

Features

Simple, compact and heavy duty designed monoblock valves from 1 to 3 sections for open and closed centre hydraulic systems.

- ▶ fitted with a direct or pilot operated main pressure relief valve.
- ▶ Parallel circuit.
- ▶ Optional carryover port.
- ▶ Diameter 25 mm-0.98 in interchangeable spools.
- ▶ A wide variety of service port valves.
- ▶ Available manual, hydraulic and relative spool control kits.

Additional information

This catalogue shows the product in the most standard configurations. Please contact Sales Dpt. for more information that is detailed or special request.

WARNING!

**All specifications of this catalogue refer to the standard product at this date.
GMS, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.**

GMS IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN INCORRECT USE OF THE PRODUCT.

1st edition April 2018:

Directional valve with parallel circuit

Dimensional data	S-6
Ordering codes	S-7
Inlet relief options	S-9
Spools	S-11
“A” side spool positioners	S-12
“B” side options	S-16
Complete controls	S-18
Outlet port options	S-21

Valve general informations

Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm²/s – 46cSt viscosity at 40°C temperature.

Nominal flow rating		160 l/min.	
Max. flow		200 l	
Operating pressure (max.)		250 bar	3620 psi
Max. back pressure	on outlet port T	25 bar	360 psi
Internal leakage A(B)→T	Δp=100 bar – 1450psi fluid and valve at 40°C	4cm ³ /min.	0.24 in ³ /min.
Hydraulic fluid		Mineral base oil	
Fluid temperature	with NBR seals	from - 20° to 80°C	
	with FPM (VITON) seals	from - 20° to 100°C	
Viscosity	operating range	from 15 to 75 mm ² /s	from 15 to 75 cSt
	Min.	12 mm ² /s	12 cSt
	Max.	400 mm ² /s	400 cSt
Max. level of contamination		19/16 – ISO 4406	

Standard threads

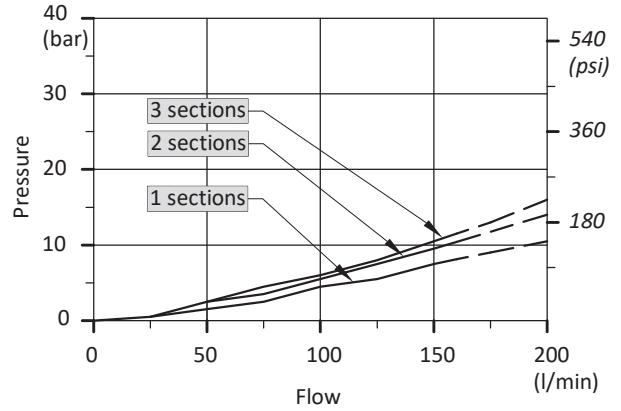
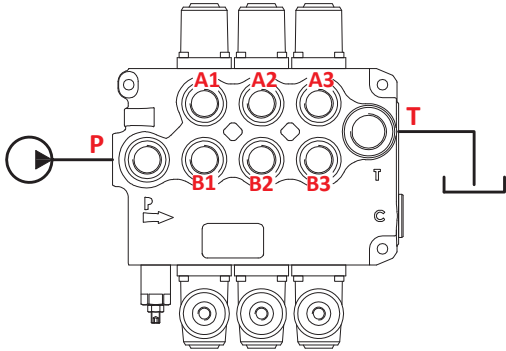
REFERENCE STANDARD

MAIN PORTS	BSP (ISO 228/1)	OPTIONAL	UN-UNF (ISO 11926-1)
Inlet P and carry-over C	G 3/4	G 1	1 5/16 - 12 UN - 2B (SAE 16)
A and B ports	G 3/4	G 1	1 1/16 - 12 UN - 2B (SAE 12)
Outlet T	G 1	-	1 5/16 - 12 UN - 2B (SAE 16)
CONTROL PILOT PORTS			
Pneumatics	G 1/8	-	-
Hydraulics	G 1/4	-	-

Performance data (pressure drop vs. flow)

