

## DS DIRECTIONAL CONTROL VALVES INSTALLATION & USER GUIDE

### SPECIFICATIONS:

- Coils: - 12 VDC, 3.5 ohms, 40 watts, & 3.5 amps  
- 24 VDC, 14 ohms, 40 watts, and 1.75 amps  
- 120 VAC, 300 ohms, 40 watts, and 0.40 amps
- Port Sizes: - #8 SAE (3/4-16) all ports  
- #10 SAE (7/8-14) all ports  
- #12 SAE (1-1/16-12) all ports  
- #4 SAE (7/16-20) drain port
- Weight: 10.0 lbs (4.55 kg).
- 10 Micron Filtration Recommended.
- Flow and pressure ratings for Pilot, Lever and Knob actuated valves  
#8 SAE – 10gpm (38 lpm) & 4500 psi (310 bar)  
#10 SAE – 18gpm (68 lpm) & 4500 psi (310 bar)  
#12 SAE – 30gpm (114 lpm) & 4500 psi (310 bar)

### MOUNTING, & ASSEMBLY INSTRUCTIONS:

- **Mounting** – Valve can be mounted in any orientation. Valve must be mounted on a flat surface. Special attention should be paid to not bend or twist the casting when mounting. Doing so may cause the valve to fail.
- **Handle Assembly** – If the enclosed lever handle is desired, the handle actuator will already be installed on the valve. When you receive the valve, simply screw the supplied lever handle into the threaded handle actuator.

### FREQUENTLY ASKED QUESTIONS:

**Q:** Can I paint the valve?

**A:** Painting valves is acceptable as long as the following precautions are taken:

- 1- All ports must be plugged
- 2- Spool must be masked or taped off completely.

Any paint on the spool will cause leakage when it chips off. Warranty is void if any valve is returned with paint on the spool

**Q:** When do I need an external drain?

**A:** The external drain is only used on Electrically Actuated “DS” valves where operating pressures are greater than 3600 psi (248 bar) but does not exceed 4500 psi (310 bar). The internal drain plug can be swapped out with the external drain plug (opposite the coil) if the spool seems to “stick” at higher pressures. Note: pilot, knob, and lever actuated valves are rated to 4500 psi (310 bar).

**Q:** What pilot pressure is required for the pilot operated version of the valve?

**A:** Valve requires 150 psi pilot pressure.

**Q:** When are “unused open-port” spools (types F&G) beneficial?

**A:** In selector spools F and G, the unused ports are open to prevent line cavitation during motor freewheel.

**Q:** When are closed cross-over spools used as opposed to open cross-over?

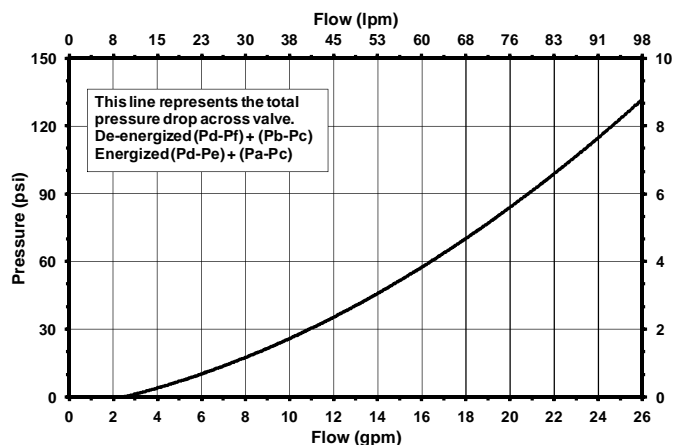
**A:** Closed cross-over transient position spools are recommended for switching flow between cylinders to help prevent cylinders from shifting while in the transient position.

