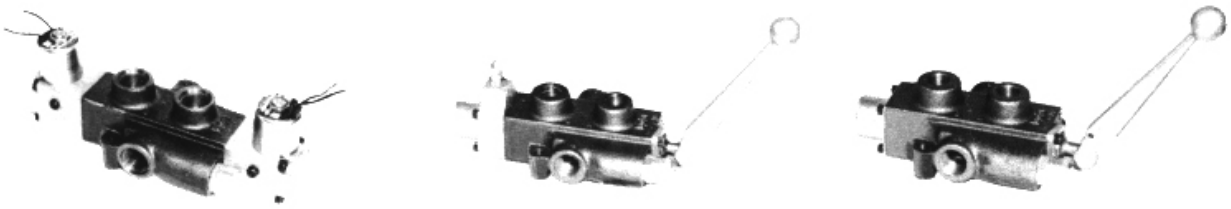
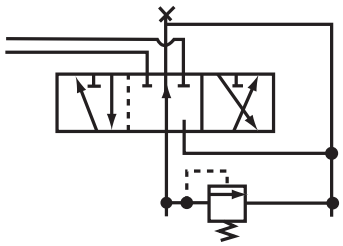
C Series

Mono-Block Directional Control Valve



The CROSS series C monoblock type directional control valves provide good metering characteristics and long dependable service life. Select-fit spools give minimum leakage for maximum load holding ability. Many options are available including pressure release detents and solenoid actuators. Basically a series type valve, the first spool has priority in the 2-spool version. These valves are recommended for all general purpose applications except for metering-up with heavy vertical loads.



GENERAL SPECIFICATIONS

Number of spools ..... 1 or 2
Rated working pressure .....2500 psi (172 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) ..... 32 cc/min
Mounting, any position .....Three mounting holes for 3/8" dia bolts
Weight: 1 spool - Standard, 9 lbs (4 kg); w/detents, 10 lbs (4.5 kg); w/sol. 12 lbs (5 kg)
2 spool - Standard, 17 lbs (7.7 kg); w/detents, 18 lbs (8 kg); w/sol. 23 lbs (10 kg)

MATERIAL SPECIFICATIONS

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

STANDARD FEATURES

- Built-in system relief (non-adjustable), set at 1500 psi
- Balanced select-fit spools for minimum leakage, smooth operation and long life
- 3-Position, 4-way spool with spring centring and complete handle assembly
- SAE #12 (3/4"), 1-1/16" - 12 inlet and outlet ports; SAE #8 (1/2"), 3/4" - 16 work ports except model CV: 3/4" NPTF inlet and outlet ports, 1/2" NPTF work ports.
- Open cemtre
- 1 or 2 spools

OPTIONAL FEATURES AVAILABLE

- Built-in system relief, fixed or adjustable, with optional pressure settings to 2000 psi
- Various spool types, 3 or 4-way, with various actuators and actuator positions
- Various sizes of SAE straight thread or NPTF dryseal pipe thread ports
- Pressure released detents (Model CD) in the "in", "out" or both positions
- AC or DC solenoid operation (Model CS), from 6 to 24 volt DC, 120 to 480 volt AC

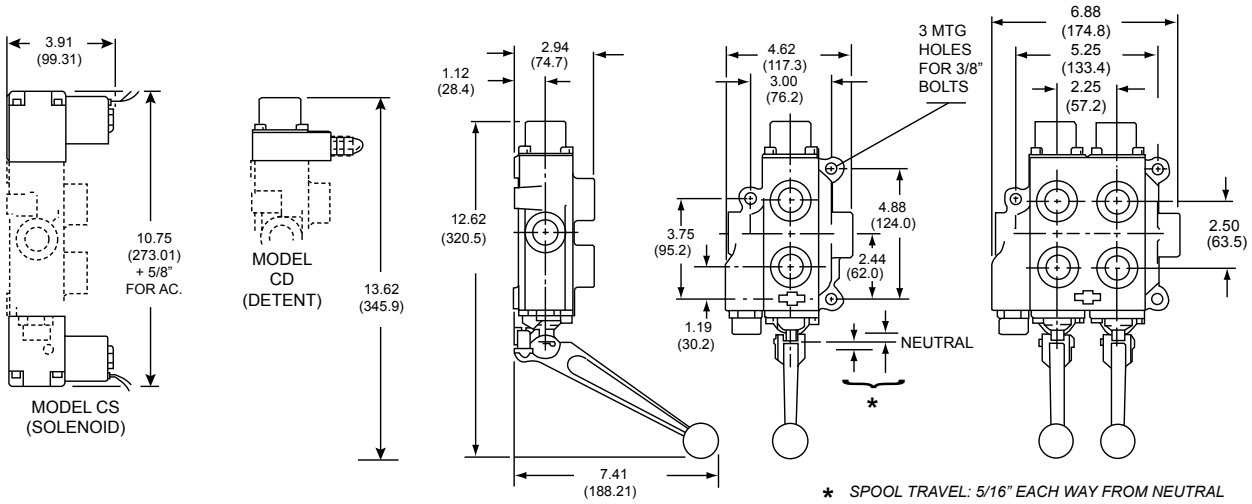
***Limited to 2000 psi when integral relief valve is used.**

