Valves & Regulators

Valves & Regulators

- Electronic Products
- Pressure Transducers
- Mechanical Pressure Products
- Valves & Regulators
- Temperature Products
- Level Products
- Air Suspension Valves

Barksdale - the total control solutions partner

At Barksdale, our goal is to help our customers “Control Every Move”. For us, this isn’t simply a motto, but rather a vision that guides the way we do business with our valued customers. At every stage in the process from needs assessment, design and manufacturing to customer support, we provide peace of mind by delivering a total controls solution tailored to meet the specific needs of each customer. We accomplish this by leveraging the following:

A **Highly Experienced Team** of engineers that work closely with customers to meet, exceed and even anticipate their every control need.

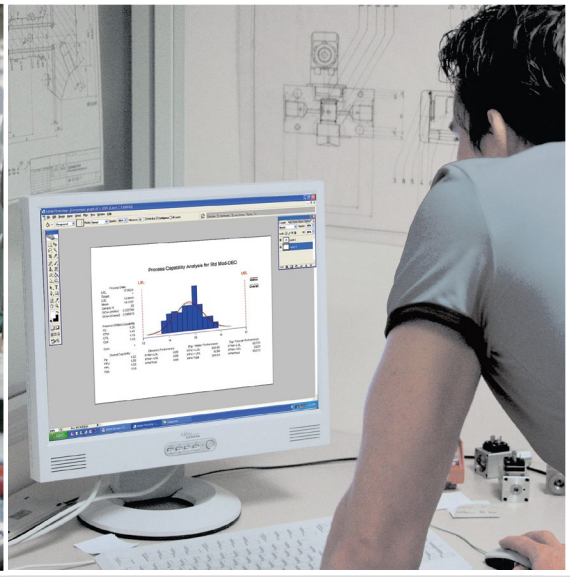
A **Diverse Product Portfolio** of quality standard and custom-tailored product solutions that help control Pressure, Temperature, Level and Flow in the most demanding applications in the industry.

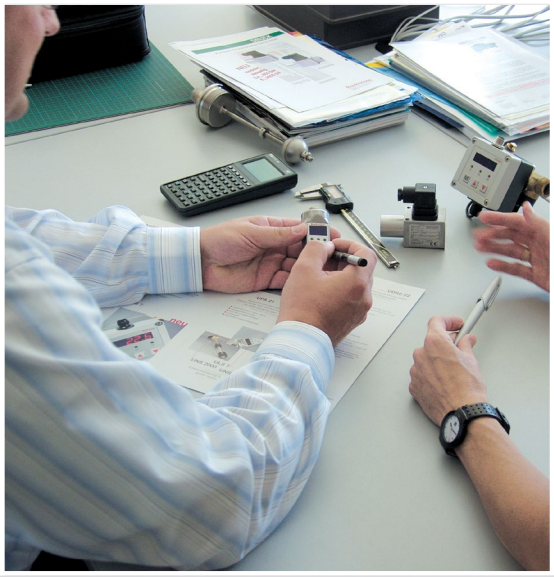
Our **Global Reach and Support** via our:

- Worldwide direct sales force of experts
- Manufacturing facilities in North America and Europe
- Team of highly capable and friendly customer support staff that make it easy to do business with Barksdale anywhere in the world

Dedicated Tools & Processes

- Production Part Approval Process (PPAP) to satisfy the most stringent quality control requirements
- Compliance with ISO 9001:2000 standards
- ATEX / IECx compliant facilities
- 6 Sigma culture / Process Capability





Barksdale®
CONTROL PRODUCTS

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Valves & Regulators

Interflow and Non-Interflow in Barksdale Valves

Interflow in a Barksdale Shear-Seal® valve is a small amount of fluid flow from the Pressure A and B ports to the return port through the clearance between the rotor and the body. This interflow occurs whenever the valve is shifted from one position to another or when the valve is being used for throttling. This is due to the Shear-Seal® in the valve being only partially covered by the rotor. Interflow is not leakage and does not occur when the valve is fully engaged.

The interflow in a Shear-Seal® valve is beneficial in that it reduces the hydraulic shock or "water hammer" that can occur when a valve is closed rapidly. The small amount of interflow between ports acts as a cushion as the fluid flow is stopped in the system.

Non-interflow valves are constructed with Shear-Seal®s using a much smaller flow passage than a comparably sized interflow valve. By doing this, the orifice in the pressure seal and rotor are completely covered during transition thus preventing interflow. Non-interflow valves may be required when precise control of a cylinder is needed and the small settling associated with interflow valves can not be tolerated. Non-interflow valves have a much lower flow rate than interflow valves with the same port size. Mandatory higher force is required to actuate them.

Barksdale Shear-Seal® Valves are available with many standard options as well as special order features. Many of the options available are listed below. Consult Factory for additional details and availability for a particular valve model. Don't see what you need here? Call us - we're only a phone call away.

Seal Material	Std. P/N Suffix
Butyl	-Z10
Neoprene	-Z12
Viton®	-Z13
EPR	-Z15
Silicone	-Z16
FSR	-Z17
Thiokol	-Z18
Disogrin	-Z21

Modification	Std. P/N Suffix
2-Position 45° CW detent	-Z30
2-Position 45° CCW detent	-Z31
2-Position 90° detent	-Z32
No valve detent	-Z33
No valve handle	-Z34
Valve with actuator mounting Hardware only (no actuator)	-Z35

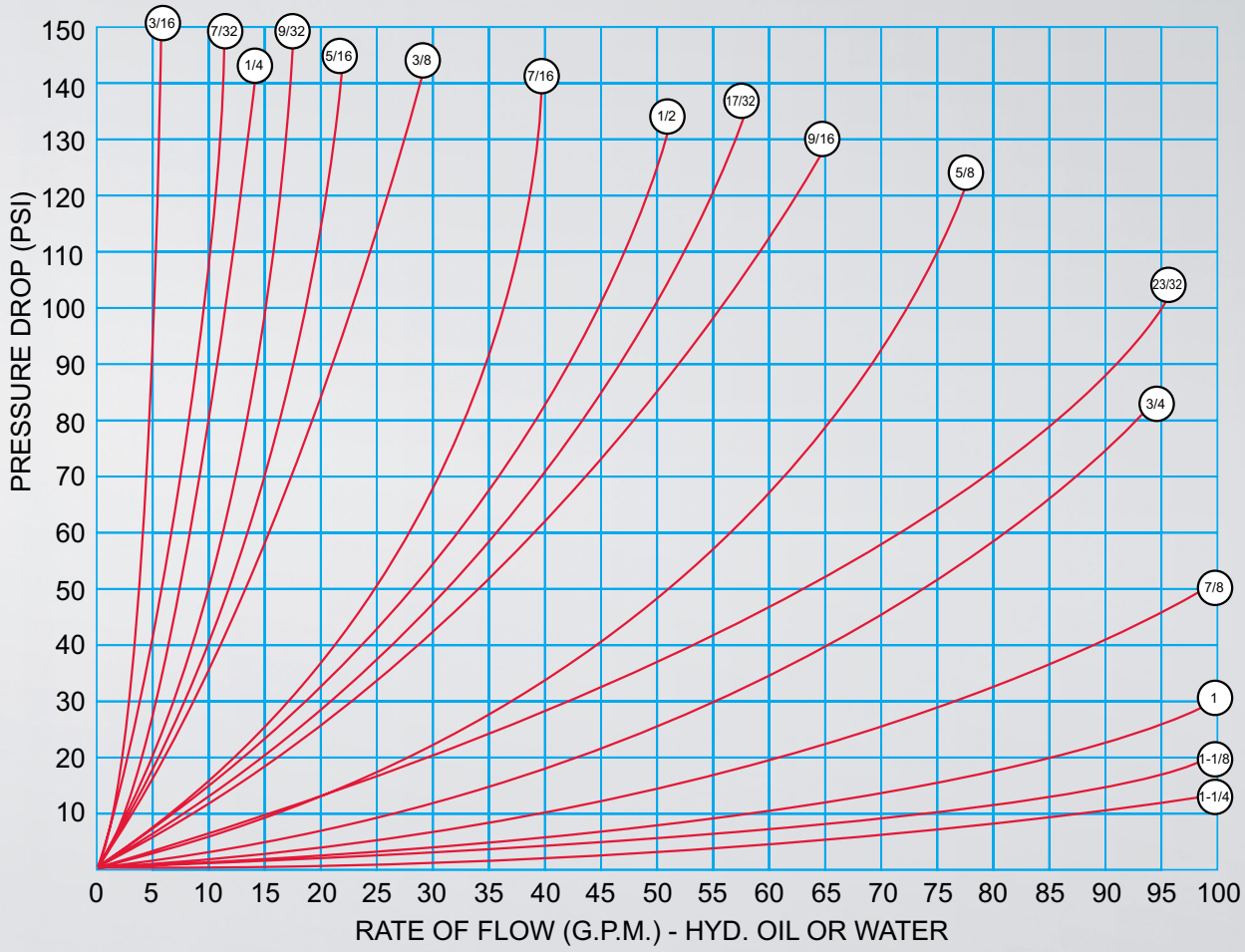
Maintenance

1. Disassemble and inspect. Replace or repair damaged or worn parts and "O" rings; clean all parts including solenoid and plunger. Grease valve parts before assembly. The solenoid should be cleaned at least every 1,000,000 cycles or every six months. The valve should be checked every 2,000,000 or once a year.
2. All Barksdale manual selector valves for water service are equipped with a grease fitting in the housing. On untreated water, valve should be lubricated through this fitting. Frequency of lubrication depends entirely on duty cycle of valve. An increase in handle load will indicate exactly what lubrication schedule should be followed. Use water resistant lubricant such as Socony-Vacuum "Sovarex 2W", Shell "Alvania" or equivalent. Preceding operation may be disregarded if valve is used on water treated with soluble oil.
3. At the first sign of excessive internal leakage the valve should be disassembled and the source of leakage repaired. Allowing valve to continue in operation may cause damage to other components, as the escaping fluid is generally in the form of a jet stream.

WARNING: Reverse assembly of any valve parts may result in high case pressure and possible injury. Assembly drawings, sales drawings and parts lists MUST be consulted.

Pressure Drop Curves

(Theoretical)



Pressure Drop

Barksdale's Shear-Seal® Valves have a much lower pressure drop than other valve technologies. This is possibly due to smooth internal passages and transitions within the valves which keep turbulent fluid flow to a minimum. This translates to less heat build-up and higher pressures available to perform the required work.

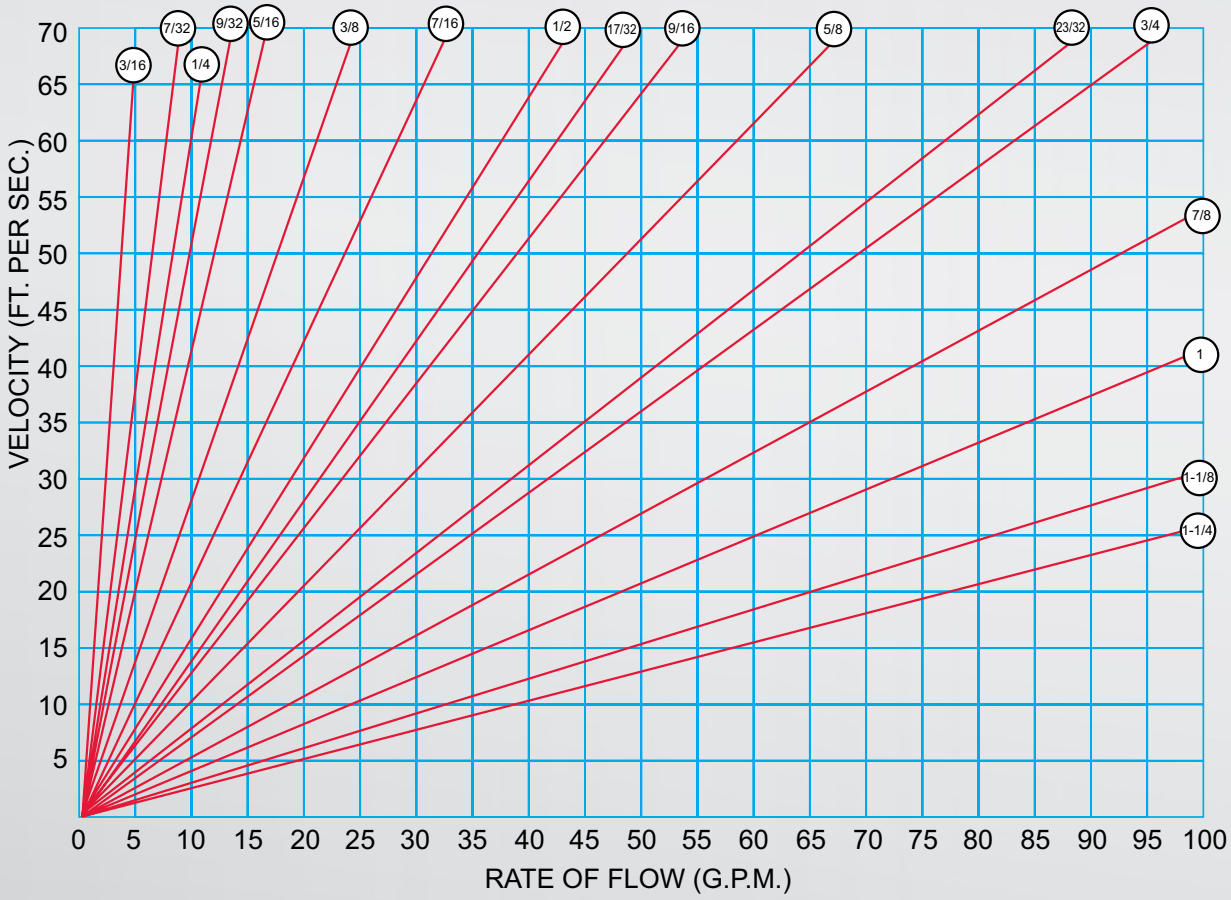
Determine Pressure Drop for Barksdale Shear-Seal Valves

1. Determine the Rate of Flow in G.P.M. or L.P.M. for fluid being controlled.
2. Determine minimum flow passage for valve from vale data sheet or sales drawing.
3. Locate the Pressure Drop Curve from the chart above for the appropriate minimum flow passage (indicated by the small circles at each curve).
4. Read the Pressure Drop from the vertical axis at the point where the flow rate (horizontal axis) intersects the appropriate pressure drop curve.

Note: The Pressure Drop is about the same in all flow directions.

Velocity Curves

(Theoretical)



Fluid Velocity

Barksdale's Shear-Seal® Valves control fluid at a much higher velocity than other types of valve technologies. This means that a smaller valve can be used to do the same types of job, saving you space and component costs. The recommended velocity for Barksdale valves is about 30 ft/sec (9.1 m.sec) for continuous operation. However, the valve can easily handle higher velocities up to 60 ft/sec (19.3 m/sec) for intermittent duty.

Determining Fluid Velocity in a Shear-Seal Valve for a known Rate of Flow

1. Determine the Rate of Flow in G.P.M. or L.P.M. for fluid being controlled.
2. Determine minimum flow passage for valve from valve data sheet or sales drawing.
3. Locate the Velocity curve from the chart above for the appropriate minimum flow passage (indicated by the small circles at each curve).
4. Read the Velocity from the vertical axis at the point where the flow rate (horizontal axis) intersects the appropriate Velocity curve.

Trouble-Shooting Pointers

Barksdale Manual Directional Control Valves

SUSPECTED TROUBLE	SOLUTION
High force required to shift valve	
Possible Cause	
1 Restriction or blockage in "return" port causing back pressure in excess of maximum allowable for valve style	1 Remove restriction
2 Valve installed in system incorrectly allowing pressure to be applied to return port	2 Install valve correctly
3 Bent detent disk rubbing valve housing	3 Repair or replace detent disk
4 Dirt or debris under trust washer causing tipping of rotor	4 Disassemble and clean valve
5 Worn or missing pin rotor pin on shaft which allows rotor to rub on housing	5 Disassemble and replace shaft pin
6 Worn or scored thrust washers causing bearings to bind	6 Replace thrust washers and bearings. If balls run on top of rotor inspect this area for damage as well.
7 Pressure in excess of valve rating	7 Reduce working pressure of valve in system with regulator, relief valve or other means.
8 Lip worn off of Shear-Seal®	8 Replace Shear-Seals®
9 Galling between Shear-Seal® and rotor	9 This is typically an affect of rotor tipping. Replace Shear-Seal®. If possible grind and lap rotor and use shim on top of rotor to make up difference that is ground off. Otherwise replace rotor.

SUSPECTED TROUBLE	SOLUTION
Symptom: Leakage around shaft	
1 Worn shaft O-ring	1 Replace shaft O-ring
2 Enlarged shaft hole in housing caused by side load on shaft. Typically only found when valve is actuated by some mechanical means which is misaligned	2 Replace housing. Inspect shaft for wear and replace if necessary. Correct side loading condition.

SUSPECTED TROUBLE	SOLUTION
Internal Leakage around Shear-Seal	
1 Worn Shear-Seal O-ring	1 Replace O-ring

SUSPECTED TROUBLE	SOLUTION
Internal Leakage	
Across Face of Shear-Seal®	
1 Scratch or other damage to face of Shear-Seal®	1 Replace Shear-Seal®. Field dressing can be performed on the face of Shear-Seal® by lapping with 600 grit paper. Paper should be held securely on a surface plate for best results.
2 Scratch or other damage to rotor	2 Lap rotor with 600 grit paper as described above. Replace rotor if leakage continues
3 Incorrect position of rotor in relation to Shear-Seals®. This can be caused by worn rotor shaft pins or worn detent disk	3 Replace detent disk or shaft pins
4 Wear on surface of Shear-Seal® after millions of cycles. This can reduce spring tension on Shear-Seal® due to material loss on seal face.	4 Replace Shear-Seal®s
5 Shear-Seal® spring fails due to breakage or taking permanent set.	5 Replace springs

SUSPECTED TROUBLE	SOLUTION
External Leakage Between	
Body and Housing	
1 Improperly installed body O-ring	1 Replace body O-ring and install completely in O-ring groove
2 Excessive back pressure in housing caused by restriction or blockage in return port. Back pressure can cause body bolts to stretch and allow leakage at body O-ring	2 Check pressure at return port with pressure gauge and insure it is below maximum rating for valve. Replace body O-ring
3 Body bolts not tightened to specification on assembly drawing.	3 Replace body O-ring and tighten bolts as per assembly drawing

Shear-Seal® Directional Control Valve

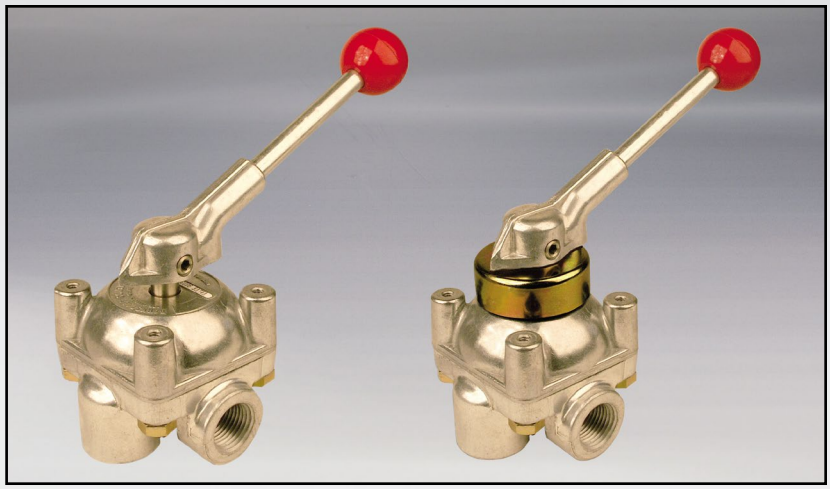
Series 9000, 9020

Features

- Original Shear-Seal® technology
- Interflow/non interflow
- Easy panel mounting
- Tolerates contaminates
- Spring return option

Applications

- Pilot valve for pneumatic valve actuators
- Gas manifold controls
- Manual control of 2-position cylinder



Shown with option “D” red ball type handle

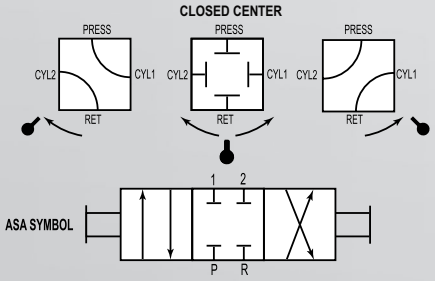
General Specifications*

Working Pressure:	Pneumatic or hydraulic from 150 psi to 350 psi (10.3 to 24.1 bar); see table
Cv, Minimum Orifice:	See table
Back Pressure:	Must not exceed 250 psi (17.2 bar) at return port for satisfactory operation
Proof Pressure:	1-1/2 times working pressure except at return port (without damage to valve)
Burst Pressure:	2-1/2 times working pressure except at return port (300 psi, 20.7 bar)

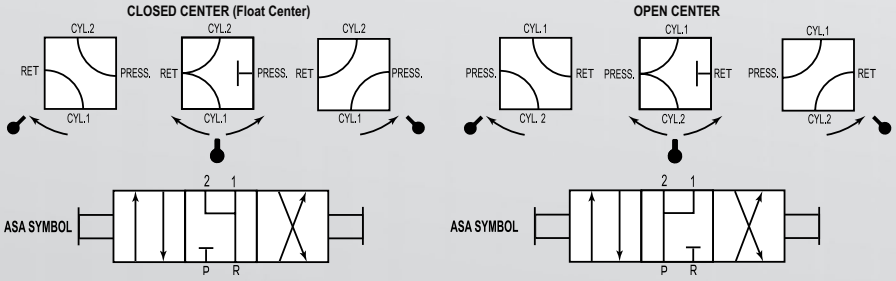
Media Temperature Range:	-40° to +250°F (-40° to +121°C)
Wetted Material: Body: Standard O-Rings: Pressure Seals: Rotor:	 Anodized aluminum Buna N Brass Hard anodized aluminum
Handle Rotation:	90°; 45° each side of center
Detent:	2- Position detent (-M, -MR) 3-Position detent (-M, -MC, -MR)

* See product configurator for additional options.

