

# 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

Patent# US D521.599 S



#### - Pilot Actuator

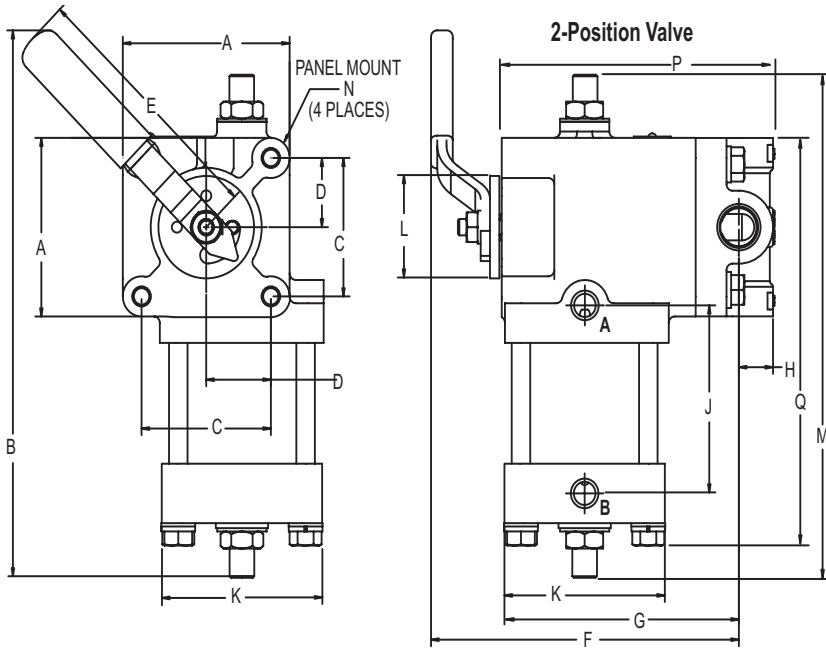
<b>Working Pressure:</b>	
Air:	80 psi (5.2 bar) minimum 250 psi (17.2 bar) maximum
Hydraulic:	500 psi (34 bar) minimum 1,500 psi (103 bar) maximum
<b>Porting:</b>	1/4"- 18 NPT (2)
<b>Media Temperature Range:</b>	-40° to +250°F (-40° to +121°C)
<b>Speed of Operation:</b>	Greater than or equal to 1/2 second 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



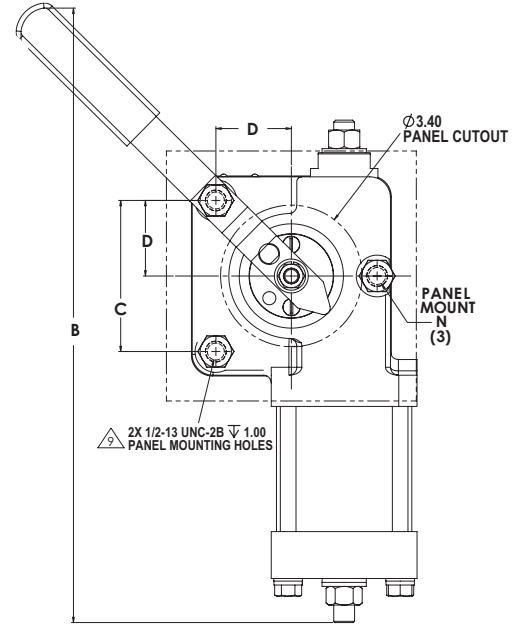
\* See product configurator for additional options.

## Technical Drawings

### 2-Position Valve



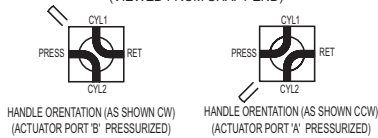
1/4", 3/8", 1/2"



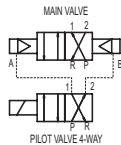
3/4", 1", 1 1/2"

Refer to Sales Drawings for more detailed information

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



HANDLE ORIENTATION (AS SHOWN CW) (ACTUATOR PORT 'B' PRESSURIZED)  
HANDLE ORIENTATION (AS SHOWN CCW) (ACTUATOR PORT 'A' PRESSURIZED)

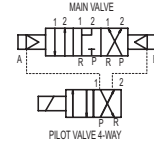


PILOT VALVE 4-WAY

#### CLOSED CENTER MANIPULATOR FLOW PATTERN (VIEWED FROM SHAFT END)



HANDLE ORIENTATION (AS SHOWN CW) (ACTUATOR PORT 'B' PRESSURIZED)  
HANDLE CENTERED (MANUALLY OVERRIDE ONLY)  
HANDLE ORIENTATION (AS SHOWN CCW) (ACTUATOR PORT 'A' PRESSURIZED)



