

280 Series

Stainless Steel Rotary Control Valve

For hydraulics in a harsh environment.

The 280 series of high-pressure stainless steel hydraulic rotary control valves are 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).

Maximum Pressure:

Up to 700 bar

Maximum Flow:

Up to 38 lpm

Operating Temperature:

Ambient temperature -20 to 40°C

Fluid temperature 20 to 80°C

Porting:

BSPP, NPTF, SAE, & Manifold (See Table 2, ordering codes)

Material:

Steel components in 316 Stainless Steel Body. NBR Seals.

Weight:

Typically 3.2 kg

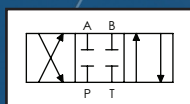
Mounting:

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

Symbol:
e.g 282



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Features

- Over 4000 possible configurations
- 3 position / 2 position
- 4 port / 3 port
- Zero leakage (15 lpm version)
- Standard documentation:-
 - Manual
 - Certificate of Conformity
 - Performance test Certificate
 - Declaration of Conformity to 'ATEX'
- BS EN13463-1:2009 (ATEX) rating of 'II 3G TX'
- CETOP 03 / NFPA D03 / DIN NG06 / mounting adaptor
- Option of manufacture to EN10204-3.1



Hydraulic measurement and control

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(Issue 2)

Ordering Codes

Valve Model (Table 1)	Typical Code	282	-	E	2	F	-	2R	3A
Porting (Table 2)									
Flow Size (Table 3)									
Valve Options (Table 4)									
Position Type (Table 5)									
Port Type (Table 6)									

Table 1: Valve Model

Code	Symbol
282	
283	
284	
285	
287	
288	

Table 2: Porting (see page 3)

Code	Port size
L	9/16" -18UN #6 SAE ORB
E	3/8" NPTF *1
T	3/8" BSPP
C	Manifold mount BS ISO 3601 (AS568A) 014 O' ring.
A	BS ISO 3601 014 O' ring

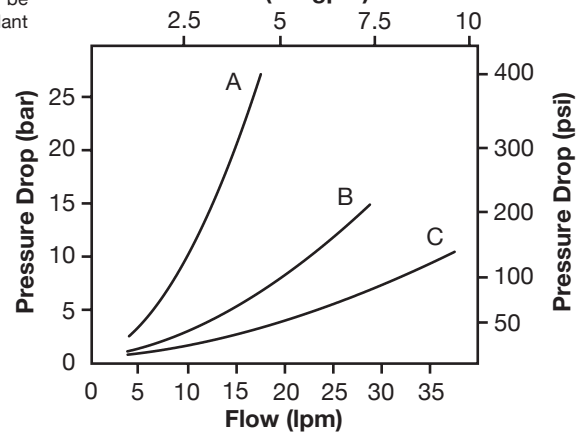
*1 All NPTF threads are to ANSI B1.20.3 -1976 Class 1. As stated in the standard it is recommended that "sealing is accomplished by the means of a sealant applied to the thread". NPT fittings may also be used to connect to NPTF ports (also with a sealant applied to the thread)

Table 3: Flow Size

Code	Maximum flow	Maximum pressure *2	Pressure drop curve	Interflow
0	15 lpm (4 US gpm)	700 bar (10,000 psi)	A	Non-interflow
1	26.5 lpm (7 US gpm)	350 bar (5,000 psi)	B	Interflow
2	38 lpm (10 US gpm)	207 bar (3,000 psi)	C	Interflow

*2 Maximum Tank line pressure is 100 bar (1450 psi)

Typical Pressure Drop Curve #



Test Conditions: Using ISO32 Oil at 45°C (113°F), 207 bar (3,000 psi)

Table 4: Valve Options

Code	Mount Type			Handle Type		Action	
	Standard	Panel	Manifold *3	Straight	Cranked	Detent	Spring *4
A	●			●		●	
B	●			●			●
C	●				●	●	
D	●				●		●
E		●		●		●	
F		●		●			●
G		●			●	●	
H		●			●		●
J			●	●		●	
K			●	●			●
L			●		●	●	
M			●		●		●

*3 Manifold Mount type (selected on Table 4) is used only in conjunction with the manifold mount O' ring port type (Code C on table 2)

*4 The spring return action has impaired performance above certain pressures. For flow size 26.5lpm or 38lpm its performance is compromised above 207 bar (3,000 psi). For valve flow size 15lpm the spring performance is compromised above pressures of 138 bar (2,000 psi). See Table 3: Flow Size.

