

280 Series

Stainless Steel Rotary Direction Control Valve for Hydraulics in a Harsh Environment.

The 280 Series is a high pressure, 316 stainless steel, hydraulic rotary direction control valve. It is the ideal solution for control of hydraulic actuators used in arduous environments where internal leakage must be minimised. The valves utilise an optically flat rotary spool with pressure loaded seats, to ensure either zero or near zero leakage (depending on flow size). The 280 Series valve is compatible with water glycol hydraulic fluid.

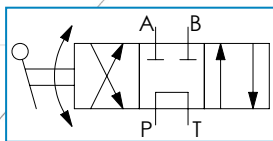
Specifications

Maximum Rated Pressure:	Up to 700 bar, 10,000 psi
Maximum Rated Flow:	Up to 38 L/min, 10 US gpm
Ambient Temperature:	-30 to 50 °C, -22 to 122 °F
Media Temperature:	-30 to 120 °C, -22 to 248 °F
Compatible Fluids:	Mineral oils to ISO 11158. Other fluids consult sales office.
Porting:	BSPP, NPTF, SAE, Manifold Mount
Material: Body Materials:	Stainless Steel 316L, Black Phenolic Thermoset Plastic.
Internal Materials:	Carbon Steel
Seal:	NBR
Weight:	Typically 3.2 kg, 7 lb
Mounting: Standard:	4 x 5/16" UNC holes to fasten screws into valve base
Panel:	4 x 5/16" UNC studs to fasten valve into panel
Manifold:	4 x 5/16" UNC through bolts to fasten valve onto manifold 4 x M5 through bolts supplied for CETOP3 4 x #10 UNC through bolts supplied for D03

Maximum Rated Tank Port Pressure: 17 bar, 250 psi

Symbol:

e.g 283



Make it **BLUE**

Features

- Over 4000 possible configurations.
- 3 position / 2 position. 4 port / 3 port.
- Zero leakage
- Standard documentation: Manual. Certificate of Conformity. Performance test Certificate. Declaration of Conformity to 'ATEX'.
- BS EN13463-1:2009 (ATEX) rating of 'II 3G TX'.
- BS ISO 4401-03, NFPA T3.5.1-D03 (CETOP3/NG06/D03) mounting adapter.
- Express build available (single unit orders).
- Pressurised tank port with additional drain available.

Sales Order Code

Please contact our technical sales team to discuss any special order requirements.

TYPICAL CODE	DESCRIPTION	SEE TABLE	YOUR CODE
282	Valve Model	Table 1	
E	Porting	Table 2	
2	Flow Size	Table 3	
F	Valve Options	Table 4	
3X	Position Type	Table 5	
4Y	Port Type	Table 6	
A	Non-Standard Options*	Table 7	

* Only use designator if required.

Table 1: Valve Model

CODE	SYMBOL
282	
283	
285	
287	
288	

Table 2: Porting

CODE	PORT SIZE
F	1/4" NPTF *2
L	9/16" -18UN #6 SAE ORB
E	3/8" NPTF *2
T	3/8" BSPP
C	014 O' ring Manifold mount
A	014 O' ring

*2 All NPTF threads are to ANSI B1.20.3 -1976 Class 1. As stated in the standard it is recommended that "sealing is accomplished by the means of a sealant applied to the thread". NPT fittings may also be used to connect to NPTF ports (also with a sealant applied to the thread).

Table 5: Position Type

CODE	POSITION OPTIONS	SYMBOL
3X	Standard 3 positions	
2R	2 Position, Centre & Right only	
2L	2 Position, Centre & Left only	

Table 3: Flow Size

CODE	MAX. FLOW		MAX. PRESSURE		PRESSURE DROP	THROTTLE CAPABILITY
	L/min	US gpm	bar	psi		
0	15	4	700	10,000	A	No
1	26.5	7	350	5,000	B	Yes
2	38	10	207	3,000	C	Yes

Table 6: Port Type

CODE	PORT OPTIONS	SYMBOL
4Y	Standard 4 ports	
3A	3 Side Ports, port A open (B plugged)	
3B	3 Side Ports, port B open (A plugged)	

Table 4: Handle Type & Rotor Action

CODE	MOUNT TYPE			HANDLE TYPE		ACTION	
	STANDARD	PANEL	MANIFOLD*3	STRAIGHT	BENT	DETENT	SPRING*4
A	●			●		●	
B	●			●			●
C	●				●	●	
D	●				●		●
E		●		●		●	
F		●		●			●
G		●			●	●	
H		●			●		●
J			●	●		●	
K			●	●			●
L			●		●	●	
M			●		●		●

*3 Mount type 'MANIFOLD' can only be selected with Porting Code C (Table 2).

