ISSO4401 Size 05; ANSI/B93.7M-D05
Manual lever operated directional valve
DG17V4-01

Model code

Two & four-way directional valves

(F*)	D	G	1*	V4	-	01	*	*	(L)	-	(H)	(M	-	S*	-	U(1)	-	10
1	2	3	4	5		6	7	8	9		10	11		12		13		14

1 Interface seals

Blank	Buna N (std.)
F3	VIton (fire resistant seals)
F6	Nitrile seals (water glycol)

2 Directional control

3 Mounting type

G	Manifold or subplate

4 Control type

17	Manual lever operated

5 Flow direction

V4	Four-way, 310 bar (4500 psi)

6 Valve size

01	ISO-4401-05, NFPA-D05 interface

7 Spool type (crossover condition)

0	Open center
2	Closed center
6	Closed center, P only
8	Open center, A and B blocked
22	Closed center, 2-way
33	Closed center, bleed A & B

8 Spool/Spring arrangement

A	Spring offset (handle out)
A2	Spring offset (handle in)
C	Spring centered
N	No spring detented

9 Left hand build

Omit for standard right hand assembly

10 Handle

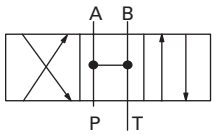
H	Booted handle for harsh environment
	Omit if not required

11 Design number

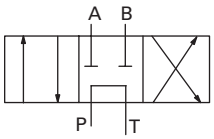
Subject to change. Installation dimensions remain as shown for design numbers 10 through 19.

Spool variations

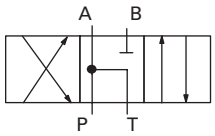
DGV4-010*-10**



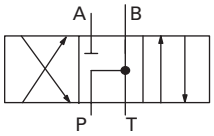
DGV4-018*-10**



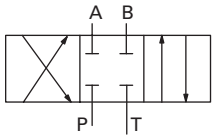
DGV4-011*-10**



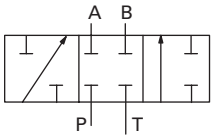
DGV4-011*-10**



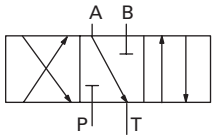
DGV4-010*-10**



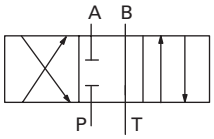
DGV4-0122*-10**



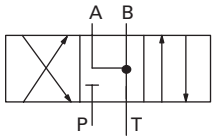
DGV4-013*-10**



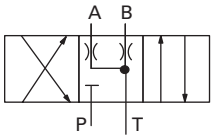
DGV4-013*-10**



DGV4-016*-10**

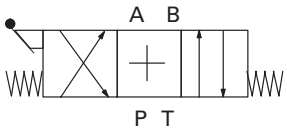


DGV4-033*-10**



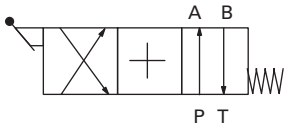
Operator variations

DG17V4-01-10 Lever operator**

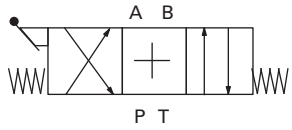


Spool variations

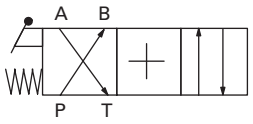
DG17V4-01*A-10



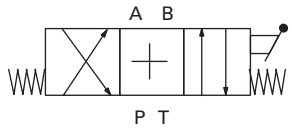
DG17V4-01*C-10



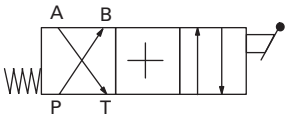
DGV4-011*-10**



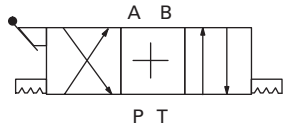
DGV4-011*-10**



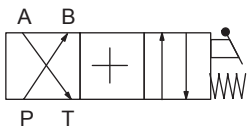
DG17V4-01*AL-10



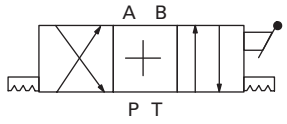
DG17V4-01*N-10



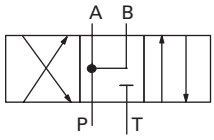
DG17V4-01*A2L-10



DG17V4-01*NL-10



DGV4-017*-10**



Performance data

Max. pressure P, A & B ports: For all spools except type "8" 315 bar (4500 psi)