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

C Series

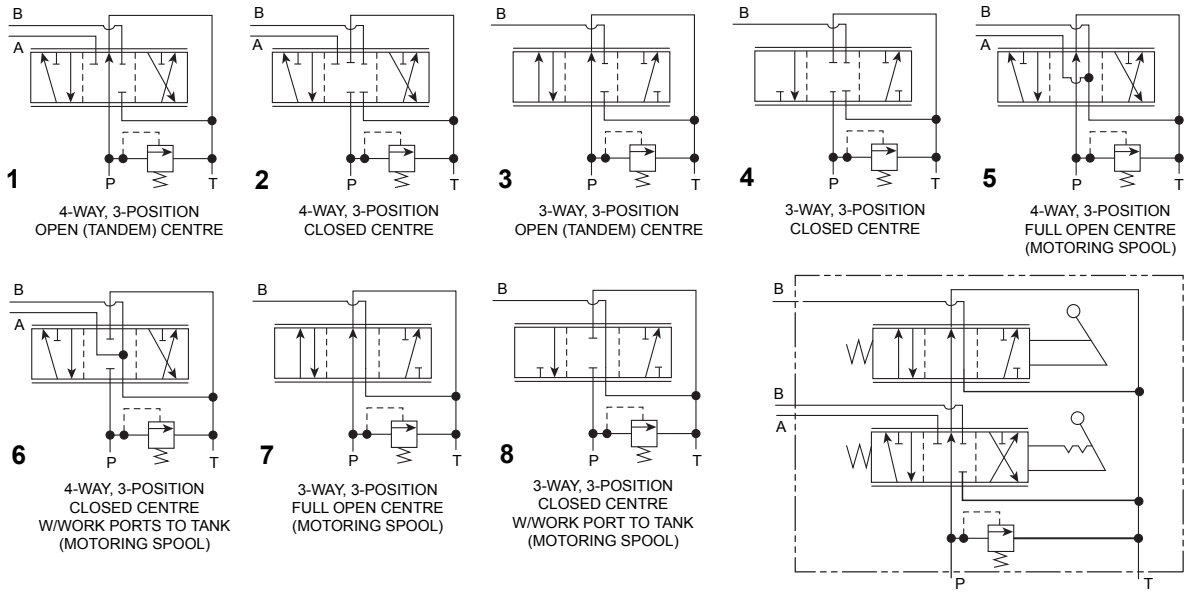
Mono-Block Directional Control Valve

DIMENSIONAL DATA in inches and (millimetres)



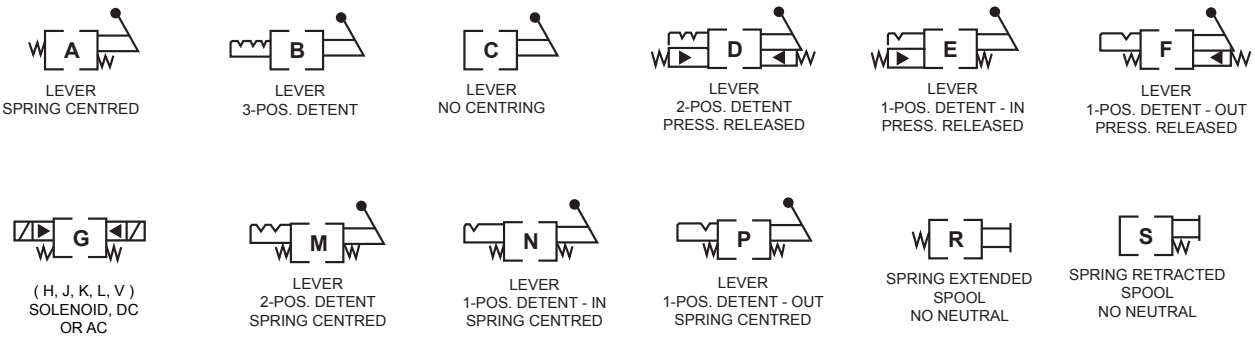
* *SPOOL TRAVEL: 5/16" EACH WAY FROM NEUTRAL*

