DIRECTIONAL CONTROL VALVES 13ST(F)(B) – 4-WAY

GENERAL DESCRIPTION

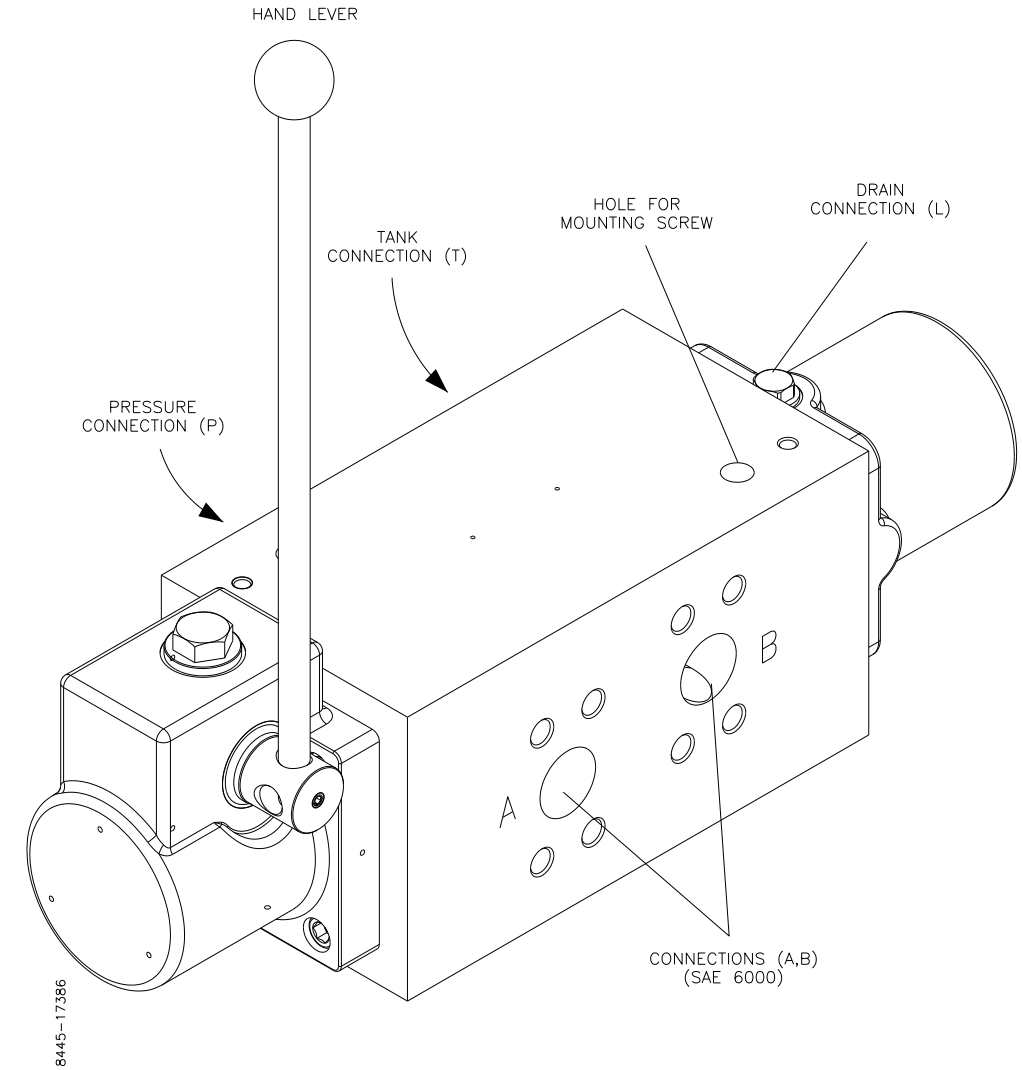


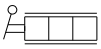
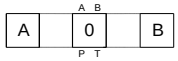
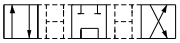
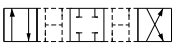
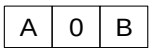
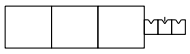
Figure 1 13STF General Arrangement

