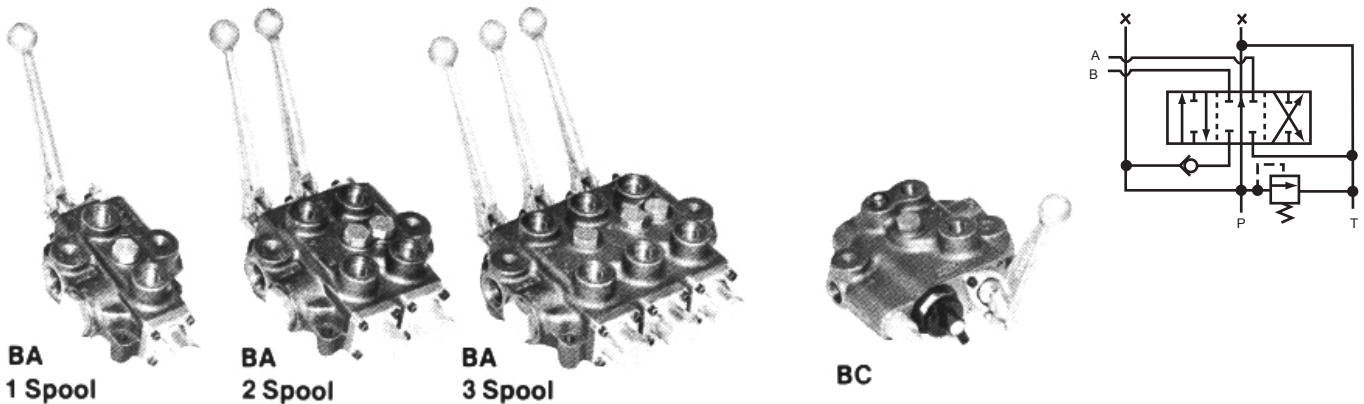


B Series



Mono-Block Directional Control Valve



The CROSS series B directional control valves provide good metering characteristics and long dependable service life. Optimum versatility is provided due to the many standard and optional features. Balanced spools are select-fit for minimum leakage and load holding checks prevent load drop when shifting. Parallel flow path permits spools to be operated independently or simultaneously.

GENERAL SPECIFICATIONS

Number of spools	1, 2 or 3
Rated working pressure	3000 psi (206 bar)
Maximum shock and surge pressure	4000 psi (276 bar)
Rated flow capacity	30 gpm (114 ltr/min)
Maximum spool leakage (@ 1000 psi w/100 SUS oil @ 120°F)	16 cc/min
Mounting, any position	Three mounting holes for 3/8" dia bolts
Weight: 1 spool - 13 lbs (6 kg), 2 spool - 21 lbs (9.5 kg), 3 spool - 33 lbs (15 kg)	

MATERIAL SPECIFICATIONS

Body	High tensile strength cast iron
Spool	Ground, plated and polished steel alloy
Seals	Buna N

STANDARD FEATURES

- Integral load holding check valves (prevent reverse flow through valve when shifting)
- Integral differential poppet type relief valve, adjustable (set @ 2000 psi, 10 gpm)
- Balanced select-fit spools (provide minimum leakage, smooth operation)
- External spool seals (permit easy replacement, reduced maintenance cost)
- 1-1/16" UN O-ring inlet, outlet and work ports
- Complete handle assembly - 1, 2 or 3 spools

OPTIONAL FEATURES AVAILABLE

- Open or closed centre positions, 3-way or 4-way operation, 3 position or 4 position (float position), full open centre (motoring spool) and other spool options.
- Power beyond (permits use of neutral flow at system pressure), also permits field conversion from closed centre to open centre (tandem) operation.
- Top, bottom or end location of outlet port.
- Top or end location of inlet port.
- Pressure release detent, in either or both work positions
- Integral pressure compensated flow control (Model BC), adjustable from 0 - 25 gpm $\pm 5\%$ flow regulation. Available in 1-spool version only. Weight - 21 lbs (9.5 kg)
- Cast steel handle and handle bracket