Selector Valves
FLOW PATTERNS
(VIEWED FROM SHAFT END)

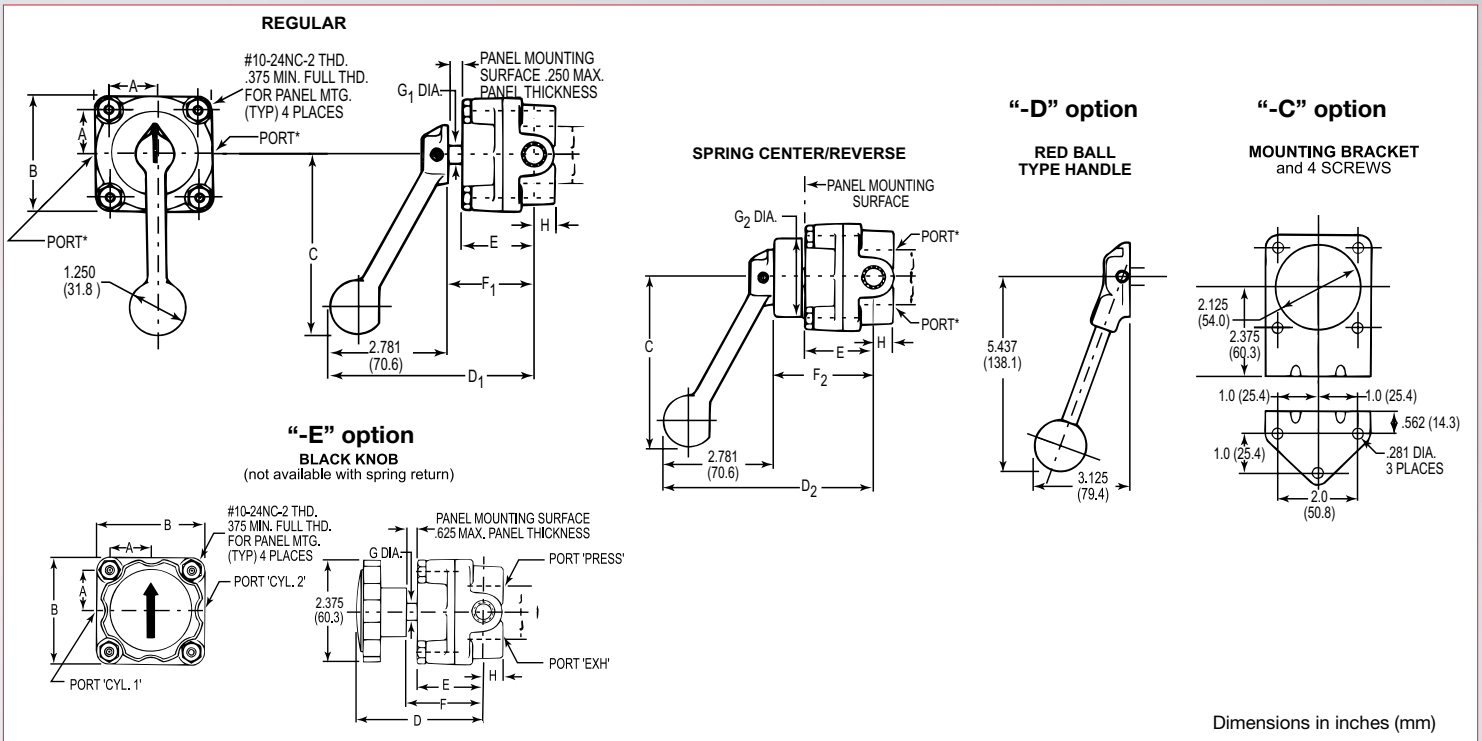


Manipulator Valves
FLOW PATTERNS
(VIEWED FROM SHAFT END)



	Port Size NPT	Min. Flow Passage Dia.	Cv Factor	Air and Oil Rated Pressure psi (bar)	Manipulator Rated Pressure psi (bar)	Approx. Shipping Weight lbs. (kg)
9000 Series Non Interflow	1/4”	3/16”	0.52	150 (10.3)	150 (10.3)	2 (0.9)
	3/8”					
	1/2”					
9020 Series Interflow	1/4”	3/8”	2.3	350 (24.1)	250 (17.2)	2 (0.9)
	3/8”					
	1/2”					

Technical Drawings



Dimensions in inches (mm)

PORT SIZE NPT	A	B	C	Black Knob D	Regular D-1	Spring Center/ Rever D-2	E	Black Knob F	Regular F-1	Spring Center/ Rever F-2	Black Knob G	Regular G-1	Spring Center/ Rever G-2	H	J
1/4 & 3/8	1.000 (25.4)	2.625 (66.7)	4.125 (104.8)	3.656 (92.9)	4.781 (121.4)	5.188 (133.8)	1.688 (42.9)	2.062 (52.4)	2.000 (50.8)	2.406 (61.1)	0.437 (11.1)	0.437 (11.1)	1.906 (48.4)	0.531 (13.5)	0.656 (16.7)
1/2	1.000 (25.4	3.125 (79.4)	4.125 (104.8)	3.718 (94.4)	4.843 (123.0)	5.250 (133.4)	1.750 (44.5)	2.125 (54.0)	2.062 (52.4)	2.468 (62.7)	0.437 (11.1)	0.437 (11.1)	1.906 (48.4)	0.625 (15.9)	0.937 (23.8)

Product Configurator

Example:	902	2	-M			

Series

900	Non interflow
902	Interflow

Port Size

1	1/4" pressure port
2	3/8" pressure port
3	1/2" pressure port

Operation

-M	Manual operation
-MC	Manual (spring return to center)
-MR	Manual (spring return to reverse)

Optional O-ring Material

-Z13	Viton seals

Options

-B[1]	2-position 90° rotation (no center position)
-C	Mounting bracket w/ 4 screws
-D	Red ball type handle
-CD	Mounting bracket & red ball type handle
-E	Black knob (not available for spring return)

Flow Pattern

	Blank if closed center selector
-A	Closed center manipulator
-G	Open center manipulator

Notes:
1. Only for -M, -MR

Low Pressure OEM Valves

Series 9040, 9080

Patent # 3,014,499

Features

- Original Shear-Seal® technology
- Low pressure drop
- Tolerates contaminates
- Spring return option
- Flexible design

Applications

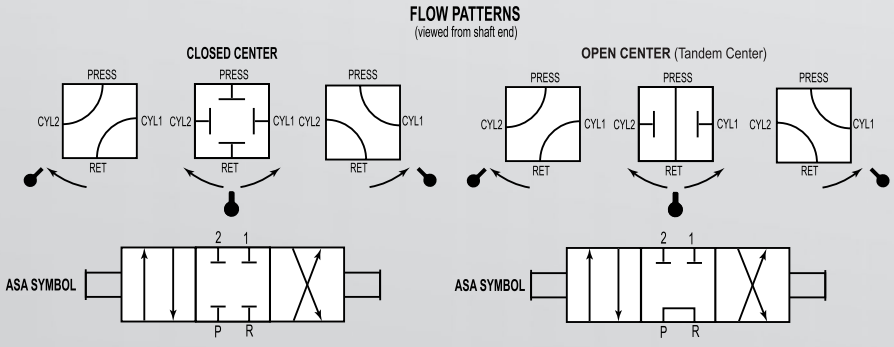
- Paper mill controls
- Air pilot valves
- Halon fill systems
- Heating oil control
- Compressed gas manifold control

General Specifications*

Working Pressure:	Gasses or hydraulic fluids up to 500 psi (34 bar)
Flow Capacity, Cv:	See table
Back Pressure:	Must not exceed 250 psi (17.2 bar) at return port for satisfactory operation
Pressure Drop:	14 psi (0.96 bar) at 20 ft/sec See Supplemental Guide for more detailed information
Proof Pressure:	1-1/2 times working pressure except at return port
Burst Pressure:	2-1/2 times working pressure except at return port (500 psi [34 bar])

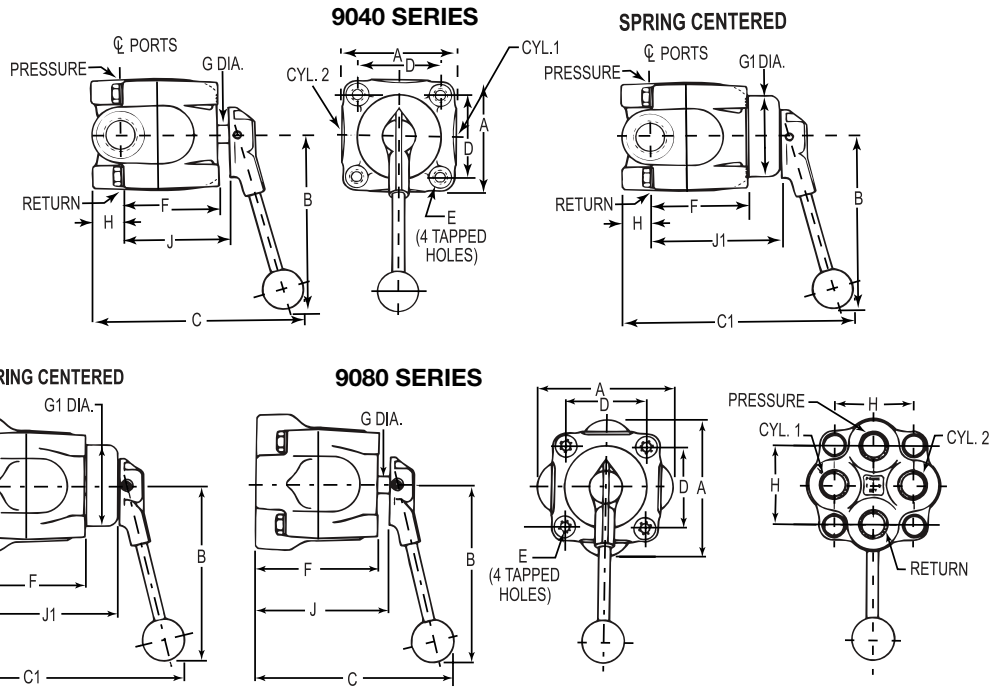
Media Temperature Range:	-40° to +250°F (-40° to +121°C)
Wetted Material:	
Rotor:	Hard anodized aluminum
Pressure Seals:	Brass
Shaft:	Stainless steel
Body, Housing:	Anodized aluminum
Bearings:	PTFE/stainless steel
Standard O-rings:	Buna N, others available

* See product configurator for additional options.



Barksdale® CONTROL PRODUCTS
CRANE Barksdale, Inc./Barksdale GmbH
A Subsidiary of Crane Co.

Technical Drawings



9040 Series Regular (side) Porting

Port Size NPT	A	B	C	C1	D	E	F	G Dia.	G1 Dia.	H	J	J1
1/2" & 3/4"	3.5 (88.9)	5.44 (138)	7.37 (187.3)	7.94 (201.6)	2.56 (65.0)	3/8 - 16 NC	3.03 (77.0)	0.56 (14.2)	2.56 (65.0)	0.88 (22.4)	3.38 (85.9)	3.94 (100)
1"	4.5 (114)	8.44 (214)	8.16 (207)	9.03 (229.4)	3.31 (84.1)	1/2 - 13 NC	3.59 (91.2)	0.75 (19.1)	3.375 (85.7)	1.06 (26.9)	3.94 (100)	4.81 (122.2)
1-1/2"	6.38 (162)	10.35 (263)	9.66 (245)	10.53 (267.5)	4.75 (121)	3/4 - 10 NC	4.656 (118.3)	0.88 (22.4)	3.375 (85.7)	1.37 (34.9)	5.03 (128)	5.906 (150)

9080 Series Straight (bottom) Porting

Port Size NPT	A	B	C	C1	D	E	F	G Dia.	G1 Dia.	H	J	J1
1/2" & 3/4"	4.19 (106)	5.44 (138)	7.34 (186)	7.9 (200.8)	2.56 (65.0)	3/8 - 16 NC	3.88 (98.6)	0.56 (14.2)	2.56 (65.0)	2.50 (65.5)	4.22 (107)	4.78 (121)

Dimensions in inches (mm)

Product Configurator

Example:	904	5	R	0	A	C	3		

Series

904	Regular (side) porting
908	Straight (bottom) porting

Port Size

3	1/2" NPT ports
4	3/4" NPT ports
5	1" NPT ports (Series 904 only)
7	1-1/2" NPT ports (Series 904 only)

Style

R	Regular (side) porting, (Series 904)
S	Straight (bottom) porting, (Series 908)

Pressure Range

0	500 psi max.

Service

A	Air (pneumatic) or hydraulic fluid

Flow Pattern

C	Closed center
O	Open center (tandem center)

Position

3	Three position

Options

-A	SAE porting
-MC	Spring centering

Options

-	See Supplemental Guide for complete list

High Pressure OEM Valves

Series 6140, 6180

Patent# 3,014,499

Features

- Original Shear-Seal® technology
- Low pressure drop
- Tolerates contaminates
- Spring return option
- Flexible design for OEM requirements

Applications

- Hydraulic presses
- Military equipment
- Paper mill controls
- Hydraulic pilot valves
- Railroad maintenance equipment
- Halon fill systems

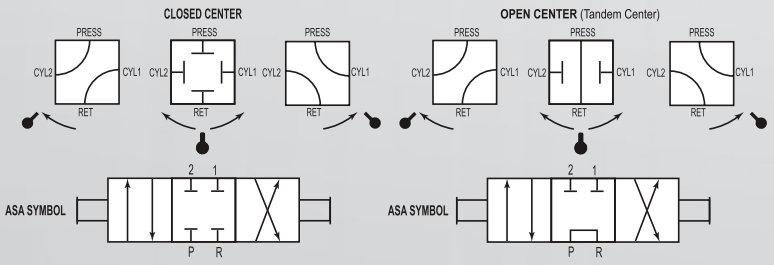
General Specifications*

Working Pressure:	Hydraulic fluid up to 3000 psi (206 bar)
Flow Capacity, Cv:	See table
Back Pressure:	Must not exceed 250 psi (17.2 Bar) at return port for satisfactory operation
Pressure Drop:	14 psi (0.96 bar) at 20 ft/sec See Supplemental Guide for more detailed information
Proof Pressure:	1-1/2 times working pressure except at return port
Burst Pressure:	2-1/2 times working pressure except at return port (see flow chart)

Media Temperature Range:	-40° to +250°F (-40° to +121°C)
Wetted Material:	
Rotor:	Hard anodized aluminum
Pressure Seals:	Brass
Shaft:	Stainless steel
Body Housing:	Anodized aluminum
Bearings:	Carbon steel
Standard O-rings:	Buna N, others available
Back-up Rings:	PTFE

* See product configurator for additional options.

FLOW PATTERNS
(VIEWED FROM SHAFT END)

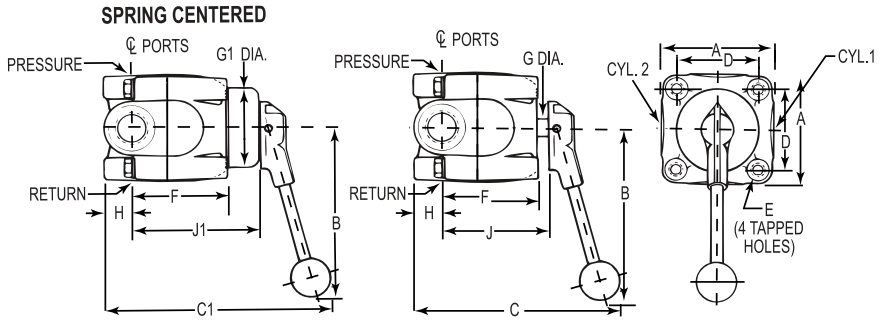


	Main Valve Port Size	Flow Capacity (Approx.) Service: Oil 20 ft/sec gpm (l/min)	40 ft/sec gpm (l/min)	60 ft/sec gpm (l/min)	Min. Flow Passage Dia.	Cv Factor	Approx. Shipping Weight lbs (kgs)	Return Port Burst Rating
	1/4" & 3/8"	5 (19)	10 (38)	Use Heavy Duty Valve	5/16"	1.56	1.7 (0.8)	3,000 psi (207 bar)
	1/2" & 3/4"	14 (53)	28 (106)		17/32"	4.80	3.8 (1.7)	
**	1"	25 (95)	51 (190)		23/32"	9.20	7.6 (3.5)	2,000 psi (138 bar)
**	1-1/2"	62 (235)	124 (471)		1-1/8"	24.0	18.5 (8.4)	1,500 psi (103 bar)

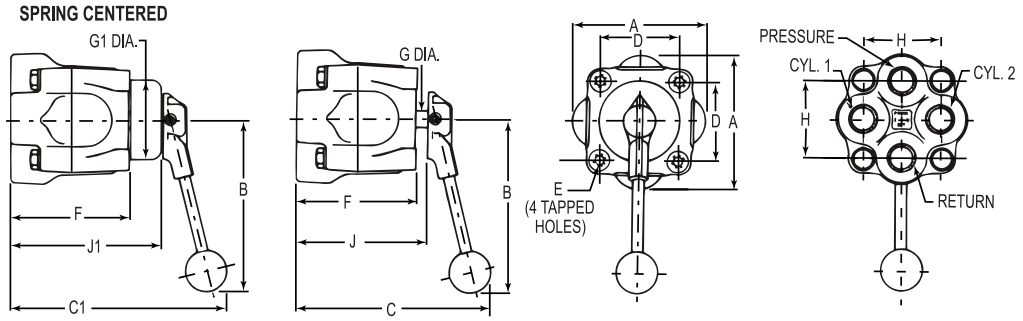
** 6140 Series only

Technical Drawings

6140 Series



6180 Series



6140 Series In-Line (side) Porting

Port Size NPT	A	B	C	C1	D	E	F	G Dia.	G1 Dia.	H	J	J1
1/4" & 3/8"	2.63 (66.8)	5.44 (138)	6.38 (161.9)	6.718 (170.6)	1.81(46.0)	5/16 - 18 NC	2.31(58.7)	0.44 (11.2)	1.91(48.5)	0.56 (14.2	2.66 (67.6)	3.03 (77.0)
1/2" & 3/4"	3.5 (88.9)	5.44 (138)	7.37 (187)	7.93 (201)	2.56 (65.0)	3/8 - 16 NC	3.03 (77.0)	0.56 (14.2)	2.56 (65.0)	0.88 (22.4)	3.38 (85.9)	3.94 (100)
1"	4.5 (114)	8.44 (214)	8.16 (207)	9.03 (229.3)	3.31 (84.1)	1/2 - 13 NC	3.59 (91.2)	0.75 (19.1)	3.38 (86)	1.06 (26.9)	3.94 (100)	4.81 (122)
1-1/2"	6.38 (162)	10.35 (263)	9.66 (245)	10.53 (268)	4.75 (121)	3/4 - 10 NC	4.6 (118)	0.88 (22.4)	3.38 (86)	1.34 (34.0)	5.03 (128)	5.91 (150)

6180 Series Straight (bottom) Porting

Port Size NPT	A	B	C	C1	D	E	F	G Dia.	G1 Dia.	H	J	J1
1/4" & 3/8"	2.63 (66.8)	5.44 (138)	6.13 (156)	6.50 (165)	1.81(46.0)	5/16 - 18 NC	2.66 (67.6)	0.44 (11.2)	1.91(48.5)	1.50 (38.1)	3.00 (76.2)	3.38 (85.9)
1/2" & 3/4"	4.19 (106)	5.44 (138)	7.34 (186)	7.91 (201)	2.56 (65.0)	3/8 - 16 NC	3.88 (98.6)	0.56 (14.2)	2.56 (65.0)	2.50 (65.5)	4.22 (107)	4.78 (121)

Dimensions in inches (mm)

Product Configurator

Example:	614	2	R	3	H	C	3		

Series

614	Regular (side) porting
618	Straight (bottom) porting

Port Size

1	1/4" NPT ports
2	3/8" NPT ports
3	1/2" NPT ports
4	3/4" NPT ports
5	1" NPT ports (614 only)
7	1-1/2" NPT ports (614 only)

Style

R	Regular (side) porting (series 614)
S	Straight (bottom) porting (series 618)

Pressure

3	3,000 psi

Working Media

H	Hydraulic oil

Flow Pattern

C	Closed center
O	Open center (tandem center)

Position

3	3-position

Options

	See Supplemental Guide for complete list

Options

-A	SAE Porting
-MC	Spring centering *
-NF	Non-interflow (port size 1/4" and 3/8" NPT only)

* For 1" ported pressure rating 2,500 psi
Not available on 1-1/2" ported valves.

High Pressure OEM Manipulator Valves

Series 6900, 6940

Patent# 3,014,499

Features

- Original Shear-Seal® technology
- Low pressure drop
- Tolerates contaminates
- Spring return option
- Special flow pattern for OEM designs

Applications

- Hydraulic presses
- Military equipment
- Paper mill controls
- Pipe forming
- Railroad maintenance equipment

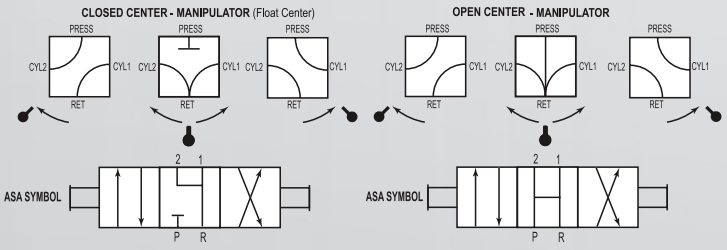
General Specifications*

Working Pressure:	Hydraulic fluid up to 3000 psi (206 bar)
Flow Capacity, Cv:	See table
Back Pressure:	Must not exceed 250 psi (17.2 Bar) at return port for satisfactory operation
Pressure Drop:	14 psi (0.96 bar) at 20 ft/sec See Supplemental Guide for more detailed information
Proof Pressure:	1-1/2 times working pressure except at return port
Burst Pressure:	2-1/2 times working pressure except at return port (3000 psi [206 bar])

Media Temperature Range:	-40° to +250°F (-40° to +121°C)
Wetted Material:	
Rotor:	Hard anodized aluminum
Pressure Seals:	Brass
Shaft:	Stainless steel
Body Housing:	Anodized aluminum
Bearings:	Carbon steel
Standard O-rings:	Buna N, others available
Back-up Rings:	Teflon®

* See product configurator for additional options.