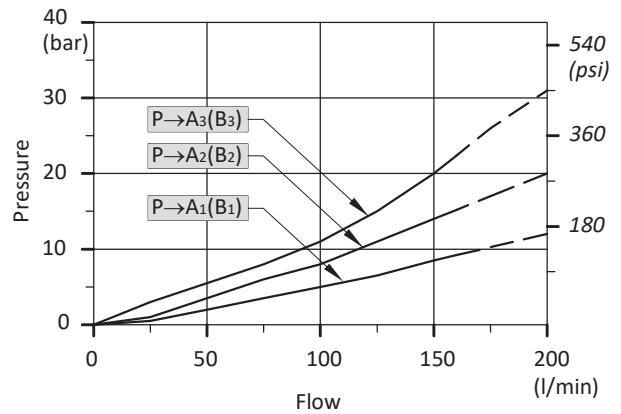
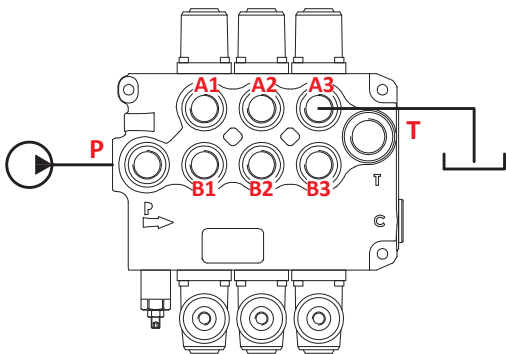
Open centre

From side inlet to side outlet.



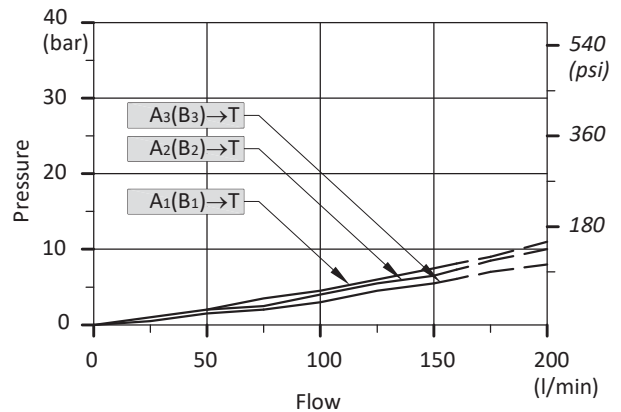
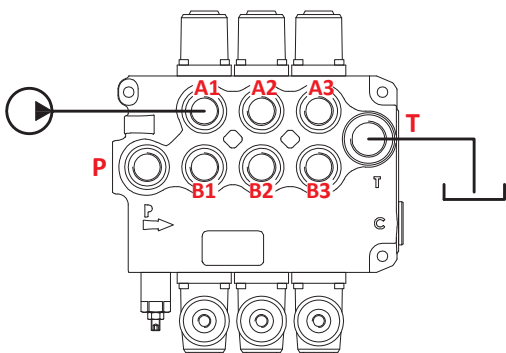
Inlet to work port

From side inlet to A port (spool in position 1) or B port (spool in position 2).