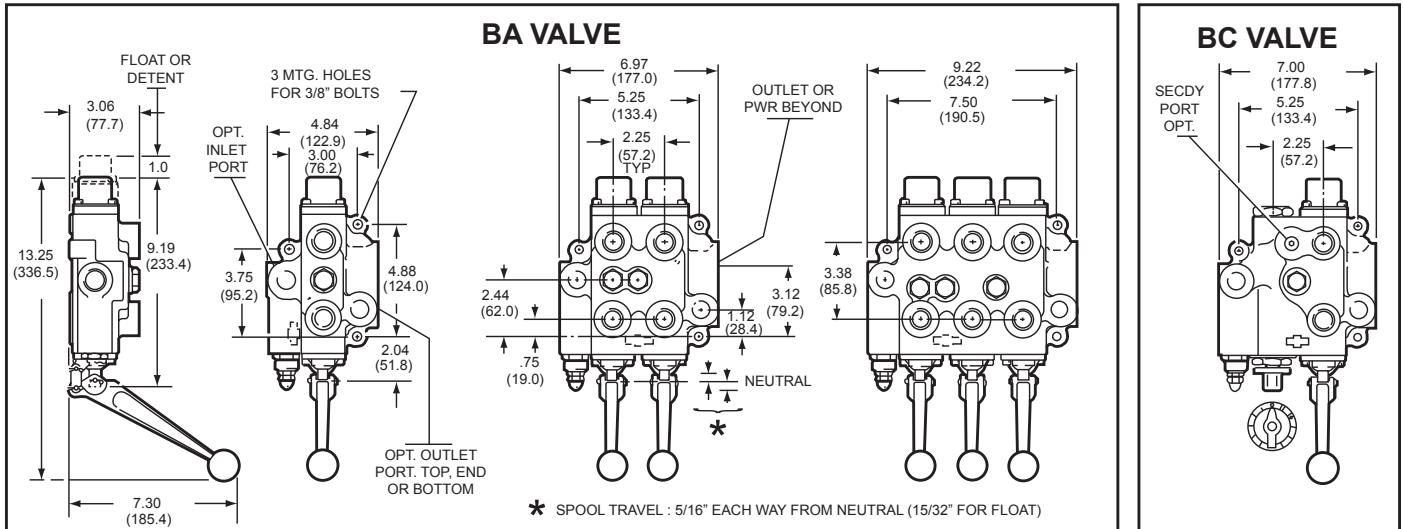
NOTE: Refer to CROSS Valve Technical / Service for recommendations and limitations.

B Series

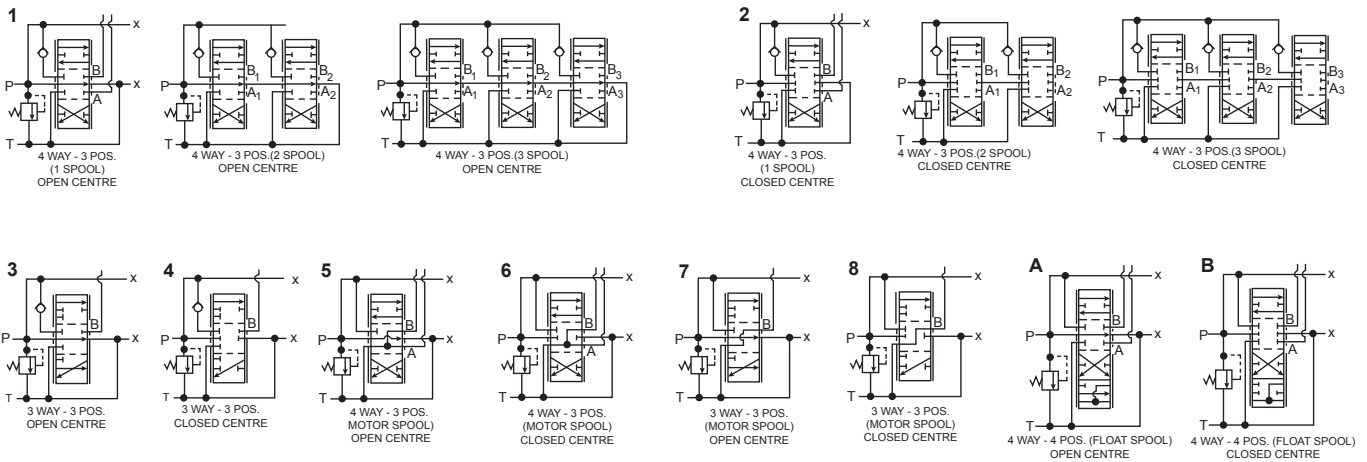
Mono-Block Directional Control Valve



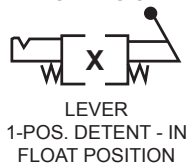
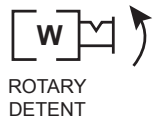
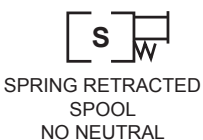
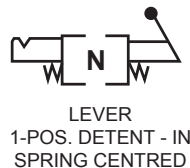
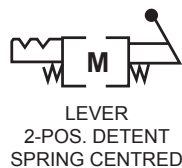
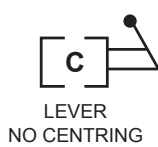
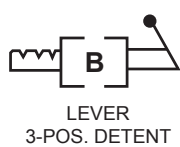
DIMENSIONAL DATA in inches and (millimetres)