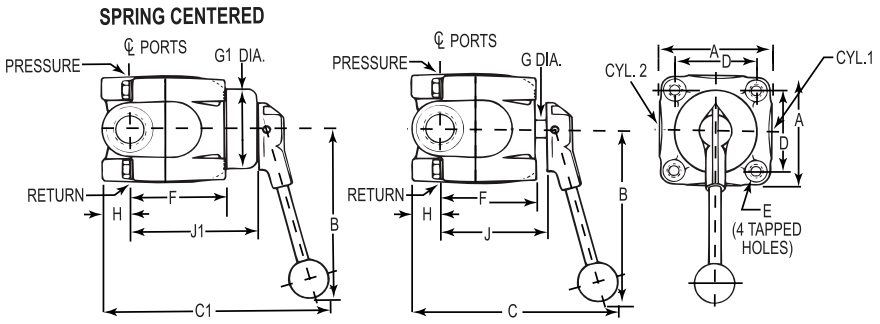
FLOW PATTERNS
(VIEWED FROM SHAFT END)



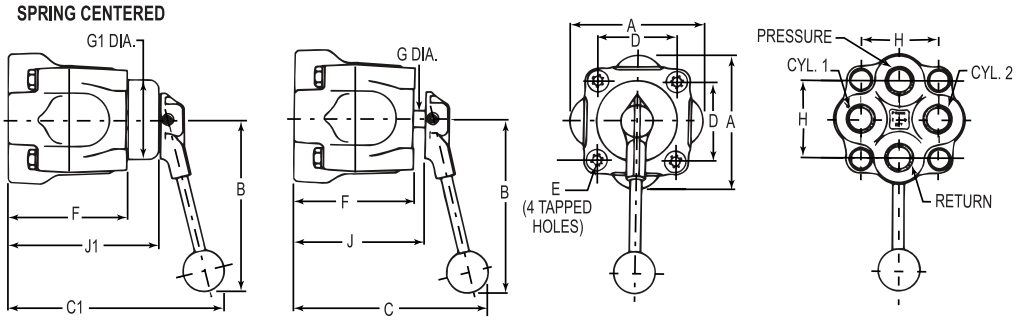
Main Valve Port Size	Flow Capacity (Approx.) Service: Oil 20 ft/sec gpm (l/min)	40 ft/sec gpm (l/min)	60 ft/sec gpm (l/min)	Min. Flow Passage Dia.	Cv Factor	Approx. Shipping Weight lbs (kgs)
1/4" & 3/8"	5 (19)	10 (38)	Use	5/16"	1.56	1 1/2 (0.7)
1/2" & 3/4"	14 (53)	28 (106)	Heavy	17/32"	4.80	3 (1.4)
1"	25 (95)	51(190)	Duty	23/32"	9.20	10 1/2 (4.6)
1-1/2"	62 (235)	124 (471)	Valve	1-1/8"	24.0	20 (9.1)

Technical Drawings

6900 Series



6940 Series



6900 Series In-Line (side) Porting

Port Size NPT	A	B	C	C1	D	E	F	G Dia.	G1 Dia.	H	J	J1
1/4" & 3/8"	2.63 (66.8)	5.44 (138)	6.38 (161.9)	6.718 (170.6)	1.81(46.0)	5/16 - 18 NC	2.31(58.7)	0.44 (11.2)	1.91(48.5)	0.56 (14.2	2.66 (67.6)	3.03 (77.0)
1/2" & 3/4"	3.5 (88.9)	5.44 (138)	7.37 (187)	7.93 (201)	2.56 (65.0)	3/8 - 16 NC	3.03 (77.0)	0.56 (14.2)	2.56 (65.0)	0.88 (22.4)	3.38 (85.9)	3.94 (100)
1"	4.5 (114)	8.44 (214)	8.16 (207)	9.03 (229.3)	3.31 (84.1)	1/2 - 13 NC	3.59 (91.2)	0.75 (19.1)	3.38 (86)	1.06 (26.9)	3.94 (100)	4.81 (122)
1-1/2"	6.38 (162)	10.35 (263)	9.66 (245)	10.53 (268)	4.75 (121)	3/4 - 10 NC	4.6 (118)	0.88 (22.4)	3.38 (86)	1.34 (34.0)	5.03 (128)	5.91 (150)

6940 Series Straight (bottom) Porting

Port Size NPT	A	B	C	C1	D	E	F	G Dia.	G1 Dia.	H	J	J1
1/4" & 3/8"	2.63 (66.8)	5.44 (138)	6.13 (156)	6.50 (165)	1.81(46.0)	5/16 - 18 NC	2.66 (67.6)	0.44 (11.2)	1.91(48.5)	1.50 (38.1)	3.00 (76.2)	3.38 (85.9)
1/2" & 3/4"	4.19 (106)	5.44 (138)	7.34 (186)	7.91 (201)	2.56 (65.0)	3/8 - 16 NC	3.88 (98.6)	0.56 (14.2)	2.56 (65.0)	2.50 (65.5)	4.22 (107)	4.78 (121)

Dimensions in inches (mm)

Product Configurator

Example:	690	2	R	3	H	C	3		

Series

690	Regular (side) porting, manipulator flow pattern
694	Straight (bottom) porting, manipulator flow pattern

Port Size

1	1/4" NPT ports
2	3/8" NPT ports
3	1/2" NPT ports
4	3/4" NPT ports
5	1" NPT ports (Series 690 only)
7	1-1/2" NPT ports (Series 690 only)

Style

R	Regular (side) porting (Series 690)
S	Straight (bottom) porting (Series 694)

Pressure

3	3,000 psi

Working Media

H	Hydraulic oil

Flow Pattern

C	Closed center manipulator (float center)
O	Open center (tandem center)

Position

3	3-position

Options

-Zxx	See Supplemental Guide for complete list

Options

-A	SAE Porting
-MC	Spring centering*
-NF	Non-interflow (port size 1/4" and 3/8" NPT only)

* For 1" ported pressure rating 2,500 psi
Not available on 1-1/2" ported valves.

Heavy Duty Valves

Series 140, 200, 920, 5620

Patent# 2.696.219

Features

- Original Shear-Seal® technology
- High velocity flow
- Tolerates contaminates
- Low handle load at high pressures
- Spring return option
- Low pressure drop

Applications

- Land-based and offshore drilling equipment
- Steel mills
- Nitrogen charging panels
- Refineries and chemical processing plants
- Power generation facilities

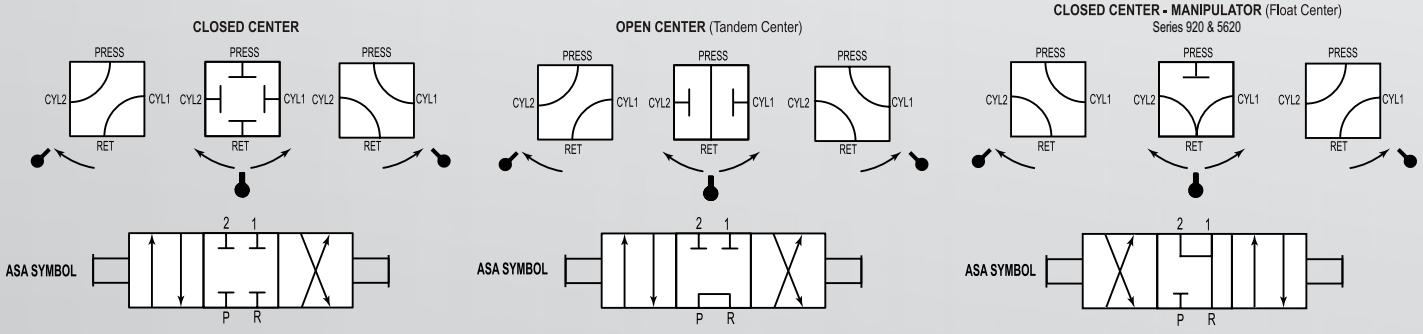
General Specifications*

Working Pressure:	Air (pneumatic) up to 4,000 psi (275 bar) hydraulic oil or lubricated water up to 6,000 psi (413 bar)
Flow Capacity, Cv:	See table
Back Pressure:	Must not exceed 250 psi (17 bar) at return port for satisfactory operation
Pressure Drop:	14 psi (0.96 bar) at 20 ft/sec See Supplemental Guide for more detailed information
Proof Pressure:	1.5x working pressure except at return port
Burst Pressure:	2.5x working pressure except at return port 3,000 psi (206 bar)

Media Temperature Range:	-40° to +250°F (-40° to +121°C)
Rotor:	400 series stainless steel
Pressure Seals:	Stainless steel
Shaft:	Stainless steel
Body:	Bronze
Housing:	Ductile iron
Standard O-ring:	Buna N, others available
Back-up Rings:	Teflon®

* See product configurator for additional options.

FLOW PATTERNS
(viewed from shaft end)

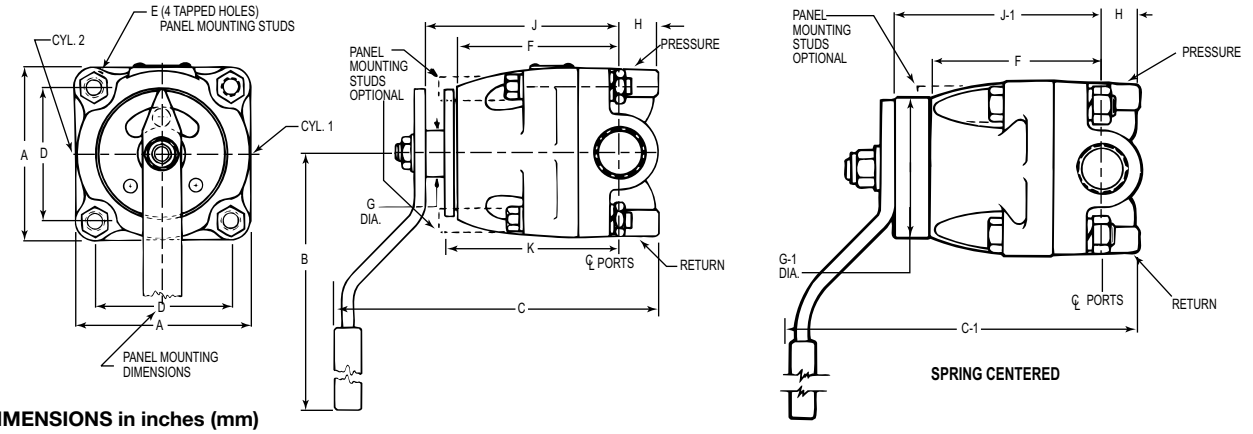


	Main Valve Port Size	Flow Capacity (Approx.) Service: Oil and Lubricated Water 20 ft/sec gpm (l/min)	40 ft/sec gpm (l/min)	60 ft/sec gpm (l/min)	Min. Flow Passage Dia.	Cv Factor	Approx. Shipping Weight lbs (kgs)
140/920 Series Valve	1/4"	3 (11)	6 (23)	9 (34)	1/4"	0.95	4.5 (2)
	3/8" & 1/2"	9 (34)	19 (72)	28 (106)	7/16"	3.20	8.5 (3.9)
	3/4" & 1"	25 (95)	50 (189)	75 (284)	23/32"	9.20	23.0 (10.5)
	1-1/2"	57 (217)	114 (433)	171 (650)	1-3/32"	21.00	48.5 (22)
200/562 Series Valve	1/4"	3 (11)	6 (23)	9 (34)	1/4"	0.95	4.5 (2)
	1/2"	5 (19)	10 (38)	15 (57)	5/16"	1.60	8.5 (3.9)
	1"	9 (34)	19 (72)	28 (106)	7/16"	3.20	23.0 (10.5)

Heavy Duty Valves

Series 140, 200, 920, 5620

Technical Drawings



DIMENSIONS in inches (mm)

Port Size NPT	A	B	C	C-1	D	E	F	G Dia.	G-1 Dia.	H	J	J-1	K (max.)
1/4"	2.6 (66)	5 (127)	4.7 (119)	4.87 (124)	1.8 (46)	3/8 - 16 NC	2.4 (61)	0.7 (18)	1.9 (48)	0.6 (15)	2.9 (74)	3.1 (79)	2.7 (69)
3/8" & 1/2"	3.3 (84)	7.0 (178)	6.8 (173)	6.8 (173)	2.4 (61)	3/8 - 16 NC	3.2 (81)	1.1 (28)	2.6 (66)	0.7 (18)	4.0 (102)	3.9 (99)	3.5 (88)
3/4" & 1"	4.6 (117)	10.0 (254)	8.7 (221)	9.9 (251)	3.6 (91)	1/2 - 13 NC	4.3 (109)	1.3 (33)	3.6 (91)	1.0 (25)	5.2 (132)	6.4 (163)	4.8 (122)
1-1/2" *	6.8 (173)	12.0 (305)	10.5 (267)	11.8 (300)	5.3 (135)	3/4 - 10 NC	5.8 (147)	1.3 (33)	3.6 (91)	1.5 (38)	6.5 (165)	7.8 (198)	6.1 (155)

* 1 1/2" available in Series 14 and 92 only

Product Configurator

Example:	20	3	P	6	W	C	3		

Series

14	3,000 psi (206 bar), 4-way selector with 5,000 psi (344 bar) option
20	6,000 psi (413 bar), 4-way selector
92	3,000 psi (206 bar), 4-way closed center manipulator with 5,000 psi (344 bar) option
562	6,000 psi (413 bar), 4-way closed center manipulator

Port Size

1	1/4" NPT ports
2	3/8" NPT ports (Series 14 & 92 only)
3	1/2" NPT ports
4	3/4" NPT ports (Series 14 & 92 only)
5	1" NPT ports
7	1-1/2" NPT ports (Series 14 & 92 only)

Port Location

R	Regular side porting
P	Panel mount with side porting

Pressure Range

3	3,000 psi lubricated water or hydraulic, 2,000 psi (137 bar) air (Series 14 & 92)
6	6,000 psi lubricated water or hydraulic, 4,000 psi (275 bar) air (Series 20 & 562)

Working Media

A	Air (pneumatic)
W	Lubricated water or hydraulic oil

Flow Pattern

C	Closed center (Series 14, 20)
O	Open center (tandem center) (Series 14, 20)
Q	Closed center manipulator (float center) (Series 92, 562)

Position

3	Three position

Optional O-ring material & modifications[1]

-Zxx	See Supplemental Guide for complete list

Options

-MC[2]	Spring centering[2]
-MS	SAE porting
-M[3]	5,000 psi hydraulic working pressure (Only 1" sizes for models 14 & 92)
-G[4]	1/4" NPT gauge ports for CYL 1 & 2
-D	Diverter flow pattern (Excludes models 92 & 562 all sizes)
-LD[5]	Lockout Device (Only available on 1/2" & 1" oil and gas valves)

Notes:
1. See Supplemental Guide for the appropriate "Z number"
2. For 3/4" & 1" ported valve pressure rating 1,500 psi (103 bar) max in water or hydraulic; 1,000 psi (69 bar) max in air. Not available on 1-1/2" ported valves
3. Only available with 1" port sizes for models 14 & 92.
4. Not available with Panel Mount

Oil and Gas BOP Control Valves

Part Number	Port Size	Pressure Range	Position	Flow Pattern
145R3WC3-Q6	1" NPT	3K psi lub. water or hyd. oil	3	Selector
145R3WC3-Q8	1" NPT	3K psi lub. water or hyd. oil	3	Diverter
145R3WC3-Q32	1" NPT	3K psi lub. water or hyd. oil	3	Selector
145R3WC3-Q33	1" NPT	3K psi lub. water or hyd. oil	3	Diverter
145R3WC3-Q16	1" NPT	5K psi lub. water or hyd. oil	3	Selector
145R3WC3-Q17	1" NPT	5K psi lub. water or hyd. oil	3	Diverter

Refer to sales drawings for technical reference and specifications

Part Number	Port Size	Pressure Range	Position	Flow Pattern
147R3WC3-Q4	1.5" NPT	3K psi lub. water or hyd. oil	3	Selector
147R3WC3-MS-Q4	1.5" SAE	3K psi lub. water or hyd. oil	3	Selector
147R3WC3-Q7	1.5" NPT	3K psi lub. water or hyd. oil	3	Diverter
147R3WC3-MS-Q7	1.5" SAE	3K psi lub. water or hyd. oil	3	Diverter
925R3WQ3-Q8	1" NPT	5K psi lub. water or hyd. oil	3	Manipulator
927R3WQ3-Q4	1.5" NPT	3K psi lub. water or hyd. oil	3	Manipulator
927R3WQ3-MS-Q4	1.5" SAE	3K psi lub. water or hyd. oil	3	Manipulator

Subplate Mounted Heavy Duty Valve

Series 3760

Patent # 2.696.219

Features

- Original Shear-Seal® technology
- Convenient sub-plate manifold mounting
- Low pressure drop
- High velocity flow
- Tolerates contaminates
- Low handle load at high pressures

Applications

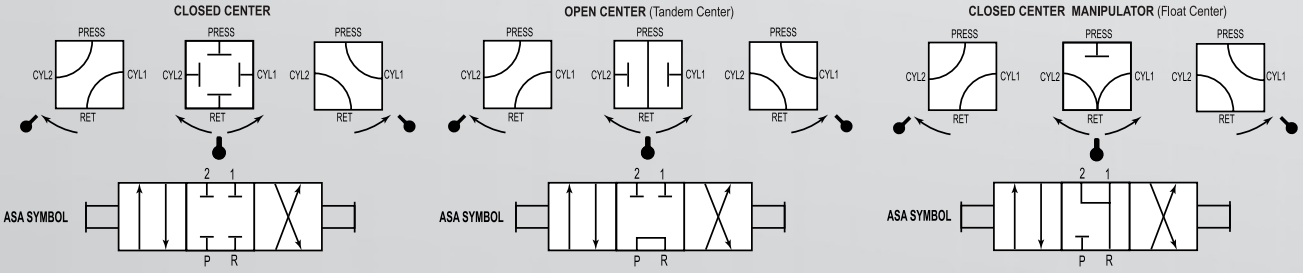
- Steel mills
- Shipboard hydraulic control systems
- Refineries and chemical processing plants
- Power generation facilities

General Specifications*

Working Pressure:	Hydraulic oil or lubricated water up to 4,500 psi (310 bar)
Flow Capacity, Cv:	See table
Back Pressure:	Must not exceed 250 psi (17.2 Bar) at return port for satisfactory operation
Pressure Drop:	14 psi (0.96 bar) at 20 ft/sec * See Supplemental Guide for more detailed information
Proof Pressure:	1-1/2 times working pressure except at return port
Burst Pressure:	2-1/2 times working pressure except at return port (3,000 psi [206 bar])
Media Temperature Range:	-40° to +250°F (-40° to +121°C)

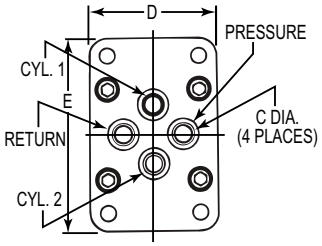
Wetted Material:	
Rotor:	400 series stainless steel
Pressure Seals:	Stainless steel
Shaft:	Stainless steel
Body:	Bronze
Housing:	Ductile iron
Standard O-rings:	Buna N, others available
Back-up Rings:	PTFE

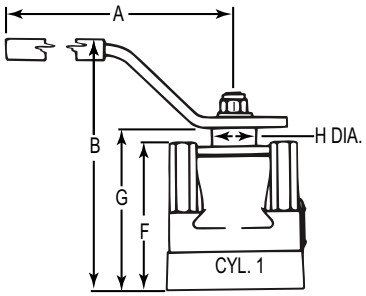
* See product configurator for additional options.

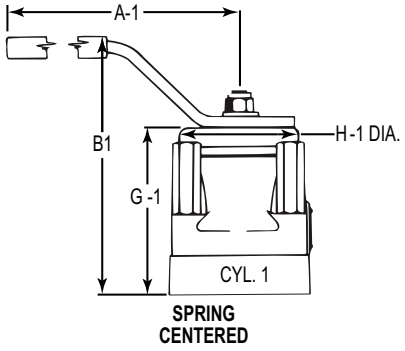


	Main Valve Port Size	Flow Capacity (Approx.) Service: Oil and Lubricated Water 20 ft/sec gpm (l/min)	40 ft/sec gpm (l/min)	60 ft/sec gpm (l/min)	Min. Flow Passage Dia.	Cv Factor	Approx. Shipping Weight lbs (kgs)
3760 Series Valve	1/2"	9 (34)	19 (72)	28 (106)	7/16"	3.20	9.5 (4.3)
	1"	25 (95)	50 (189)	75 (284)	23/32"	9.20	25 (11.3)
	1-1/2"	57 (217)	114 (433)	171 (650)	1-3/32"	21.00	53 (24)

Technical Drawings







Valve Dimensions - inches (mm)

Size	A	A-1	B	B-1	C	D	E	F	G	G-1	H	H-1
1/2"	7.00 (178)	9.00 (229)	5.81 (148)	6.06 (154)	0.47 (12)	3.44 (87)	5.44 (138)	3.56 (90)	3.94 (100)	4.06 (103)	1.06 (27)	2.63 (67)
1"	10.0 (254)	14.0 (356)	7.63 (194)	8.81 (224)	0.75 (19)	4.75 (121)	6.88 (175)	4.81(122)	5.13 (130)	6.19 (157)	1.25 (32)	3.56 (90)
1-1/2"	12.00 (305)	14.0 (356)	8.75 (222)	10.0 (254)	1.25 (32)	6.81 (173)	9.38 (238)	5.94 (151)	6.25 (159)	7.5 (191)	1.25 (32)	3.56 (90)

Product Configurator

Example:	376	5	M	3	W	C	3		

Series

376	Basic 376 series valve

Port Size

3	1/2" NPT ports
5	1" NPT ports
7	1-1/2" NPT ports

Style

M	Manifold porting

Pressure Range

3	3,000 psi lubricated water or hydraulic oil

Working Media

W	Lubricated water or hydraulic

Flow Pattern

C	Closed center
O	Open center (tandem center)
Q	Closed center manipulator

Position

3	3-position

Options

-MC	Spring centering *
-H	4,500 psi rated

* For 1" ported valve pressure rating 1,500 psi
Not available on 1-1/2" ported valves

Options

	See Supplemental Guide for complete list

Actuated Heavy Duty Valves *Series II - 14, 18, 92, 376, 20, 562*

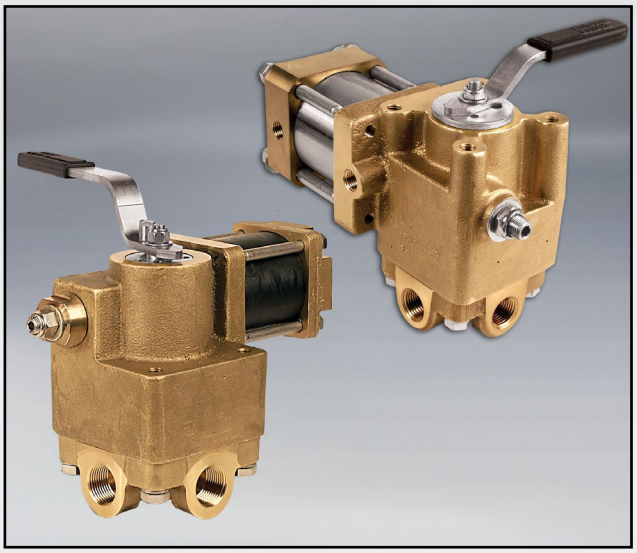
Features

- Original Shear-Seal® technology
- Air or hydraulic integrated actuator
- 2- and 3-position
- Superior shifting performance
- High velocity flow
- Compact design
- Corrosion resistant materials
- Position indication

Applications

- Land-based & offshore oil drilling controls
  BOP control units
- Steel mills
- Shipboard hydraulic control systems
- Refineries and chemical processing plants