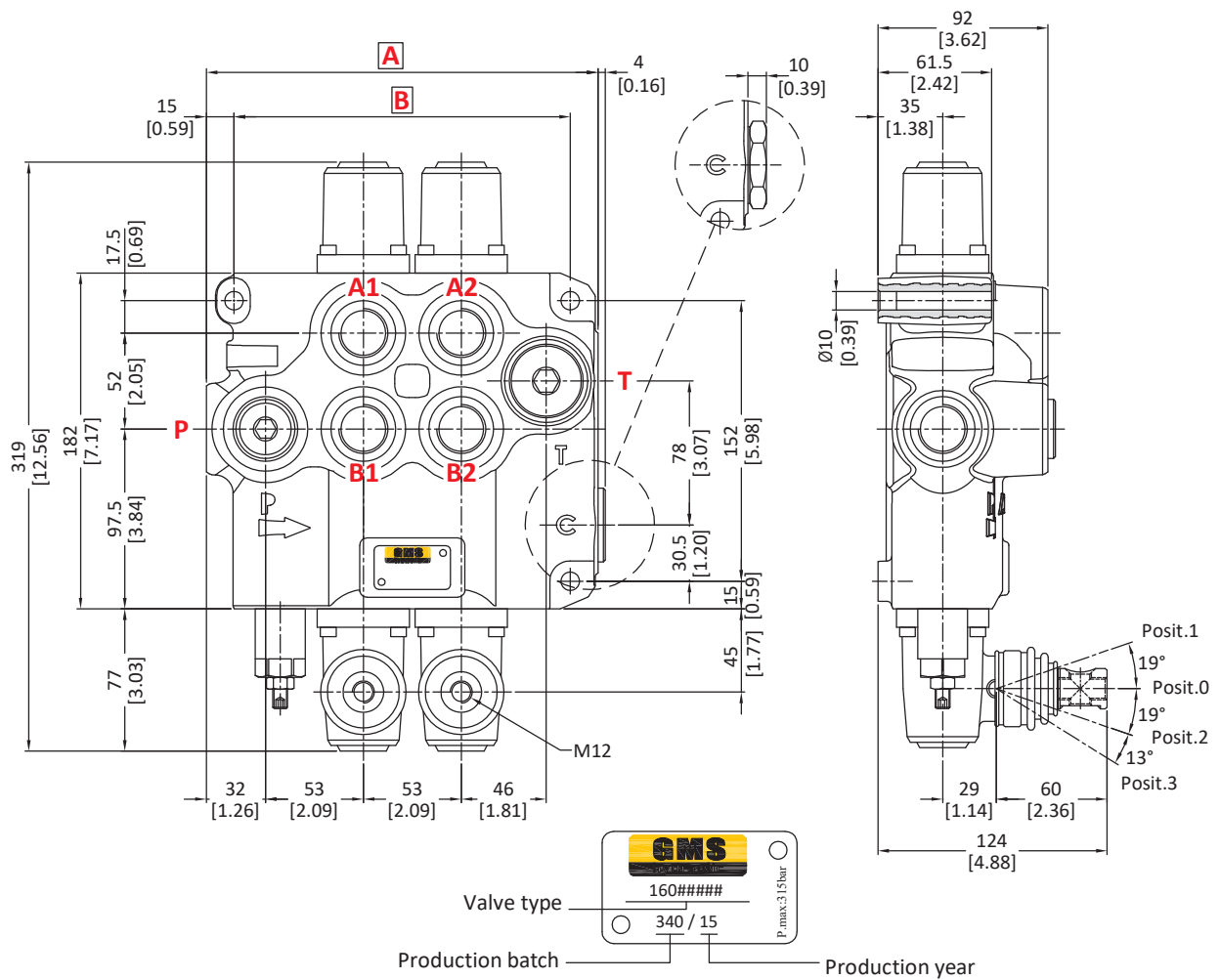
Work port to outlet

From A port (spool in position 2) or B port (spool in position 1) to side outlet.

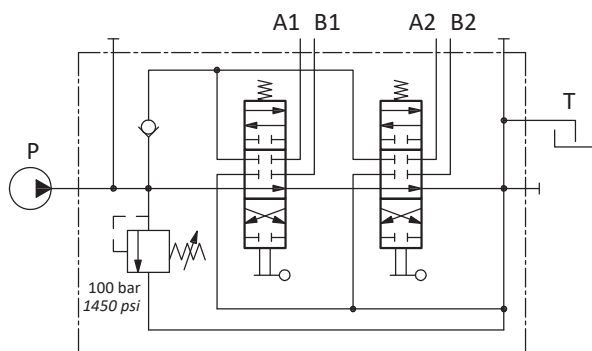


directional valve with left inlet

Dimensional data (parallel circuit)



