replace Directional Valves without depressureizing and draining hydraulic system.
- Single lever operation to close all four ports (P, T, A, B). Cylinders can remain under the external load without having to be blocked.
- Lockable per OSHA safety standard
- NFPA "DO"/CETOP and special mounting patterns available



Brochure 250

Descaling & Pump Unloading Valves



Capacities:

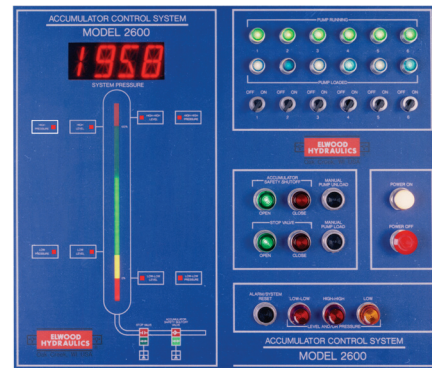
3000 PSI (207 bar)
 6000 PSI (414 bar)
 6000 GPM (22710 LPM)

Connection Sizes: 1-1/4" to 10"

Descaling Valves - Spindle – Brochure 2218
 DIN – Brochure 2219

Pump Unloading Valves – Brochure 2213

Accumulator Systems



- Descaling
- Mill Systems
- Presses
- Controls
 - Level
 - Pressure
 - Pump Sequencing
 - Ballast Charging