**Q:** What kits are available for this valve?

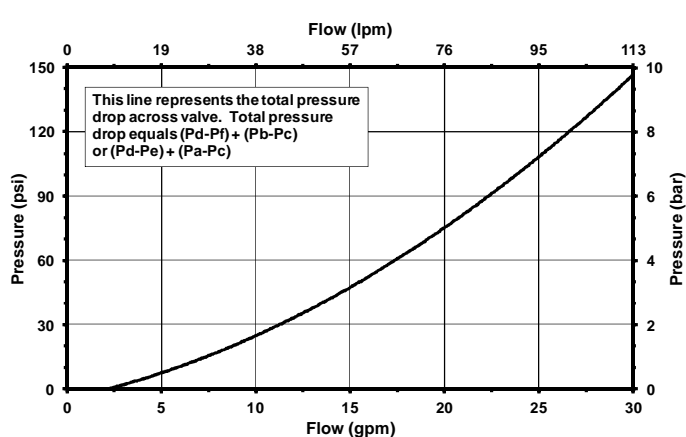
**A:** There is a replacement seal kit for each variation of valve (Electric = P/N#: DS-EK, Knob & Lever = P/N#: DS-K, Manual Lever = P/N#: DS-HL, Pilot = P/N# DS-PK). There are also a number of different kits available for this valve depending on the spool action, and handle option the valve is equipped with. Please contact factory for specific kit numbers relating to different spool actions, and handle options.

## FLOW & PRESSURE INFORMATION:

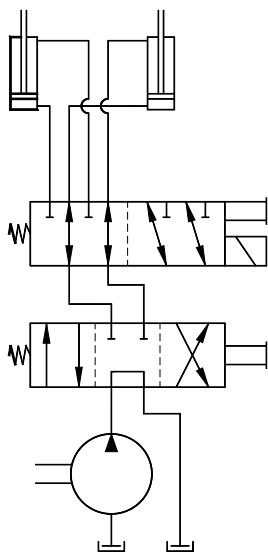
Pressure vs. Flow for Electric DS



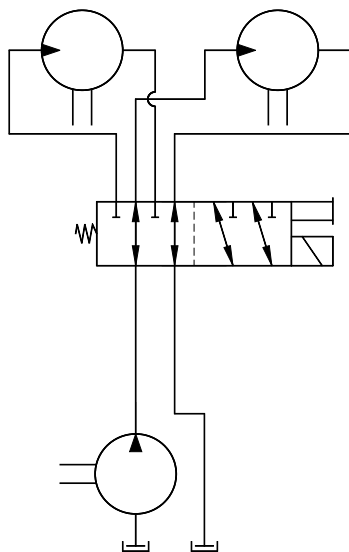
Pressure vs. Flow for Manual/Pilot DS



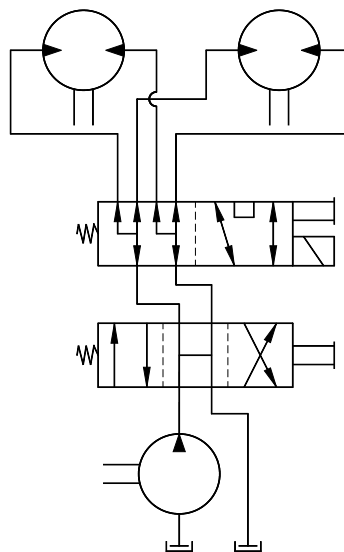
## COMMON DOUBLE SELECTOR APPLICATIONS:



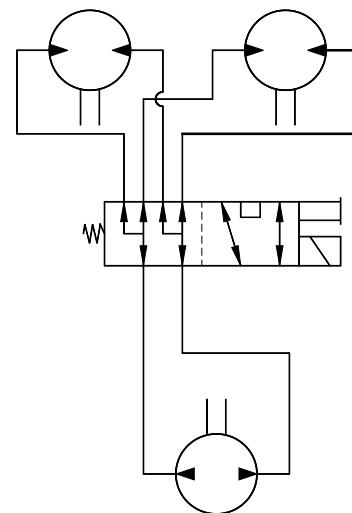
Selector spool – used to extend and retract two separate cylinders with one directional control valve