The Directional Control Valves 13ST(F)(B) 4-ways are seawater resistant valves for smooth distribution and stopping of flow in hydraulic systems. The valves have the following characteristics:

- Delivered with SAE flanges, or for gasket mounting to a sub plate or valve unit.
- Proportional controlled manually with the hand lever, or remote controlled (on/off) by hydraulic pilot pressure.
- Delivered with flow capacity up to 1000 l/min.
- Six standard spools with throttling grooves for smooth start and stop are available.
- A number of possibilities for spool positioning, spring or detents.
- Most of the hand lever operated directional control valves can be equipped with the Brake Release Valve BA3/BA4. For description of the Brake Release Valves, please refer to separate manual.

For more details about types and options, please refer to section 'Modular Code'.

MODULAR CODE

Options	Remarks	Design Code	Fill in
Mounting			**13ST**
Flange	SAE	**F**	
SUB Plate		**B**	
Type			
4-ways	No options	**4**	**4**
Pressure			
210 bar	SAE 3000	**3**	
350 bar	SAE 6000	**4**	
Operation			
Manual		**1**	
Remote		**2**	
Manual/Remote		**5**	
Size			
30 mm	450 l/min	**6**	
40 mm	700 l/min	**8**	
50 mm	1000 l/min	**B**	
Spool Type 			
		**01**	
		**02**	
		**03**	
		**07**	
		**2C**	
Spring / Detents Positions 			
Spring centred		**1.**	
Detents in all positions		**4.**	
Remote control pressure			
8-30 bar			
8-45 bar (recommended for spool -01)		**2AC**	

In example a 13ST 4-way valve with flanges, 210 bar, remotely controlled, 1000 l/min flow, spool type 03 and spring centred will have modular code: **13STF432B031**.