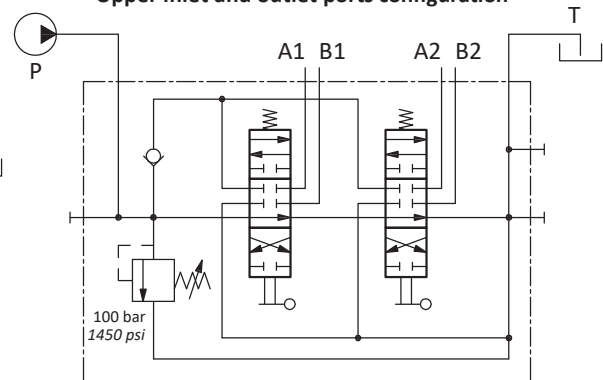
Standard configuration



Description example

160L GM16/2-P(X-100)/18L/18L/AET-PSL6

Upper inlet and outlet ports configuration



Description example

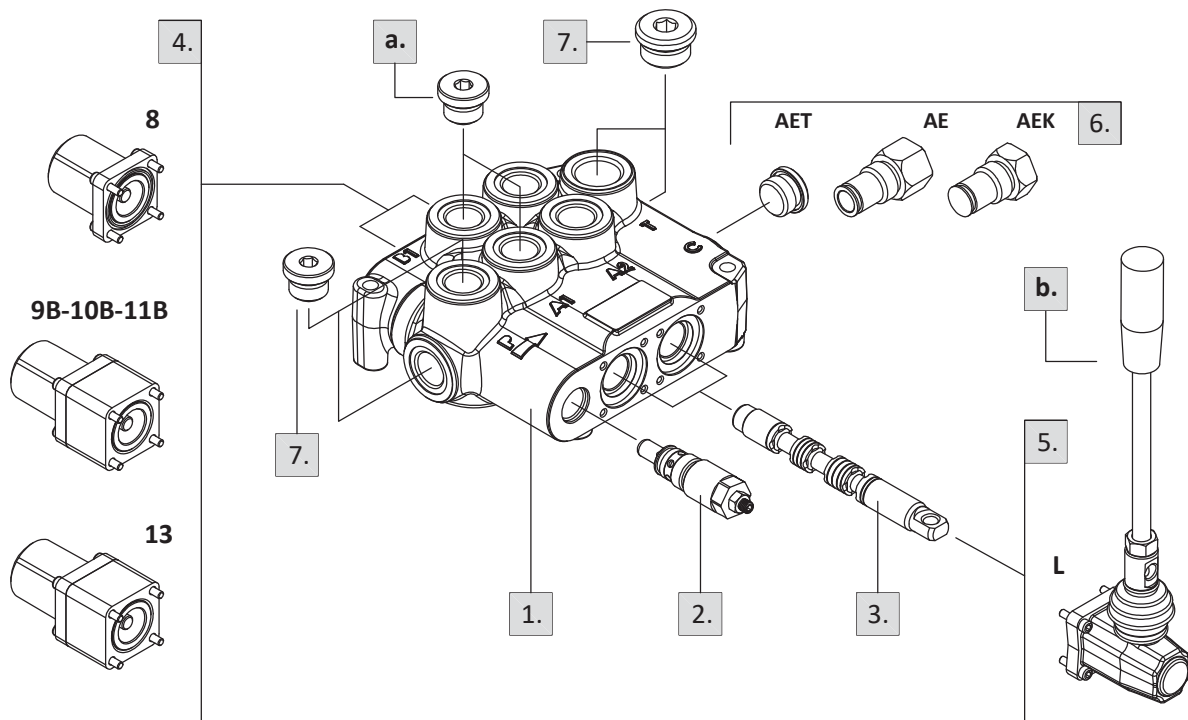
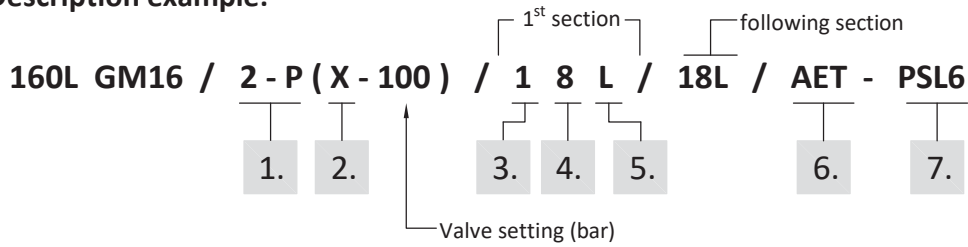
160L GM16/2-P(X-100)/18L/18L/AET-PSA6

TYPE	A		B		Weight	
	mm	in	mm	in	kg	lb
160L GM 16/1-P	159	6.26	129	5.08	10.9	24.03
160L GM 16/2-P	212	8.35	182	7.17	15.8	34.83
160L GM 16/3-P	265	10.43	235	9.25	20.5	45.19

directional valve with left inlet

Ordering codes

Description example:



1. Body kits

TYPE	CODE	DESCRIPTION
1-P	-	Parallel, 1 section
2-P	-	Parallel, 2 sections
3-P	-	Parallel, 3 sections

Include body, seals and load check valve.