Patent# US D521.598 S Patent# US D521.599 S



General Specifications*

- Main Valve

Working Pressure:	Hydraulic up to 3,000 or 6,000 psi (206 bar or 413 bar) Air up to 2,000 or 4,000 psi (138 or 276 bar)
Back Pressure:	Must not exceed 250 psi (17.2) bar at return port for satisfactory operation
Proof Pressure:	1-1/2 times working pressure except at return port
Burst Pressure:	2-1/2 times working pressure except at return port (3,000 psi [206 bar])
Pressure Drop (all Valves):	See supplemental guide for detailed information
Porting:	1/4”, 3/8”, 1/2”, 3/4”, 1”, & 1-1/2” NPT Standard (SAE J1926 Option)
Media Temperature Range:	-40° to +250°F (-40° to +121°C)
Handle Detent:	All valves have 3-position detents for manual shift to Center position
Panel Mounting:	Standard for 1/4”, 3/8”, 1/2” valves Refer to sales drawings for 1” & 1-1/2” valves
Wetted Materials: Body: Shaft: Rotor & Seals: Standard O-Rings:	 Al-Ni bronze Stainless steel 400 series stainless steel Buna N
External: Housing: Hardware: Handle & Detent Disc:	 Al-Ni Bronze Stainless Steel Stainless Steel

- Pilot Actuator

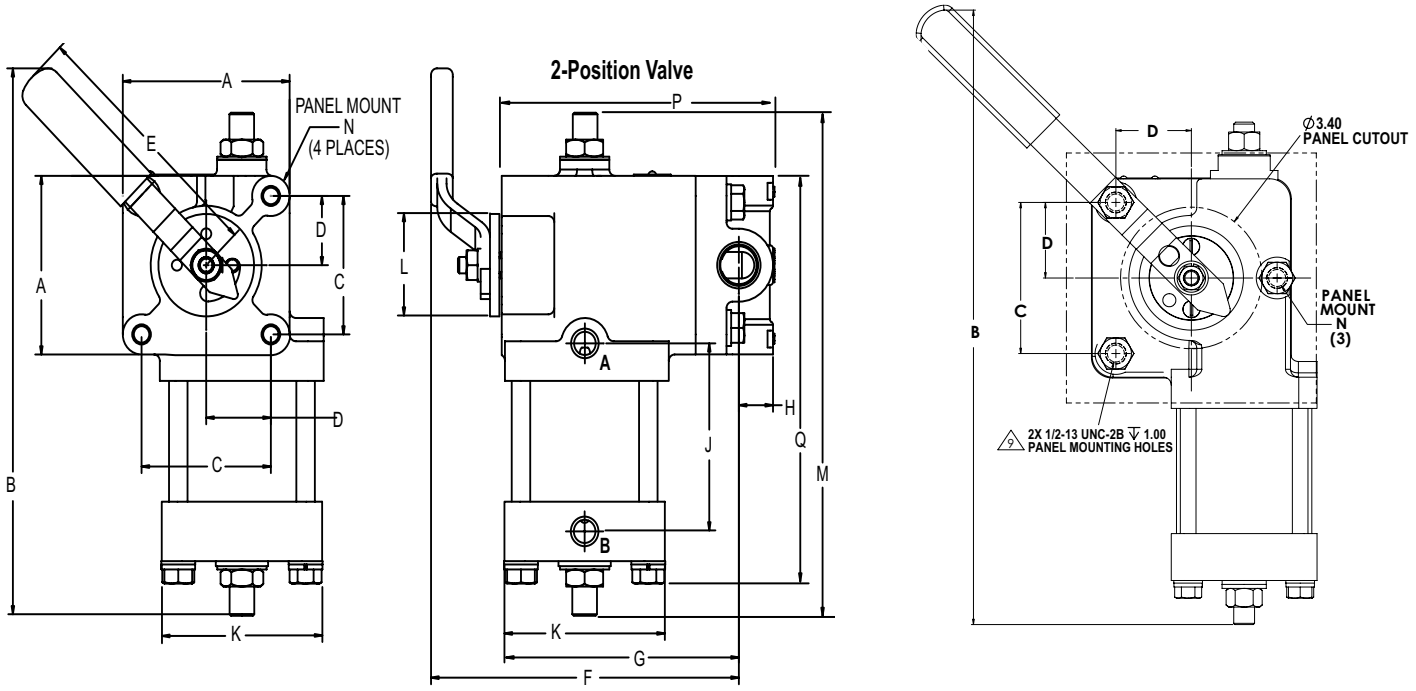
Working Pressure: Air: Hydraulic:	 80 psi (5.2 bar) minimum 250 psi (17.2 bar) maximum 500 psi (34 bar) minimum 1,500 psi (103 bar) maximum
Porting:	1/4”- 18 NPT (2)
Media Temperature Range:	-40° to +250°F (-40° to +121°C
Speed of Operation:	Greater than or equal to 1/2 second to avoid damage.
Materials: Cylinder: End Plate: Hardware:	 Air -Amalga (Std.) -Stainless steel (Opt.) Hydraulic - Stainless steel (Std.) Stainless steel 1/4”, 3/8”, 1/2” Al-Ni Bronze 3/4” 1” & 1-1/2” Stainless steel

GENUINE Barksdale® CONTROL PRODUCTS CRANE SHEAR-SEAL® VALVE

* See product configurator for additional options.

Technical Drawings

2-Position Valve

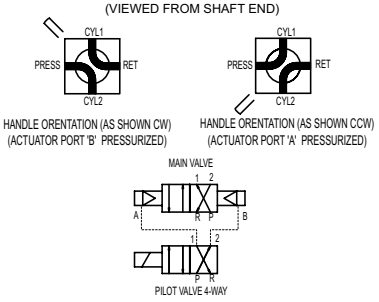


1/4", 3/8", 1/2"

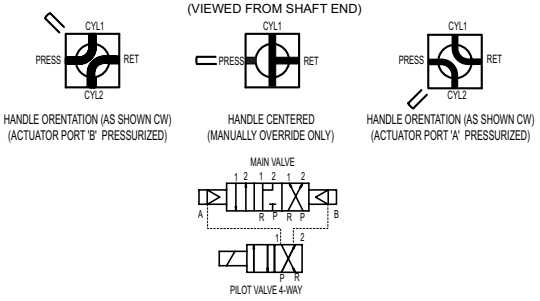
3/4", 1", 1 1/2"

Refer to Sales Drawings for more detailed information

2-POSITION FLOW PATTERN SELECTOR
(VIEWED FROM SHAFT END)



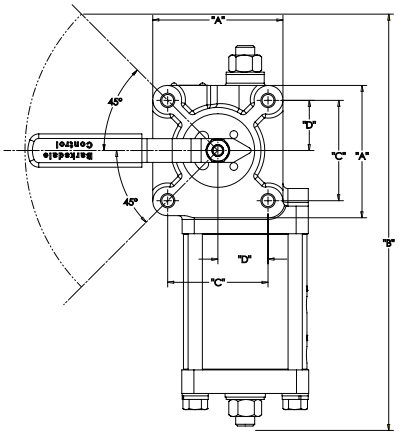
CLOSED CENTER MANIPULATOR FLOW PATTERN
(VIEWED FROM SHAFT END)

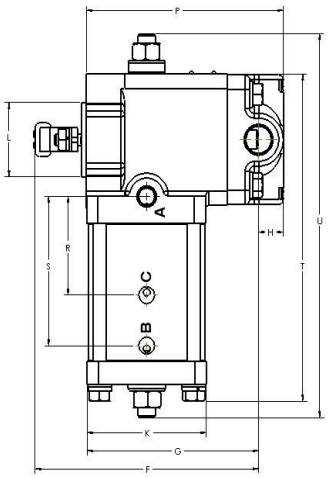


Porting	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
1/4" NPT	2.75 (69.9)	10.38 (254.0)	2.00 (50.8)	1.00 (25.4)	5.00 (127.0)	5.72 (146.1)	4.25 (108)	0.50 (12.7)	3.34 (85)	3.25 (82.6)	1.94 (49.2)	9.43 (231.7)	3/8-18 UNC	4.88 (124.0)	7.44 (189.0)	NA	NA	NA	NA
3/8" & 1/2" NPT	3.406 (86.5)	10.937 (277.8)	2.625 (66.7)	1.312 (33.3)	5.00 (127.0)	6.25 (158.8)	4.750 (120.65)	0.688 (17.46)	3.531 (89.7)	3.25 (82.6)	1.94 (49.2)	9.531 (242.1)	3/8-18 UNC	5.50 (139.7)	7.85 (199.3)	NA	NA	NA	NA
3/4" & 1" 2 pos NPT	4.781 (121.4)	14.375 (365.1)	3.625 (92)	1.812 (46)	9.00 (228.6)	8.75 (222.3)	6.562 (166.6)	1.00 (25.4)	4.25 (108)	3.50 (88.9)	3.00 (76.2)	12.00 (482.0)	1/2-13 UNC	7.562 (192.0)	10.125 (257.0)	NA	NA	NA	NA
1-1/2" 2 pos NPT	6.75 (171.5)	16.00 (406.4)	5.312 (134.9)	2.656 (67.5)	9.00 (228.6)	10.50 (266.7)	8.139 (209)	1.50 (38.1)	4.00 (101.6)	4.75 ;(120.7)	3.00 (76.2)	12.00 (482.0)	1/2-13 UNC	8.31 (211.1)	NA	NA	NA	NA	NA

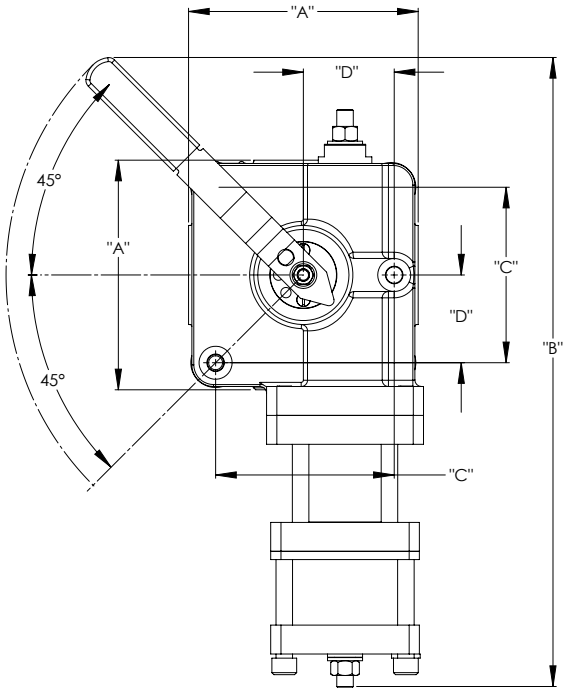
Technical Drawings

3-Position Valve





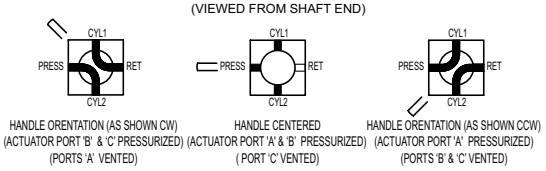
1/4", 3/8", 1/2"



3/4", 1", 1 1/2"

Refer to Sales Drawings for more detailed information

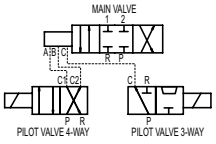
3-POSITION FLOW PATTERN SELECTOR
(VIEWED FROM SHAFT END)



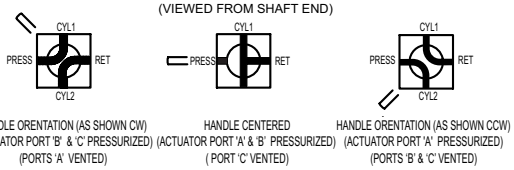
HANDLE ORIENTATION (AS SHOWN CW) (ACTUATOR PORT 'B' & 'C' PRESSURIZED) (PORTS 'A' VENTED)

HANDLE CENTERED (ACTUATOR PORT 'A' & 'B' PRESSURIZED) (PORT 'C' VENTED)

HANDLE ORIENTATION (AS SHOWN CCW) (ACTUATOR PORT 'A' PRESSURIZED) (PORTS 'B' & 'C' VENTED)



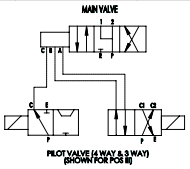
CLOSED CENTER MANIPULATOR FLOW PATTERN
(VIEWED FROM SHAFT END)



HANDLE ORIENTATION (AS SHOWN CW) (ACTUATOR PORT 'B' & 'C' PRESSURIZED) (PORTS 'A' VENTED)

HANDLE CENTERED (ACTUATOR PORT 'A' & 'B' PRESSURIZED) (PORT 'C' VENTED)

HANDLE ORIENTATION (AS SHOWN CCW) (ACTUATOR PORT 'A' PRESSURIZED) (PORTS 'B' & 'C' VENTED)



Porting	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
1/4" NPT	2.75 (69.9)	10.38 (254.0)	2.00 (50.8)	1.00 (25.4)	5.00 (127.0)	5.72 (146.1)	4.25 (108)	0.50 (12.7)	3.34 (85)	3.25 (82.6)	1.94 (49.2)	9.43 (231.7)	3/8-18 UNC	4.88 (124.0)	7.44 (189.0)	2.44 (62)	3.75 (95.3)	6.44 (214.4)	10.468 (265.9)
3/8" & 1/2" NPT	3.406 (86.5)	10.937 (277.8)	2.625 (66.7)	1.312 (33.3)	5.00 (127.0)	6.25 (158.8)	4.75 (120.65)	0.688 (17.46)	3.531 (89.7)	3.25 (82.6)	1.94 (49.2)	9.531 (242.1)	3/8-18 UNC	5.50 (139.7)	7.85 (199.3)	2.56 (65.1)	3.88 (98.4)	8.688 (220.7)	10.25 (260.4)
3/4" & 1" 3 pos NPT	4.813 (122.3)	17.313 (439.8)	3.625 (92)	1.812 (46)	9.00 (228.6)	8.750 (222.3)	6.562 (166.6)	1.00 (25.4)	4.250 (108)	4.50 (114.3)	3.00 (76.2)	12.00 (482.0)	1/2-13 UNC	7.563 (192.1)	NA	3.938 (100)	7.063 (179.4)	NA	15.188 (385.8)
1-1/2" 3-Pos NPT	7.00 (177.8)	18.75 (476.3)	5.25 (133.4)	2.656 (67.5)	9.00 (228.6)	10.50 (266.7)	8.138 (209)	1.50 (38.1)	4.00 (101.6)	4.50 (114.3)	3.00 (76.2)	17.50 (444.5)	1/2-13 UNC	8.31 (211.1)	NA	4.188 (106.4)	7.313 (185.7)	NA	17.50 (444.5)

Actuated Heavy Duty Valves *Series II - 14, 18, 92, 376, 20, 562*

Flow Capacity

	Main Valve Port Size	Flow Capacity (Approx.) Service: Oil and Lubricated Water 20 ft/sec. gpm (l/min.)	40 ft/sec. gpm (l/min.)	60 ft/sec. gpm (l/min.)	Min. Flow Passage Dia.	Cv Factor	Approx. Shipping Weight 2 Pos.	Approx. Shipping Weight 3 Pos.
A14/A92 & A376 Series Valve	1/4"	3 (11)	6 (23)	9 (34)	1/4"	0.95	30	32
	3/8" & 1/2"	9 (34)	19 (72)	28 (106)	7/16"	3.20	35	37
	3/4" & 1"	25 (95)	50 (189)	75 (284)	23/32"	9.20	50	52
	1-1/2"	57 (217)	114 (433)	171 (650)	1-3/32"	21.00	129	134
A20/A562 Series Valve	1/4"	3 (11)	6 (23)	9 (34)	1/4"	0.95	30	32
	1/2"	5 (19)	10 (36)	15 (57)	5/16"	1.60	35	37
	1"	9 (34)	19 (72)	28 (106)	7/16"	3.20	50	52

Product Configurator

Example:	A	14	5	R	3	W	C	2		

Actuator Media

A	Air cylinder
H	Hydraulic cylinder

Series II Models

14	3,000 psi (206 bar), 4-way selector or diverter
92	3,000 psi (206 bar), 4-way closed center manipulator
18	3,000 psi (206 bar), straight porting, 4-way selector, diverter or manipulator
376	3,000 psi (206 bar), 4-way sub-plate mount selector/diverter or closed center manipulator
20	6,000 psi (412 bar), 4-way selector or diverter
562	6,000 psi (412 bar), 4-way closed center manipulator

Port Size

1	1/4" NPT
2	3/8" NPT (14 and 92 series only)
3	1/2" NPT
4	3/4" NPT (14 and 92 series only)
5	1" NPT
7	1 1/2" NPT (14, 92 and 376 series only)

Port Location

R	Regular side porting
S	Straight (Bottom) porting (18 Series Only)
M	Manifold porting (376 series only)
P	Panel mount with side porting (Standard for 1/4", 3/8", 1/2")

Pressure Range

3	3,000 psi lubricated water or hydraulic oil, 2,000 psi air (14, 92 & 376 Series)
6	6,000 psi lubricated water or hydraulic oil, 4,000 psi air (20 & 562 series)

Working Media

W	Lubricated water or hydraulic oil
A	Air or other gasses

Flow Pattern

C	Closed center
O	Open center (tandem center)
Q	Closed center manipulator Standard on 92 and 562 series Optional on 376 Series in closed center only Not available on 14 and 20 Series

Optional O-ring Material[1]

-Zxx	See supplemental guide

Options

- B	Position Indicator
-C[5]	3 x 2 converter Allows 3-position valve to be actuated with 2 inlets (3-position actuator only)
-H	4,500 psi hydraulic working pressure; 3000 psi air or gas working pressure
-M[3]	5,000 psi hydraulic working pressure
-D	Diverter flow pattern (Excludes 1/4" port size and all 92 & 562 models)
-MS	SAE J1926 Porting (except 376 models)
-SS	Stainless Steel Cylinder (Air only) Optional for: 2-Pos Sizes: 1/4"- 1 1/2" and 3 Pos Size 1"
-G[2]	1/4" NPT gauge ports for CYL 1 & 2

Position

2	2-position actuator, 90° rotation
3[4]	3-position actuator

Notes:
1. See Supplemental Guide for the appropriate "Z number"
2. -G option is limited to 1" and 1.5" port sizes
3. Only available with 1"& 1 1/2" port sizes for models 14 & 92. 1 1/2" size with 316 Stainless Steel Body as standard.
4. Not available for 1.5" port size with Air Cylinder Actuator
5. Only for air Actuators.

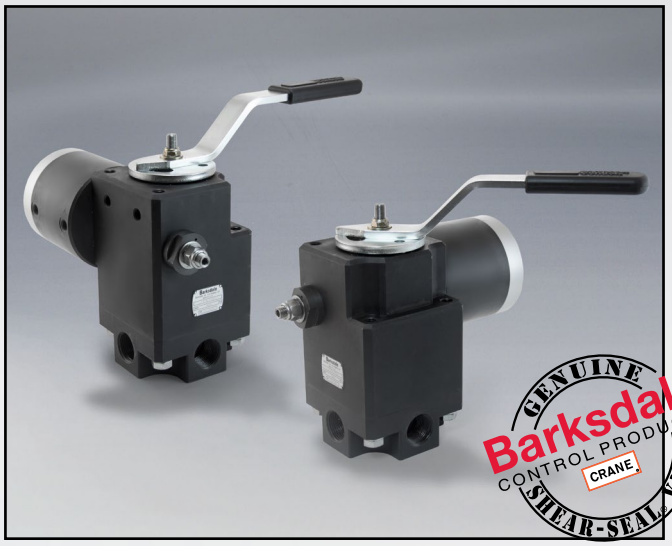
Actuated Heavy Duty Valves

Series III-L

Features

- Original Shear-Seal® technology
- 2 & 3 position valve
- 2 position actuated valve
- Manual override
- Air or hydraulic integrated actuator
- Superior shifting performance
- High flow with low pressure drop
- Rugged integrated solution
- Extended shaft for alternate position sensor
- Robust detent stop
- Panel mounting option
- Position indication option
- Suitable for hydraulic & water glycol media

Patent# US D686.298 S



Applications

- Land-based oil drilling controls
- BOP accumulator units
- Test systems
- Workover rigs
- Mobile drilling rigs

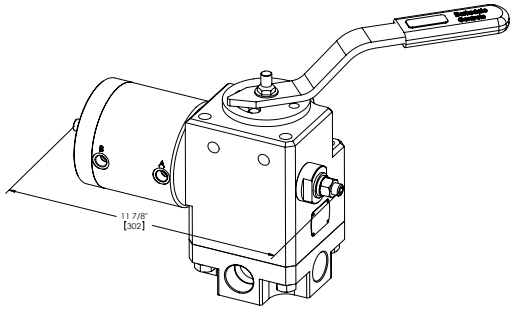
General Specifications*

Main Valve

Media Type:	Hydraulic oil or water based with stainless steel body
Working Pressure: 1" Size:	Hydraulic up to 3,000 or 5,000 psi (206 bar or 345 bar)
Back Pressure:	250 psi (17.2 bar) max at return port
Proof Pressure:	1.5x working pressure except at return port
Burst Pressure:	2x working pressure except at return port [3,000 psi (206 bar)]
Porting:	1" NPT standard Optional: SAE 16 (SAE J1926)
Media Temperature Range:	-30° to +185°F (-34.4° to +85°C)
Handle Detent:	All valves have 3-position detents for manual shift to center position
Wetted Materials: Body: Shaft: Rotor & Seals: Standard O-Rings:	 Phosphate coated carbon steel or stainless steel option Stainless steel 400 series stainless steel Buna N Option: Viton®, Neoprene, EPR
External Materials: Housing: Hardware: Handle & Detent Disc:	 Phosphate coated carbon steel Plated carbon steel Plated carbon steel
Flow Characteristics:	Cv Factor = 9.2 Capacity : 75 GPM @ 60ft/sec

Pilot Actuator

Working Pressure: Air: Hydraulic:	 Range: 80 to 120 psi (5.5 to 8.3 bar) Range: 200 to 1,000 psi (13.8 to 68.9 bar)
Porting:	1/4"- 18 NPT
Media Temperature Range:	-30° to +185°F (-34.4° to +85°C)
Speed of Operation:	1/2 second or more for 90° throw to avoid damage (Restrict actuator flow to control speed)
Materials: Cylinder (Air/Hydraulic): End Plate: Hardware:	 Hard anodized aluminum Anodized aluminum Plated carbon steel
Weight: (Valve & actuator)	 48 lbs (21.8 kg) : pneumatic model 49 lbs (22.2 kg) : hydraulic model



Series III-L

* See product configurator for additional options.