For type "8" spools only 175 bar (2500 psi)

Max. pressure T port : 70 bar (1000 psi)

Max. flow:

- All DG17V4 models except type "1" and "11" spools - 114 l/min (30 USgpm)
- All DG17V4 models with type "1" and "11" spools - 45 l/min (12 USgpm)
- All DG1V4-01*N models except type "1" and "11" spools - 76 l/min (20 USgpm)
- All DG1V4-01*N models with type "1" and "11" spools - 45 l/min (12 USgpm)
- All DG1V4-01*A/C models - 30 l/min (8 USgpm)

Handle shift force:

DG17V4 "A" – 38 N. (8.5 lbs.)

DG17V4 "C" – 36 N. (8.0 lbs.)

DG17V4 "N" – 20 N. (4.5 lbs.)

Operating temperature:

20° to 50° C (70° to 120° F)

Weights (approx):

DG1V4: 3,1 kg (6.9 lbs.)

DG17V4: 3,4 kg (7.4 lbs.)

Bolt kits:

(metric) - BK855993M

(inch) - BDKG01-633

SAE grade 8 (metric grade 12,9) or better required Max. bolt torque: 12,6 Nm (112 lb. in.)

Subplate: 2 kg (4.5 lbs.)

Fluid viscosity: 75-250 SUS (15-51 cSt)

Fluid Cleanliness - See page 114.

Fluids & seals

BUNA-N seals are standard and are compatible with water-in-oil emulsions, high water based fluids, and petroleum oil. "F3" (Viton) seals are compatible with phosphate esters, and "F6" seals are for water glycol. Maximum operating pressure for high water based fluids is 69 bar (1000 psi).

Mounting Interface

ISO 4401-05

CETOP 5

NFPA D05

Shifting action

Spring offset valves are spring positioned unless lever is actuated. Spring centered valves return the spool to center position when the lever or knob control is released. No-spring detented valves will remain in the last position attained provided there is no severe shock, vibration or unusual pressure transients.

Mounting position

No-spring detented valves must be installed with the longitudinal axis horizontal for good machine reliability. The mounting position of spring-offset, and spring centered models is unrestricted.

Installation data

On two-way valves "T" is the drain connection and must be piped directly to tank through a surge-free line so there will be no back pressure at this port.

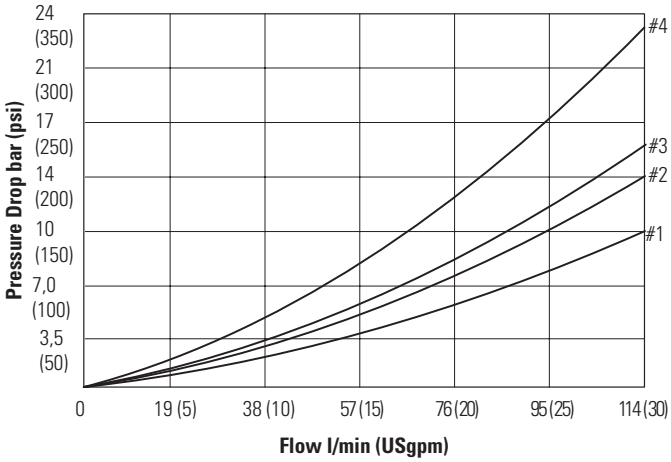
Note: Any sliding spool valve, if held for long periods of time, may stick and not spring return due to fluid residue formation and therefore, should be cycled periodically to prevent this from happening.

⚠ CAUTION

Surges of oil in a common tank line serving these and other valves can be of sufficient magnitude to cause inadvertent shifting of these valves. This is particularly critical in the no-spring detented type valves. Separate tank lines or a vented manifold with a continuous downward path to tank is necessary.

