

# Valves

## 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

### General Specifications\*

#### - Main Valve

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

Patent# US D521.598 S

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#### - Pilot Actuator

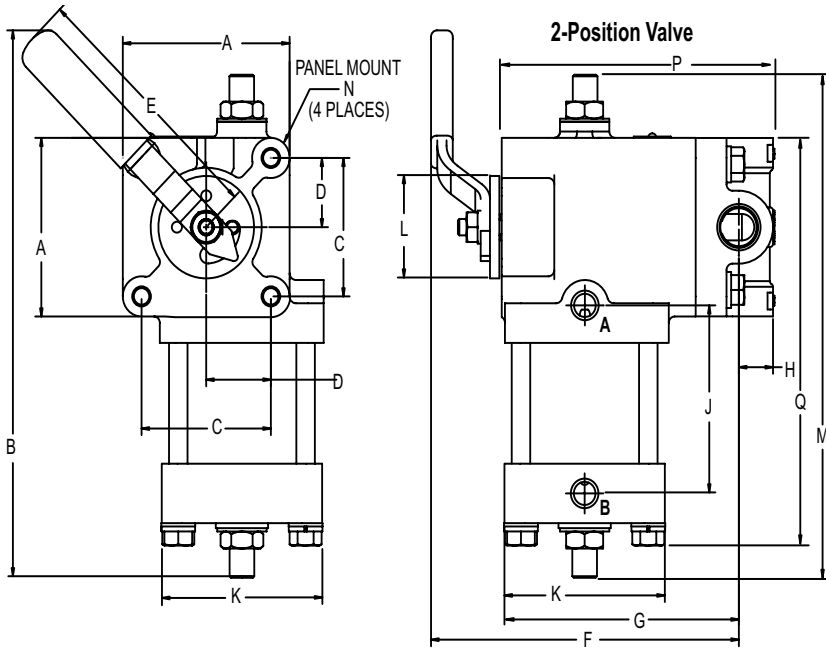
<b>Working Pressure:</b>	
Air:	80 psi (5.2 bar) minimum 250 psi (17.2 bar) maximum
Hydraulic:	500 psi (34 bar) minimum 1,500 psi (103 bar) maximum
<b>Porting:</b>	1/4"- 18 NPT (2)
<b>Media Temperature Range:</b>	-40° to +250°F (-40° to +121°C)
<b>Speed of Operation:</b>	Greater than or equal to 1/2 second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



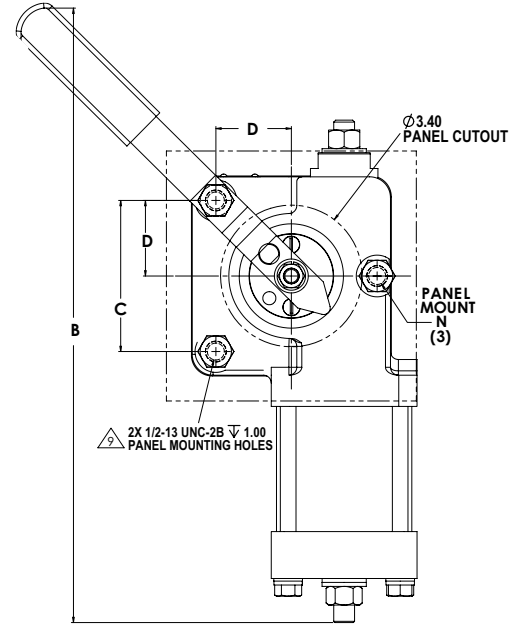
\* See product configurator for additional options.

## Technical Drawings

### 2-Position Valve



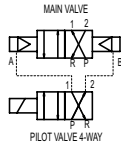
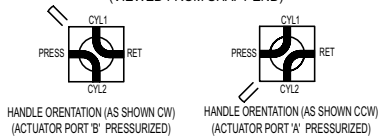
1/4", 3/8", 1/2"



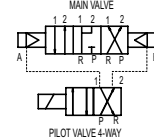
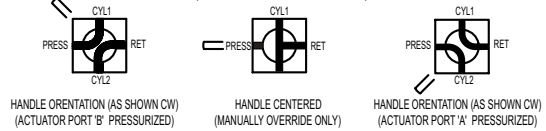
3/4", 1", 1 1/2"

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)



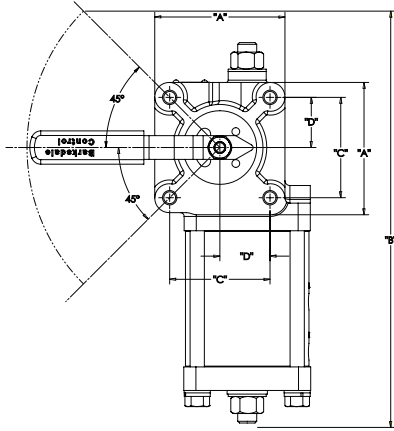
Porting	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
1/4" NPT	2.75 (69.9)	10.38 (254.0)	2.00 (50.8)	1.00 (25.4)	5.00 (127.0)	5.72 (146.1)	4.25 (108)	0.50 (12.7)	3.34 (85)	3.25 (82.6)	1.94 (49.2)	9.43 (231.7)	3/8-18 UNC	4.88 (124.0)	7.44 (189.0)	NA	NA	NA	NA
3/8" & 1/2" NPT	3.406 (86.5)	10.937 (277.8)	2.625 (66.7)	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