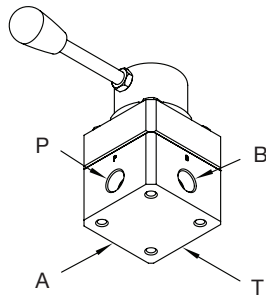
Table 5: Position Type

Code	Position Options	Symbol
3X	Standard 3 positions	
2R	2 Position, Centre & Right only	
2L	2 Position, Centre & Left only	

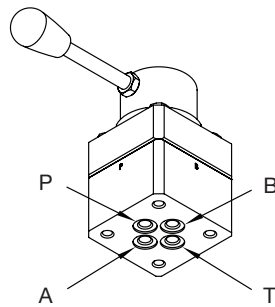
Table 6: Port Type

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)	

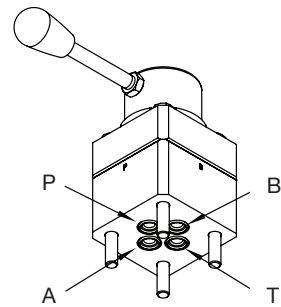
Porting Code L, E, & T



Porting Code A



Porting Code C



Leakage across paths of the 280 Series Valve.

The 280 valve has been tested to ISO5208:2008(E) and been rated as follows

Flow size 0 is rated at 'A' i.e. no visible leak for the duration of the test.

Flow sizes 1 & 2 are rated at 'B' i.e. maximum allowable leakage 0.003ml/s (0.00018ln³/s) equivalent to 1 drop of water every 10 minutes.

Interflow

Interflow is a transient effect that occurs on flow size 1 & 2. It occurs as the valve is operated between positions. During this time a small flow from ports A, B and P to port T is possible, which can cause the pressure of lines A, B or P to drop slightly. Note that interflow will not occur when the valve is fully seated in either the centre, left or right positions.

The magnitude of interflow is highly dependent upon the valve's operating conditions and speed of actuation. If no pressure drop during actuation is permissible then a non-interflow valve should be selected (see Table 3, page 2).

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'.

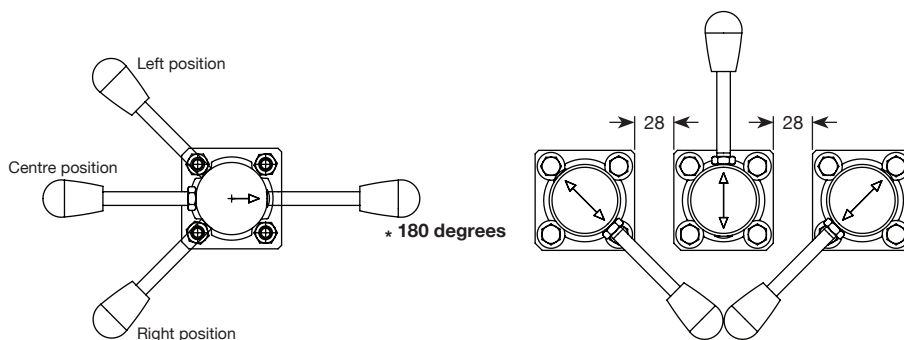
Optional Manufacture & Material Traceability Certificate (to EN10204-3.1)

At time of ordering only.

Handle Position

The handle can be re-assembled through 180 degrees.

This minimizes the pitch between banked valves (28mm straight handle, 21mm cranked handle)

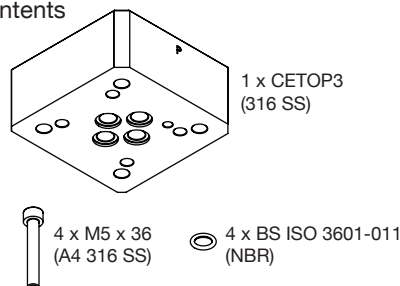


Cetop3 Adaptor Plate Kit

This can adapt the Manifold mount BS ISO 3601 - 014 ported valve (Table 2, Code C) to a CETOP3 mounting pattern.