2. Inlet relief options page 9

TYPE	CODE	DESCRIPTION
<u>KE10K01 : direct pressure relief valve type X</u>		
(X-100)	30 05 4912	Range 20 to 315 bar / 290 to 4600 psi standard setting 100 bar / 1450 psi
<u>KE10K02 : pilot operated pressure relief valve type Z</u>		
(Z-100)	30 05 4915	Range 25 to 315 bar / 360 to 4600 psi standard setting 100 bar / 1450 psi
<i>Standard setting is referred to 6 l/min flow.</i>		
V	30 05 4914	Relief valve blanking plug

3. Spool options page 11

TYPE	CODE	DESCRIPTION
1	30 01 3615	Double acting, 3 positions, with A and B closed in neutral position
2	30 01 3616	Double acting, 3 positions, with A and B open to tank in neutral position
3	30 01 3618	Single acting on A, 3 positions, B plugged requires G3/4 plug (see part a.)
4	30 01 3619	Single acting on B, 3 positions, A plugged requires G3/4 plug (see part a.)
D4	30 01 3617	-
<u>Spools for 8IM hydraulic control</u>		
11M	30 01 3620	As type 1
21M	30 01 3661	As type 2
<u>Special spools: need special body kit</u>		
5DY	30 01 3622	Double acting, 4 positions, floating circuit in 4 th position with spool in
8F	30 01 3621	Double acting, 3 positions, with regenerative in position 2

directional valve with left inlet

Ordering codes

4. "A" side spool positioners page 12

TYPE	CODE	DESCRIPTION
8	30 07 5424	With spring return in neutral position
19	30 07 5591	With spring return in position 0 from 1
20	30 07 5592	With spring return in position 0 from 2
11	30 07 5425	With detent in positions 1, 0 and 2
15	30 07 5588	With detent in positions 1 and 0
16	30 07 5589	With detent in positions 2 and 0
9B	30 07 5593	With detent in position 1 and spring return in neutral position
10B	30 07 5586	With detent in position 2 and spring return in neutral position
11B	30 07 5587	Detent in positions 1 and 2 and spring return in neutral position
18D	30 07 5590	With spring return position 2 and pin with M8 female thread for dual control
<u>Special positioner</u>		
13	30 07 5584	With detent in position 3 and spring return neutral position, for spool type 5DY

5. "B" side options page 16

TYPE	CODE	DESCRIPTION
L	30 07 5423	Standard lever box
SLP	30 07 5358	Without lever box, with dust-proof plate
LB	30 07 5357	Steel lever

6. Outlet port options page 21

TYPE	CODE	DESCRIPTION
AET	30 05 4994	Open centre plug
AEK	-	Closed centre plug
AE2	30 05 4932	G3/4 carry-over sleeve

7. Inlet and outlet selection *

TYPE	CODE	DESCRIPTION
PSL6	30 05 4920	G3/4 plug for upper inlet
	30 05 4993	G1 plug for upper outlet
PSA6	30 05 4920	G3/4 plug for side inlet
	30 05 4993	G1 plug for side outlet

8. Complete controls page 18

TYPE	CODE	DESCRIPTION
Proportional hydraulic control type 8IM and rotative control type R .		