## Actuated Heavy Duty Valves

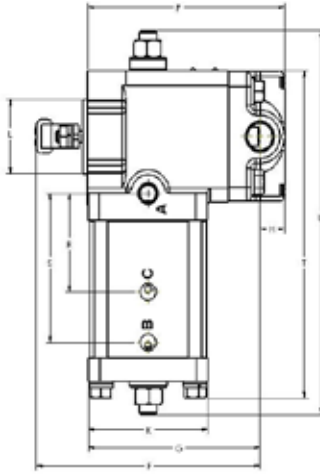
## Series II - 14, 18, 92, 376, 20, 562

### Technical Drawings

### 3-Position Valve



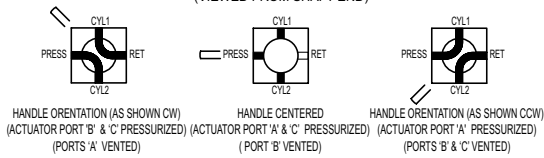
1/4", 3/8", 1/2"



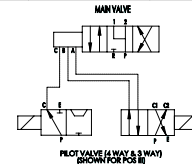
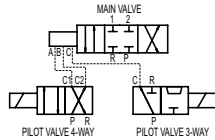
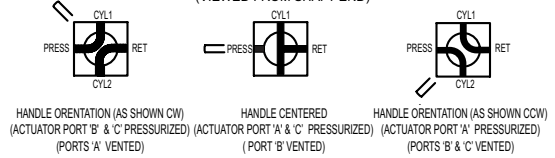
3/4", 1", 1 1/2"

Refer to Sales Drawings for more detailed information

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



#### 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"	2.75	10.38	2.00	1.00	5.00	5.72	4.25	0.50	3.34	3.25	1.94	9.43	3/8-18 UNC	4.88	7.44	2.44	3.75	6.44	10.468
NPT	(69.9)	(254.0)	(50.8)	(25.4)	(127.0)	(146.1)	(108)	(12.7)	(85)	(82.6)	(49.2)	(231.7)		(124.0)	(189.0)	(62)	(95.3)	(214.4)	(265.9)
3/8" & 1/2"	3.406	10.937	2.625	1.312	5.00	6.25	4.75	0.688	3.531	3.25	1.94	9.531	3/8-18 UNC	5.50	7.85	2.56	3.88	8.688	10.25
NPT	(86.5)	(277.8)	(66.7)	(33.3)	(127.0)	(158.8)	(120.65)	(17.46)	(89.7)	(82.6)	(49.2)	(242.1)		(139.7)	(199.3)	(65.1)	(98.4)	(220.7)	(260.4)
3/4" & 1" 3 pos	4.813	17.313	3.625	1.812	9.00	8.750	6.562	1.00	4.250	4.50	3.00	12.00	1/2-13 UNC	7.563	NA	3.938	7.063	NA	15.188
NPT	(122.3)	(439.8)	(92)	(46)	(228.6)	(222.3)	(166.6)	(25.4)	(108)	(114.3)	(76.2)	(482.0)		(192.1)		(100)	(179.4)		(385.8)
1-1/2" 3-Pos	7.00	18.75	5.25	2.656	9.00	10.50	8.138	1.50	4.00	4.50	3.00	17.50	1/2-13 UNC	8.31	NA	4.188	7.313	NA	17.50
NPT	(177.8)	(476.3)	(133.4)	(67.5)	(228.6)	(266.7)	(209)	(38.1)	(101.6)	(114.3)	(76.2)	(444.5)		(211.1)		(106.4)	(185.7)		(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			Min. Flow Passage Dia.	Cv Factor	Approx. Shipping Weight 2 Pos.	Approx. Shipping Weight 3 Pos.
		20 ft/sec. gpm (l/min.)	40 ft/sec. gpm (l/min.)	60 ft/sec. gpm (l/min.)				
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

### Optional O-ring Material<sup>1</sup>

-Zxx See supplemental guide

### 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

### 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)

### Options

- B	Position Indicator
- C	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 <sup>3</sup>	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 or other gases only)
-G <sup>2</sup>	1/4" SAE gauge ports for CYL 1 & 2

### 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)

### 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

### Port Location

R	Regular side porting
S	Straight (Bottom) porting (up to 1/2")
M	Manifold porting (376 series only)
P	Panel mount with side porting (Standard for 1/4" - 1/2")

### Position

2	2-position actuator, 90° rotation
3 <sup>4</sup>	3-position actuator

#### Notes:

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