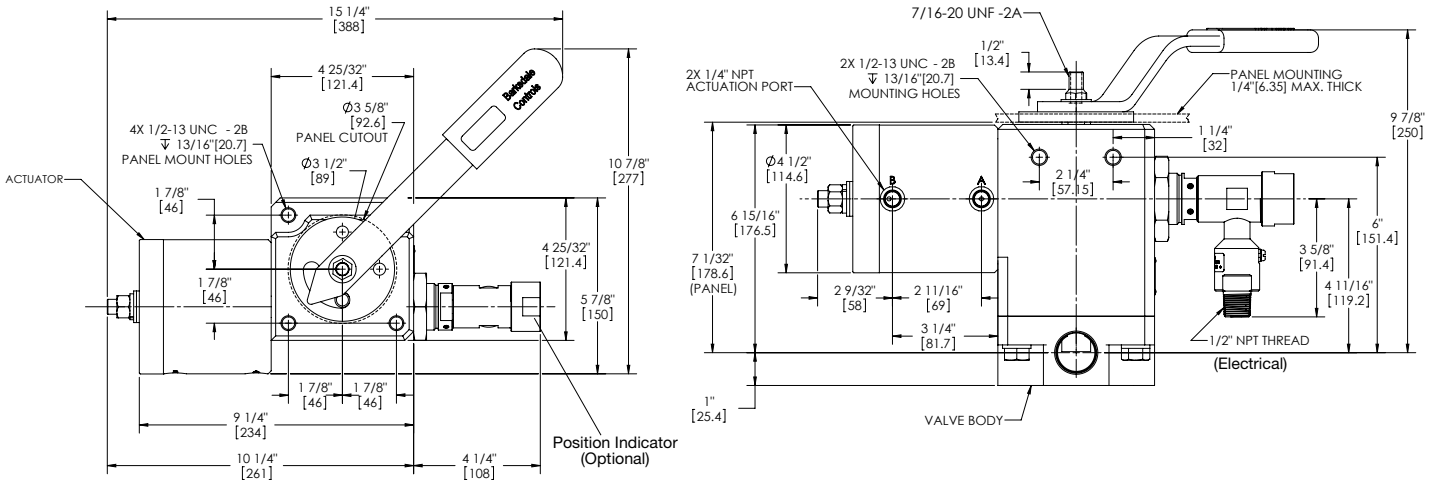
Actuated Heavy Duty Valves

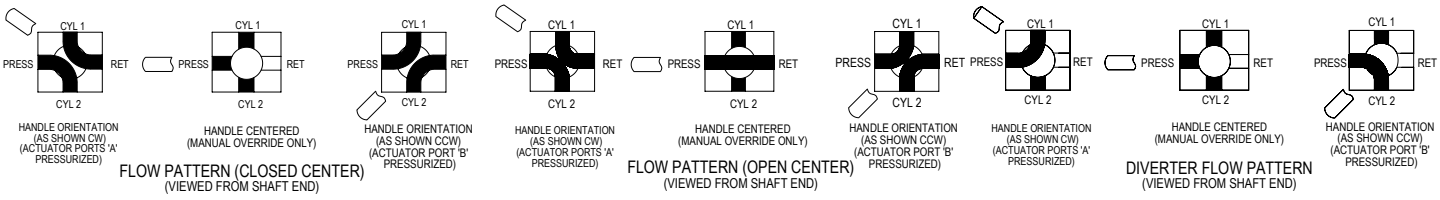
Series III-L

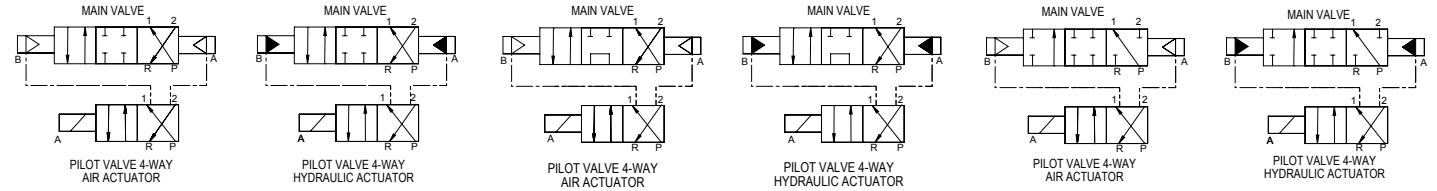
Technical Drawings

Dimensions in inches [mm]

2-Position Valve with Manual Override (Shown with Position Indicator Option)







Product Configurator

Example:	L	A	14	5	R	3	H	C	2		

Series III Land

Actuation Type

A	Air actuated cylinder
H	Hydraulic actuated cylinder

Valve Series

14	4-way selector or diverter

Port Size

5	1" NPT (SAE Option)

Port Location

R	Regular side porting
P	Panel mount

Pressure Range

3	3,000 psi (206 bar)
5	5,000 psi (345 bar)

Working Media

H	Hydraulic oil
W	Lubricated water (with stainless steel body)

Flow Pattern

C	Closed center (selector)
O	Open center (tandem center) selector
D	Diverter (bypass)

Seal Material Options

Blank	Buna N (Standard)
-Z12	Neoprene
-Z13	Viton®
-Z15	EPR

Options

-B[1]	Position indicator[1]
-MS	SAE J1926 porting
-US	Approved countries material origin
-G	1/4" NPT gauge ports for CYL 1 & 2
-SS	Stainless steel body

Position

2	2-position actuator, 90° rotation

Note: 1. Refer to Position Indicator Model 371MT7 datasheet

3211 Fruitland Avenue • Los Angeles, CA 90058 • ☎ 800-835-1060 • Fax: 323-589-3463 • www.barksdale.com

Barksdale® CONTROL PRODUCTS

Explosion Proof Position Indicator

Model 371MT7

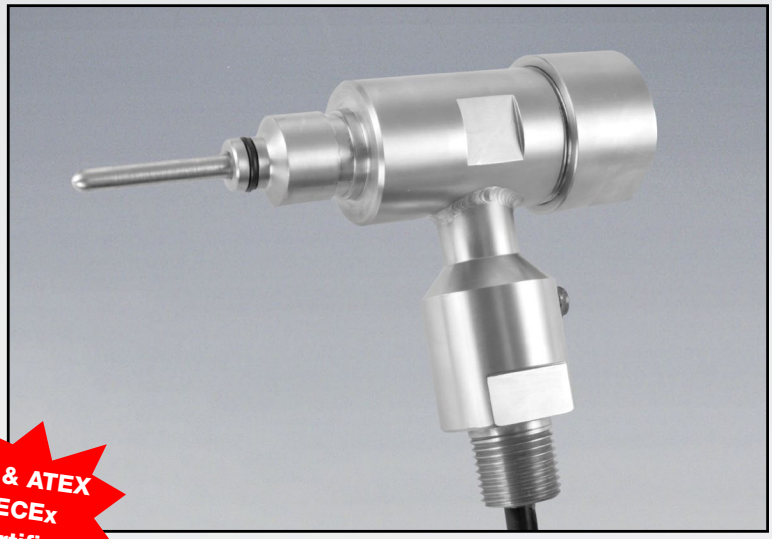
Reliable valve position feedback

Features

- Fits all Series II & Series III-L valves
- 2 position and 3 position
- 30 VDC max, 500 mA (PLC compatible)
- Explosion proof
- Intrinsically safe
- UL & ATEX / IECEx certified
- NEMA 4X, IP66

Applications

- Valve status output
- BOP closing unit 'OPEN-CLOSE' signal
- Hydraulic power units



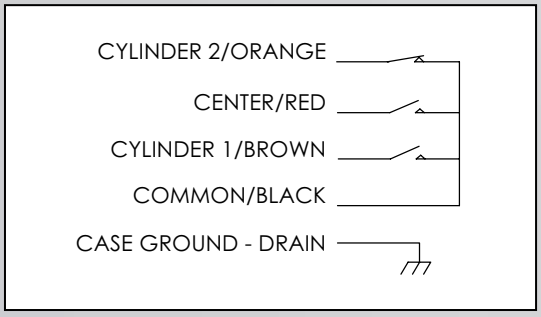
General Specifications*

Housing Material:	Stainless steel
Enclosure:	NEMA 4X, IP66
Electrical Rating:	30 VDC max, 500 mA (carry current)
Electrical Connection:	½" NPT rotating female conduit connection with 39" cable
Electrical Cable:	UL listing, 4 conductors, 22 AWG TPE flame resistant jacket. Resistance to oils, fuels, and solvents
Maximum Contact Resistance:	100 milliohms
Switch Type:	SPST

* See Product Configurator for additional options.

Approvals:	cULus: Class I, Groups A (UL only), B, C & D, Class II, Groups E, F & G. Intrinsically safe when installed per I.S. Control Drawing 272263. ATEX/IECEx certification: CE 0081 DEMKO 09 ATEX 0816092X Ⓔx II 2 G D, Ex d IIC T6 Gb, Ex ib IIC T6 GB, Ex tb IIIC T80°C Db IP66, -40°C ≤ Tamb ≤ +60°C IECEx UL 08.0022X
Valve Position Feedback:	2-position 3-position
Operating Temperature:	-40 to +140°F (-40 to 60°C)
Installation Instructions:	- Connect electrical wires - Lightly lubricate the position indicator O-rings (2) - Fully insert switch into stop screw - Rotate position indicator for optimum cable exit - Secure set screws (2)
Weight:	2 lbs.

Wiring Code



GENUINE Barksdale® CONTROL PRODUCTS CRANE SHEAR-SEAL® VALVE

Explosion Proof Position Indicator

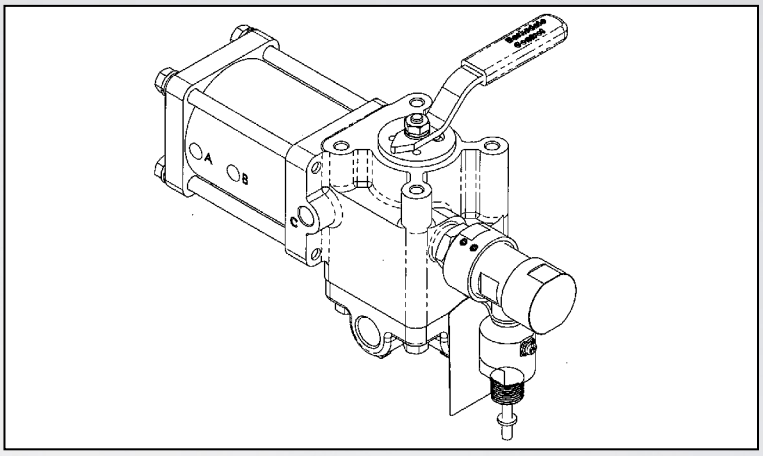
Model 371MT7

Reliable valve position feedback

When ordering together with Series II or Series III-L valves

Product Configurator

Example:	Series II or Series III-L valve part number	-B	-W180



Base Model

-B	Position indicator

Option

Blank	Standard cable length is 39”
-WXXX	Extra cable length (XXX noted in inches)

When ordering separately as replacement or spare part

Product Configurator

Example:	371MT7	3	

Base Model

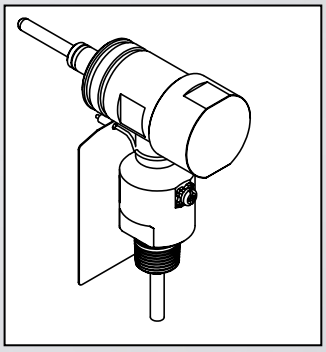
371MT73	Position indicator

Size

3	Fits ¼” and ½” Series II valves
5	Fits Series II 1”, 1½” and Series III-L 1”

Option

Blank	Standard cable length is 39”
-WXXX	Extra cable length (XXX noted in inches)



When ordering to retrofit existing valves without -B option

Product Configurator

Example:	371MT73-KIT	
	371MT75-KIT	

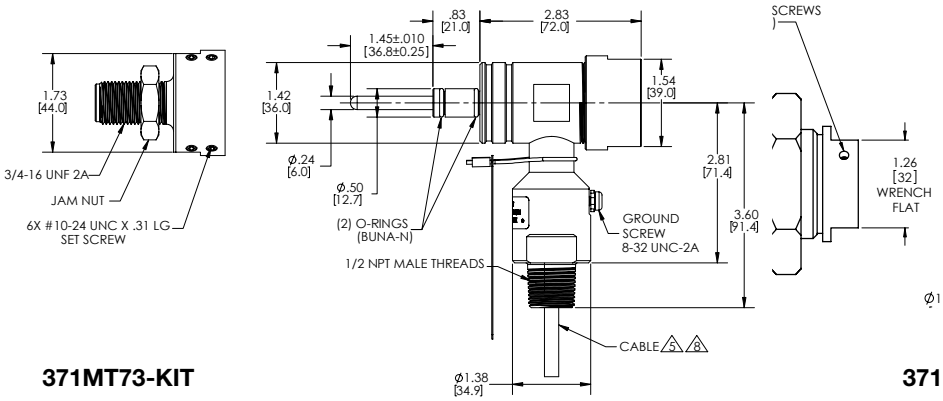
Size

371MT73-KIT	Fits ¼” & ½” Series II valves
371MT75-KIT	Fits Series II 1”, 1½” and Series III-L 1”

Option

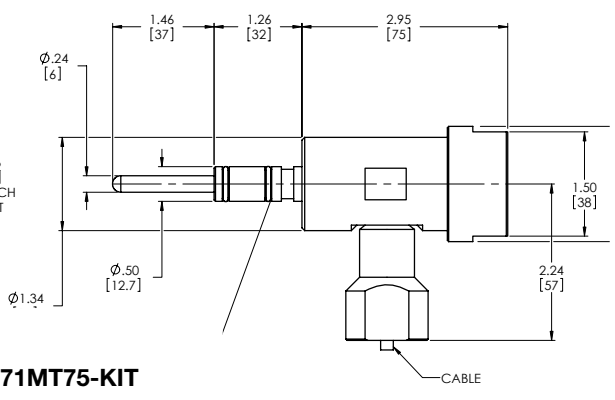
Blank	Standard 1 meter cable
-WXXX	Extra cable length (XXX noted in inches)

Example: 371MT73-W180-KIT



371MT73-KIT

Example: 371MT75-KIT



371MT75-KIT

High Pressure Valve

Series 4140

Features

- Original Shear-Seal® technology
- All stainless steel construction
- SAE porting standard
- NPT porting available
- Pressures to 15,000 psi
- Low pressure drop
- Low handle load

Applications

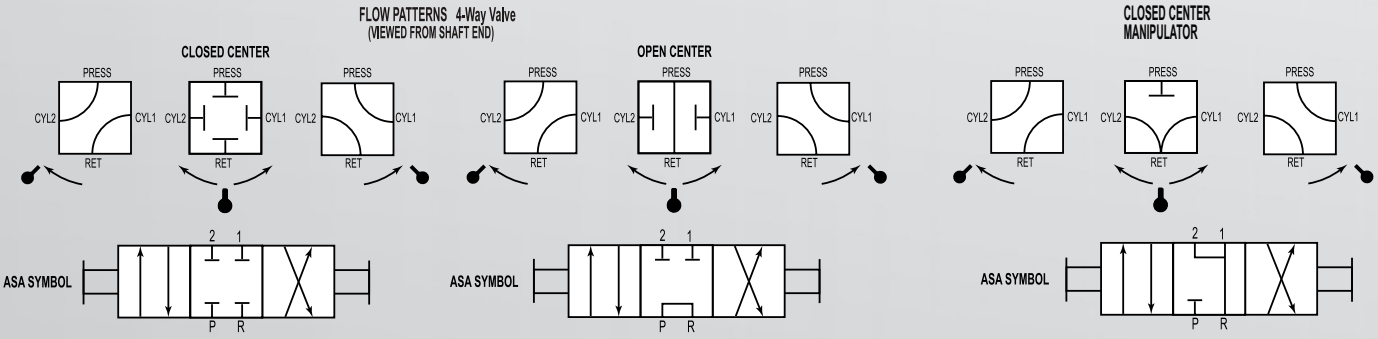
- Offshore drilling equipment
- Refineries and chemical processing plants
- Gas compression systems
- Marine umbilical reels

General Specifications*

Working Pressure:	10,000 psi (700 bar) standard 15,000 psi option with appropriate port size and port type
Flow Capacity, Cv:	See table
Back Pressure:	Must not exceed 250 psi (17.2 bar) at return port for satisfactory operation
Pressure Drop:	14 psi (0.96 bar) at 20 ft/s
Proof Pressure:	1-1/2 times working pressure except at return port
Burst Pressure:	2-1/2 times working pressure except at return port (3,000 psi [206 bar]) maximum

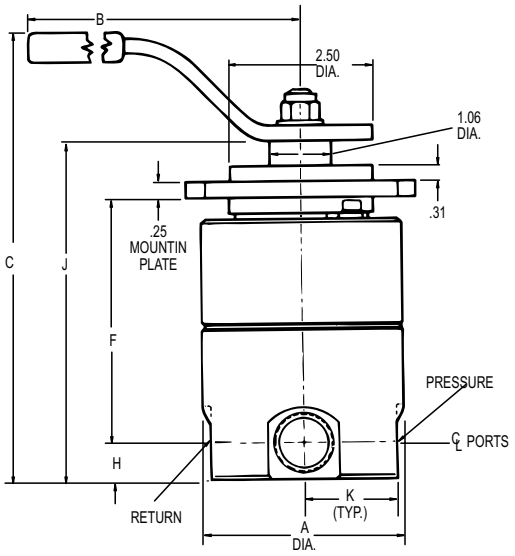
Media Temperature Range:	-40° to +250°F (-40° to +121°C)
Rotor:	400 series stainless steel
Pressure Seals:	Stainless steel
Shaft:	Stainless steel
All External Components:	300 series stainless steel
Standard O-ring:	Buna N
Back-up Rings:	Teflon®

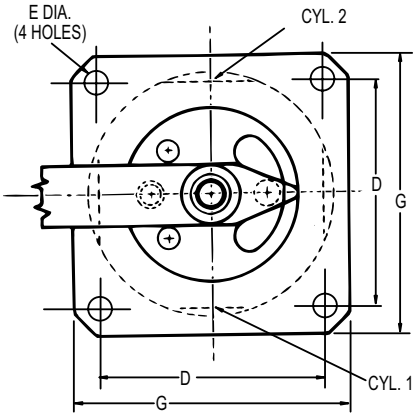
* See product configurator for additional options and Supplemental Guide for more detailed information.



	Flow Capacity (Approx.)					
	Service: Oil and Lubricated Water					
Main Valve Port Size	20 ft/sec gpm (l/min)	40 ft/sec gpm (l/min)	60 ft/sec gpm (l/min)	Min. Flow Passage Dia.	Cv Factor	Approx. Shipping Weight lbs (kgs)
1/4" or SAE-4	4 (15)	8 (30)	12 (45)	9/32"	0.95	13.5 (6.2)
3/8" or SAE-6	4 (15)	8 (30)	12 (45)	9/32"	0.95	13.5 (6.2)
1/2" or SAE-8	4 (15)	8 (30)	12 (45)	9/32"	0.95	13.5 (6.2)

Technical Drawings





Port Size	A Dia.	B	C	D	E Dia.	F	G	H	J	K
1/4" or SAE-4	3.50 (89)	7.00 (178)	7.69 (195)	3.25 (83)	0.28 (7)	4.22 (107)	4.00 (102)	0.63 (16)	5.81(148)	1.63 (41)
3/8" or SAE-6	3.50 (89)	7.00 (178)	7.69 (195)	3.25 (83)	0.28 (7)	4.22 (107)	4.00 (102)	0.63 (16)	5.81(148)	1.63 (41)
1/2" or SAE-8	3.50 (89)	7.00 (178)	7.69 (195)	3.25 (83)	0.28 (7)	4.22 (107)	4.00 (102)	0.63 (16)	5.81(148)	1.63 (41)

Product Configurator

Example:	414	1	R	9	W	C	3	-MS	

Series

414	Basic 3 position 4 way

Port Size

1	1/4" NPT ports
2	3/8" NPT ports
3	1/2" NPT ports

Style

R	Regular (side) porting

Operating Pressure

9	10,000 psi

Service

W	Lubricated water or hydraulic oil

Flow Pattern

C	Closed center
O	Open center (tandem center)
Q	Closed center manipulator (float center) (Not available in 15,000 psi)

Position

3	Three position

Port Type

blank	NPT porting
-MS	SAE J1926 porting
-MP	Medium pressure porting (1/2" is actually 9/16")

Options

-MC	Spring centering	
-O	15,000 psi	
	Size	Type
	1/4"	NPT, MS, MP
	3/8"	MS, MP
	1/2"	MS, MP
-NF	Non-Interflow (Consult factory)	

Microtorque® Valve

518, 526 Series

Features

- Original Shear-Seal® technology
- Compact design
- Non-interflow option
- Spring return option
- Multiple handle types
- 2 or 3 position detent

Applications

- Work holding clamps and systems
- Hydraulic presses and lifting systems
- Hydraulic test equipment
- Grease injection equipment
- Hydraulic power units

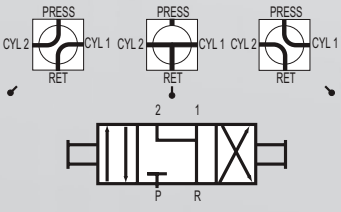
General Specifications*

Media:	Hydraulic oil
Working Pressure:	6,000 psi (415 bar) **
Flow Capacity, Cv:	See table
Back Pressure:	Must not exceed 250 psi (17.2 bar)*** at return port for satisfactory operation
Proof Pressure:	1-1/2 times working pressure except at return port
Burst Pressure:	2-1/2 times working pressure except at return port
Media Temperature Range:	-40° to +250°F (-40° to +121°C)
Porting:	1/4" NPT, SAE for 1/4" tubing, or DO3 pattern for manifold mounting
Panel Mounting:	Panel mounting nut (-P option)
Manifold Mounting:	ISO 4401-03 mounting pad DO3 Manifold mounting shipped with (4) #10-24 screws and O-Rings
Handle Rotation:	90°; 45° each side of center position

Detent: 2-position: 3-position:	 Detent at 90° positions Detents at center and 2 extreme positions
Optional Spring Return:	Available to center or either shifted position 5,000 psi (345 bar) max working pressure on spring return option
Body & Housing:	Anodized aluminum
Shaft, Rotor, Pressure Seals:	400 series stainless steel
Standard O-Rings:	Buna N, others available
Back-up Rings:	PTFE
Bearings:	Hardened steel
Shipping Weight:	.95 lbs

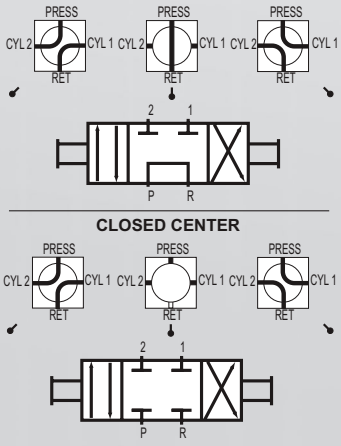
* See product configurator for additional options.
** Consult factory for pressure up to 10,000 psi (690 bar)
*** For requirements in excess of 250 psi (17.2 bar) at return port consult factory

CLOSED CENTER MANIPULATOR



OPEN (TANDEM) CENTER

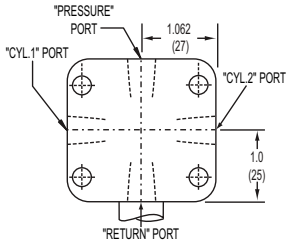
CLOSED CENTER



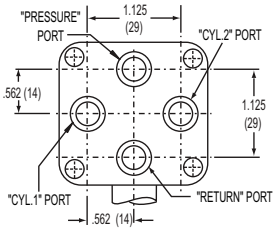
	Flow Capacity (Approx.)			
	20 ft/sec (6.1 m/s) gpm (l/min)	40 ft/sec (12.2 m/s) gpm (l/min)	Min. Flow Passage Dia.	Cv Factor
518 Series Interflow	1.4 (5.6)	2.8 (11)	0.17"	0.40
526 Series Non-Interflow	0.36 (1.4)	0.72 (2.7)	0.086"	0.09

Barksdale® CONTROL PRODUCTS
CRANE Barksdale, Inc./Barksdale GmbH A Subsidiary of Crane Co.