- Designed to your specifications

Brochures 102, 105 & 380

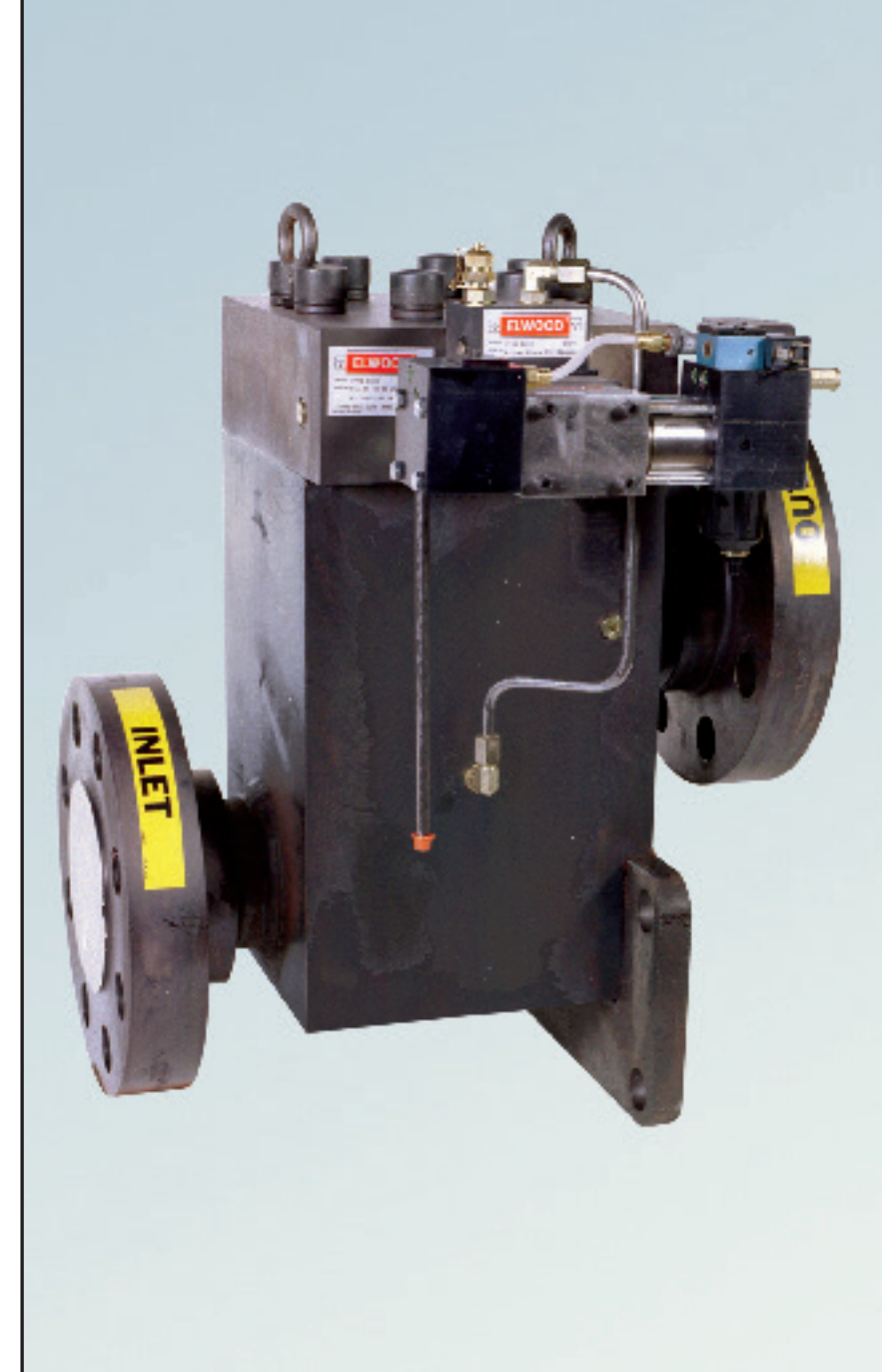
DESCALE VALVES - DIN SERIES

www.elwood.com



ELWOOD CORPORATION
 195 West Ryan Road • Oak Creek, Wisconsin 53154 • USA
 Phone: 800-527-7500 • Fax: 414-764-4298
 www.elwood.com

1/07 - Brochure 2219
 Rev. A



Features

This unique valve has proven itself unequalled for sustained, low-maintenance service under the most severe high-pressure operating conditions. It is widely used in steel mills for shut-off service, descaling service. Its shielded design and soft, composition disc result in long periods of leak-free service. Actual service tests on 1500 PSI filtered river water indicates disc life at up to one million cycles. Because of the inverse flow of liquid through the valve, and the exclusive V-notch throttle ports, shock upon closure has virtually been eliminated.

FUNCTION

Primarily used in shutoff applications to control fluid flow. Available in normally closed or open positions. The valve features a cartridge design consisting of an outer sleeve with an integral seat and poppet assembly. A pilot valve is used to actuate the plunger open or closed. The pilot valve is a pneumatically-operated hydraulic spool valve that is controlled by a solenoid-operated air valve. In a typical system, a signal to the solenoid valve commands the pilots to shift allowing high-pressure hydraulic fluid to enter the pilot valve. According to the valve configuration, normally opened or closed, the fluid is directed to pressurize or vent the hydraulic fluid acting on the poppet, controlling fluid flow in the main pressure line.

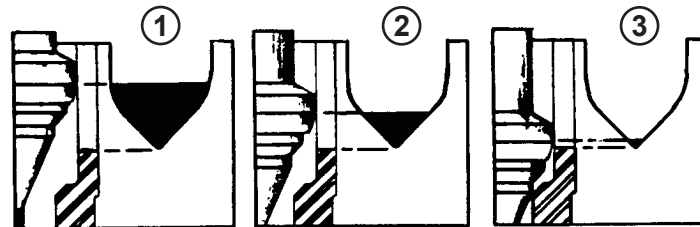
FEATURES

- Hardened Stainless Steel Seat
- Stainless Steel Poppet
- Polymer Static Seals
- Contoured Nose Piece for Built-In Deceleration and Shock Alleviation
- Flow Rates to 3035 GPM (11,490 LPM)
- Designed for Drop Tight Sealing
- All Replaceable Parts Easily Accessible by Removing Top Cap
- Stainless Steel 2 Piece Sleeve
- Polymer Dynamic Seals - Do Not Cross Ports
- Replaceable, Reversible Polymer Disc
- Sizes 50 - 200 ISO 7368/DIN 24342 and Elwood DN 150 and 200
- Working Pressures to 4500 PSI (310 bar) and 6000 PSI (414 bar)
- Water-Piloted Actuation from Elwood "P" Series Valve with Air Solenoid Actuator (Refer to Elwood Brochure 82)
- Service Tools Available to Maintain All Valve Sizes

V-NOTCH SHOCK TECHNOLOGY

Uses specially-designed orifices machined into outer sleeve and precision contours on the spindle assembly to control flow and reduce hydraulic shock in the system.

