



Shipping: 2332 S 25th St
Omaha, NE 68105
Phone: (402) 344.4434
Fax: (402) 344.8091
www.BRAND-HYD.COM



TS DIRECTIONAL CONTROL VALVES INSTALLATION & USER GUIDE

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.

SPECIFICATIONS:

- Rated for 0-18 gpm (0-68.1 lpm).
- Rated for 3000 psi (207 bar).
- Std. Port sizes (Consult factory for others).
#12SAE Inlet/outlet and #10SAE work ports.
- 30 – Micron filtration recommended.

- Weights
 - TS1 = 9lbs (4.1kg)
 - TS2 = 14lbs (6.4kg)
 - TS3 = 20lbs (9.1kg)

MOUNTING, ADJUSTMENT & 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.
- **Relief Adjustment** – Relief setting is factory preset to 1500 psi, unless otherwise noted within model code. Relief valve can be set anywhere within the range of 300 psi to 3000psi by switching out the relief spring to one of the following:
 - 300 – 700 PSI – Use spring P/N: DC7594 (Yellow)
 - 700 – 1400 PSI – Use spring P/N: P1270-360 (Orange)
 - 1400 – 2500 PSI – Use spring P/N: P1270 (Yellow, standard)
 - 2400 – 3000 PSI – Use spring P/N: P1279 (White)

To adjust relief pressure: First, loosen the 1" hex lock nut. This gives you access to the relief set screw. Turning the relief adjustment screw with a 5/16" allen clockwise will increase relief pressure.

- **Handle Assembly** – Regardless of handle style, the handle retainer comes preinstalled on the valve.

L-Style Handle: The mounting point of the handle retainer is **above** the spool.

J-Style Handle: The mounting point of the handle retainer is **below** the spool.

To install handle(s):

1. First, align the 2 handle linkage brackets so they taper towards each other. When pressed together they will resemble a "Y".
2. Second, using the longest clevis pin, mount the linkage brackets at their widest point to the outside of the handle retainer. Secure the linkages with 1 of the hitch pins.
Note: for TS3 models, the handle linkages for all 3 spools will be assembled at the factory.
3. Third, using the shortest clevis pin, mount the handle between the linkages using the hole closest to the edge of the handle. Secure the handle with 1 of the remaining hitch pins.
4. Finally, using the remaining clevis pin and hitch pin, secure the handle to spool using the slot in the spool.
5. Repeat 1-4 for 2 spool models.



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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.

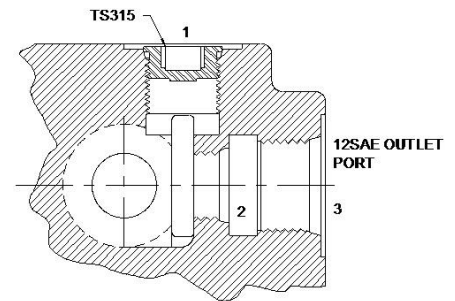
Any paint on the spool will cause leakage when it chips off. Warranty is void if any valve is returned with paint on the spool.

Please, note you can order a valve already painted from factory by adding a "P" to the beginning of the model number.

Q: Can I plumb another valve downstream from this valve, using the outlet of this valve?

A: You cannot plumb direct to another valve, unless your valve is equipped with power beyond or has been converted to use power beyond. A valve can be ordered with power beyond already set up by adding a "W" to the end of the model code.

- Converting valve to "Power Beyond" – To convert the valve to power beyond operation, take the TS315 plug from the top port (1) and insert it into the internal port (2). Next, plumb a #10 SAE fitting from the top port (1) to the adjoining valve. Lastly, run a line from the #12 SAE outlet port (3) to the reservoir. (see illustration right)



Q: Can I convert my valve to operate in a "closed" center system?

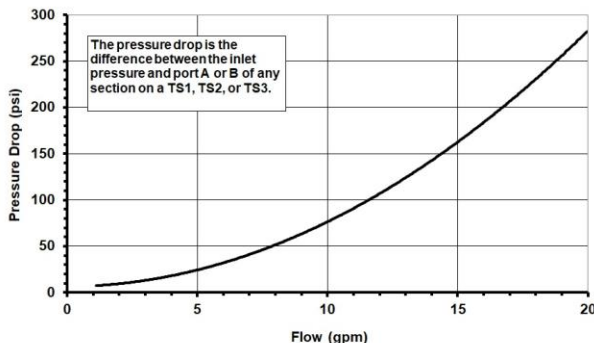
A: Yes. To have the casting in a closed center operation, both the top port (1) and internal port (2) must be plugged. Remove the TS315 plug from the top port (1) and insert it into the internal port (2). Then plug the top port (1) with any std. SAE plug (7/8-14) or purchase a plug from the factory. Closed center blocks "Pump" only, the condition of ports A and B depend on the spool type. (see illustration above right)

Q: What kits are available for this valve?