SPOOL OPTIONS:



TYPICAL 2-SPOOL VALVE
(MODEL NO. CA217MABDO)

ACTUATOR OPTIONS:

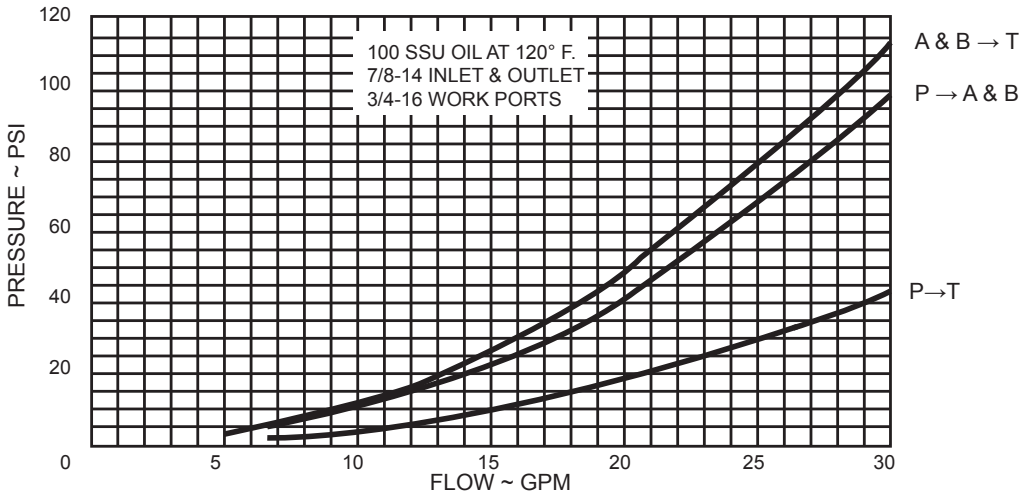


ROTARY ACTUATOR

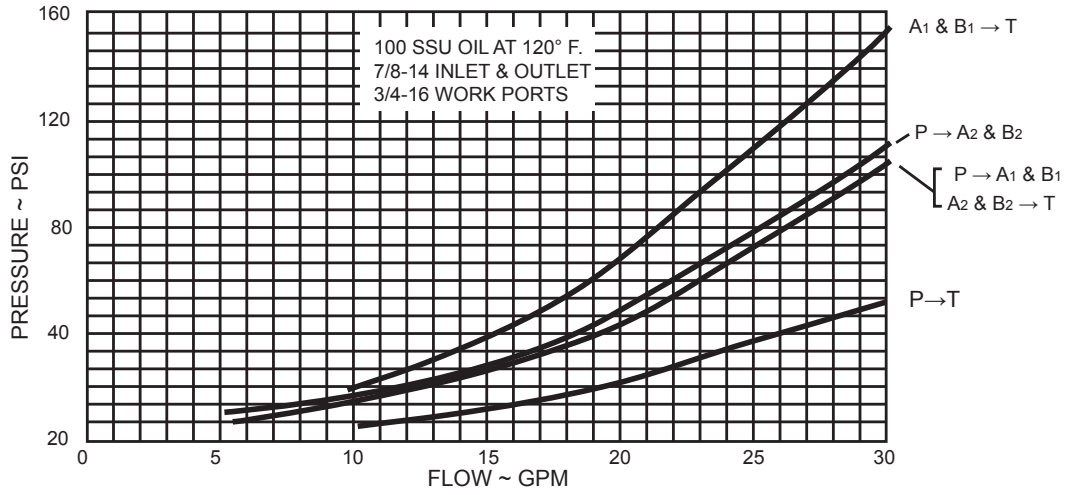
NOTE: ALL ACTUATORS MAY BE LOCATED AT EITHER END OF VALVE, EXCEPT ON MODEL CD.