As the valve is opened, fluid flows past the disc and is discharged through the special V-Notch orifices machined into the annular area of the sleeve located above the sealing area of the disc. (1) As the valve closes, the poppet reduces the V-Notch area, rapidly at first, (2) then at a decreasing rate for each increment of poppet movement, until, (3) at the very peak of the V-Notch, flow is stopped before the disc is seated. The fluid is brought to rest gradually, eliminating harmful shock or water hammering.

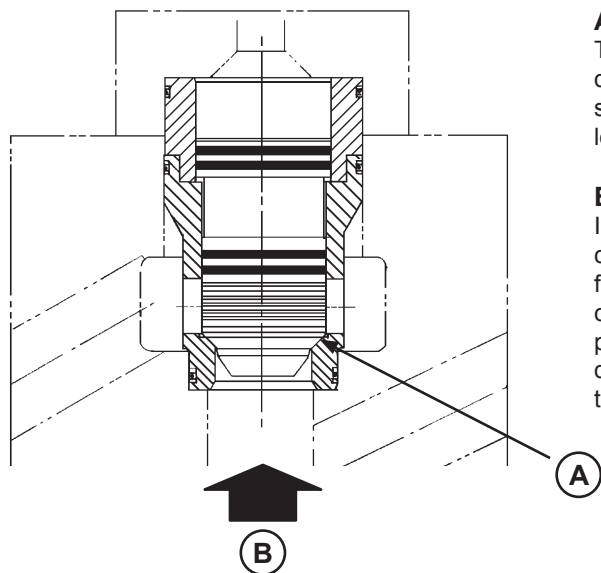


A. Reversible Composition Disc

The soft composition disc is designed to provide reliable maintenance-free drop tight sealing around scratches or scored surfaces between the disc and seat. Damaged discs are easily reversed to provide extended seal life, reducing long term maintenance costs.

B. Inverse Flow Technology

Inverse flow concept uses the direction of fluid flow through that valve in conjunction with the operating direction of the valves spindle. The flow of the fluid through the valve is directly opposing the movement of the poppet as it closes. This prevents the poppet from slamming into the valve seat as the poppet approaches the fully-closed position. If fluid flow is in the same direction as the poppet movement, a large imbalance is created, causing the poppet to slam into the valve seat.



Ordering Data – DIN Descaler Valves

VALVE BODY CONFIGURATIONS		
Standard	Optional Porting (Non-Standard)	
<p>Inline (Type "N")</p>	<p>90 Degree (Type "D")</p>	<p>Offset (Type "Z")</p>

Consult Factory for additional configurations or special requirements.

VALVE SIZE		
Code	Cv	Connection Size
DIN 50	63	3"
DIN 63	98	3"
DIN 80	144	4"
DIN 100	265	6"
DIN 150	430	6" or 8"
DIN 200	924	8" or 10"

CONNECTION STYLE	
N	Inline
D	90°
Z	Offset

FUNCTION	
20	Normally Closed

ELECTRICAL CONNECTION	
Code	Description
11B	Electric Quick Disconnects Industrial Form B (11mm)
11D	Electric Quick Disconnects (DIN 43650)

FLANGE TYPE	
SAE 62	SAE 4-Bolt Flange
SR 15	ASA 1500# Flange
SR 25	ASA 2500# Flange

For alternate flanges, consult factory.

ELECTRICAL SOLENOIDS	
Code	Voltage
3	24V. D.C.
6	110/120V. 50/60Hz A.C.
8	220/240V. 50/60Hz A.C.

Other voltages available, consult factory.