PILOT VALVE 4-WAY

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

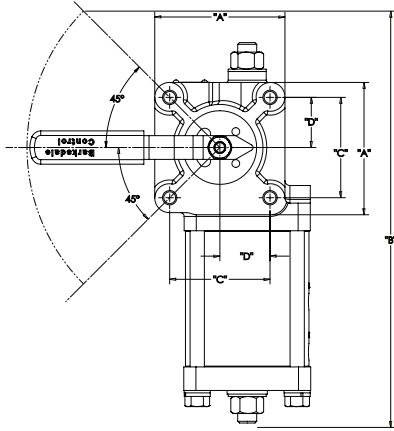
# Valves

## Actuated Heavy Duty Valves

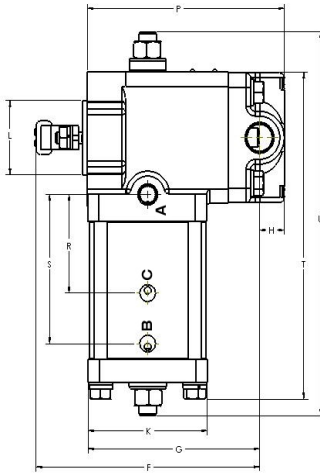
## Series II - 14, 18, 92, 376, 20, 562

### Technical Drawings

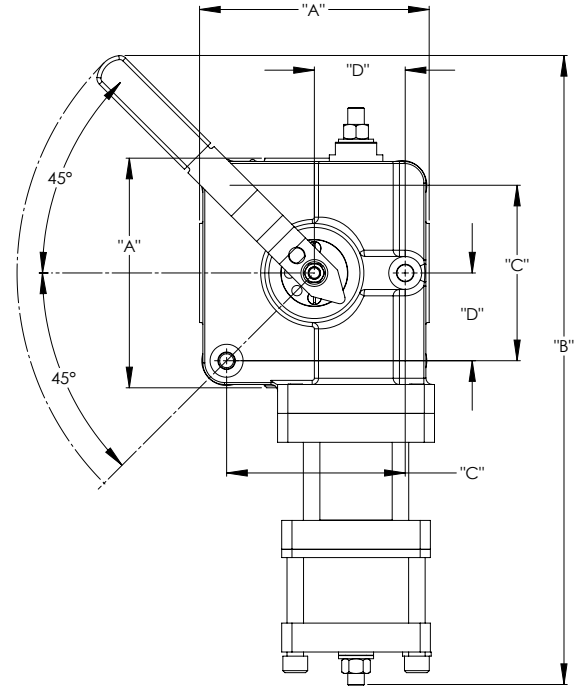
### 3-Position Valve



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

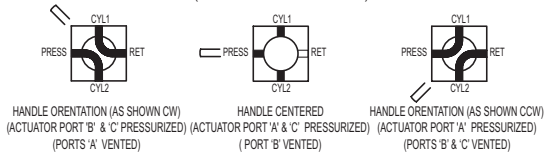


3/4", 1", 1 1/2"

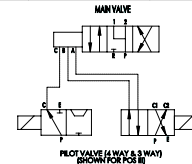
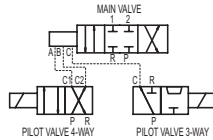
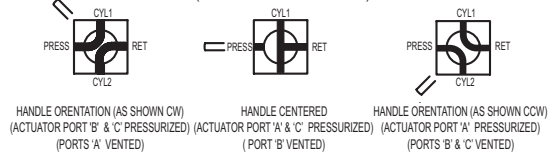


Refer to Sales Drawings for more detailed information

#### 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	5,000 psi hydraulic working pressure (only available with 1" port size for models 14 & 92)
-D	Diverter flow pattern (Excludes 1/4" port size and all 92 & 562 models)
-MS	SAE J1926 Porting
-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 (SAE Option)
2	3/8" NPT (14 and 92 series only) (SAE Option)
3	1/2" NPT (SAE Option)
4	3/4" NPT (14 and 92 series only) (SAE Option)
5	1" NPT (SAE Option)
7	1 1/2" NPT (14 and 92 series only) (SAE Option)

### 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	3-position actuator

- See Supplemental Guide for the appropriate "Z number"
- G option is limited to 1" and 1.5" port sizes