SPOOL OPTIONS



ACTUATOR OPTIONS



B Series

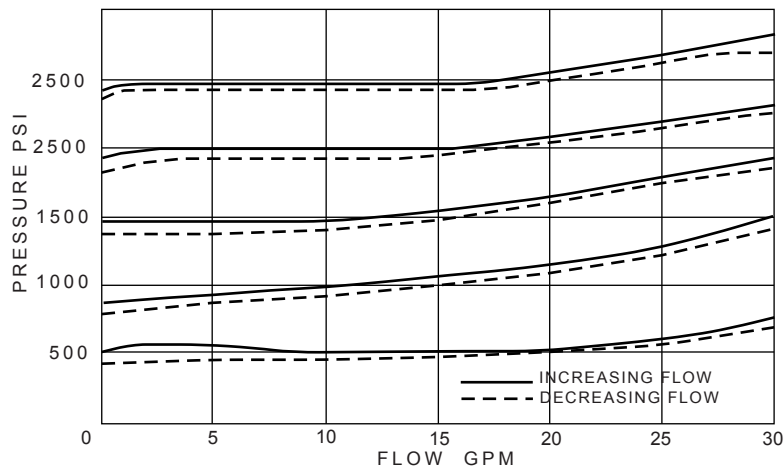


Mono-Block Directional Control Valve

TYPICAL PERFORMANCE DATA

FLOW RATE		P to T		P to A or B		A ₁ or B ₁ to T		A ₂ or B ₂ to T		A ₃ or B ₃ to T		
GPM	l/m	PSI	bar	PSI	bar	PSI	bar	PSI	bar	PSI	bar	
5	19	-	-	8	0.6	2	0.1	-	-	-	-	ONE SPOOL
10	38	3	0.2	20	1.4	6	0.4	-	-	-	-	
15	57	6	0.4	36	2.5	13	0.9	-	-	-	-	
20	76	11	0.8	55	3.8	23	1.6	-	-	-	-	
25	95	17	1.2	83	5.7	35	2.4	-	-	-	-	
30	114	25	1.7	120	8.3	48	3.3	-	-	-	-	
35	132	33	2.3	159	11.0	64	4.4	-	-	-	-	
5	19	-	-	10	0.7	6	0.4	2	0.1	-	-	TWO SPOOL
10	38	5	0.3	20	1.4	15	1.0	6	0.4	-	-	
15	57	10	0.7	38	2.6	33	2.3	14	1.0	-	-	
20	76	18	1.2	60	4.1	58	4.0	22	1.5	-	-	
25	95	29	2.0	90	6.2	92	6.3	33	2.3	-	-	
30	114	41	2.8	127	8.8	133	9.2	36	2.5	-	-	
35	132	54	3.7	174	12.0	184	12.7	64	4.4	-	-	
5	19	-	-	8	0.6	8	0.6	6	0.4	2	1.1	THREE SPOOL
10	38	12	0.8	16	1.1	24	1.7	16	1.1	6	0.4	
15	57	24	1.7	28	1.9	48	3.3	33	2.3	10	0.7	
20	76	41	2.8	44	3.0	84	5.8	58	4.0	18	1.2	
25	95	64	4.4	64	4.4	134	9.2	93	6.4	28	1.9	
30	114	92	6.3	88	6.1	202	13.9	140	9.7	42	2.9	
35	132	124	8.6	120	8.3	276	19.0	196	13.5	58	4.0	

RELIEF VALVE CHARACTERISTICS (100 SUS oil at 120°F.)