PRESSURE RATING	
3.6K	3600 PSI (248 Bar)
6K	6000 PSI (414 Bar)

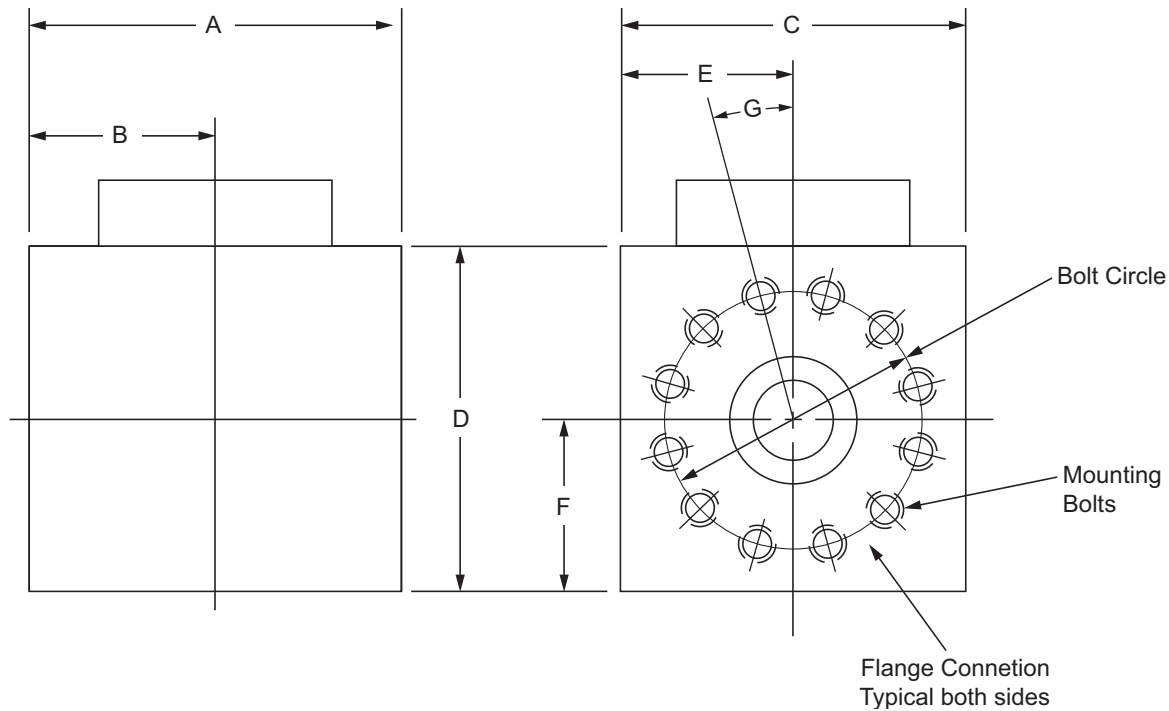
- DENOTES STANDARD FEATURES
- DIN Sizes though 63 can be mounted in any position.
- For extended seal life, DIN Sizes 80 & 100, recommended to be mounted so that the poppet is vertical.
- Sizes 150 and larger must be installed in the vertical position.

DIN 63 - 3.6K - 20 - SR15 - 3 - N - 3 - 11B

Code No. Example:

Refer to Elwood Options Brochure (number 2221) for available valve options.