Pressure drop

See chart below



Pressure drop reference curve

DG17V4-010*-10	1	1	1	2	2
DG17V4-011*-10	1	1	1	2	2
DG17V4-012*-10	2	2	1	2	2
DG17V4-013*-10	2	2	1	2	-
DG17V4-016*-10	2	2	1	2	-
DG17V4-017*-10	1	1	3	3	-
DG17V4-018*-10	4	4	3	4	2
DG17V4-0111*-10	1	1	2	2	2
DG17V4-0122*-10	2	2	-	-	-
DG17V4-0131*-10	2	2	1	2	-
DG17V4-0133*-10	2	2	1	3	-

a. Figures in the pressure drop chart give approximate pressure drops (ΔP) when passing 20,5 cSt (100 SUS) fluid having .865 specific gravity.

b. For any other flow rate (Q_1), the pressure drop (ΔP_1) will be approximately: $\Delta P_1 = \Delta P(Q_1/Q_2)^2$

c. For any other viscosity(s), the pressure drop (ΔP) will change as follows:

d. For any other specific gravity (G_1)*, the pressure drop (ΔP_1), will be approximately: $\Delta P_1 = \Delta P(G_1/G)$

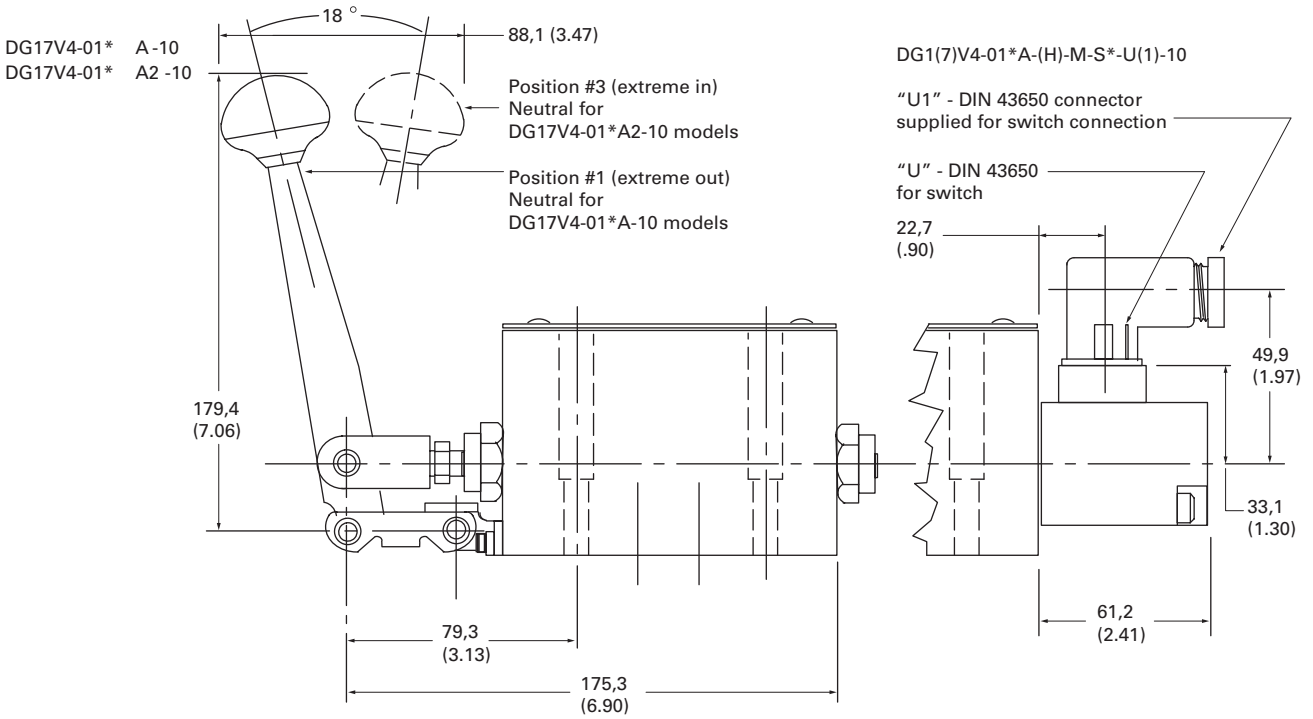
* Specific gravity of fluid may be obtained from its producer. The value is higher for fire-resistant fluids than for oil.