The kit is rated to a maximum pressure of 350 bar (5000 psi).

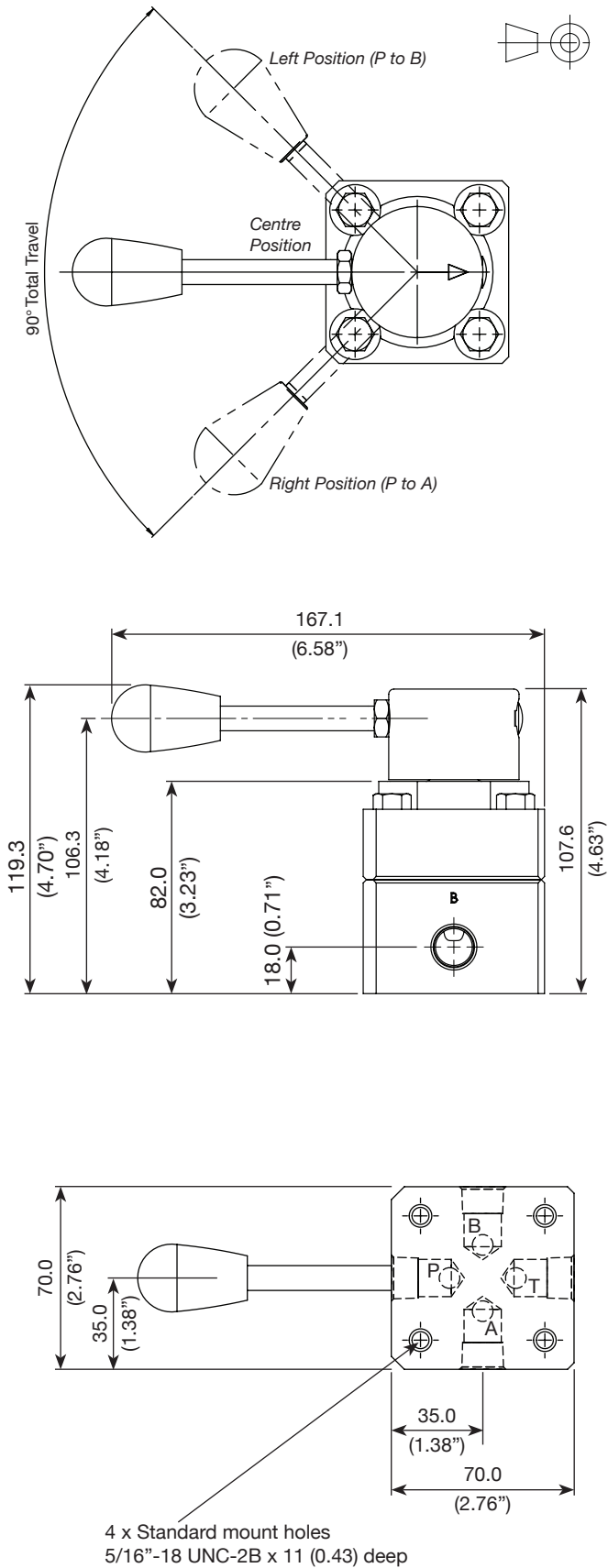
Contents



Installation Details

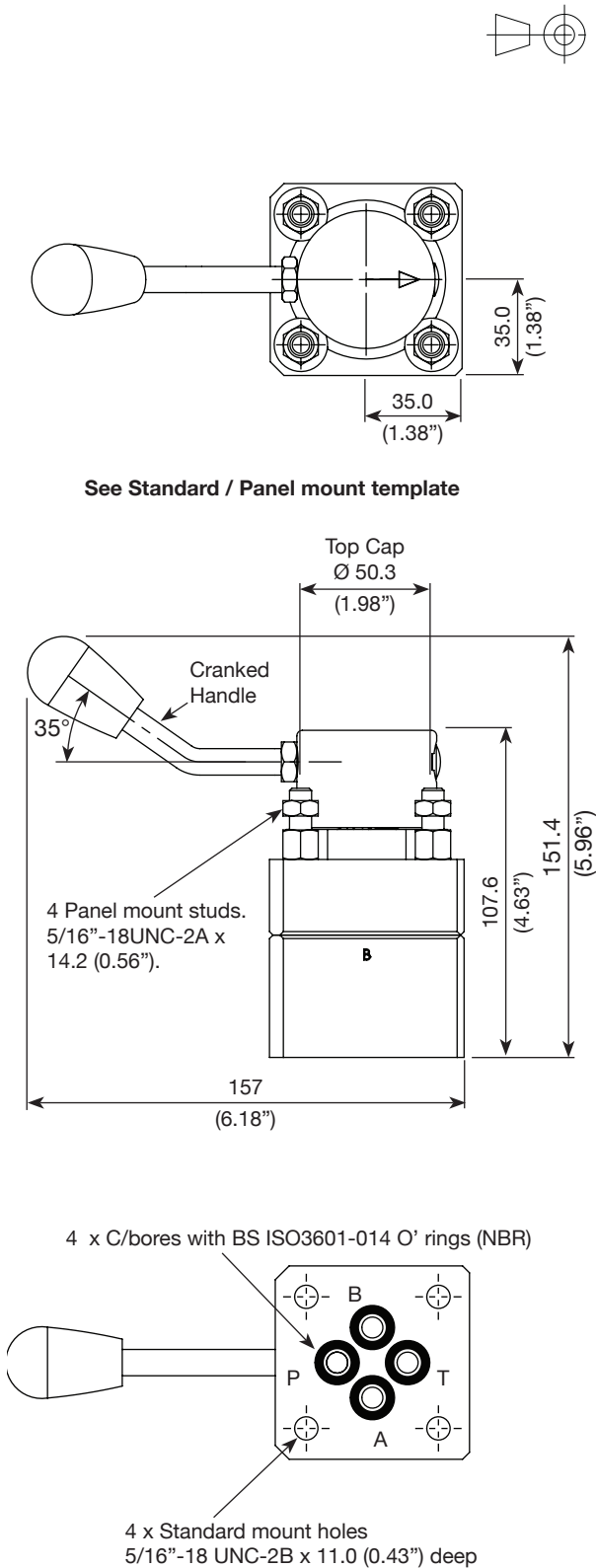
Dimensions in millimetres (Inches)

Side ported (type L, E, or T) Standard Mount Straight Handle