Selector spool – used to rotate two uni-directional motors individually



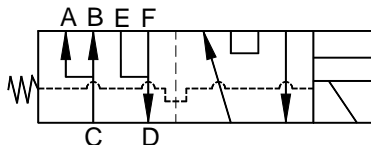
Series/Parallel spool – used to rotate two bi-directional motors in series or parallel with one directional control valve



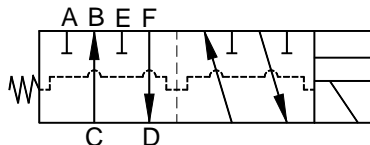
Series/Parallel spool – used to rotate two bi-directional motors in series or parallel with one bi-directional pump

## SPOOL SCHEMATICS:

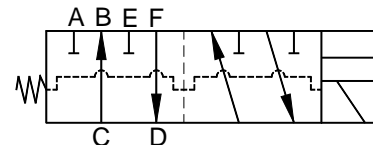
Spool schematics for "E" electric spool operator (transient position not shown)



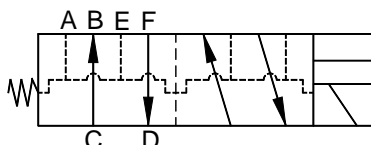
A - Series/Parallel



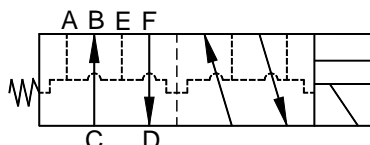
B - Selector spool with open cross-over transient position



C - Selector spool with closed cross-over transient position

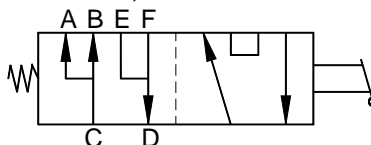


F - Selector spool with open cross-over transient position and unused ports open

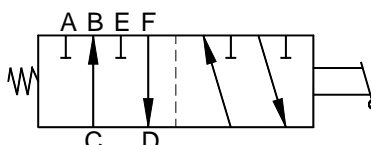


G - Selector spool with closed cross-over transient position and unused ports open

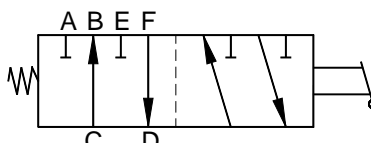
Spool schematics for "L" lever spool operator (transient position not shown)



A - Series/Parallel

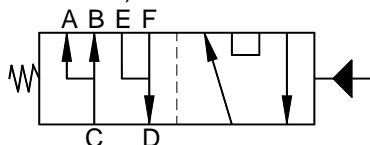


B - Selector spool with open cross-over transient position

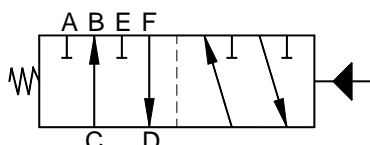


C - Selector spool with closed cross-over transient position

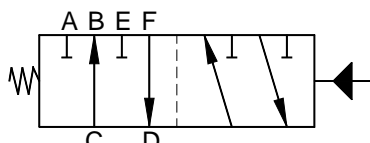
Spool schematics for "P" pilot spool operator (transient position not shown)



A - Series/Parallel

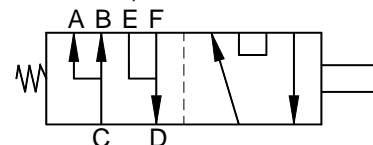


B - Selector spool with open cross-over transient position

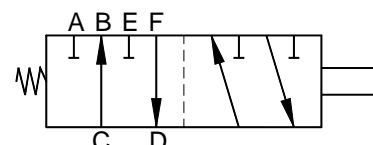


C - Selector spool with closed cross-over transient position

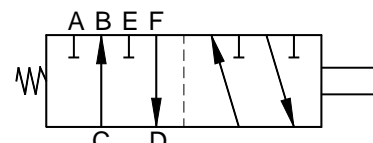
Spool schematics for "K" knob spool operator (transient position not shown)