TYPICAL PERFORMANCE DATA

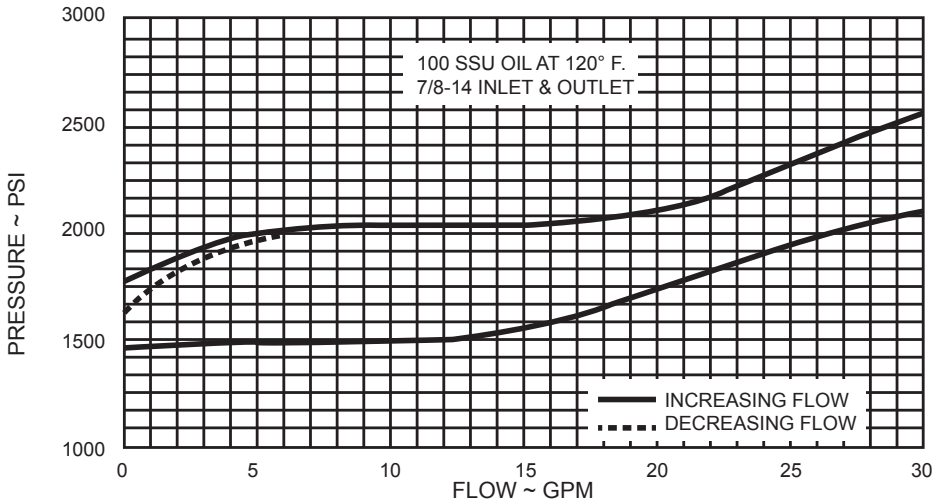
CA 1-SPOOL VALVE



CA 2-SPOOL VALVE

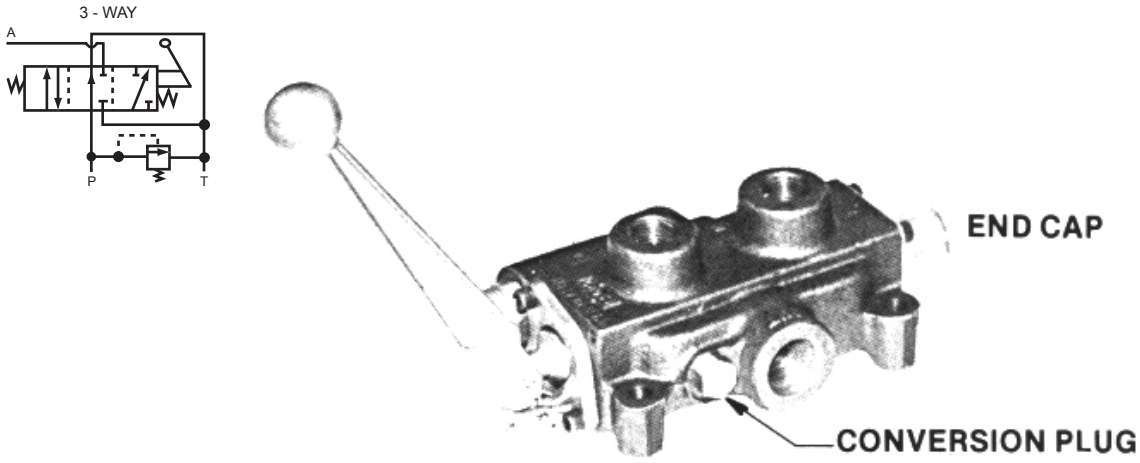


CA RELIEF VALVE REGULATION



C Series

Mono-Block Directional Control Valve



The CROSS series CV (CONVERTA) valve is a highly versatile 3-way or 4-way, 3 position directional control valve for use with either double-acting or single-acting cylinders.

GENERAL SPECIFICATIONS

Rated working pressure	2000 psi (138 bar)
Maximum shock and surge pressure	4000 psi (276 bar)
Rated flow capacity	25 gpm (94.6 ltr/min)
Relief Valve Setting	1500 psi (104 bar) at 10 gpm (37.8 ltr/min)
Ports	3/4” NPTF inlet and outlet, 1/2” NPTF work (cylinder)
Basic Spool Type	4-way, 3 position, spring centred, open (tandem) centre
Weight	9 lbs (4 kg)

CONVERSION

Included in the CV package is a 3-way cylinder port plug and a 3-way conversion plug. To convert from the basic 4-way (double-acting) to a 3-way (single acting):

1: Insert the cylinder port plug (# 2A0349-8) into a cylinder port “A” (port nearest the handle.)