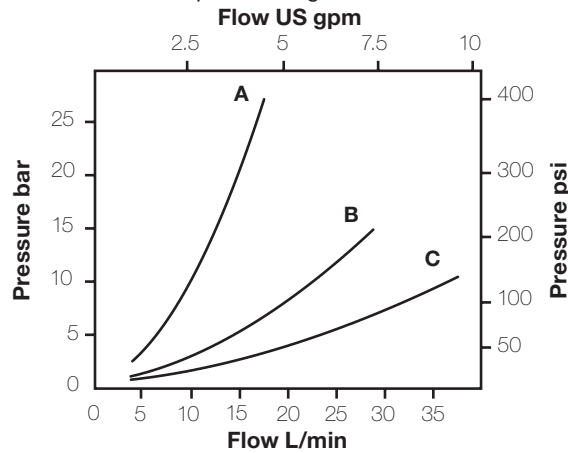
*4 For flow sizes 1 and 2 (Table 3: Flow Size) the spring return action is compromised above 207 bar, 3,000 psi. For valve flow size 0 it is compromised above pressures of 138 bar, 2,000 psi.

Table 7: Non-Standard Option

CODE	FUNCTION
A	Tank port pressurised Additional 1/8"NPTF drain

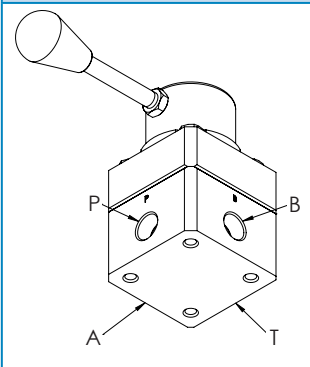
Typical Pressure Drop

All tests completed using ISO32 Mineral oil at 45°C

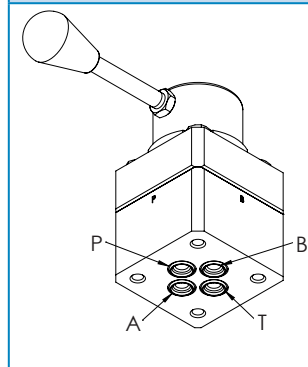


Port Type Position

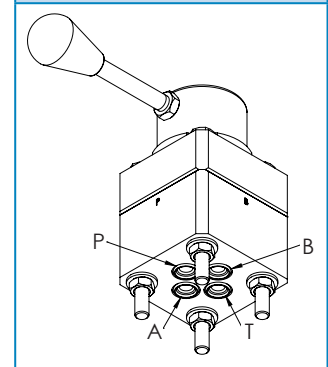
PORTING CODES L, E, F & T



PORTING CODE A



PORTING CODES C



Leakage Between Flow Paths

Closure tests with low pressure air (82 psi) were conducted on Webtec's 280 Series of rotary directional control valves. Flow size 0 with non-interflow was found to have no visually detectable leakage for the duration of the test (60 seconds). Flow sizes 1 & 2 with interflow were found to have a leakage of 1.67×10^{-4} L/min which equates to less than 1 drop of water every 10 minutes.

Note: The performance of the valve in terms of leakage across paths is adversely affected by a reduction in fluid viscosity.