Dimensional Data – In-Line ASA 2500 lb. Flanges



DIMENSIONAL DATA - 2500 LB. ASA FLANGES													
SIZE	CV FACTOR	CONNEC. SIZE	A	B	C	D	E	F	G	BOLT CIRCLE	MOUNTING BOLTS	# OF BOLTS	WEIGHT (LBS)
50	63	3"	12.50	6.25	12.25	12.25	6.12	6.12	22.5°	9.00	1 1/4 - 7UNC	8	555
			318	159	311	311	155	155	9.00	229			
63	98	3"	12.00	6.00	12.00	12.00	6.00	6.00	22.5°	9.00	1 1/4 - 7UNC	8	490
			305	152	305	305	152	152	9.00	229			
80	144	4"	19.00	9.50	14.25	15.50	7.12	7.75	22.5°	10.75	1 1/2 - 8UNC	8	1190
			483	241	362	394	181	197	10.75	273			
100	265	6"	19.00	9.50	19.00	19.00	9.50	9.50	22.5°	14.50	2 - 4.5UNC	8	1948
			483	241	483	483	241	241	14.50	368			
150	430	6"	24.00	12.00	19.00	22.00	9.50	11.00	22.5°	14.50	2 - 4.5UNC	8	2849
			610	305	483	559	241	279	14.50	368			
200	924	8"	37.00	18.50	22.00	32.00	11.00	14.50	15°	17.25	2 - 4.5UNC	12	7389
			940	470	559	813	279	368	17.25	438			

□ = Inches; ■ = Millimeters

Consult Factory for additional configurations or flange sizes.
Above dimensions are for reference only.
All dimensions are subject to change.

Technical Data

HYDRAULIC Minimum Operating Pressure	400 PSI (28 bar) (Consult factory for pressures below 400 PSI)
Hydraulic Media	HWCF, 97/3 Soluble Oil in Water, Synthetics, Mineral Oils and Kerosene
Viscosity Range at 100° F (38° C)	20 SSU (1.2 Cst.) to 1800 SSU (385 Cst.)
Maximum Pressure Rating	2 Ranges 3600 PSI (248 Bar), 6000 PSI (414 Bar)
Fluid Temperature Range	HWFC 35° to 150° F (2° to 65° C) Mineral Oil 5° to 150° F (-15° to 65° C)
Recommended Filtration	Minimum - 149 Micron (100 mesh)

Valve Sizing

Valve sizing and selection requires consideration in two (2) areas: Pipe Velocity and Pressure Drop through the valve.

PIPE VELOCITY

Allowable maximum pipe velocity is based on various system considerations and fluid velocity and resulting pressure drop. Generally, the following flow rates are acceptable parameters for most piping systems:

- for short-to-medium length runs, 26 ft/sec (8 m/sec.), and a maximum of 30 ft/sec. (9 m/sec.)
- for long piping runs, 20 ft/sec. (6 m/sec.)

PRESSURE DROP THROUGH THE VALVE

For peak performance and extended valve life pressure drop through the valve should be a consideration. Use the manufacturer's stated Cv Factor as an effective method in calculating a valve's pressure drop.

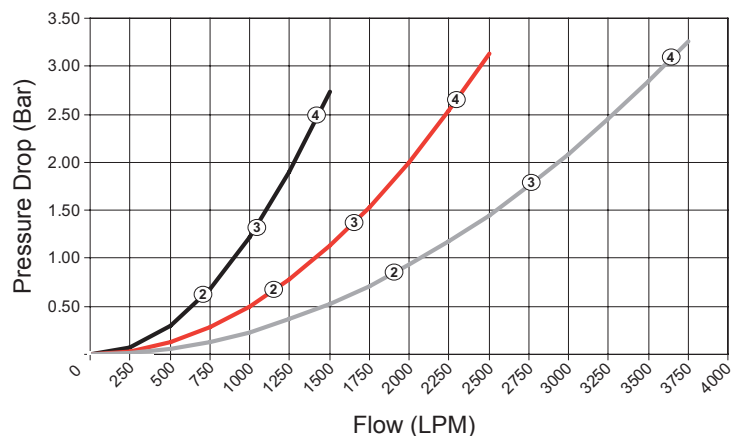
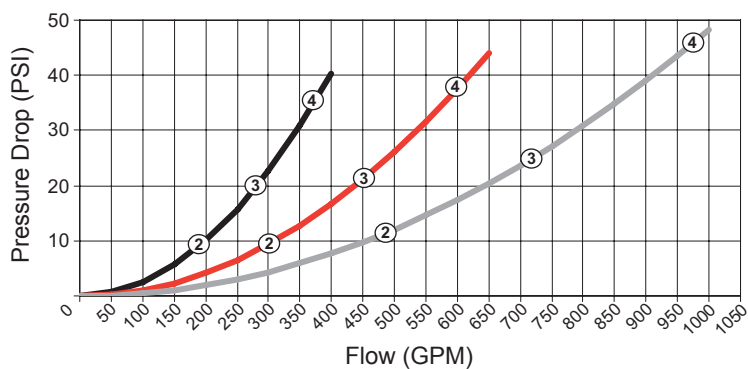
$$1. \Delta P = \left(\frac{GPM}{Cv} \right)^2$$