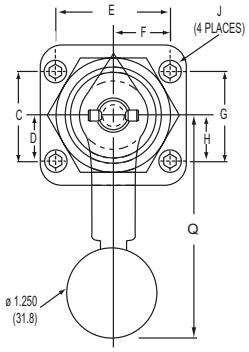
Technical Drawings

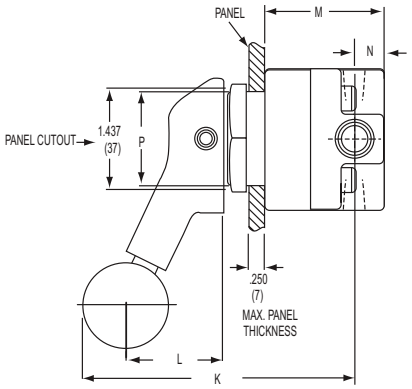


REGULAR (SIDE) PORTING

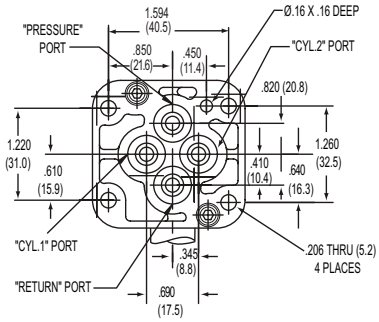


STRAIGHT (BOTTOM) PORTING

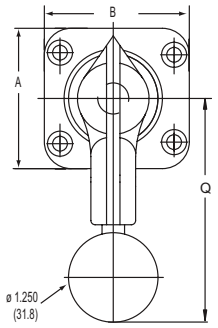


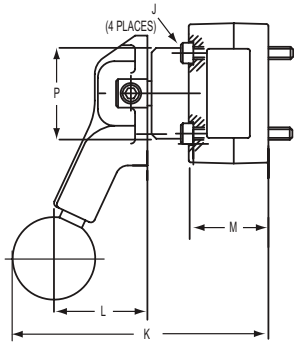


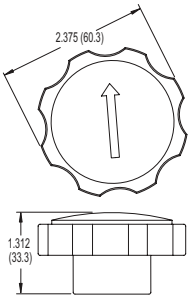
Regular and Straight Porting



MANIFOLD PORTING
(Mounting per DO3 Spec)







Optional Knob (-E)

Series	Porting	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
518 or 526	21R , 61S Porting	1.968 (50.0)	2.031 (51.6)	1.281 (32.5)	.640 (16.3)	1.594 (40.5)	.850 (21.6)	1.219 (31.1)	.610 (15.5)	1/4-28 UNF	3.812 (96.8)	1.437 (36.5)	1.781 (45.2)	.437 (11.1)	1.375 (34.9)	3.125 (79.4)
	41M Manifold Porting	1.968 (50.0)	2.031 (51.6)							10-24 UNC	3.875 (98.4)	1.437 (36.5)	1.406 (29.0)		1.375 (34.9)	3.125 (79.4)
	Spring Return Option										5.562 (141.3)	2.500 (63.3)				5.437 (138.1)

Product Configurator

Example:	518	41M	6	H	C	3		

Series

518	Interflow
526	Non-interflow

Porting

21R	Regular (side) porting
41M	Manifold porting (D03)
61S	Straight (bottom) Porting

Pressure Range

6	6,000 psi

Working Media

H	Hydraulic oil

Flow Pattern

C	4-way closed center
O	4-way open center
M	4-way manipulator Closed center

Detent Position

2	2-position 90° rotation
3	3-position

Position

-Zxx	Optional O-ring material [2]

Options

-MC	Spring return to center [1]
-MR	Spring return to right (Pressure port to C1) [1]
-ML	Spring return to left (Pressure port to C2) [1]
-MS	SAE porting for 1/4" tubing
-E	Black knob (not available with spring return)
-P	Panel mounting nut p/n 22357

1. 5,000psi max working pressure for spring return option
2. See supplemental guide for the appropriate "Z number"

1/2” Heavy Duty Hydraulic Regulator

Series 20313

Features

- Original Shear-Seal® technology
- Self adjusting
- High flow capacity
- Tolerates contaminated media
- Fail-safe motor control options

Applications

- BOP Control Units
- Coiled tube reels
- Oil and gas systems
- Pressure sensitive applications

General Specifications*

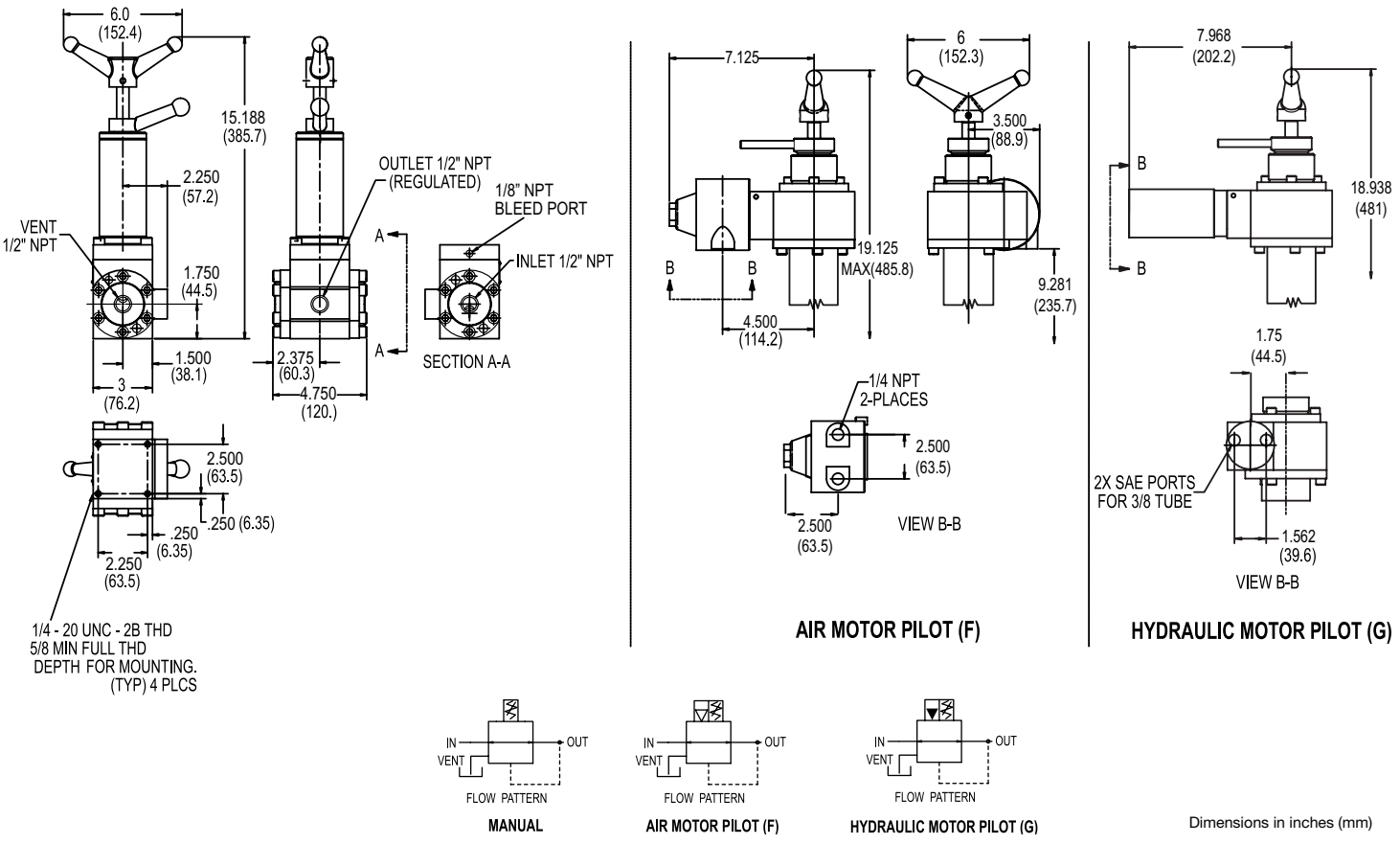
Pressure:	
Supply/Inlet Pressure:	5,000 psi (345 bar)
Regulated Pressure Range:	
High Sensitivity	300 - 1600 psi (21 -110 bar)
Full Range	300 - 3000 psi (21 - 207 bar)
Media:	Hydraulic oil or lubricated water
Fluid Temperature Range:	-30° to +250°F (-40° to +121° C)
Proof Pressure:	7,500 psi (517 bar)
Flow:	
Flow Rate:	45 GPM (@ 50/ft/s)
Cv Inlet:	6.7
Cv Vent:	6.7
Porting:	
Inlet:	1/2” NPT Standard, SAE Option
Outlet:	1/2” NPT Standard, SAE Option
Vent:	1/2” NPT Standard, SAE Option
Bleed Port:	1/4” Dia. hole

Materials of Construction:	
Body:	Stainless steel (standard)
Flanges:	Stainless steel (standard)
Spring Tower Housing:	
Manual	Phosphate coated alloy steel (std.)
Pneumatic Motor model	Phosphate coated alloy steel (std.)
Hydraulic Motor model	Phosphate coated alloy steel (std.)
Standard O’ring Material:	Buna N
Socket Head Screws:	Stainless steel (standard)
Wetted Parts:	Stainless steel
Pneumatic Pilot Motor (“F” prefix):	
Pilot Motor Working Pressure:	60 - 100 psi (4.1 - 6.9 bar)
Porting A & B:	1/4” NPT
Operating Temperature Range:	32° to +250°F (0° to +120°C)
Hydraulic Pilot Motor (“G” prefix):	
Pilot Motor Working Pressure:	400 - 1600 PSI (6.9 - 110 bar)
Porting A & B:	SAE for 3/8” Tube (Size -6)
Operating Temperature Range:	-40° to +250°F (-40° to +121°C)
Approximate Shipping Weight:	
Manual:	21 lbs. (9.5 kg)
Pneumatic or Hydraulic Motor:	44 lbs. (20.0 kg)

* See product configurator for additional options.

1/2” Heavy Duty Hydraulic Regulator — Series 20313

Technical Drawings



Dimensions in inches (mm)

Product Configurator

Example:		20313S6WQ2		

Option

Blank	NPT porting
-MS	SAE porting

Adjustment Method

Blank	Manual
F	Pneumatic failsafe motor
G	Hydraulic failsafe motor

Regulated Pressure Range

Blank	High sensitivity	300 - 1600 psi (21 -110 bar)
-1	Full range	300 - 3000 psi (21 - 207 bar)

Series

20313S6WQ2	1/2” Shear-Seal® Regulator

1” Pressure Regulator

Series 20415

Features

- Original Shear-Seal® technology
- Self adjusting
- High flow capacity
- Tolerates contaminated media
- Fail-safe motor control options
- Self venting

Applications

- Coiled tube reels
- Land-based oil drilling controls
- BOP control units

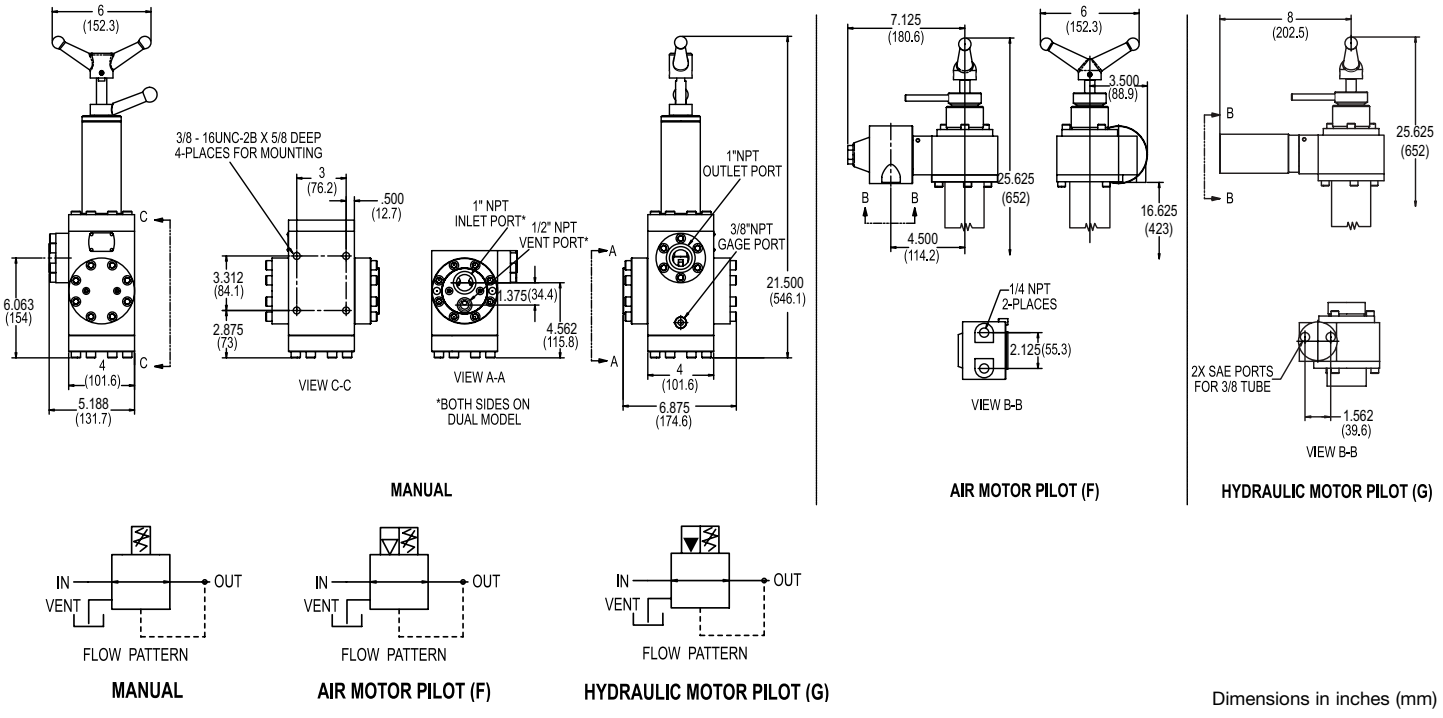
General Specifications*

Pressure:	
Supply/Inlet Pressure:	3,000 psi (207 bar)
Regulated Pressure Range:	
High Sensitivity	500 - 1600 psi (34 -110 bar)
Full Range	500 - 2800 psi (34 - 193 bar)
Media:	Hydraulic oil or lubricated water
Fluid Temperature Range:	-30° to +250°F (-40° to +121°C)
Proof Pressure:	4,500 psi (310 bar)
Flow:	
Flow Rate:	70 GPM (@ 50 ft/s)
Cv Inlet:	9.8
Cv Vent:	0.6
Porting:	
Inlet 1:	1” NPT Standard, SAE Optional
Outlet (regulated):	1” NPT Standard, SAE Optional
Vent:	1/2” NPT Standard, SAE Optional
Gauge Port:	3/8” NPT Standard, SAE Optional

Materials of Construction:	
Body:	Stainless steel (std.)
Flanges:	Phosphate coated alloy steel (std.) Option: Stainless steel
Spring Tower:	
Manual	Stainless steel (std.)
Pneumatic Motor Model	Painted alloy steel (std.)
Hydraulic Motor Model	Painted alloy steel (std.) Option: Stainless steel
Standard O’ring Material:	Buna N
Socket Head Screws:	Zinc plated alloy steel (std.) Option: Stainless steel
Wetted Parts:	Stainless steel & bronze
Pneumatic Pilot Motor (“F” prefix):	
Pilot Motor Working Pressure:	80 - 120 PSI (5.5 - 8.3 bar)
Porting A & B:	1/4” NPT
Operating Temperature Range:	32° to +250°F (0° to +120°C)
Hydraulic Pilot Motor (“G” prefix):	
Pilot Motor Working Pressure:	400 - 1600 PSI (6.9 - 110 bar)
Porting A & B:	SAE for 3/8” Tube (Size -6)
Operating Temperature Rating:	-40° to +250°F (-40° to +121°C)
Approximate Shipping Weight:	
Manual:	47 lbs. (21.3 kg)
Pneumatic or Hydraulic Motor:	70 lbs. (31.8 kg)

* See product configurator for additional options.

Technical Drawings



Dimensions in inches (mm)

Product Configurator

Example:		20415S3WQ2		

Adjustment Method

Blank	Manual
F	Pneumatic failsafe motor
G	Hydraulic failsafe motor

Series

20415S3WQ2	1” Pressure regulator (3/4” full flow regulator)

Option

Blank	NPT porting
-MS	SAE porting
-SS	Stainless steel flanges & trim
-L[1]	Reversed porting
-BP	Bypass Function

Regulated Pressure Range (Manual & Hydraulic)		
Blank	High sensitivity	500 - 1600 psi (34 - 110 bar)
-1	Full range	500 - 2800 psi (34 - 193 bar)

Regulated Pressure Range (Pneumatic motor)		
Blank	High sensitivity	500 - 1500 psi (34 - 103 bar)
-1	Full range	500 - 2800 psi (34 - 193 bar)

Note:
1. Supply/Vent ports installed on right side of regulated port. Blank flange installed on left side of regulated port.

1” Increased Sensitivity Pressure Regulator

Series 20495

Features

- Original Shear-Seal® technology
- Ultra flow regulator
- Fail-safe motor control options
- Tolerates contaminated media
- Self venting
- Surge dampening

Applications

- Coiled tube reels
- Land-based and offshore oil drilling controls
- Wireline service tractors
- Pressure sensitive applications

General Specifications*

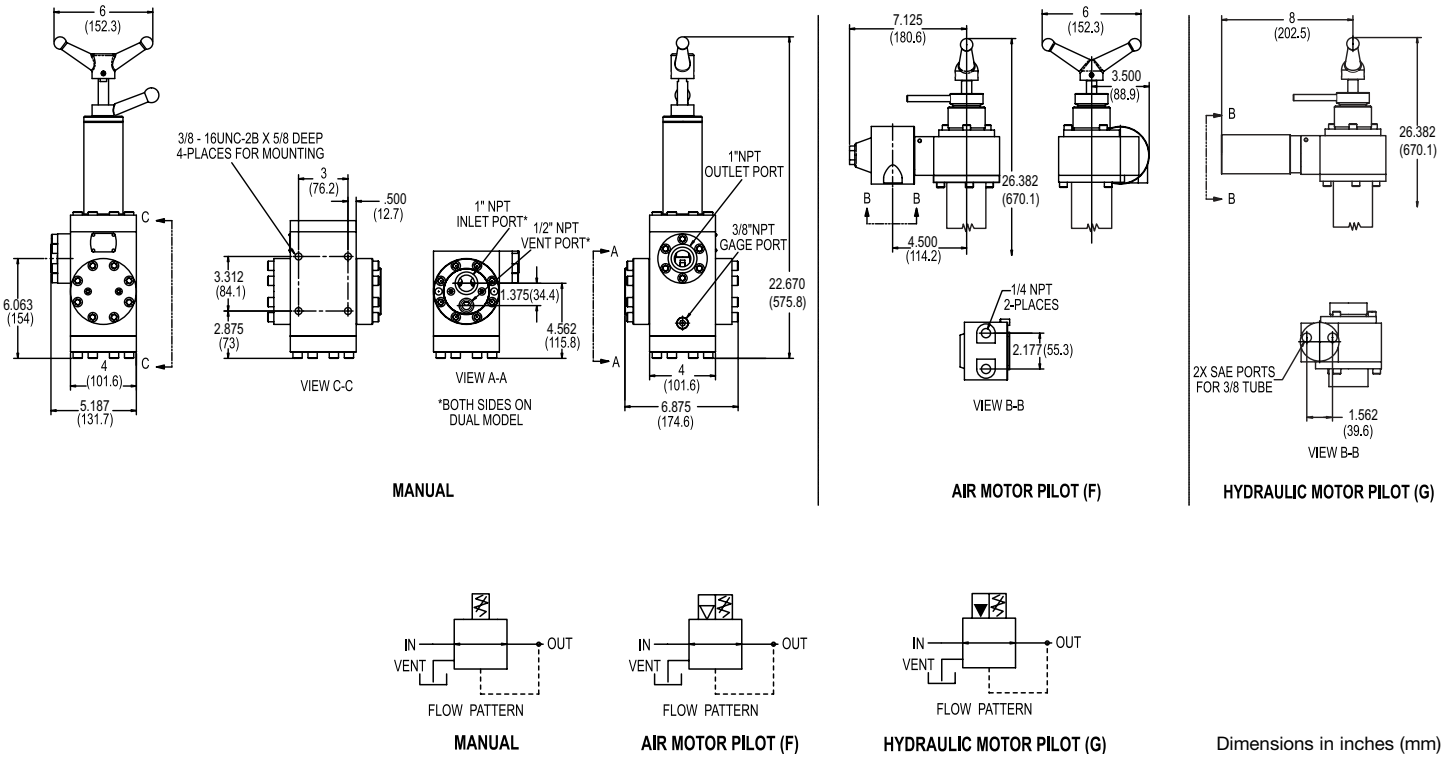
Pressure:	
Supply/Inlet Pressure:	3,000 psi (207 bar) 5,000 psi (345 bar)
Regulated Pressure Range at 3,000 psi Supply Pressure:	
High Sensitivity:	300 - 1600 psi (20.7 - 110 bar)
Full Range:	300 - 2800 psi (20.7 - 193 bar)
Regulated Pressure Range at 5,000 psi Supply Pressure:	
High Sensitivity:	500 - 1800 psi (34 - 124 bar)
Full Range:	500 - 3300 psi (34 - 228 bar)
Media:	Hydraulic oil or lubricated water
Fluid Temperature Range:	-30° to +250°F (-34° to +121°C)
Proof Pressure:	7,500 psi (517 bar)
Flow:	
Flow Rate:	70 GPM (@ 50 ft/s)
Cv Inlet:	9.8
Cv Vent:	0.6
Porting:	
Inlet 1:	1” NPT Standard, SAE Optional
Outlet (regulated):	1” NPT Standard, SAE Optional
Vent:	1/2” NPT Standard, SAE Optional
Gauge Port:	3/8” NPT Standard, SAE Optional

Materials of Construction:	
Body:	Stainless steel (standard)
Flanges:	Phosphate coated alloy steel (std.) Option: Stainless steel
Spring Tower:	
Manual	Stainless steel (std.)
Pneumatic Motor model	Phosphate coated alloy steel (std.)
Hydraulic Motor model	Phosphate coated alloy steel (std.)
Standard O’ring Material:	Buna N
Socket Head Screws:	Stainless steel (std.)
Wetted Parts:	Stainless steel
Pneumatic Pilot Motor (“F” prefix):	
Pilot Motor Working Pressure:	60 - 100 psi (4.1 - 6.9 bar)
Porting A & B:	1/4” NPT
Operating Temperature Range:	32° to +250°F (0° to +120°C)
Hydraulic Pilot Motor (“G” prefix):	
Pilot Motor Working Pressure:	400 - 1600 psi (6.9 - 110 bar)
Porting A & B:	SAE for 3/8” Tube (Size -6)
Operating Temperature Rating:	-40° to +250°F (-40° to +121°C)
Approximate Shipping Weight:	
Manual:	47 lbs. (21.3 kg)
Pneumatic or Hydraulic Motor:	70 lbs. (31.8 kg)

* See product configurator for additional options.