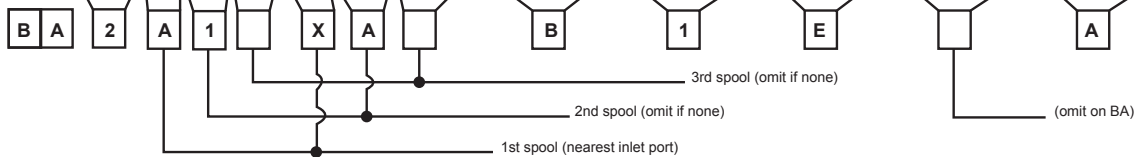
B Series

Mono-Block Directional Control Valve



ORDERING INFORMATION

Model No	No. of Spools	Spool Type	Spool Action (Actuator Options)	Relief Valve (4)	Power Beyond	Outlet Port Location	Secondary Flow Outlet Port BC Only (Optional)	Port Size & Type	Handle		
BA Manual	1 Single	1 4-way, 3 position open centre	A 3-position spring centred	A 1000 psi	0 None	O End outlet when P/B not specified	0 No Port (Plugged)	A In & Out 3/4" NPTF work 1/2" NPTF (8)	0 Complete Handle Assembly		
		2 ⁽¹⁾ 4-way, 3 position closed centre	B 3-position, detent no centring spring	B 1500 psi	1 ⁽⁶⁾ 3/4" NPTF P/B sleeve port	T Top outlet	1 7/8" 14(SAE #10)	B "in & out" 3/4" NPTF work 3/4" NPTF	1 Less Complete Handle Assembly		
	3 Triple	3 3-way, 3 position open centre	C manual, no detent no centring spring	C 2000 psi	2 ⁽⁶⁾ 1-1/16" 12 SAE #12 P/B sleeve port	2 Bottom outlet	2 1/2" NPTF	C "in & out" 1-1/16" 12 SAE #12 work 3/4 -16 SAE #8	2 Less Handle only (link, pins & bracket included)		
		4 ⁽¹⁾ 3-way, 3 position closed centre	D ⁽³⁾ Pressure release detent "in & out"	D none	3 ⁽⁶⁾ Conversion plug	E End outlet	3 3/4" 16(SAE #8)	D "in & out" 1-1/16" 12 SAE #12 work 1-1/16" 12 SAE #12	3 ⁽⁹⁾ Single Handle Actuator		
		5 4-way, 3 position open centre w/ motoring spool	E ⁽³⁾ Pressure release detent "in" only	E other	4 ⁽⁶⁾ 7/8-14 SAE #10	F Other	4 3/4" NPTF	E "in & out" 3/4" NPTF work 3/8" NPTF			
		6 ⁽¹⁾ 4-way, 3 position closed centre w/ motoring spool	F ⁽³⁾ Pressure release detent "out" only	F ⁽⁵⁾ Adjustable 500-1500 psi (Set at 1000 psi)	5 Closed centre plug	G Bottom outlet with grommet	5 1-1/16" 12(SAE #12)	F Other			
		7 3-way, 3 position open centre w/ motoring spool	M 2-position detent "in & out" spring centre	G ⁽⁵⁾ Adjustable 1500-2500 psi (Set at 2000 psi)		P Top inlet & outlet					
		8 ⁽¹⁾ 3-way, 3 position closed centre w/ motoring spool	N 1-position detent "in" only, spring centred			H Top inlet					
		A ⁽²⁾ 4-way, 4 position open centre Detent float position	R Spring extended no neutral			(7)					
		B ⁽¹⁾⁽²⁾ 4-way, 4 position closed centre Detent float position	S Spring retracted no neutral								
			W Rotary detent								
			X 4-pos. spring centred to neutral. Detent in float position								
		BC	1 ⁽¹⁾	1 ⁽¹⁾	A ⁽¹⁾	A ⁽¹⁾	3 ⁽¹⁾	E ⁽¹⁾	2 ⁽¹⁾	A ⁽¹⁾	O ⁽¹⁾



EXAMPLE: BA2A1XAB1EAO is a BA manually operated double spool valve, the first spool being 4-way, 4 position, open centre, spring centred with detent in float position; the second spool being 4-way, 4 position, open centred, spring centred. The non-adjustable relief valve is set at 1500 psi. 3/4" NPTF power beyond sleeve port, outlet port in end position. Inlet and outlet ports are 3/4" NPTF; work ports 1/2" NPTF. Complete handle assembly.

NOTES:

- (1) Model BC is a one-spool combination adjustable priority flow divider and directional control valve, open centred, with conversion plug installed; available power beyond capability by adding kit. Not available as closed centre.
- (2) Float position A or B is available on 1st spool only on a 2 or 3 spool valve.
- (3) Specify detent kick-out pressure if other than 1000 psi.
- (4) Pressure settings at 10 gpm.
- (5) If other setting is desired, specify on order.
- (6) Top, end or bottom outlet (specify).
- (7) Specify T, B or E when ordering closed centre spool, power beyond or conversion plug.
- (8) Machined for unidirectional orifice plates.
- (9) Available for BA2 and BA3 spool models.