A - Series/Parallel



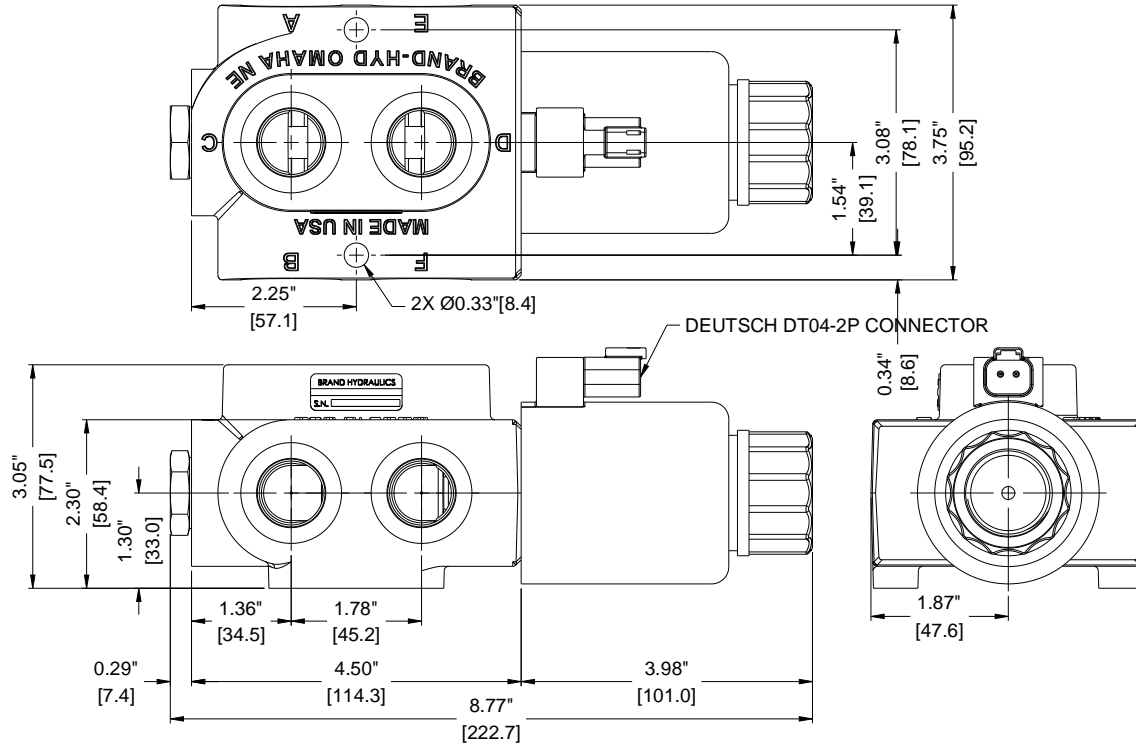
B - Selector spool with open cross-over transient position