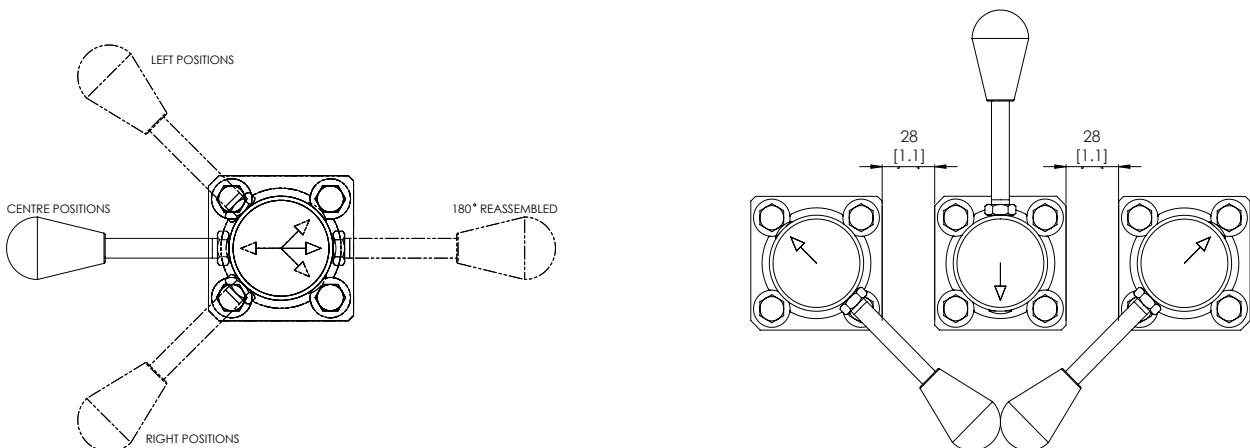
ATEX Statement

The 280 Series Valve has been designed, manufactured, and tested to the ATEX directive (BS EN 13463-1:2009), & is rated to 'II 3G TX'.

Handle Position

The handle can be re-assembled through 180 degrees.

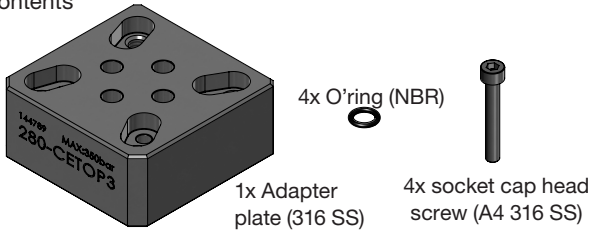
This minimizes the pitch between banked valves (28mm [1.1"] for straight handle type, 21mm [0.8"] for bent handle type).



BS ISO 4401-03, NFPA T3.5.1-D03 (CETOP3/NG06/D03) Mounting Adapter Kit

This can adapt the 014 O' ring Manifold mount type valve (Table 2, Code C) to a BS ISO 4401-03 or NFPA T3.5.1-D03 mounting pattern.

Contents



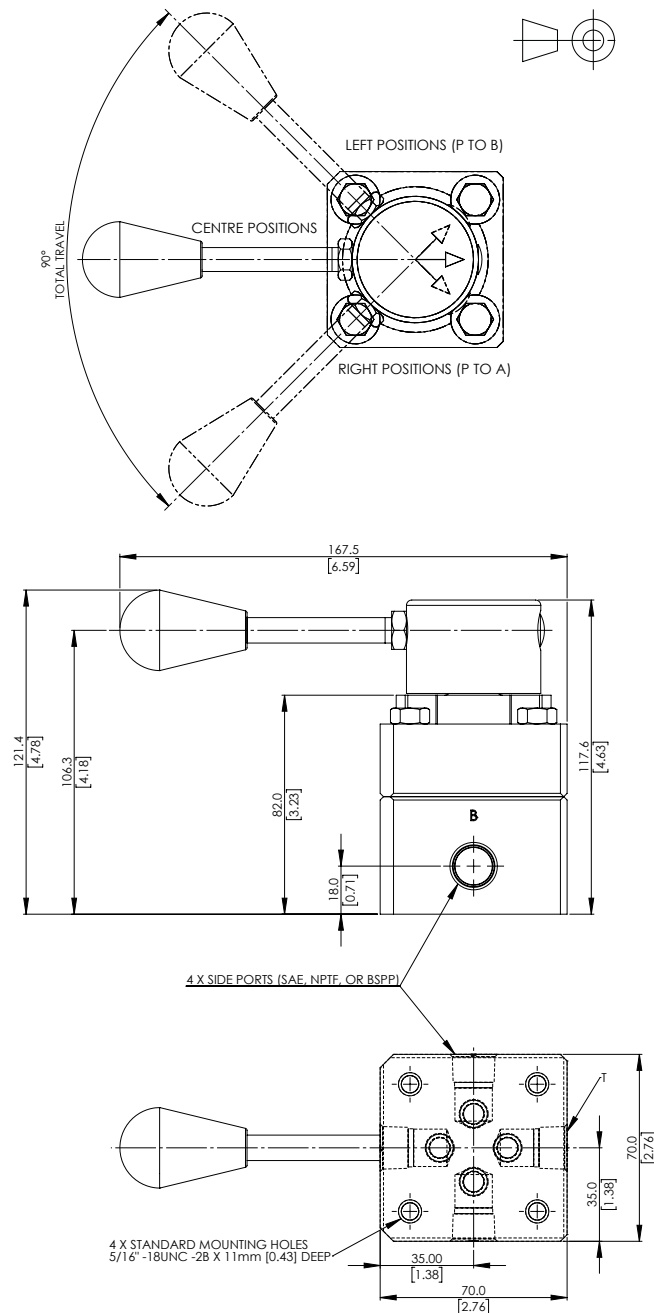
	BS ISO 4401-03	NFPA T3.5.1-D03
Adapter Plate	316L	316L
Socket cap head screw	M5 x 35mm	#10-24UNC x 1.25"
O' ring	BS ISO 3601-011	AS568A-011
Instructions leaflet	280-CETOP3	280-D03
Maximum pressure	350 bar	3,000 psi