2: Insert the conversion plug (# 1V0277), ie, the hex nut located adjacent to the outlet port, (as shown above).

3: Insert the 3-way cinversion plug (# 2A0354-108).

The valve is now converted for use with a single-acting cylinder or uni-directional motor.

(Save the 4-way conversion plug for later reconverting back to 4-way operation).

DETENT KIT

To change from the standard spring centred version to a 3 position detent, order Detent Kit #1V0294.

Convert as follows:

1: Remove end cap.

2: Remove spring centring mechanism.

3: Install detent kit.

4: Replace end cap.

The valve is now converted from spring centred to 3 position detent.

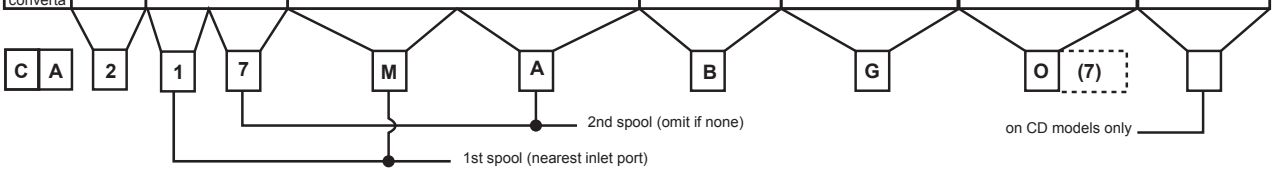
NOTE: This valve is not intended for use in lifting circuits.

See Direction Control Valve Specification sheet C Series for additional information.

C Series

Mono-Block Directional Control Valve

Model No	No. of Spools	Spool Type	Spool Action (Actuator Options)	Relief Valve (4)	Port Size & Type	Handle	Detent Release Pressure
CA Manual **CD** With detent **CS** Solenoid	**1** Single **2** Double	**1** 4-way, 3 position open centre **2** 4-way, 3 position closed centre **3** 3-way, 3 position open centre **4** 3-way, 3 position closed centre **5** 4-way, 3 position open centre w/ motoring spool **6** 4-way, 3 position closed centre w/ motoring spool **7** 3-way, 3 position open centre w/ motoring spool **8** 3-way, 3 position closed centre w/ motoring spool **9** Other (2)	**A** 3-position spring centred **B** 3-position, detent no centring spring **C** manual, no detent no centring spring **D** Pressure release detent "in & out" (4) **E** Pressure release detent "in" only (4) **F** Pressure release detent "out" only (4) **G** Solenoid, 6 volt DC (5) **H** Solenoid, 12 volt DC (5) **J** Solenoid, 24 volt DC (5) **K** Solenoid, 120 volt AC (5) **L** Solenoid, 240 volt AC (5) **M** 2-position detent "in & out" spring centre **N** 1-position detent "in" only, spring centred **P** 1-position detent "out" only, spring centred **R** Spring extended no neutral **S** Spring retracted no neutral **V** Solenoid, 480 volt AC (5) **W** Rotary detent **X** Other	**A** 1000 psi **B** 1500 psi **C** 2000 psi **D** none **E** other **F** (5) Adjustable 500-1500 psi (Set at 1000 psi) **G** (5) Adjustable 1500-2500 psi (Set at 2000 psi)	**A** In & Out 3/4" NPTF work 1/2" NPTF **B** In & Out 3/4" NPTF work 3/8" NPTF **C** In & Out 3/4" NPTF work 3/4" NPTF **D** In & Out SAE #10 work SAE #8 **E** In & Out SAE #12 work SAE #12 **F** Other **G** In & Out SAE #12 work SAE #8	**0** Complete handle assembly on 'A' port end **1** Complete handle assembly on 'B' port end (3) **2** Less handle assembly 'A' port **3** Less handle assembly 'B' port (3) **4** Less handle w/brackets 'A' port end **5** Less handle w/brackets (3) 'B' port end **6** Other	(4)
CV converta	**1** (1)	**1** (1)	**A** (1)	**B** (1)	**A** (1)	**O** (1)	