1” Increased Sensitivity Pressure Regulator — Series 20495

Technical Drawings



Dimensions in inches (mm)

Product Configurator

Example:		20495S6WQ2		

Adjustment Method

Blank	Manual
F	Pneumatic failsafe motor
G	Hydraulic failsafe motor

Series

20495S6WQ2	1” Pressure regulator (3/4” full flow regulator)

Option

Blank	NPT porting
-MS	SAE porting
-SS	Stainless steel flanges & trim
-L[1]	Reversed porting
-BP	Bypass Function

Regulated Pressure Range

		Inlet Pressure	Regulated Range
Blank	High sensitivity	3000 psi	300 - 1600 psi (20.7 - 110 bar)
		5000 psi	500 - 1800 psi (34 - 124 bar)
-1	Full range	3000 psi	300 - 2800 psi (20.7 - 193 bar)
		5000 psi	500 - 3300 psi (34 - 228 bar)

Note:
1. Supply/Vent ports installed on right side of regulated port. Blank flange installed on left side of regulated port.

1” Land Pressure Regulator

Series L20415

Features

- Original Shear-Seal® technology
- Self adjusting
- High flow capacity
- Large regulated pressure range
- Tolerates contaminated media
- Fail-safe motor control options
- Self venting

Applications

- Coiled tube reels
- Land-based oil drilling controls
- BOP control units
- Pressure sensitive applications

General Specifications*

Pressure:	
Supply/Inlet Pressures:	3,000 psi (207 bar) 5,000 psi (345 bar)
Regulated Pressure Range at 3,000 psi Supply Pressure:	
High Sensitivity:	300 - 1600 psi (21 -110 bar)
Full Range:	300 - 2800 psi (21- 193 bar)
Regulated Pressure Range at 5,000 psi Supply Pressure:	
High Sensitivity:	500 - 1600 psi (34 -110 bar)
Full Range:	500 - 3000 psi (34 - 207 bar)
Media:	Hydraulic Oil
Fluid Temperature Range:	-30° to +185°F (-34° to +85°C)
Inlet Proof Pressure:	7,500 psi (517 bar)
Case Proof Pressure:	4,500 psi (310 bar)
Flow:	
Flow Rate:	70 GPM (@ 50 ft/s)
Cv Inlet:	9.2
Cv Vent:	0.6
Porting:	
Supply:	1” NPT Standard, SAE Optional
Outlet (regulated):	1” NPT Standard, SAE Optional
Vent:	1/2” NPT Standard, SAE Optional

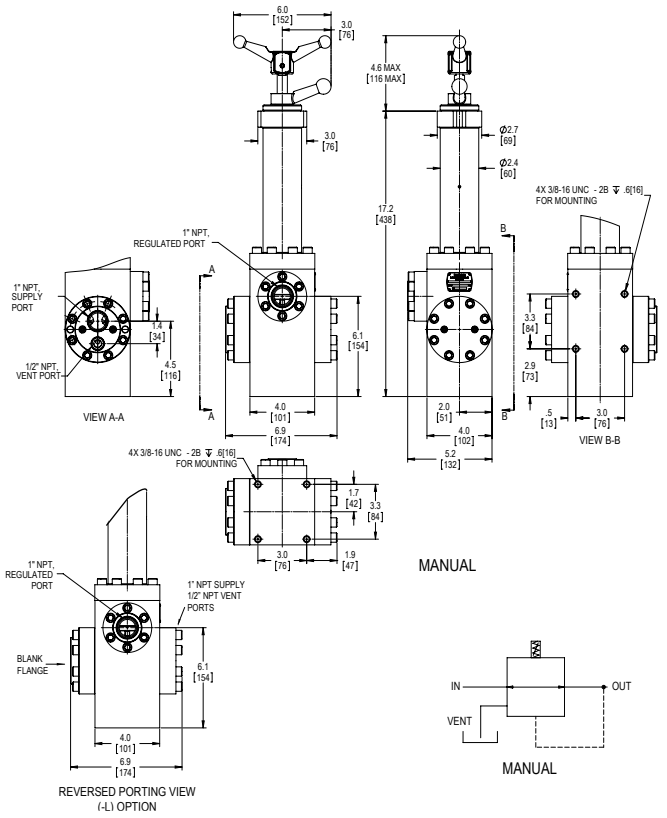
Materials of Construction:	
Body, Flanges, & Spring Housing:	Phosphate coated carbon steel/ ductile iron
Slide, Inlet, Vent, & Blocking Plates:	400 Series stainless steel
Hardware:	Plated alloy steel, 300 series stainless steel
O’ring Material:	Buna N
Backup Ring Material:	PTFE
Pneumatic Pilot Motor (“F” prefix):	
Pilot Motor Working Pressure:	80 - 120 psi (5.5 - 8.3 bar)
Porting A & B:	1/4” NPT
Operating Temperature Range:	-30° to +185°F (-34° to +85°C)
Hydraulic Pilot Motor (“G” prefix):	
Pilot Motor Working Pressure:	400 - 1600 psi (6.9 - 110 bar)
Porting A & B:	SAE for 3/8” Tube (Size -6)
Operating Temperature Rating:	-30° to +185°F (-34° to +85°C)
Approximate Shipping Weight:	
Manual Unit:	50 lbs. (22.6 kg)
Pneumatic Motor Unit:	73 lbs. (34 kg)
Hydraulic Motor Unit:	70 lbs. (31.8 kg)

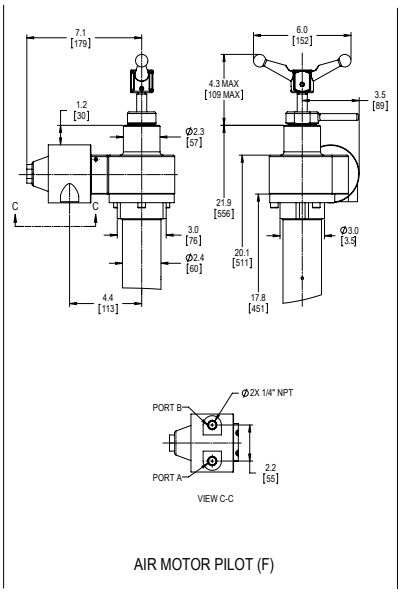
* See product configurator for additional options.

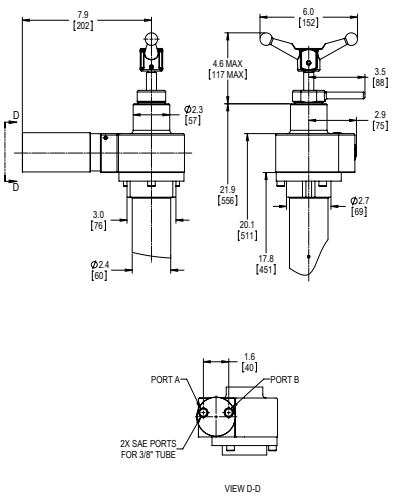
1” Land Pressure Regulator

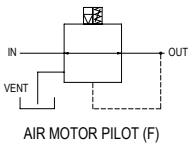
Series L20415

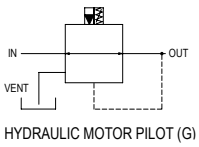
Technical Drawings











Dimensions in inches (mm)

Product Configurator

Example:	L		20415S6HQ2		

L	Land Pressure Regulator

Adjustment Method

Blank	Manual
F	Pneumatic failsafe motor
G	Hydraulic failsafe motor

Series

20415S6HQ2	1” Land pressure regulator (3/4” full flow regulator)

Options

Blank	NPT porting
-MS	SAE porting
-L[1]	Reversed porting
-BP	Bypass Function

Regulated Pressure Range

		Inlet Pressure	Regulated Range
Blank	High sensitivity	3000 psi	300 - 1600 psi (21 - 110 bar)
		5000 psi	500 - 1600 psi (34 - 110 bar)
-1	Full range	3000 psi	300 - 2800 psi (21 - 193 bar)
		5000 psi	500 - 3000 psi (34 - 207 bar)

Note:
1. Supply/Vent ports installed on right side of regulated port. Blank flange installed on left side of regulated port.

1” Hydraulic Pilot Pressure Regulator

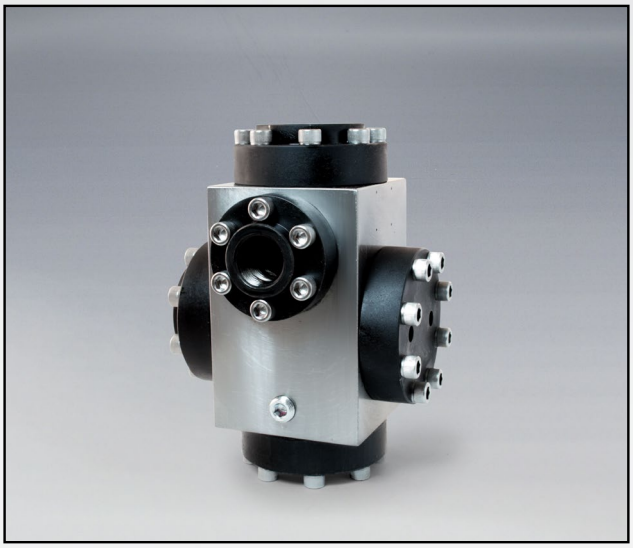
Series H20495

Features

- Original Shear-Seal® technology
- Self adjusting
- High flow capacity
- Wide regulated pressure range
- Tolerates contaminated media
- Self venting

Applications

- Land and offshore oil drilling controls
- BOP control units
- Natural gas production
- Pressure sensitive applications



General Specifications

Pressure:	
Supply/Inlet Pressures:	3,000 psi (207 bar) 5,000 psi (345 bar)
Regulated Pressure Range at 3,000 psi Supply Pressure: Full Range:	300 - 2800 psi (21- 193 bar)
Regulated Pressure Range at 5,000 psi Supply Pressure: Full Range:	300 - 4000 psi (21 - 275 bar)
Ambient Temperature Range:	-30° to +185°F (-34° to +85°C)
Inlet Proof Pressure:	7,500 psi (517 bar)
Case Proof Pressure:	6,000 psi (413 bar)
Flow:	
Flow Rate:	70 GPM (@ 50 ft/s)
Cv Inlet:	9.2
Cv Vent:	0.6
Porting:	
Supply:	1” NPT Standard, SAE Optional
Outlet (regulated):	1” NPT Standard, SAE Optional
Pilot:	1/2” NPT Standard, SAE Optional
Vent:	1/2” NPT Standard, SAE Optional
Gauge Port:	3/8” NPT Standard, SAE Optional

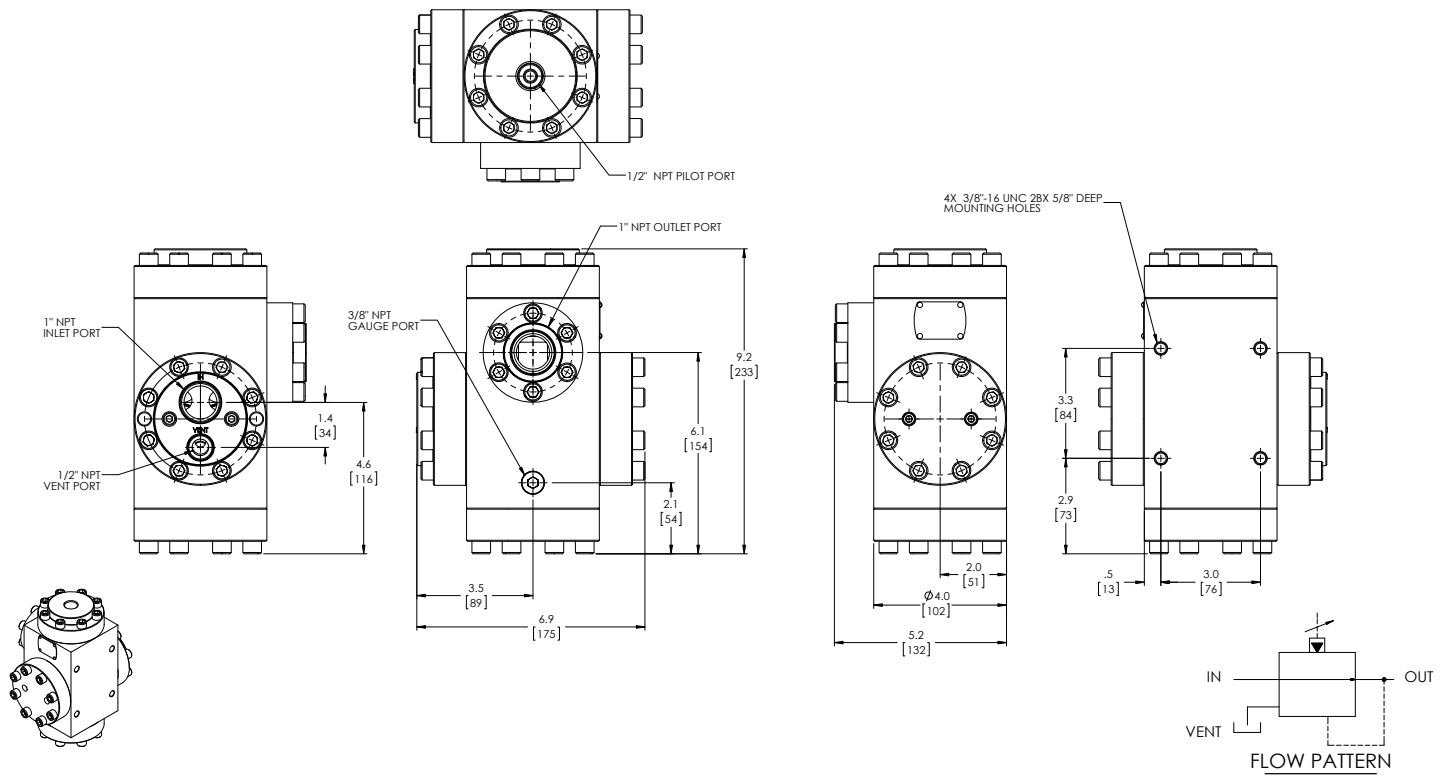
Materials of Construction:	
Body:	400 Series stainless steel
Flanges:	Phosphate coated carbon steel
Slide, Inlet, Vent, & Blocking Plates:	400 Series stainless steel
Hardware:	Plated alloy steel, 300 series stainless steel
O’ring Material:	Buna N
Backup Ring Material:	PTFE
Approximate Shipping Weight:	
Manual Unit:	40 lbs. (18.1 kg)

GENUINE Barksdale® CONTROL PRODUCTS CRANE SHEAR-SEAL® VALVE

1” Hydraulic Pilot Pressure Regulator

Series H20495

Technical Drawings



Dimensions in inches (mm)

Product Configurator

Example:	H	20495S6WQ2	

H	Hydraulic Pilot Pressure Regulator

Series

20495S6WQ2	1” Hydraulic pilot pressure regulator (3/4” full flow regulator)

Options

Blank	NPT porting
-MS	SAE porting
-SS	Stainless steel flanges and trim

1-½” Stainless Steel Pressure Regulator — Series S20517

Features

- Original Shear-Seal® technology
- Stainless steel construction
- SAE J518-2 code 62 pressure connections
- High flow capacity
- Wide regulated pressure range
- Tolerates contaminated media
- Fail-safe motor control options
- Self venting
- Surge dampening

Applications

- Offshore and land-based oil drilling controls
- BOP control units
- Pressure sensitive equipment

General Specifications*

Pressure:	
Supply/Inlet Pressures:	3,000 psi (207 bar) 5,000 psi (345 bar)
Regulated Pressure Range at 3,000 psi Supply Pressure:	
High Sensitivity:	300 - 1600 psi (21 - 110 bar)
Full Range:	300 - 2800 psi (21 - 193 bar)
Regulated Pressure Range at 5,000 psi Supply Pressure:	
High Sensitivity:	500 - 1600 psi (34 - 110 bar)
Full Range:	500 - 3000 psi (34 - 207 bar)
Ambient Temperature Range:	-30° to +185°F (-34° to +85°C)
Inlet Proof Pressure:	7,500 psi (517 bar)
Case Proof Pressure:	4,500 psi (310 bar)
Flow:	
Flow Rate:	120 GPM (@ 50 ft/s)
Cv Outlet:	17.5
Cv Vent:	1.6
Porting:	
Supply 1:	1” SAE J518 code 62 flange; NPT or SAE porting option
Supply 2:	1” SAE J518 code 62 flange; NPT or SAE porting option
Outlet (Regulated):	1-1/2” SAE J518 code 62 flange; NPT or SAE porting option
Vent:	1” SAE J518 code 62 flange; NPT or SAE porting option

* See product configurator for additional options.

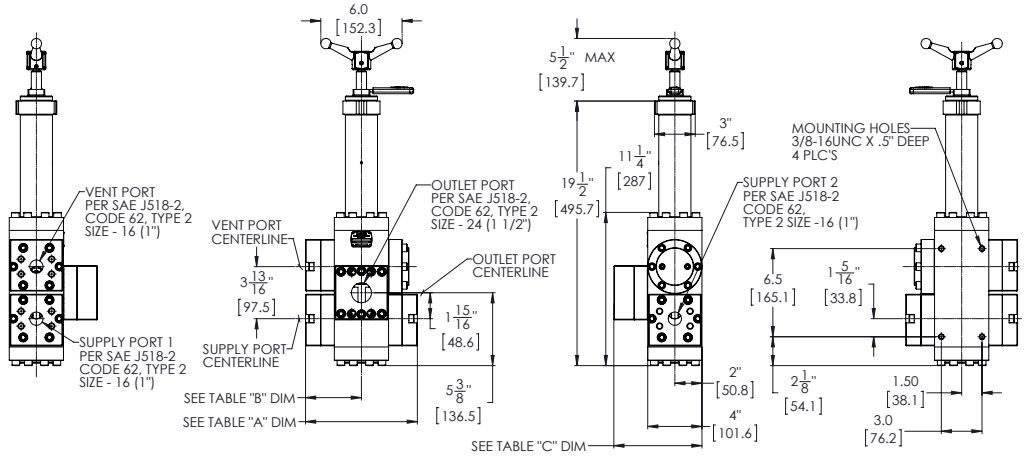
Materials of Construction:	
External Components	
Body, Flanges, & Spring Housing:	316 Series stainless steel
Adjusting Handle, Gear Housing (for motorized models)	Nickel Plated 17-4 ST STL
Hardware:	316 Series stainless steel
Wetted Components	
Slide, Inlet, Vent & Blocking Plates, Pressure Seals:	400 Stainless steel
Other Internal Wetted Components:	300 Series stainless steel
O’ring Material:	Buna N
Backup Ring Material:	PTFE
Pneumatic Pilot Motor (“F” prefix):	Painted steel
Pilot Motor Working Pressure:	80 - 120 psi (5.5 - 8.3 bar)
Porting A & B:	1/4” NPT
Operating Temperature Range:	-30° to +185°F (-34° to +85°C)
Hydraulic Pilot Motor (“G” prefix):	Painted steel
Pilot Motor Working Pressure:	400 - 1600 psi (6.9 - 110 bar)
Porting A & B:	SAE for 3/8” tube (Size -6)
Operating Temperature Rating:	-30° to +185°F (-34° to +85°C)
Approximate Shipping Weight:**	
Manual Unit:	85 lbs. (38.6 kg)
Pneumatic Motor Unit:	105 lbs. (47.6 kg)
Hydraulic Motor Unit:	105 lbs. (47.6 kg)

** Weight is based on the code 62 flanges

1-½” Stainless Steel Pressure Regulator — Series S20517

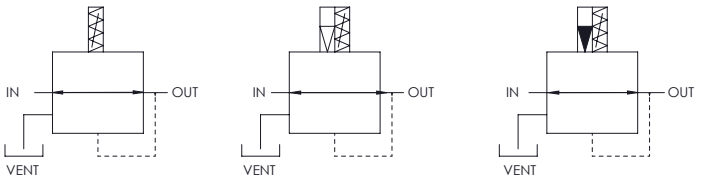
Technical Drawings

For more detail, see sales drawing



MANUALLY ADJUSTED REGULATOR

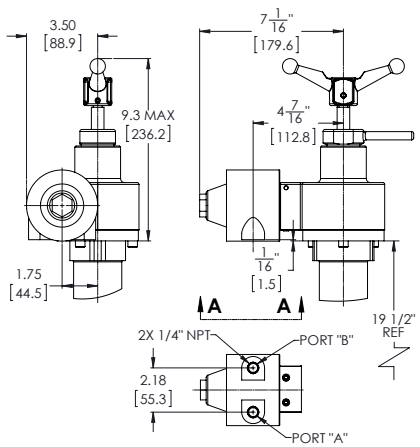
PORTING OPTION	DIM "A"	DIM "B"	DIM "C"
SAE J518-2 CODE 62 (SHOWN)	8-1/4"	4-1/8"	6-1/2"
NPT	7"	3-1/2"	5-5/32"
SAE J1926	7"	3-1/2"	5-5/32"



MANUAL — AIR MOTOR PILOTED — HYDRAULIC MOTOR PILOTED

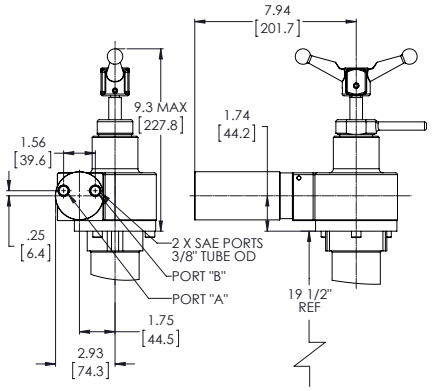
FLOW PATTERN

Dimensions in inches [mm]



SECTION A-A

AIR MOTOR PILOTED



HYDRAULIC MOTOR PILOTED

Product Configurator

Example:	S		20517S6HQ2		

Option

Blank	SAE J518 code 62 flanges (4 bolt)
-NPT	NPT porting
-MS	SAE porting
-BP	Bypass Function

S	Stainless steel pressure regulator

Adjustment Method

Blank	Manual
F	Pneumatic motor
G	Hydraulic motor

Regulated Pressure Range

		Inlet Pressure	Regulated Range
Blank	High sensitivity	3000 psi	300 - 1600 psi (21 - 110 bar)
		5000 psi	500 - 1600 psi (34 - 110 bar)
-1	Full range	3000 psi	300 - 2800 psi (21 - 193 bar)
		5000 psi	500 - 3000 psi (34 - 207 bar)

Series

20517S6HQ2	1-1/2” Stainless steel pressure regulator

1-½” Land Pressure Regulator

Series L20517

Features

- Original Shear-Seal® technology
- High flow capacity
- Large regulated pressure range
- Tolerates contaminated media
- Fail-safe motor control options
- Self venting
- Surge dampening

Applications

- Land-based oil drilling controls
- BOP control units
- Pressure sensitive equipment

General Specifications*

Pressure:	
Supply/Inlet Pressures:	3,000 psi (207 bar) 5,000 psi (345 bar)
Regulated Pressure Range at 3,000 psi Supply Pressure:	
High Sensitivity:	300 - 1600 psi (21 - 110 bar)
Full Range:	300 - 2800 psi (21 - 193 bar)
Regulated Pressure Range at 5,000 psi Supply Pressure:	
High Sensitivity:	500 - 1600 psi (34 - 110 bar)
Full Range:	500 - 3000 psi (34 - 207 bar)
Media:	Hydraulic Oil
Fluid Temperature Range:	-30° to +185°F (-34° to +85°C)
Inlet Proof Pressure:	7,500 psi (517 bar)
Case Proof Pressure:	4,500 psi (310 bar)
Flow:	
Flow Rate:	120 GPM (@ 50 ft/s)
Cv Inlet:	17.5
Cv Vent:	1.6
Porting:	
Supply 1:	1” NPT Standard, SAE Optional
Supply 2:	1” NPT Standard, SAE Optional
Outlet (Regulated):	1-1/2” NPT Standard, SAE Optional
Vent:	1” NPT Standard, SAE Optional

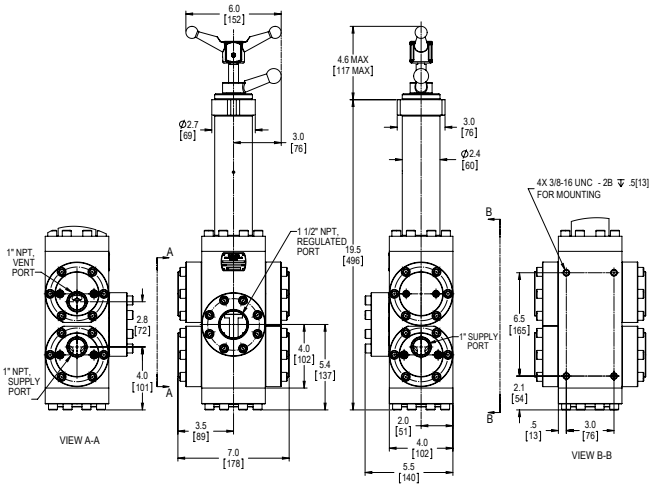
* See product configurator for additional options.