a. "A" and "B" ports plugs

TYPE	CODE	DESCRIPTION
G3/4	30 05 4920	For single acting spools type 3 and 4

b. Optional handlevers

TYPE	CODE	DESCRIPTION
AL01/M12x225	30 05 6012	Lenght L = 225mm / 8.86in

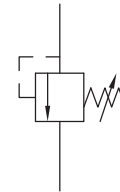
directional valve with left inlet

Inlet relief options

Direct pressure relief valve

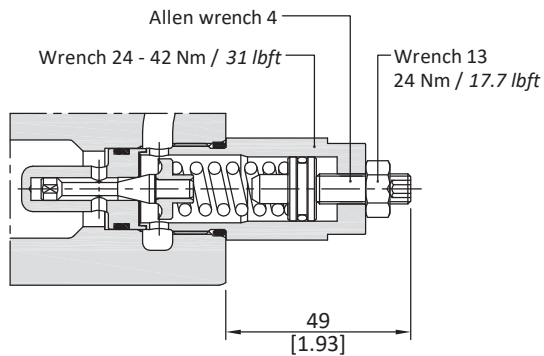
KE10K01 (X - 100)

Standard setting in bar
Adjustment type (X, XH)

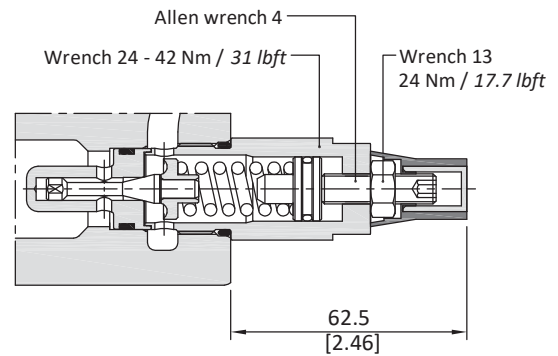


Adjustment type

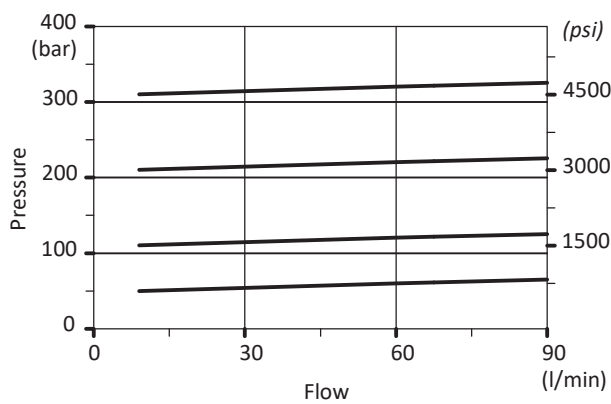
X: with screw



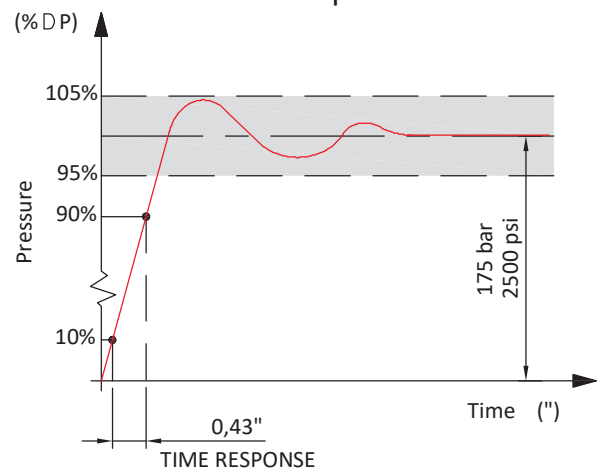
XH: valve set and locked



Performance data



Time response



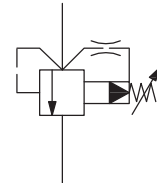
directional valve with left inlet

Inlet relief options

Pilot pressure relief valve

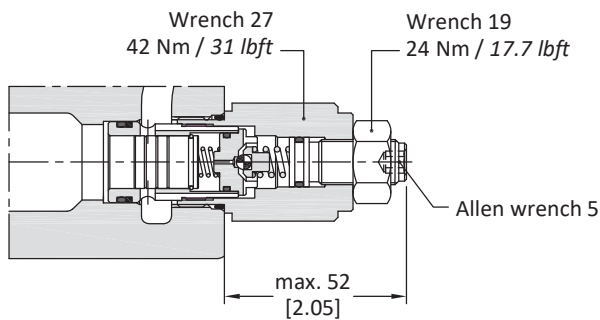
KE10K02 (Z - 100)

Standard setting in bar
Adjustment type (Z, ZH)