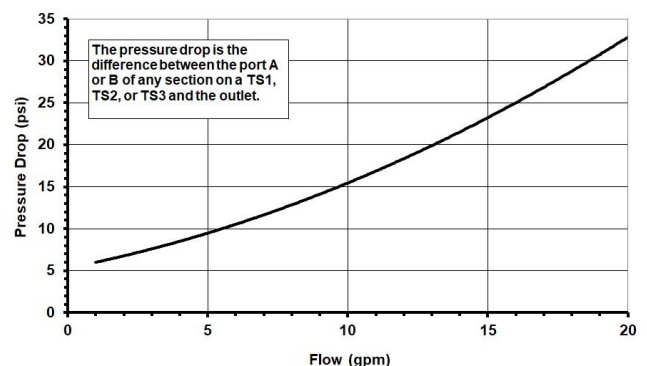
A: There is a replacement seal kit (Part #: TS-K), and replacement relief kit (Part #: 36R15) for this valve. There are also a number of different kits available for this valve depending on the spool action, and handle option the valve is equipped with. Please contact factory for specific kit numbers relating to different spool actions, and handle options.

FLOW & PRESSURE INFORMATION:

Pressure Drop vs. Flow for P to A or B



Pressure Drop vs. Flow for A or B to T



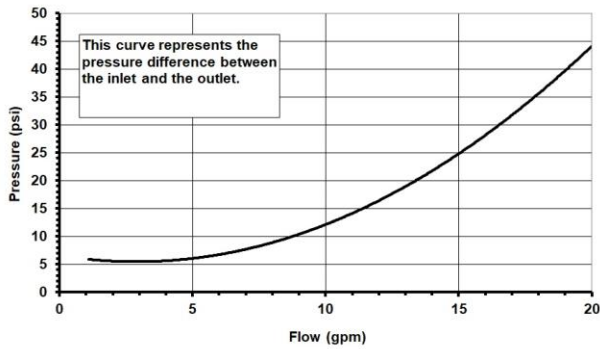


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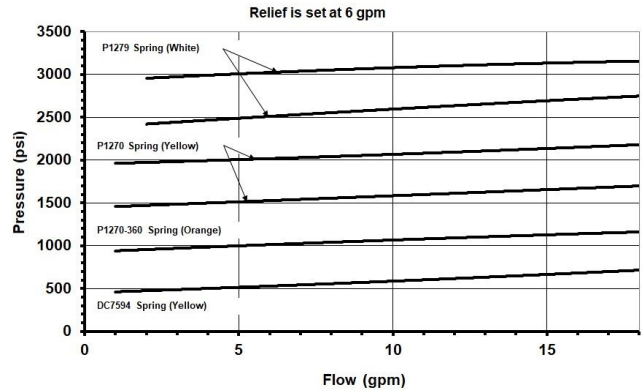


FLOW & PRESSURE INFORMATION CONT'D:

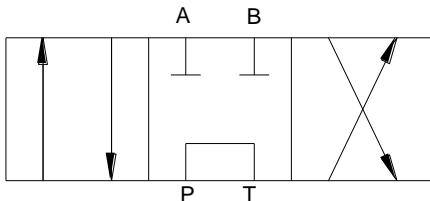
Neutral Flow Pressure Drop



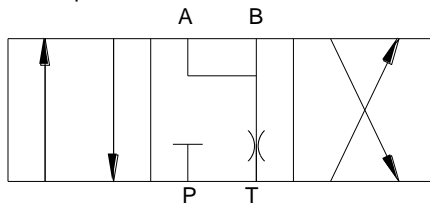
Pressure vs. Flow for Area-Differ. Port Relief (B)



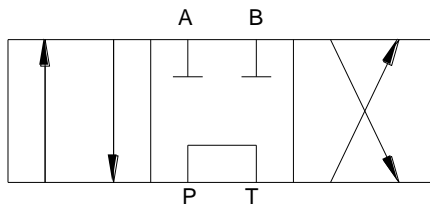
SPOOL SCHEMATICS:



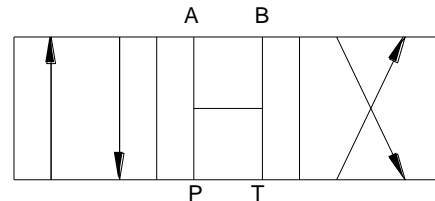
Tandem Center (T) - Powers cylinder or motor in both directions. Pump unloads to tank when spool is in neutral. Cylinder or motor blocked when spool is in neutral.



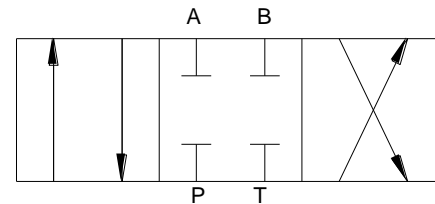
Fine Metering Spool (M) - Requires external locking valves to hold cylinder when spool is in neutral position. Extremely fine metering control. This spool requires a pressure compensated pump.



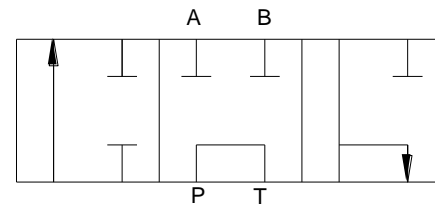
Tandem Metering Spool (TM) - Similar to (T) spool except much finer metering control. Cylinder or motor blocked in neutral and pump unloads to tank.