Tank Port Pressure

Maximum tank port pressure 17 bar, 250 psi, unless 'Tank port pressurised' option ordered. See table 7, ordering codes.

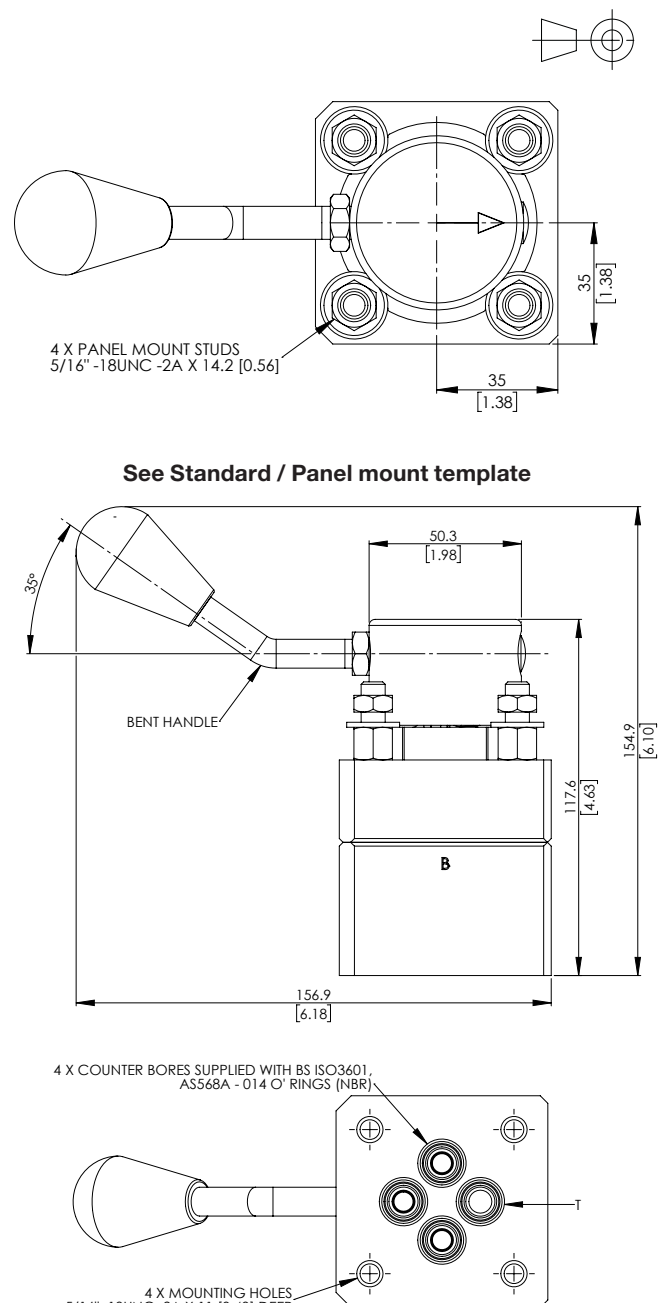
Installation Details Dimensions in millimetres (Inches)