$$2. Cv = \sqrt{\frac{GPM^2}{\Delta P}}$$

$$3. GPM = Cv \sqrt{\Delta P}$$

ΔP = Pressure drop (PSI)
GPM = Flow (GPM)
Cv = Cv factor

Flow and Capacity Curves

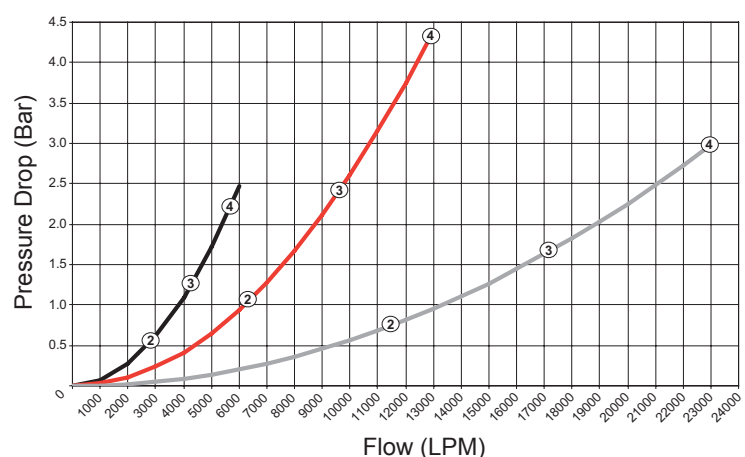
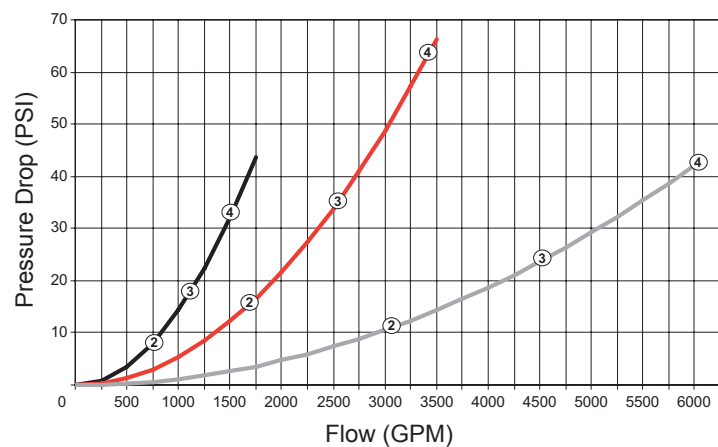


MODELS:

- **DIN 50**
- **DIN 63**
- **DIN 80**

FLOW RATES:

- ② - 20 ft/sec (6.1 m/sec)
- ③ - 30 ft/sec (9.1 m/sec)
- ④ - 40 ft/sec (12.2 m/sec)