DIMENSIONS

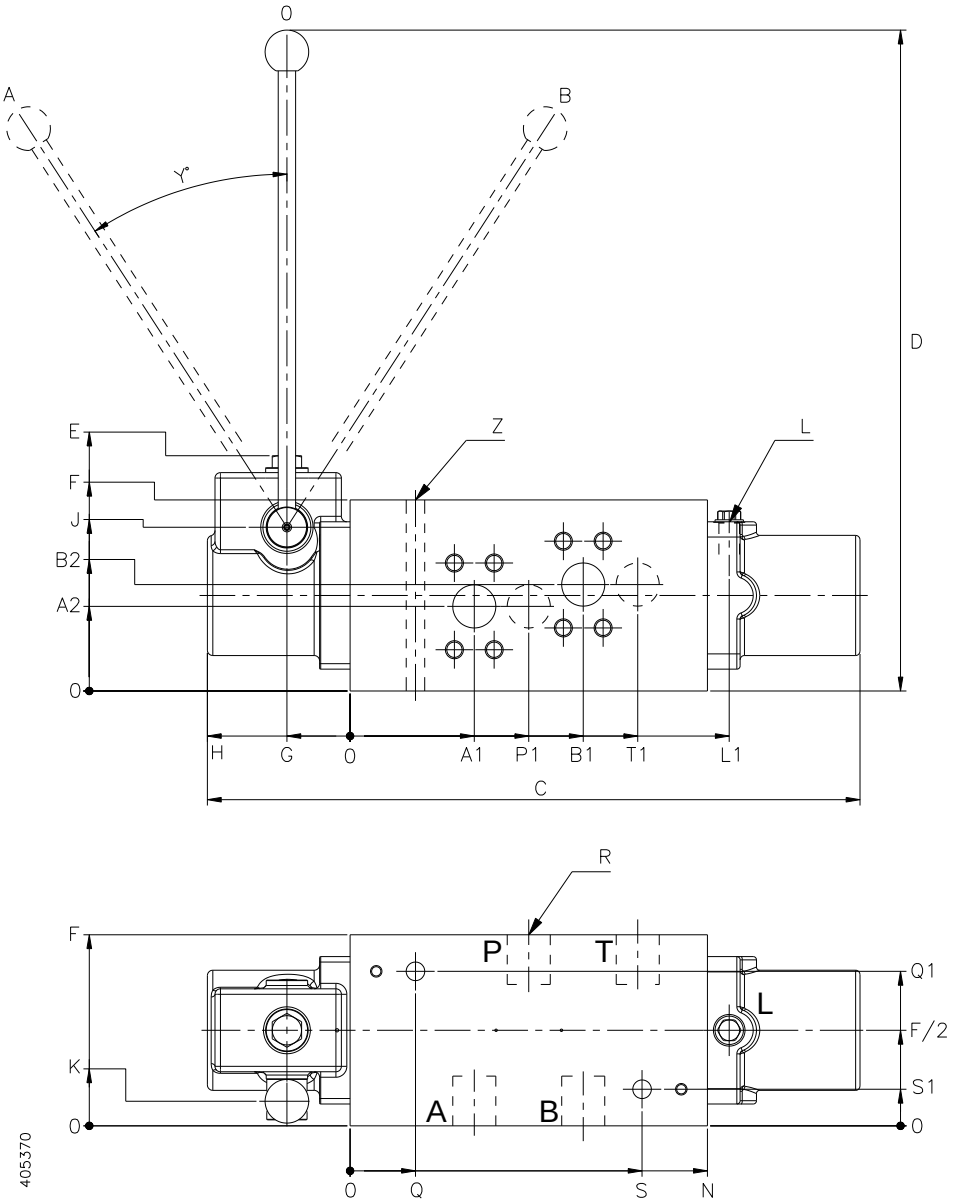


Figure 2 13STF Dimensions

Common dimensions for 13STF and 13STB:

Size [mm]	C	D	F	G	H	J	K	N	Z	Y°
30	448	424	128	52	102	109	14	234	17	37
40	599	609.5	175	58	131	150	32.5	328	21	33
50	735	700	200	80	160	159	24	400	25	36

13STF441:

Size [mm]	A1	A2	B1	B2	L1	P1	T1	Q	Q1	S	S1
30	79	49	155	79	254	117	193	50	110	197	18
40	114	77.5	214	97.5	348	164	264	60	141.5	268	33.5
50	135	75	255	125	434	195	315	65	170	355	30