For other viscosities, pressure drops approximate to:

Viscosity cSt (SUS)						
14	20	43	54	65	76	85
17.5)	(97.8)	(200)	(251)	(300)	(350)	(400)
%105 of ΔP (Approx.)						
81	88	104	111	116	120	124

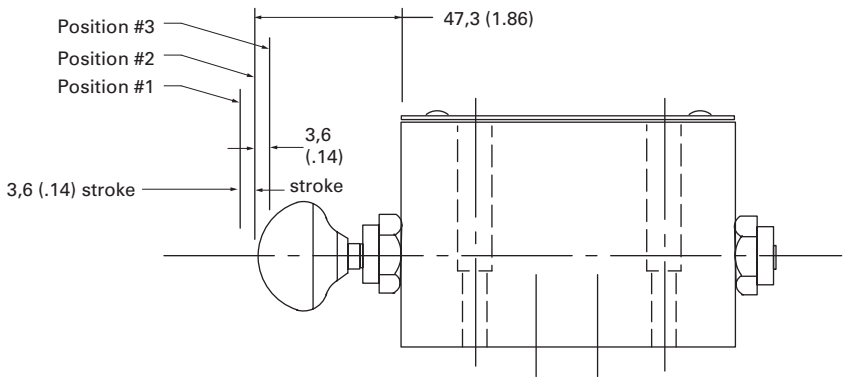
Installation dimensions

Manual lever operated valves
Millimeters (inches)