SAE / NPTF / BSPP (order codes L, E, F, T) with standard mount & straight handle



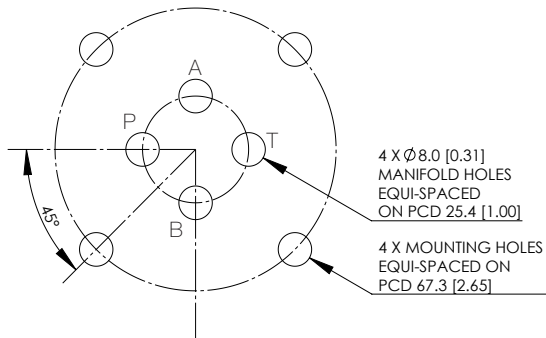
See Standard / Panel mount template

014 O' ring (order code A) with panel mount & bent handle

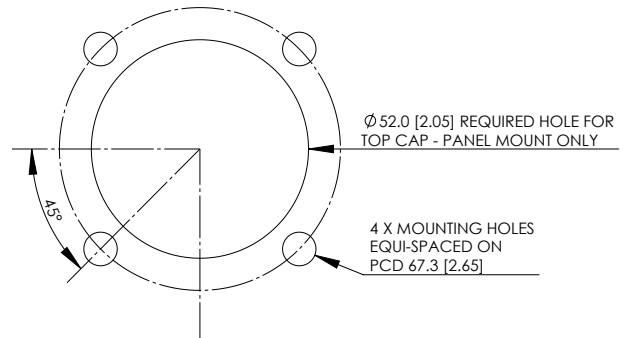


See 014 O' ring Template

014 O' ring Template

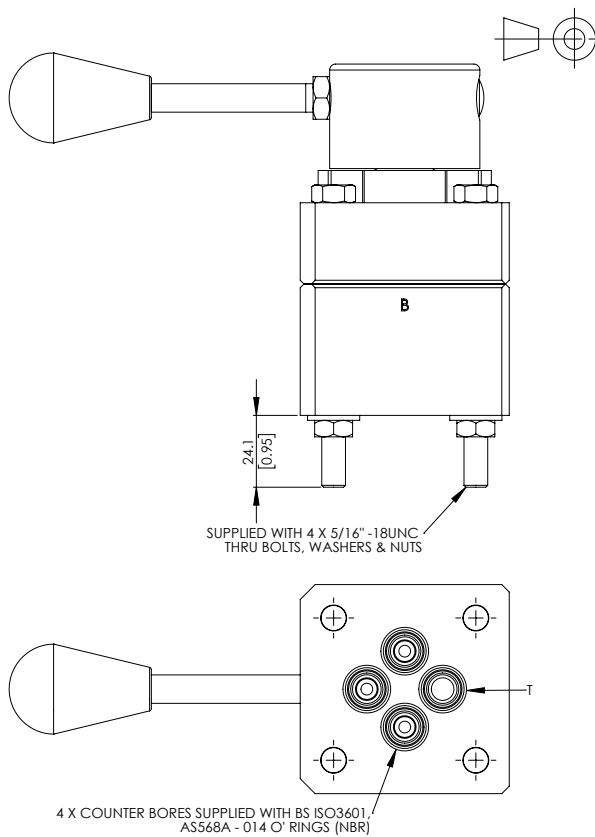


Standard / Panel Mount Template



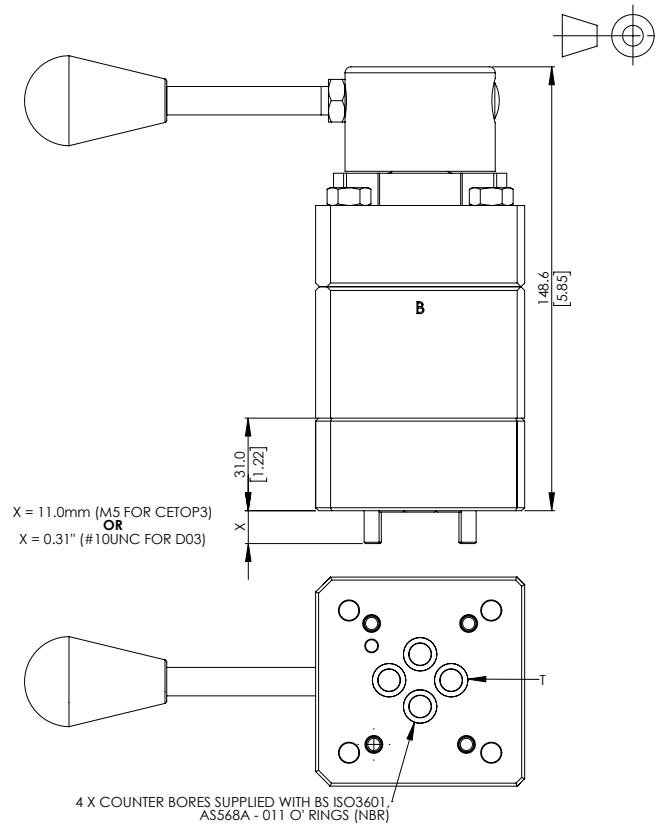
014 O' ring Manifold mount (order code C)

Some dismantling & re-assembly is required for installation. See 014 O' ring manifold mount installation details below.



014 O' ring manifold mount with 280-CETOP3 / D03 Kit

Some dismantling & re-assembly is required for installation. See supplied instruction leaflet



See 014 O' ring template

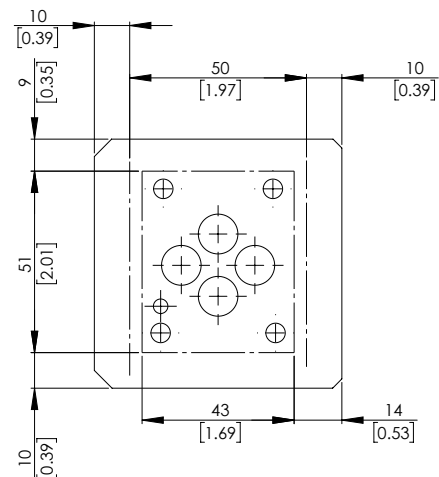
014 O' ring Manifold mount Installation details