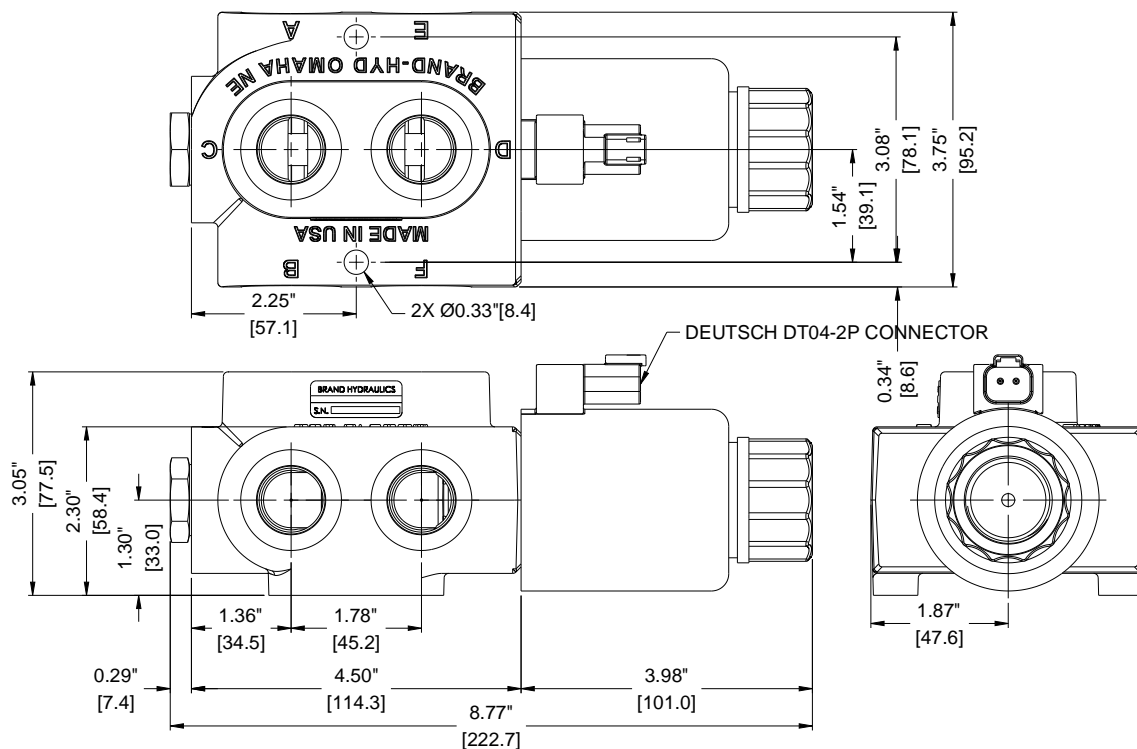
C - Selector spool with closed cross-over transient position

## DIMENSIONAL DATA:

DS10BE1SN shown below:

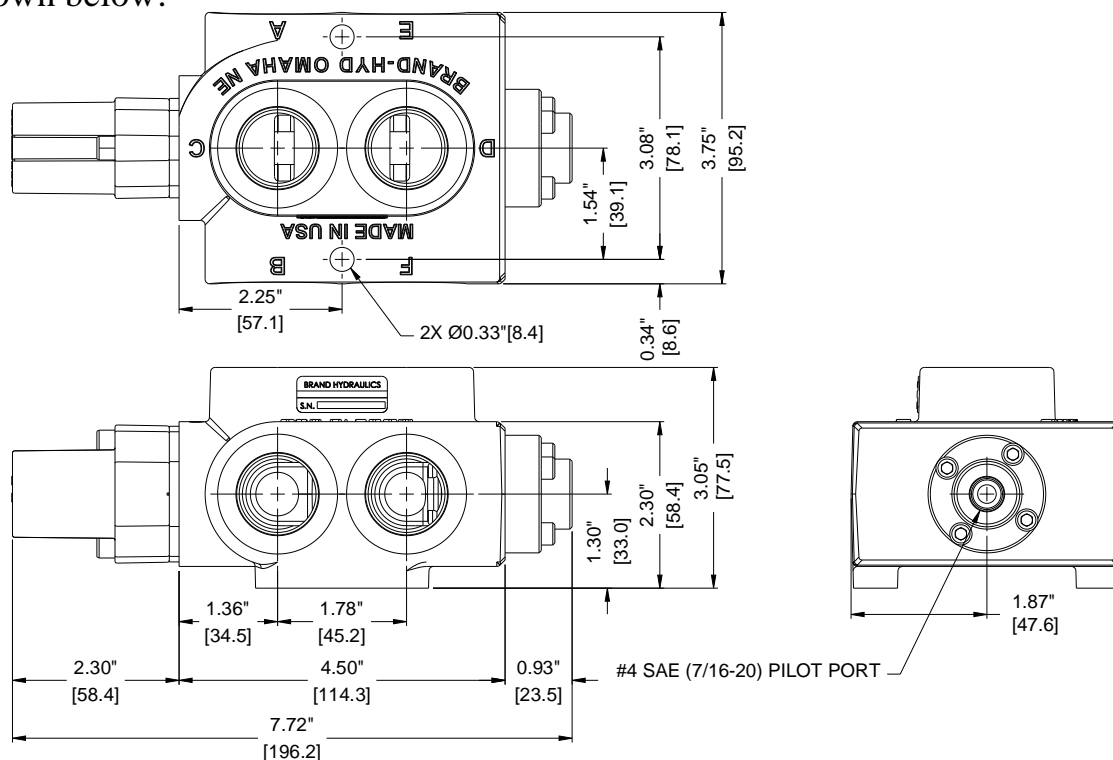


DS12ALD shown below:

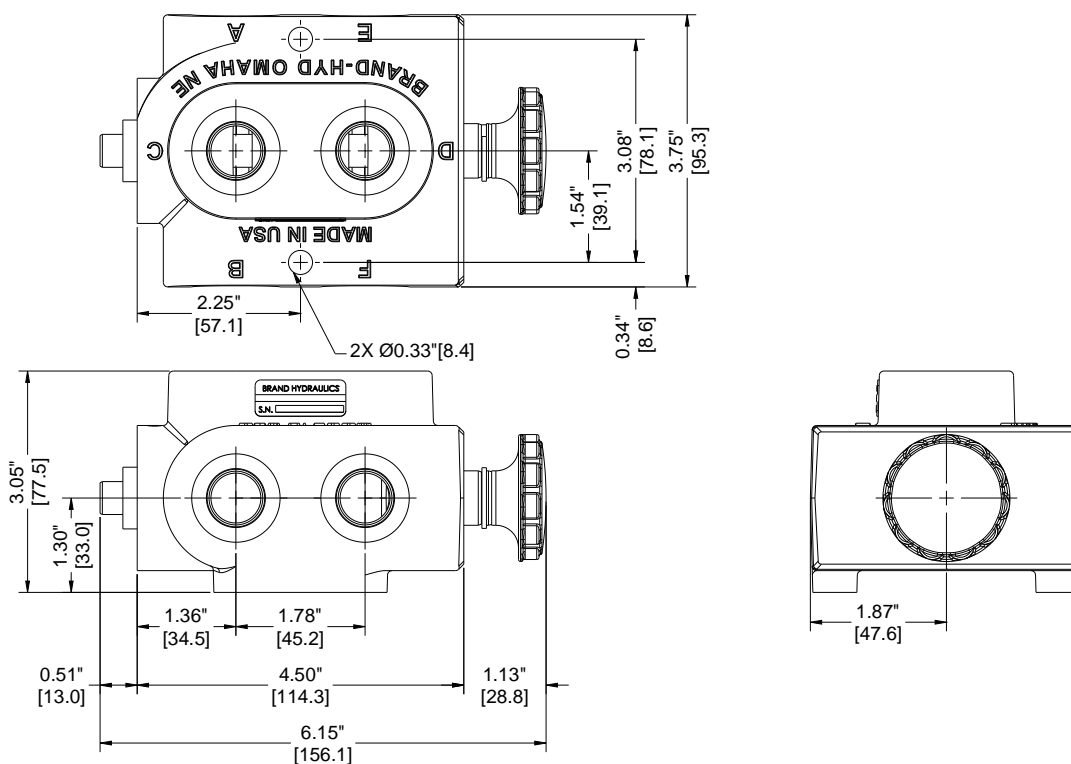


## DIMENSIONAL DATA cont'd:

DS12BPS shown below:



DS08BK shown below:



## **SAFETY PRECAUTIONS:**

- It is the purchaser's responsibility to determine the suitability of any Brand Hydraulics Co. product for an intended application, and to ensure that it is installed in accordance with all federal, state, local, private safety and health regulations, codes and standards. Due to the unlimited variety of machines, vehicles and equipment on which our products can be used, it is impossible for Brand Hydraulics Co. to offer expert advice on the suitability of a product for a specific application. It is our customer's responsibility to undertake the appropriate precautions, testing and evaluation to prevent injury to the end-user.
- Overpressure may cause sudden and unexpected failure of a component in the hydraulic system, resulting in serious personal injury or death. Always use a gauge when adjusting a relief valve.