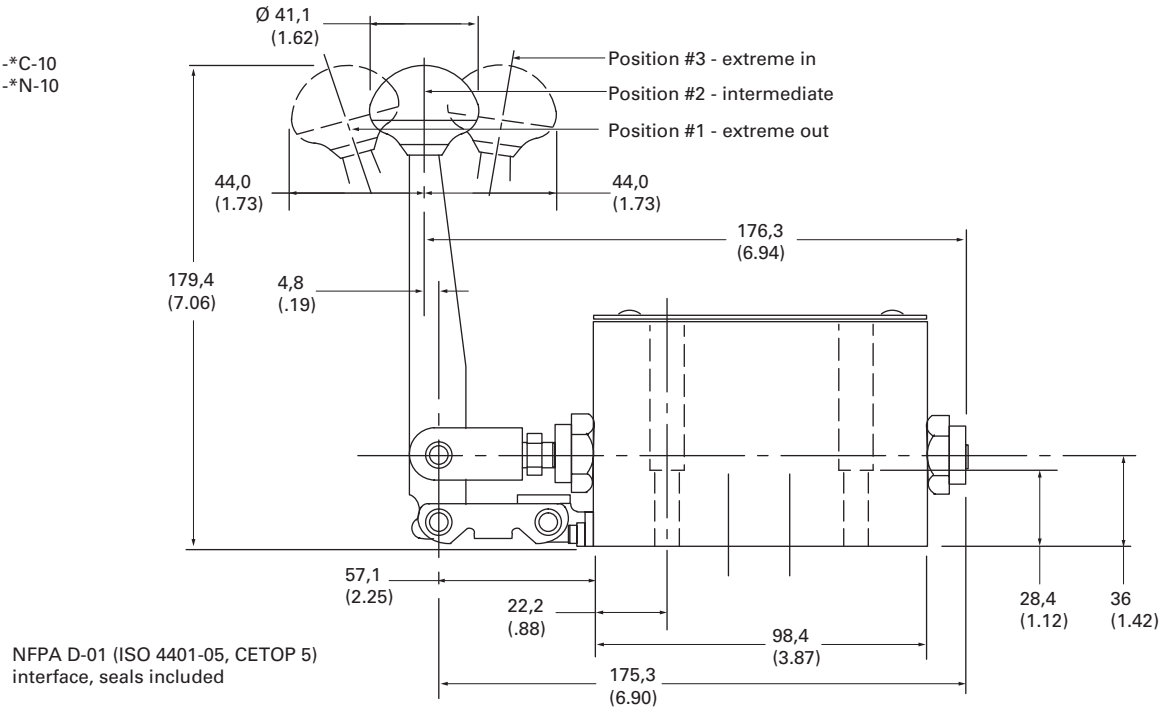
Manual knob operated valve

DG1V4-01**-10



Spring centered & no-spring detented manual lever operated valves

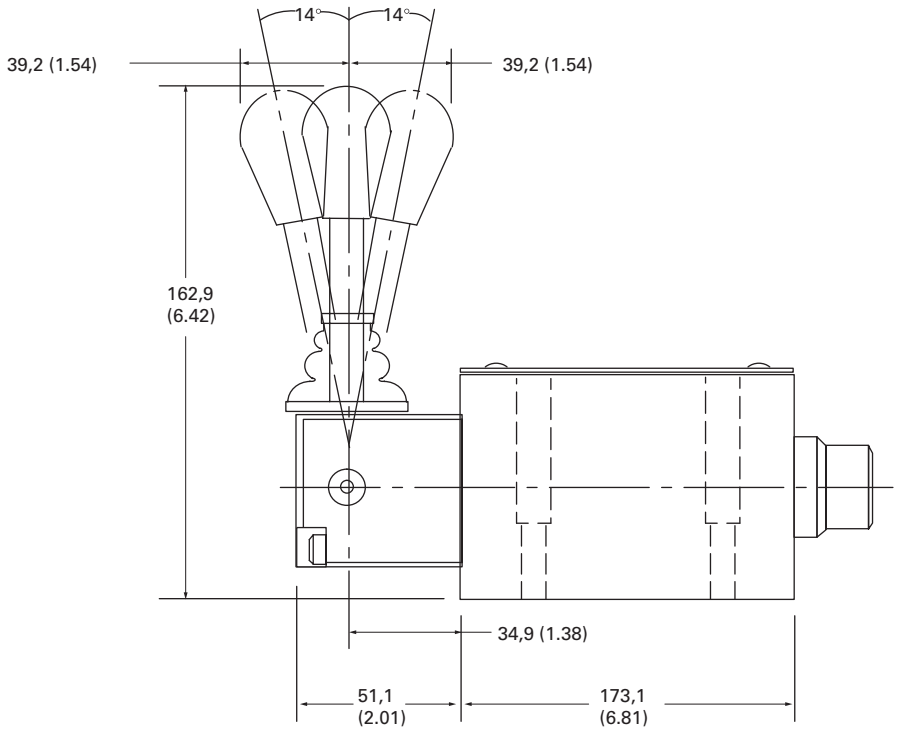
DG17V4-01-*C-10
DG17V4-01-*N-10



NFPA D-01 (ISO 4401-05, CETOP 5)
interface, seals included

Mechanically operated for harsh environments

DG17V4-01**-H-10



Subplates & bolt kits

Valves, subplates and mounting bolts must be ordered separately.

Example:

III-C

One (1) DG17V4-012A-10 Valve

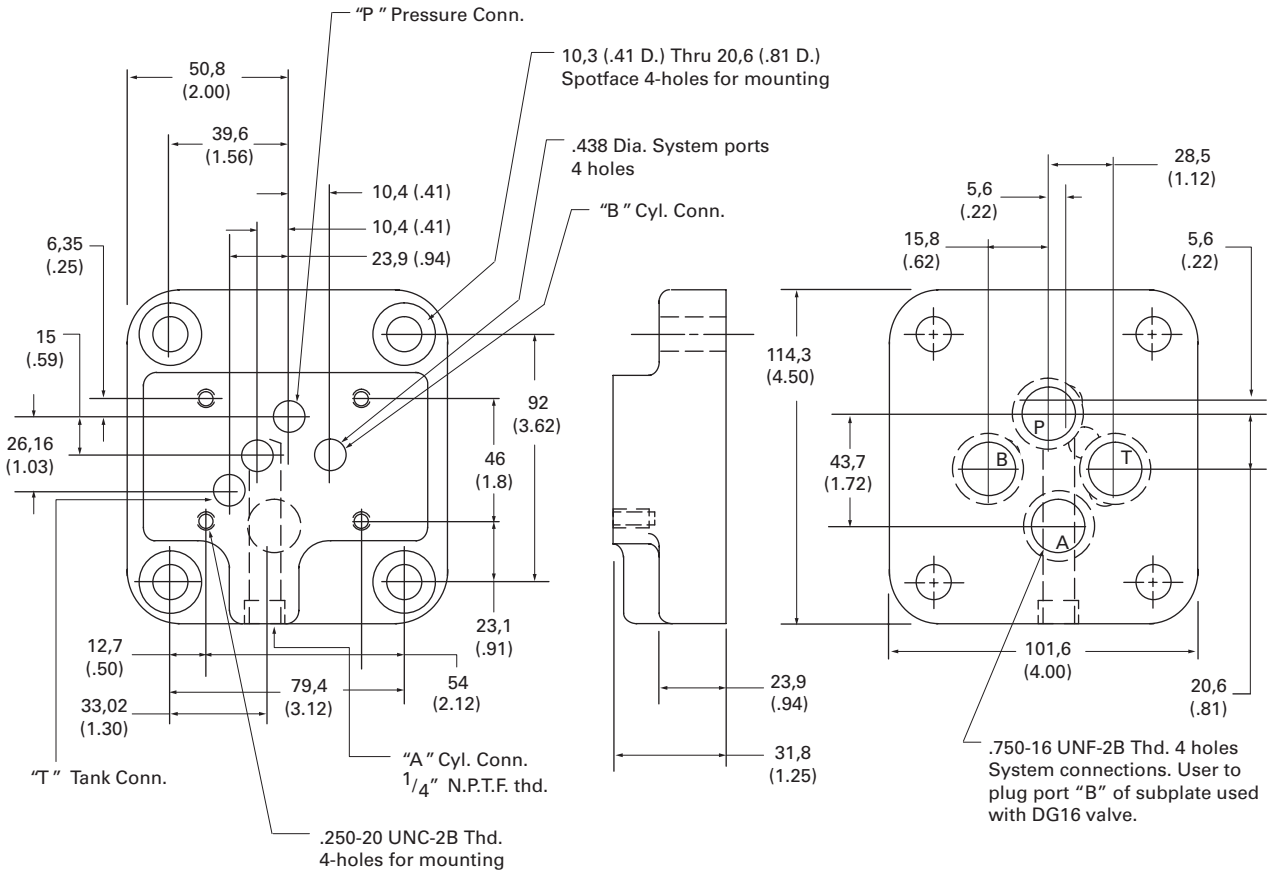
One (1) DGSM(E)-01-20-T8 Subplate

One (1) BKDG01-633 Bolt Kit

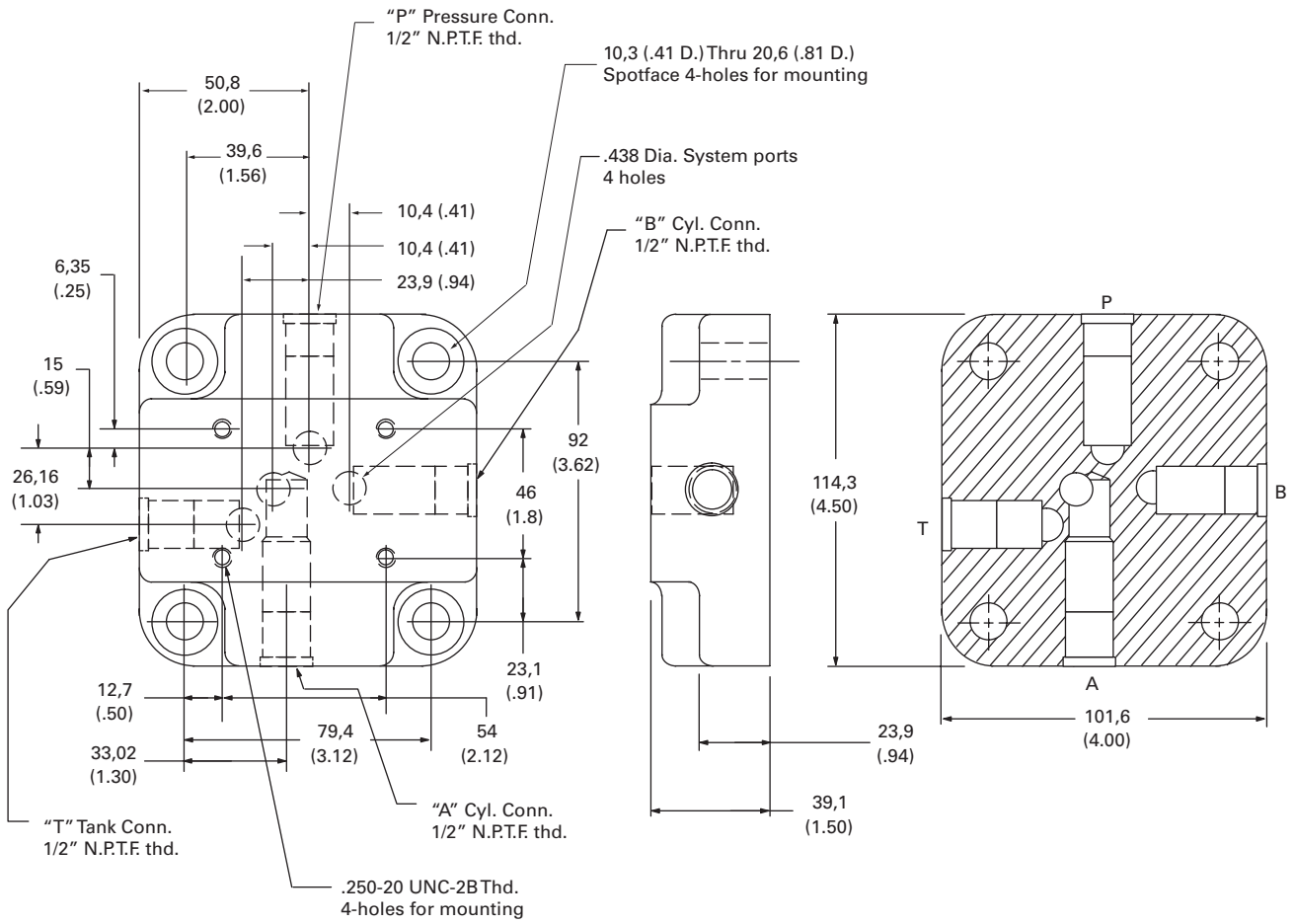
When subplate is not used, a machined pad must be provided for mounting. Pad must be flat within 0,0127 mm (.0005 inch) and smooth within 63 microinch. Mounting bolts, when provided by customer, should be SAE grade 7 or better. Torque mounting bolts to: 13 Nm (115 lb. in.)