The valve is pre-assembled for test using 4 x 5/16"-18UNC through bolts, with nuts and washers. Some dismantling is required for installation, during which care should be taken not to allow debris to enter the valve. This requires a 13mm (1/2") A/F spanner and 13mm (1/2") hexagon bit.

To ensure correct operation, the valve re-assembly tightening torque to be used is 23Nm, 7lbf

See 280-CETOP3/D03 Template

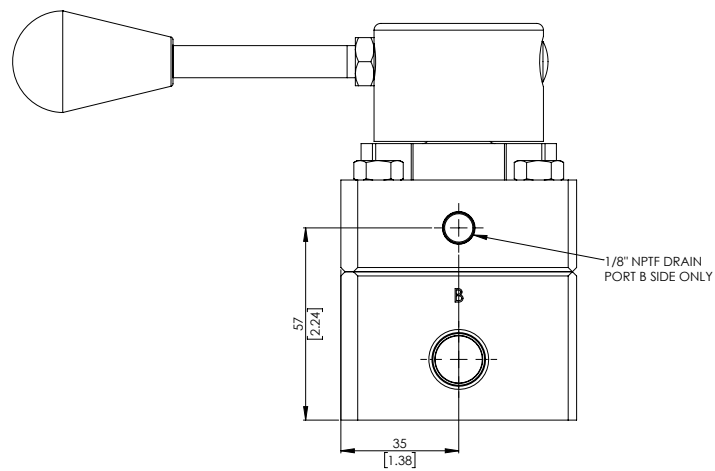
280-CETOP3/D03 Template



Non-Standard Options (order code table 7)

Option A - tank port pressurised with additional drain

Port T can now be used at full system working pressure (depending on flow size. Maximum tank line pressure now applies to the drain port. The drain port must not be plugged.



Note

Updated hydraulic symbols for valve with pressurised tank port & additional drain