See Standard / Panel mount template

O' ring ported (type A) Panel Mount Cranked Handle



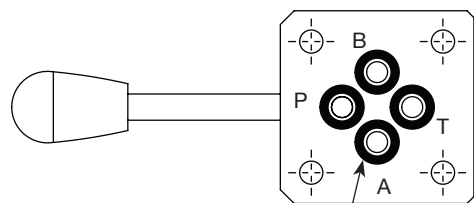
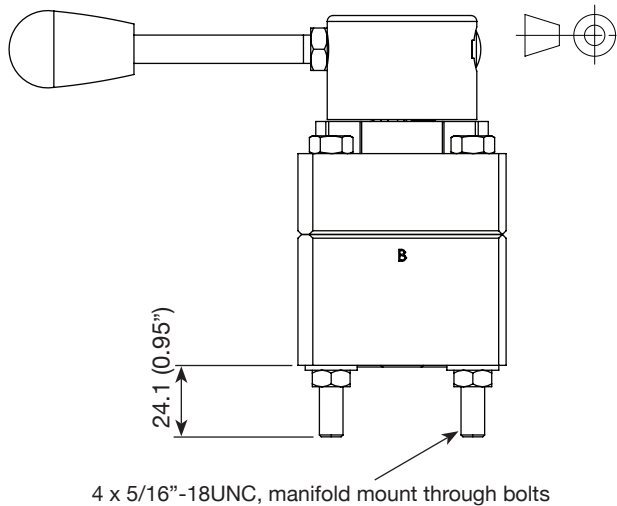
See 014 O' ring Port Template

Installation Details

Dimensions in millimetres (Inches)