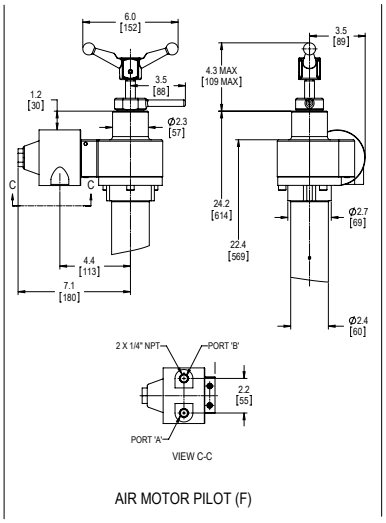
Materials of Construction:	
Body, Flanges, & Spring Housing:	Phosphate coated carbon steel/ ductile iron
Slide, Inlet, Vent, & Blocking Plates:	400 Series stainless steel
Hardware:	Plated alloy steel, 300 series stainless steel
O’ring Material:	Buna N
Backup Ring Material:	PTFE
Socket Head Screws:	Zinc plated alloy steel (std.)
Wetted Parts:	Stainless steel
Pneumatic Pilot Motor (“F” prefix):	
Pilot Motor Working Pressure:	80 - 120 psi (5.5 - 8.3 bar)
Porting A & B:	1/4” NPT
Operating Temperature Range:	-30° to +185°F (-34° to +85°C)
Hydraulic Pilot Motor (“G” prefix):	
Pilot Motor Working Pressure:	400 - 1600 psi (6.9 - 110 bar)
Porting A & B:	SAE for 3/8” Tube (Size -6)
Operating Temperature Rating:	-30° to +185°F (-34° to +85°C)
Approximate Shipping Weight:	
Manual Unit:	70 lbs. (31.8 kg)
Pneumatic Motor Unit:	90 lbs. (40.8 kg)
Hydraulic Motor Unit:	90 lbs. (40.8 kg)

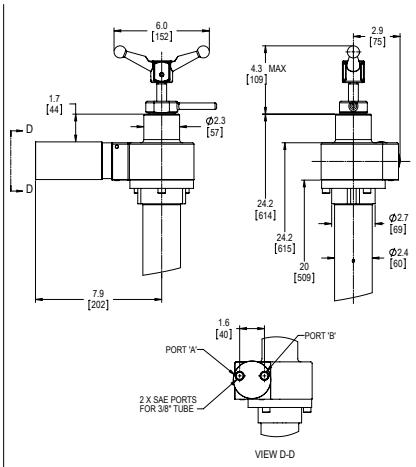
1-½” Land Pressure Regulator

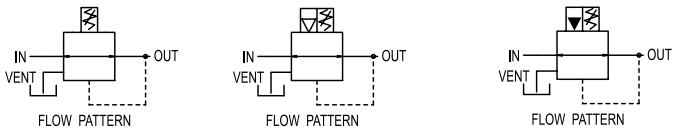
Series L20517

Technical Drawings









Dimensions in inches (mm)

Product Configurator

Example:	L		20517S6HQ2		

L	Land pressure regulator

Adjustment Method

Blank	Manual
F	Pneumatic failsafe motor
G	Hydraulic failsafe motor

Series

20517S6HQ2	1-1/2” Land pressure regulator

Option

Blank	NPT porting
-MS	SAE porting
-BP	Bypass Function

Regulated Pressure Range

		Inlet Pressure	Regulated Range
Blank	High sensitivity	3000 psi	300 - 1600 psi (21 - 110 bar)
		5000 psi	500 - 1600 psi (34 - 110 bar)
-1	Full range	3000 psi	300 - 2800 psi (21 - 193 bar)
		5000 psi	500 - 3000 psi (34 - 207 bar)

GENUINE Barksdale® CONTROL PRODUCTS CRANE SHEAR-SEAL® VALVE

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Barksdale® CONTROL PRODUCTS

1-½” Heavy Duty Hydraulic Regulator

Series 20597

Features

- Original Shear-Seal® technology
- High flow capacity
- Large pressure range
- Tolerates contaminated media
- Fail-safe motor control options
- Self venting
- Surge dampening

Applications

- Land-based and offshore oil drilling controls
- BOP control units
- Pressure sensitive equipment

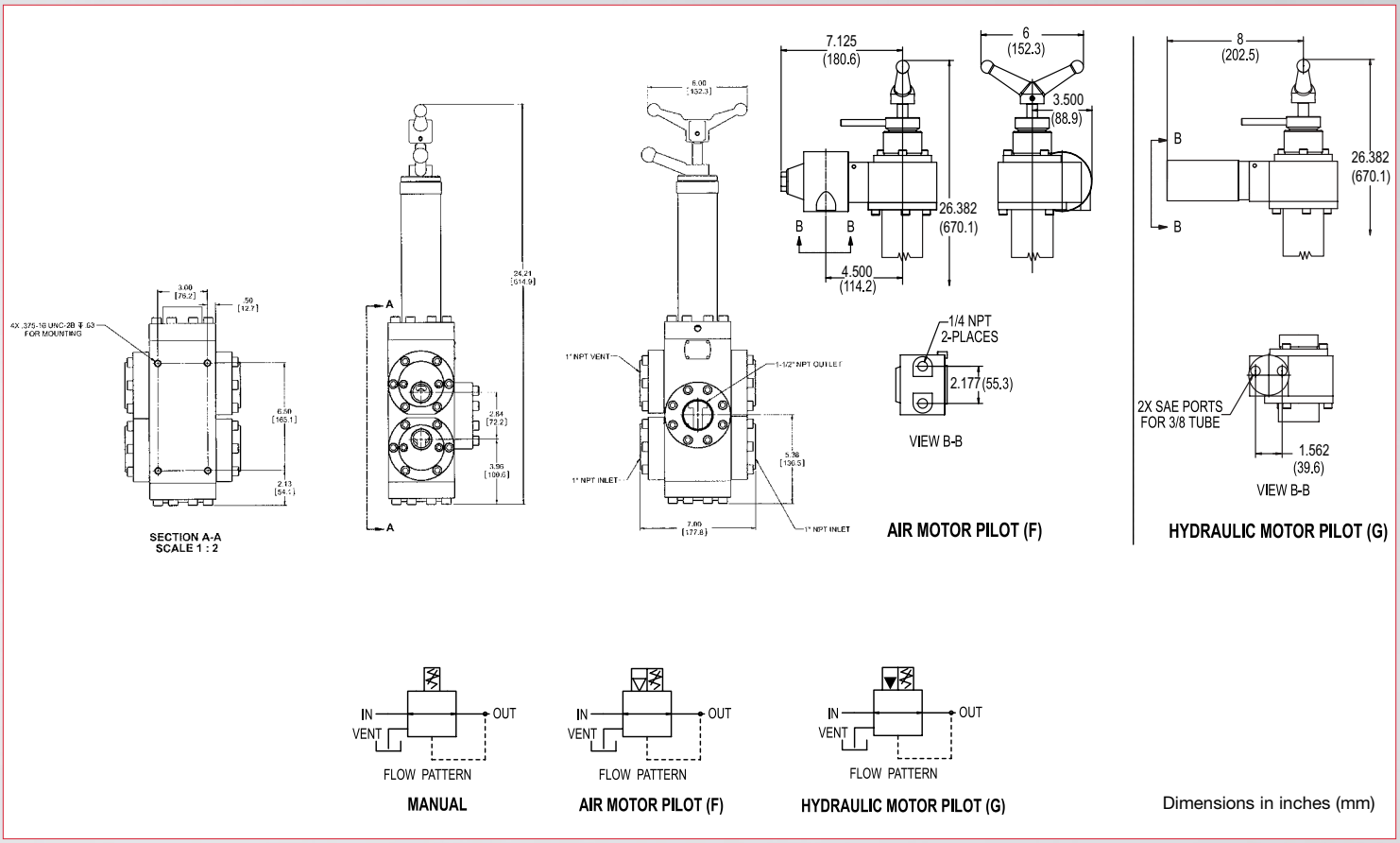
General Specifications*

Pressure:	
Supply/Inlet Pressure:	3,000 psi (207 bar) 5,000 psi (345 bar)
Regulated Pressure Range at 3,000 psi Supply Pressure:	
High Sensitivity:	200 - 1600 psi (13.7 - 110 bar)
Full Range:	350 - 2800 psi (24.1 - 193 bar)
Regulated Pressure Range at 5,000 psi Supply Pressure:	
High Sensitivity:	300 - 1600 psi (21 - 110 bar)
Full Range:	500 - 3300 psi (34 - 228 bar)
Media:	Hydraulic oil or lubricated water
Fluid Temperature Range:	-30° to +250°F (-34° to +121°C)
Proof Pressure:	7,500 psi (517 bar)
Flow:	
Flow Rate:	120 GPM (@ 50 ft/s)
Cv Inlet:	17.5
Cv Vent:	2.6
Porting:	
Inlet 1:	1” NPT Standard, SAE Optional
Inlet 2:	1” NPT Standard, SAE Optional
Outlet:	1-1/2” NPT Standard, SAE Optional
Vent:	1” NPT Standard, SAE Optional

Materials of Construction:	
Body:	Stainless steel (std.)
Flanges:	Phosphate coated alloy steel (std.) Option: Stainless steel
Spring Tower:	
Manual	Stainless steel (std.)
Pneumatic Motor model	Phosphate coated alloy steel (std.)
Hydraulic Motor model	Phosphate coated alloy steel (std.)
Standard O’ring Material:	Buna N
Socket Head Screws:	Stainless steel (std.)
Wetted Parts:	Stainless steel
Pneumatic Pilot Motor (“F” prefix):	
Pilot Motor Working Pressure:	80 - 120 psi (5.5 - 8.3 bar)
Porting A & B:	1/4” NPT
Operating Temperature Range:	32° to +250°F (0° to +120°C)
Hydraulic Pilot Motor (“G” prefix):	
Pilot Motor Working Pressure:	400 - 1600 psi (6.9 - 110 bar)
Porting A & B:	SAE for 3/8” Tube (Size -6)
Operating Temperature Rating:	-40° to +250°F (-40° to +121°C)
Approximate Shipping Weight:	
Manual:	67 lbs. (30.4 kg)
Pneumatic or Hydraulic Motor:	90 lbs. (40.8 kg)

* See product configurator for additional options.

Technical Drawings



Dimensions in inches (mm)

Product Configurator

Example:		20597S6WQ2		

Adjustment Method

Blank	Manual
F	Pneumatic failsafe motor
G	Hydraulic failsafe motor

Series

20597S6WQ2	1-1/2” Pressure regulator

Option

Blank	NPT porting
-MS	SAE porting
-SS	Stainless steel flanges & trim
-BP	Bypass Function

		Inlet Pressure	Regulated Range
Blank	High sensitivity	3000 psi	200 - 1600 psi (13.7 - 110 bar)
		5000 psi	300 - 1600 psi (21 - 110 bar)
-1	Full range	3000 psi	350 - 2800 psi (24.1 - 193 bar)
		5000 psi	500 - 3300 psi (34 - 228 bar)

Pressure Relief Valve

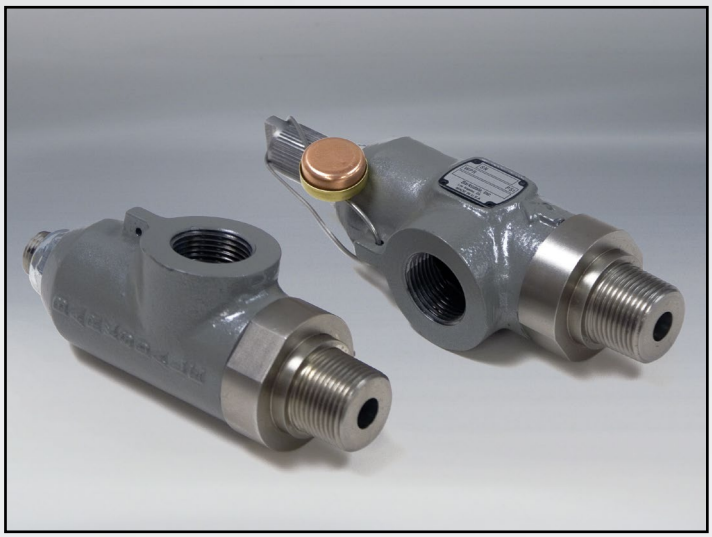
Series 8010

Features

- High flow
- Extended seat life
- Factory pre-set or field adjustable
- Optional tamper-proof cap
- Stainless steel internals
- Metal-to-metal seal

Applications

- Pump system safety
- Hydraulic power units
- Tank protection
- Accumulator systems

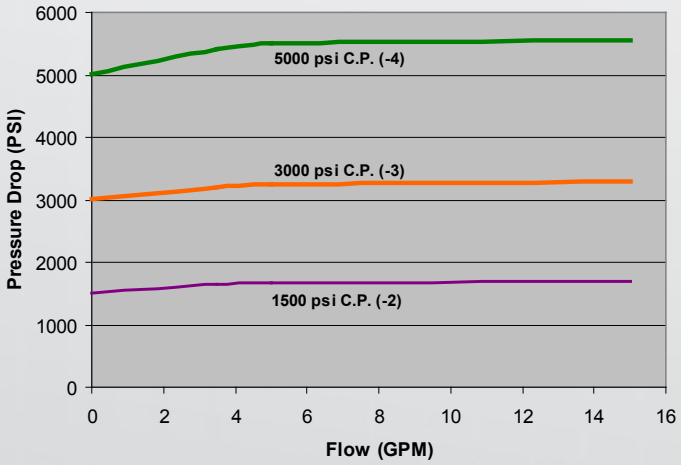


General Specifications*

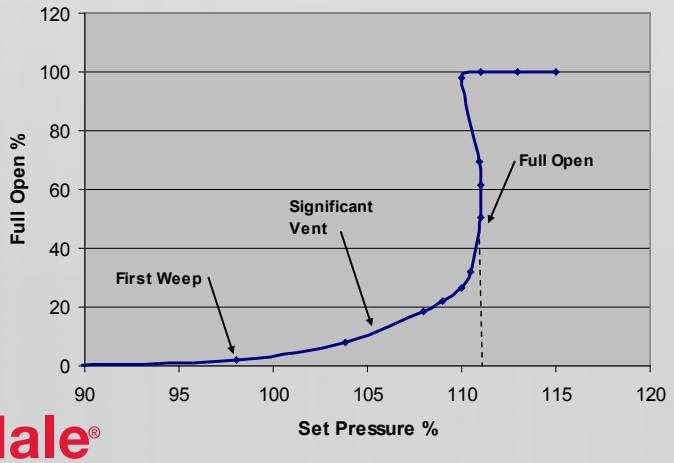
Working Pressure:	Hydraulic oil up to 5500 psi (380 bar)
Process Fitting Proof Pressure:	10,000 psi (690 bar)
Max Housing Back Pressure:	1000 psi (69 bar)
Pressure Ranges:	500 - 1500 psi (35 - 105 bar) 1600 - 3500 psi (110 - 240 bar) 3600 - 5500 psi (248 - 380 bar)
Maximum Flow Rate:	15 GPM
Wetted Material: Process Fitting: Adjustment Stud: Washer: Spring Retainer: Spring: Ball: Housing:	 Heat-treated 410 stainless steel 316 stainless steel 304 stainless steel 416 stainless steel Powder-coated high strength steel Tungsten carbide Powder-coated ductile iron
Weight:	2.5 lbs.
Pressure Connection:	3/4” NPTM x 3/4” NPTF
Orifice Size:	0.318” (typical)
Temperature Range:	-40° to +200°F (-40° to +93°C)
Pressure Settings:	It is recommended that cracking pressure be set 10% above working pressure.

Pressure Setpoint Adjustment:	Loosen hex nut with open-end wrench. Using allen key turn adjustment screw clockwise to increase, counterclockwise to decrease set point.

Flow Rate at 10% above Cracking Pressure



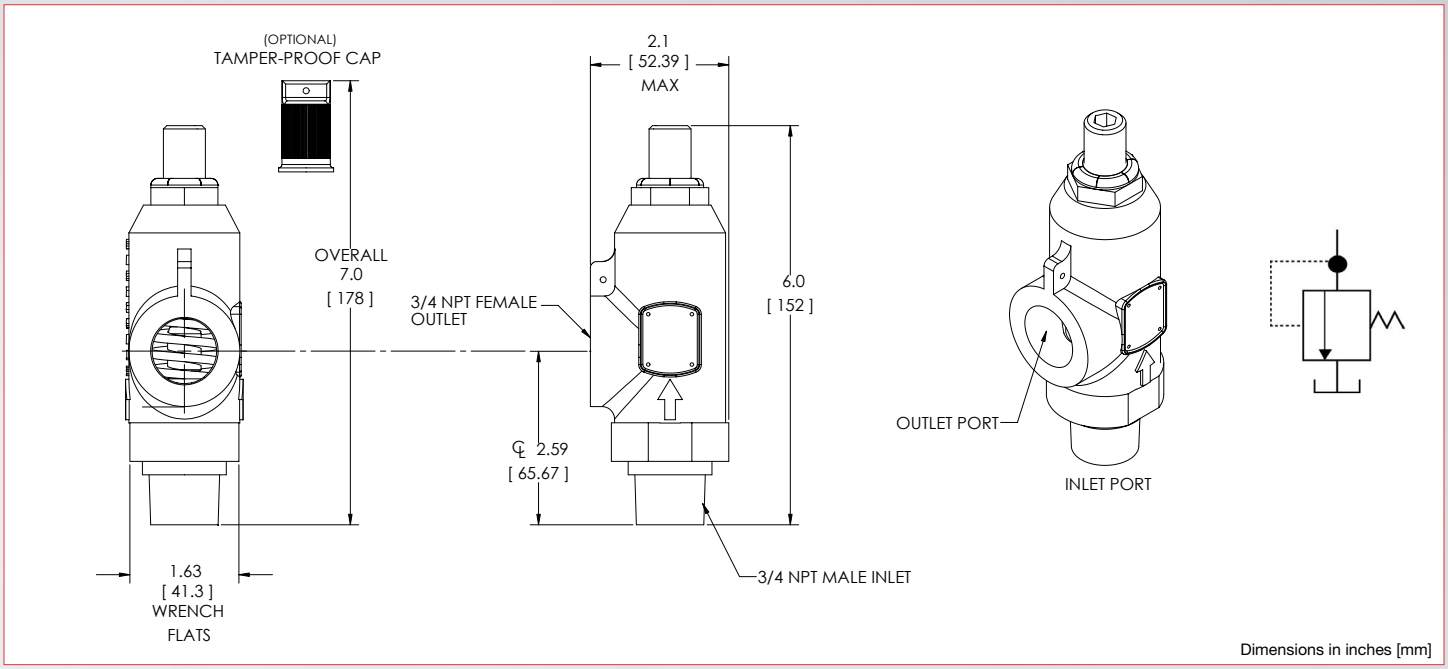
Typical 8014 Lift Characteristics



* See product configurator for additional options.

Barksdale® CONTROL PRODUCTS
CRANE Barksdale, Inc./Barksdale GmbH A Subsidiary of Crane Co.

Technical Drawings



Dimensions in inches [mm]

Product Configurator

Example:		801	4	-3	-33	

Prefix

T	Tamper-proof cap (optional)*

Base Model

801	Inlet male - outlet female porting

Port Size

4	3/4" NPT ports

Pressure Range

	Adjustable Range psi (bar)		Approx. Blowdown	Proof Pressure	Tolerance
	Min.	Max.	psi (bar)	psi (bar)	psi (bar)
-2	500 (35)	1500 (105)	200 (15)	10,000 (690)	±150 (10)
-3	1600 (110)	3500 (240)	400 (28)	10,000 (690)	±350 (24)
-4	3600 (248)	5500 (380)	600 (42)	10,000 (690)	±550 (38)

Housing

Blank	Corrosion Resistant Ductile Iron (standard)

Factory Set Point

Blank	Field Adjustable
-XX	Insert set point** *Example*: 3370 psi = -34 3310 psi = -33 700 psi = -07

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