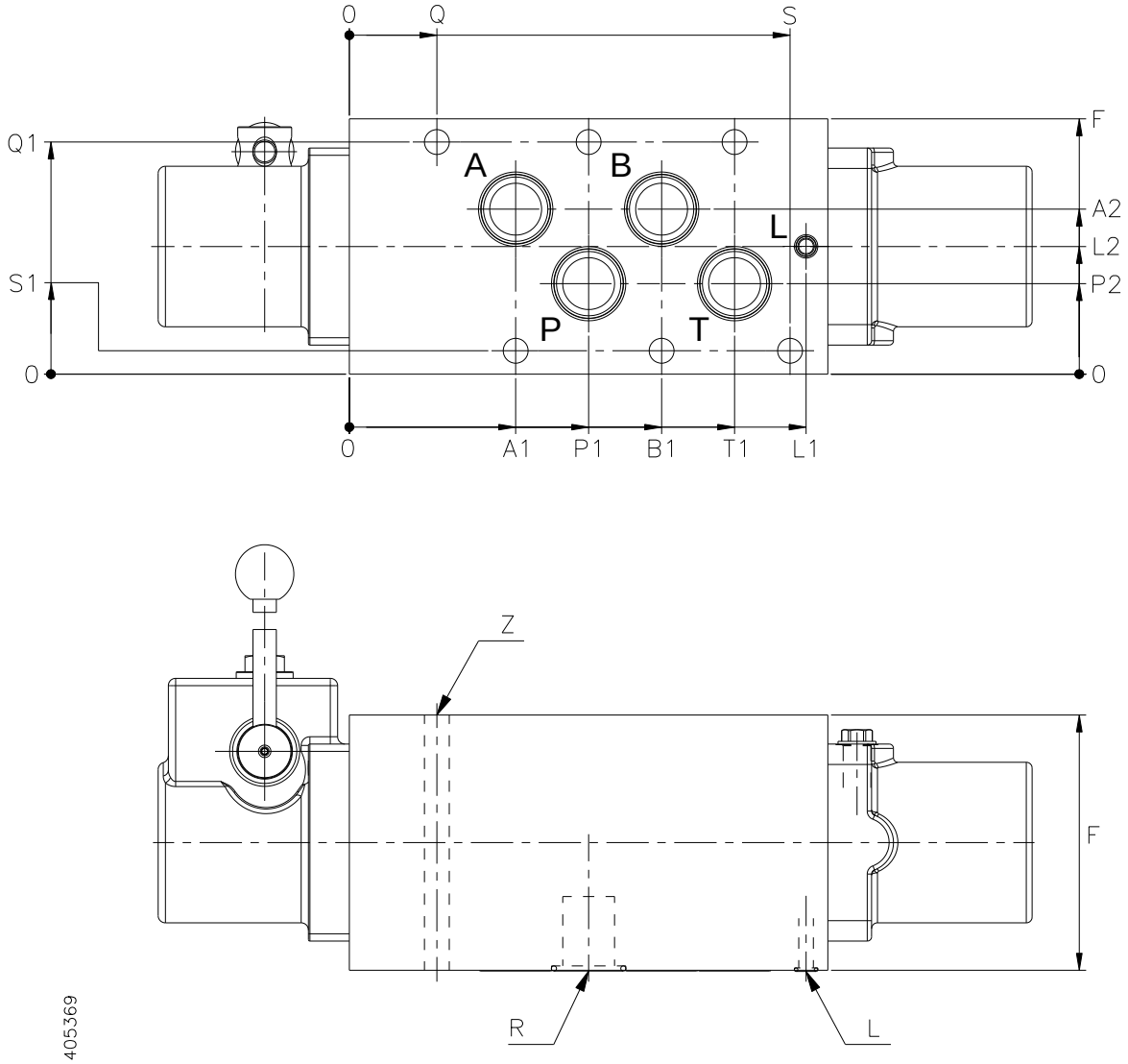
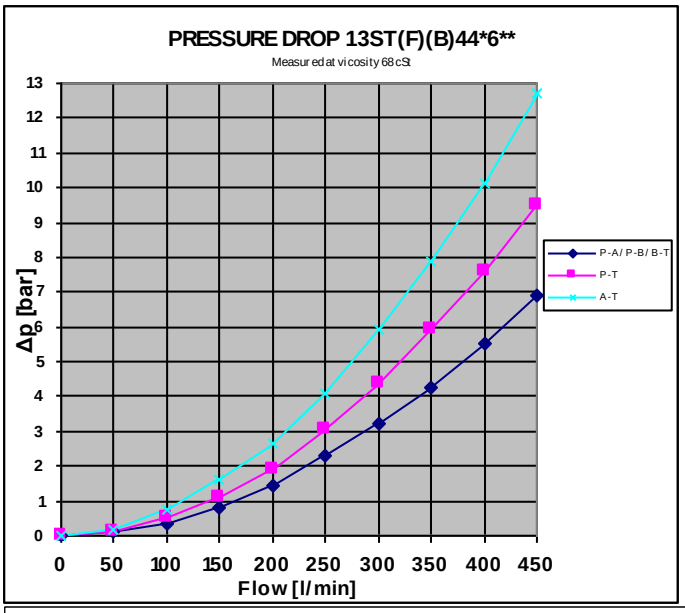