Mounting subplate DGSM-01-20-T8

Millimeters (inches)



Mounting subplate DGSME-01-20-T8



Fluid cleanliness

Proper fluid condition is essential for long and satisfactory life of hydraulic components and systems. Hydraulic fluid must have the correct balance of cleanliness, and additives for protection against wear of components.

Essential information on the correct methods for treating hydraulic fluid is included in Vickers publication 561 "Vickers Guide to Systemic Contamination Control" available from your local Vickers distributor or by contacting Vickers, Incorporated. Recommendations on filtration and the selection of products to control fluid condition are included in 561.

Recommended cleanliness levels, using petroleum oil under common conditions, are based on the highest fluid pressure levels in the system and are coded in the chart below. Fluids other than petroleum, severe service cycles, or temperature extremes are cause for adjustment of these cleanliness codes. See Vickers publication 561 for exact details. Vickers products, as any components,

will operate with apparent satisfaction in fluids with higher cleanliness codes than those described. Other manufacturers will often recommend levels above those specified. Experience has shown, however, that life of any hydraulic component is shortened in fluids with higher cleanliness codes than those listed below. These codes have been proven to provide a long, trouble-free service life for the products shown, regardless of the manufacturer.

System pressure level bar (psi)

Product	<70 (<1000)	70-210 (1000-3000)	210+ (3000+)
Vane pumps – fixed	20/18/15	19/17/14	18/16/13
Vane pumps – variable	18/16/14	17/15/13	
Piston pumps – fixed	19/17/15	18/16/14	17/15/13
Piston pumps – variable	18/16/14	17/15/13	16/14/12
Directional valves	20/18/15	20/18/15	19/17/14
Pressure/flow control valves	19/17/14	19/17/14	19/17/14
Cmx valves	18/16/14	18/16/14	17/15/13
Servo valves	16/14/11	16/14/11	15/13/10
Proportional valves	17/15/12	17/15/12	15/13/11
Cylinders	20/18/15	20/18/15	20/18/15
Vane motors	20/18/15	19/17/14	18/16/13
Axial piston motors	19/17/14	18/16/13	17/15/12
Radial piston motors	20/18/14	19/17/13	18/16/13

Fluids and seals

Flourocarbon seals are standard and are suitable for use with phosphate ester type fluids or their blends, water glycol, water-in-oil emulsion fluids and petroleum oil. Refer to 694 for hydraulic fluid and temperature recommendations.