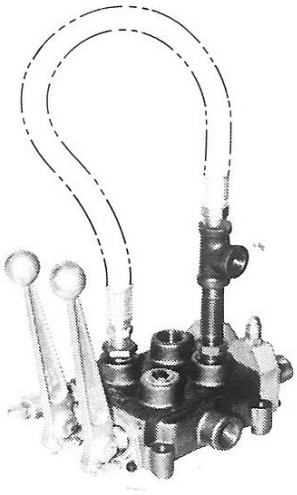


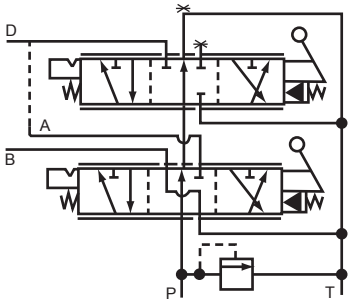
EXAMPLE: CA217MABDO is a manually operated double spool valve; the first spool being 4-way, 3 position, open centre, spring centred with detents in the ‘in’ and ‘out’ position; the second spool being 3-way, 3 position, open centre, spring centred. The non-adjustable relief valve is set at 1500 psi, inlet and outlet ports are SAE #12 and the work ports SAE #8. The complete handle assembly is located on the “A” port end.

NOTES:
(1) Model CV (Converta) has no options available and includes a conversion plug for 3-way operation. A detent kit (# 1V0294) is available.
(2) If closed centre is required on a 2 spool valve, the first spool must be open centre.
(3) Not applicable for Model No. CD.
(4) Model No. CD - Specify detent kick-out pressure if other than 1000 psi. The detent release (kick-out) pressure must be at least 200 psi less than the relief valve setting.
(5) Model No. CS.
(6) Settings at 10 gpm. Other flow and/or pressure settings for either fixed or adjustable relief valves must be specified, up to a maximum of 2000 psi.
(7) Omit for CS version valves. Add second number if 2nd spool handle assembly is different from the first.

C Series Auto-Cycle

Mono-Block Directional Control Valve



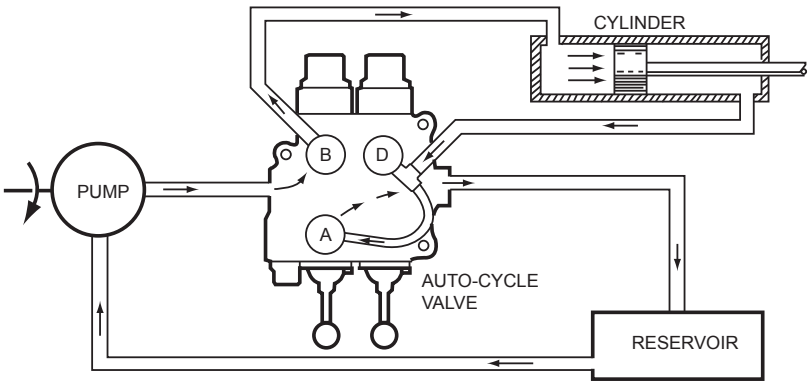


The CROSS AUTO-CYCLE valve is a modified series C directional control valve (Model Number CD213FFGAO) applied in a unique manner to provide automatic cycling.

For proper auto-cycle operation, the ‘A’ and ‘D’ ports must be inter-connected. If system flow rate exceeds 10 gpm (38 l/min), 1/2” minimum I.D. hose should be used.

The standard version valve (CD213FFGAO) is supplied with an adjustable relief valve (set at 2000 psi at 10 gom), 3/4” inlet and outlet ports, 1/2” work ports and complete handle assemblies located on the ‘A’ port end of the valve. However, all C series relief, port and handle options are available. (Refer to C Series Directional Control Valve Specification Sheet).

OPERATION (Typical)



When both levers are pulled out, oil flow is directed from the inlet port, out the ‘B’ port, to the piston side of the cylinder, causing the cylinder to extend. Return oil passes from the rod side of the cylinder through the valve ‘A’ port to the outlet port back to the reservoir. Upon reaching the end of the cylinder stroke, pressure increases to the pre-set detent kick-out pressure, causing the first valve spool to return to neutral. Oil flow is then directed from the inlet port through the open centre first spool and out the ‘D’ port, thereby causing the cylinder to retract. Return oil from the piston side of the cylinder passes through ‘B’ port and out the outlet port back to the reservoir. When the cylinder is fully retracted, pressure increases to ‘kick-out’ the second spool detent, returning it to neutral.
The system has now completed its full cycle and is ready to again be re-activated.

APPLICATIONS (Typical): Compactors, Presses

NOTE: NOT RECOMMENDED FOR LOGSPLITTERS