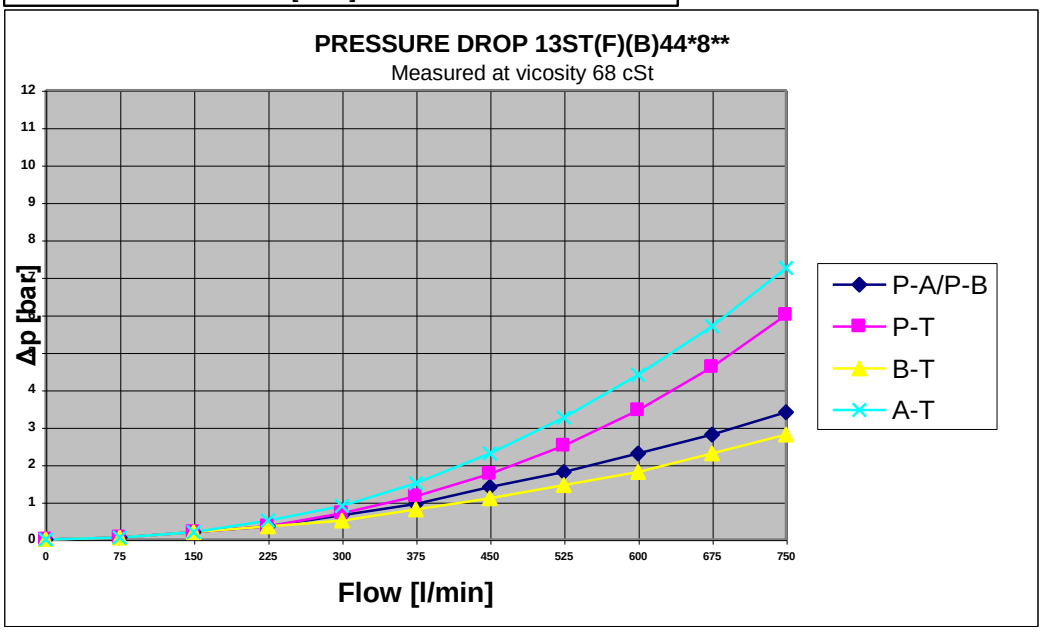
Figure 3 13STB Dimensions

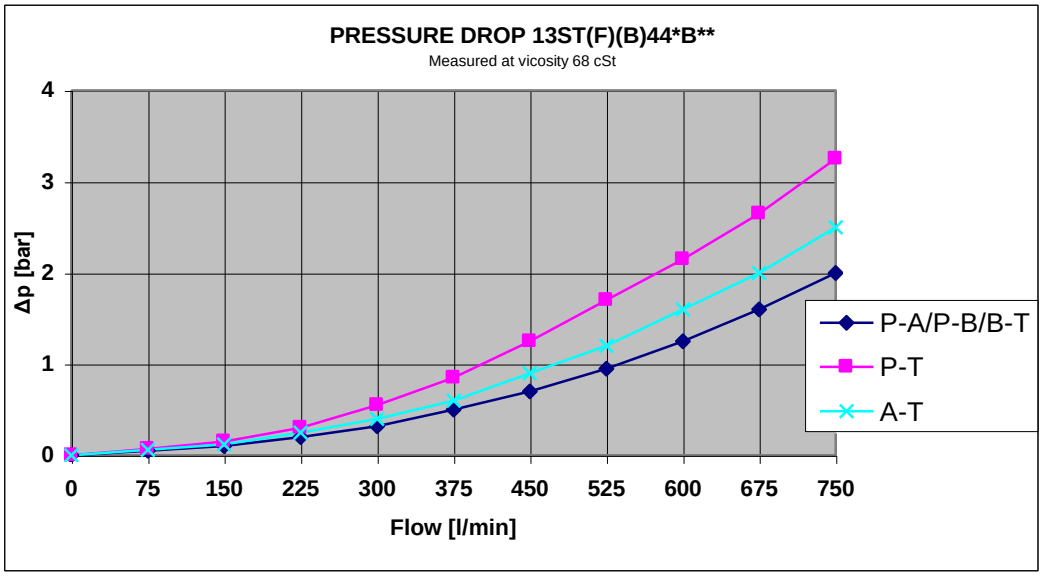
13STB441:

Size [mm]	A1	A2	B1	L1	L2	P1	P2	T1	Q	Q1	S	S1
40	114	113	214	313	87.4	164	62	264	60	159	302	16
50	135	140	255	385	100	195	60	315	65	170	355	30

PRESSURE DROP







TECHNICAL DATA

Description	Symbol	Data
Max. operating pressure in port P, T, A and B	P_{max}	210 bar/ 350 bar (see note)
Max. pressure in port L (must always be in use)	L_{max}	30 bar
Directional valve pilot pressure	SA/SB	8-30 bar / 8-45 bar
Test Pressure		420 bar
Hydraulic fluid		Mineral oils for hydraulic system
Viscosity range:	v	10 to 350 mm^2/s (cST)
Viscosity index:	VI	> 120
Filtration, recommended filter with β 20 ≥ 100		Class 9 according to NAS 1638, 18/15 according to ISO 4406
Fluid temperature range:	T	-20°C to + 70°C
Ambient temperature range	T	-20°C to + 50°C
Standard Body Material		EN-GJS-400-15 (GGG 40)
Standard O-rings		Nitrile shore 70

NOTE: Flange type SAE 3000 is 210 bar type, flange type SAE 6000 type is of 350 bar type.

Flow and Weights:

Size	Max. Flow	Weight
30 mm	450 l/min	37.5 kg
40 mm	700 l/min	82.0 kg
50 mm	1000 l/min	137.5 kg

Interfaces:

Size	**Description**		**Data**
13STF:			
	Flanges	***Screws***	***Tightening Torque [Nm]***
30 mm	1½" SAE 3000/6000	2 off M 16 – DIN931	78.5
40 mm	2" SAE 3000/6000	2 off M 16 – DIN931	78.5
50 mm	2 ½" SAE 3000/6000	2 off M 20 – DIN931	107.9
13STB:			
	Screws		***Tightening Torque [Nm]***
30 mm	4 off M 16 – DIN 931		78.5
40 mm	4 off M 16 – DIN931		78.5
50 mm	4 off M 20 – DIN931		107.9
	O-rings		***Size [mm]***
30 mm	4 off 1 off (manually operated valves only)		31.34 x 3.53 9.92 x 2.62
40 mm	4 off 1 off (manually operated valves only)		44.04 x 3.53 11.3 x 2.4
50 mm	4 off 1 off (manually operated valves only)		59.50 x 3.0 11.3 x 2.4

INSTALLATION

The Directional Control Valves 13STF are installed to the pipeline with SAE flanges and mounted to a bracket or similar with 2 off screws. The 13STB valves are installed with 4 off screws to a SUB plate or valve unit. Please refer to section ‘Interfaces’, for details about connections and screws.

OPERATION

Manual

Proportional manual control is performed by the hand lever. If the valve is delivered with centring spring the spool will return to the neutral position after operating the hand lever. If the valve has detents the spool will remain in the position set by hand lever.

Remote

In the remote controlled valves, an external pilot pressure moves the spool to the requested position – on/off.

Manual/Remote

Operation as for remotely controlled valves, but in addition the valves are equipped with a hand lever for override of the pilot pressure. The hand lever is mechanically connected to the spool.

MAINTENANCE

Check the valve for proper function. Visually check the valve and if required, paint unpainted (damaged) areas.

CAUTION: **Do not paint the hand lever shaft seal**.

STORAGE

If storage longer than 6 months is expected, the valve must be kept in a dry room, free from dust and protected against sudden large temperature variations. For storage longer than 12 months, the valve must be filled with inhibition oil. Before use check all visible seals and flush with clean oil.

MARKING

Inlets and outlets are marked, refer to figure in section ‘General Description’.