O' ring ported (type C) Manifold Mount Straight Handle

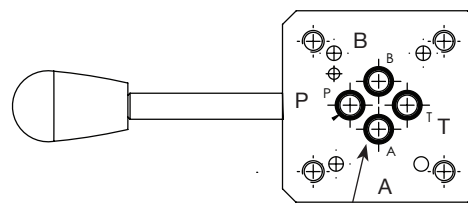
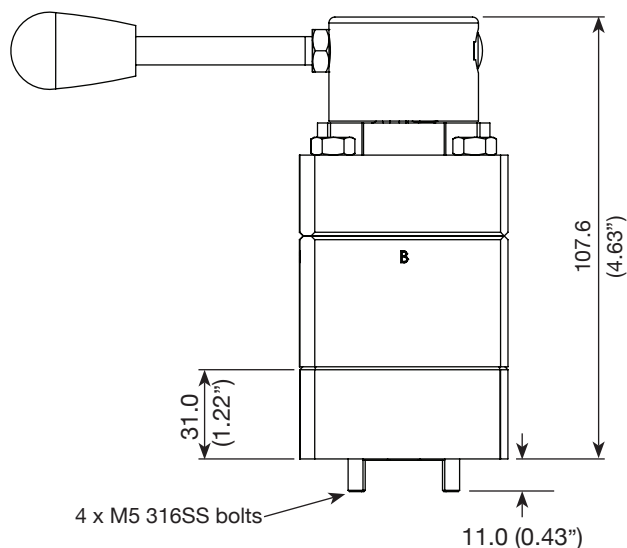
Some dis assembly / assembly is required for installation.
See manual for further details.



4 x C/bores with BS ISO3601-014 O' rings (NBR)

See 014 O' ring port template

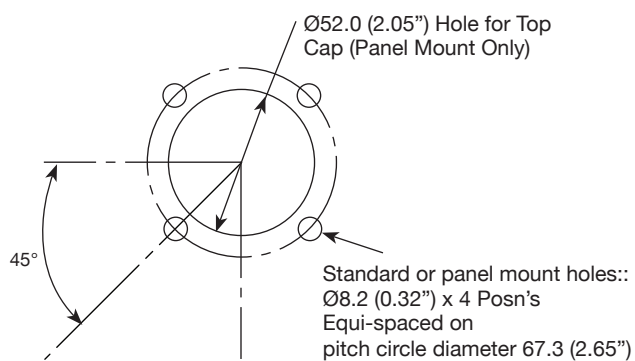
280 port type C with 280-CETOP3 Kit



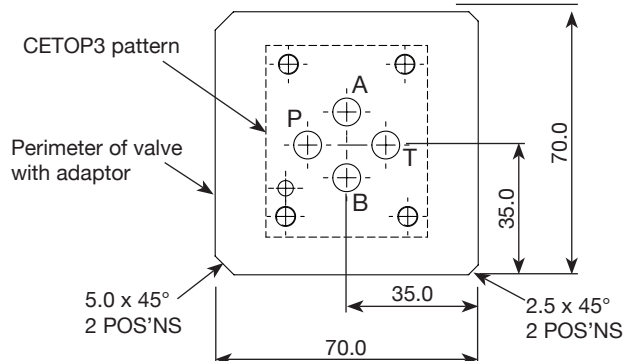
4 x C/bores with BS ISO3601-011 O' rings (NBR)

See 280-CETOP3 Template

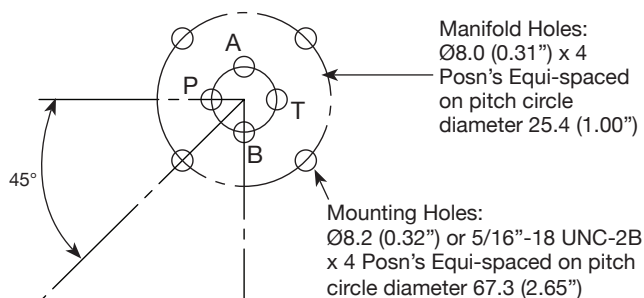
Standard / Panel Mount Template



280-CETOP3 Template



014 O' ring Port Template



3 Ported Valve (Code 3A, Table 6).

The BSPP and SAE plugs sit proud of the valve body, 8.5mm & 1.4mm respectively.