Open Center (O) - All of the ports are connected to tank when the spool is in neutral. Allows cylinder to move or motor to rotate when spool is in neutral.



Closed Center (C) - All ports are blocked in neutral. Blocks cylinder or motor in neutral. Required for use with pressure compensated pump.



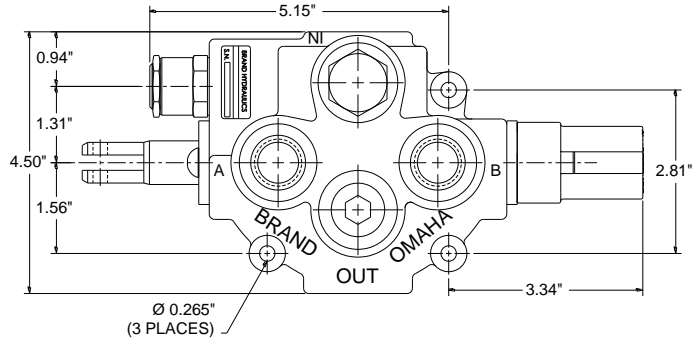
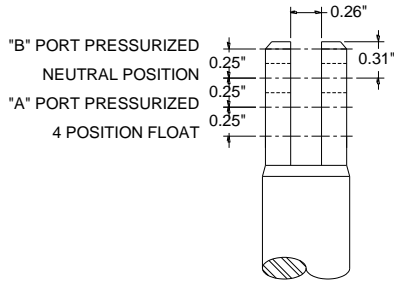
Tandem Three Way (T3) - Powers the cylinder in one direction. Pump unloads to tank when spool is in neutral, or when spool is being reversed. Cylinder is blocked when spool is in neutral. Port "B" is plugged.



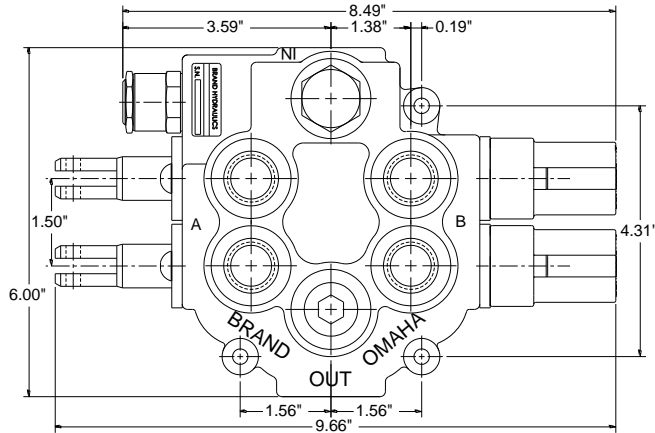
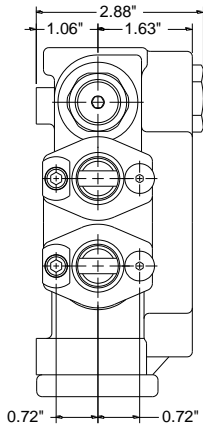
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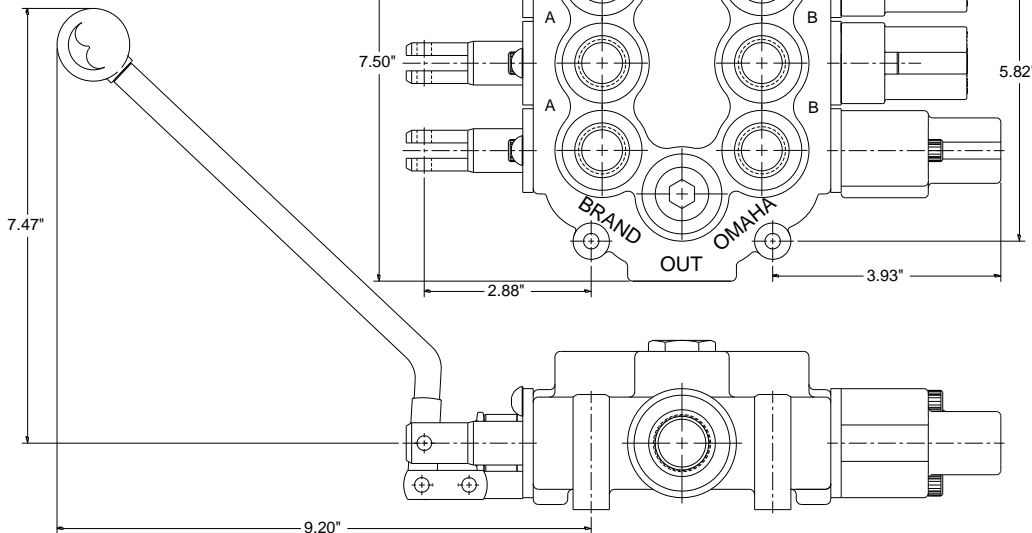
DIMENSIONAL DATA:



TS1120TF1JB



TS2120TF1TSJB



TS3120TSDTSTKJB