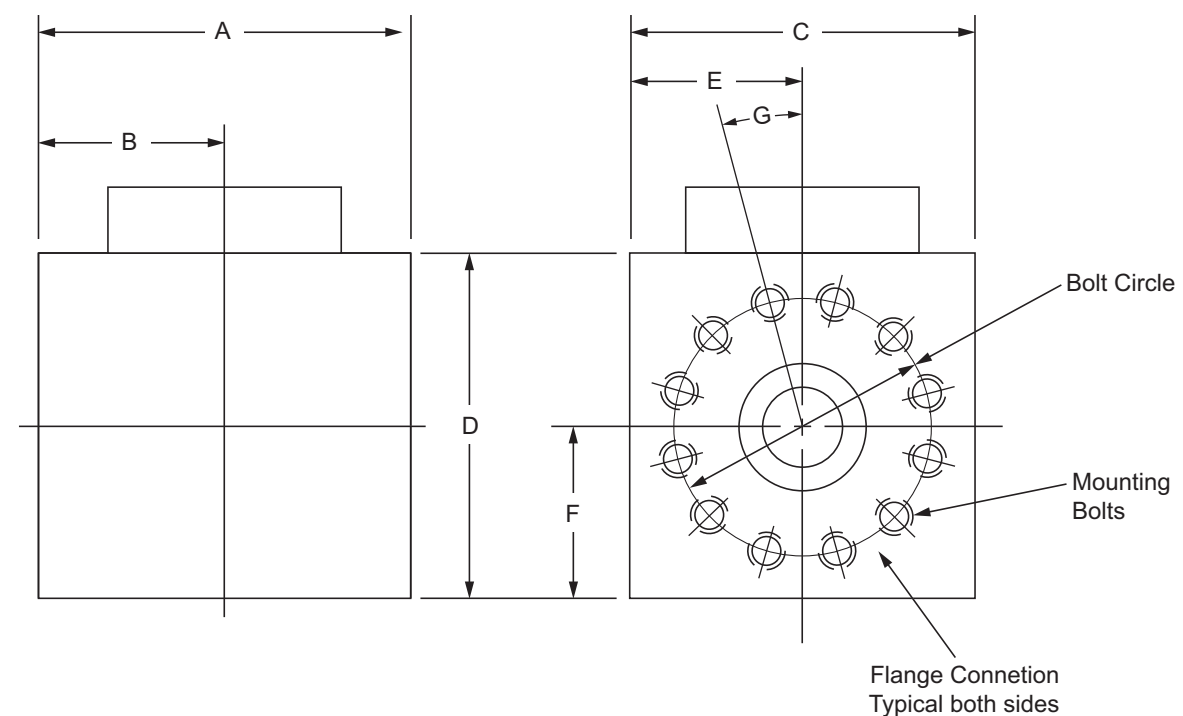
MODELS:

- **DIN 100**
- **DIN 150**
- **DIN 200**

FLOW RATES:

- ② - 20 ft/sec (6.1 m/sec)
- ③ - 30 ft/sec (9.1 m/sec)
- ④ - 40 ft/sec (12.2 m/sec)

Dimensional Data – In-Line ASA 1500 lb. Flanges



DIMENSIONAL DATA - 1500 LB. ASA FLANGES													
SIZE	CV FACTOR	CONN. SIZE	A	B	C	D	E	F	G	BOLT CIRCLE	MOUNTING BOLTS	# OF BOLTS	WEIGHT (LBS)
50	63	3"	11.00	5.50	10.75	10.75	5.38	5.38	22.5°	8.00	1 1/8 - 8UNC	8	385
			279	140	273	273	137	137		203			
63	98	3"	14.25	7.13	10.50	10.50	5.25	5.78	22.5°	8.00	1 1/8 - 8UNC	8	488
			362	818	267	267	133	147		203			
80	144	4"	16.00	8.00	12.50	15.50	6.25	7.75	22.5°	9.50	1 1/4 - 7UNC	8	880
			406	203	318	394	159	197		241			
100	265	6"	19.50	9.50	15.50	19.00	7.75	9.50	15°	12.50	1 3/8 - 6UNC	12	1589
			483	241	394	483	197	241		318			
150	430	6"	24.00	12.00	16.00	22.00	8.00	11.00	15°	12.50	1 3/8 - 6UNC	12	2399
			610	305	406	559	203	279		318			
200	924	8"	37.00	18.50	19.50	32.00	9.75	14.50	15°	15.50	1 5/8 - 6UNC	12	6557
			940	470	495	813	248	368		394			

□ = Inches; ■ = Millimeters

Consult Factory for additional configurations or flange sizes.
Above dimensions are for reference only.
All dimensions are subject to change.