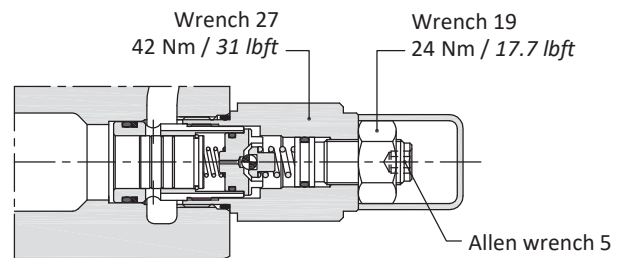


Adjustment type

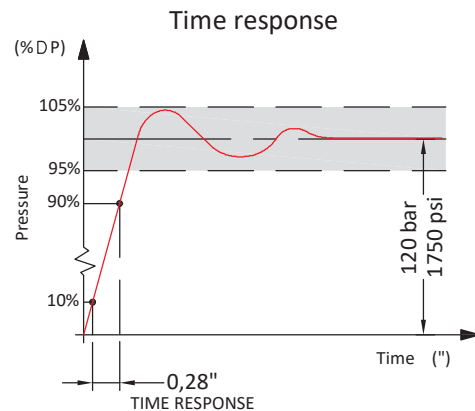
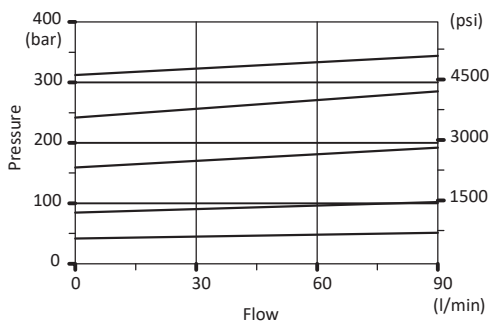
Z: with screw



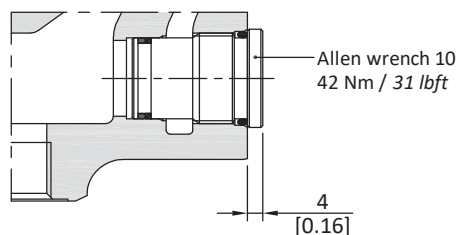
ZH: valve set and locked



Performance data



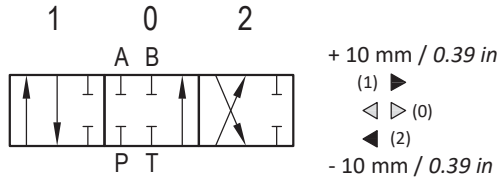
V: relief valve blanking plug



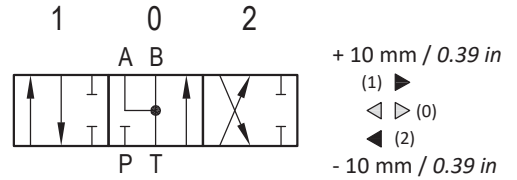
directional valve with left inlet

Spools options

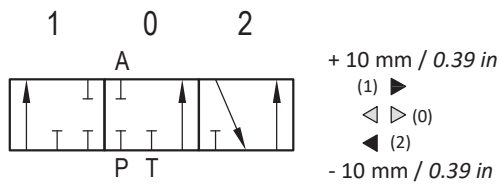
Type 1 (30 01 3615), 1IM (30 01 3620)



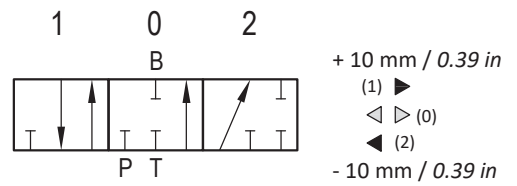
Type 2 (30 01 3616), 2IM (30 01 3661)



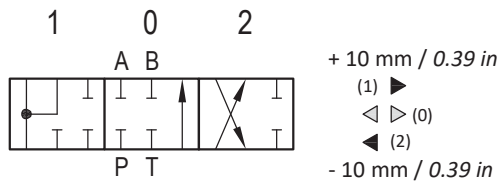
Type 3 (30 01 3618)



Type 4 (30 01 3619)

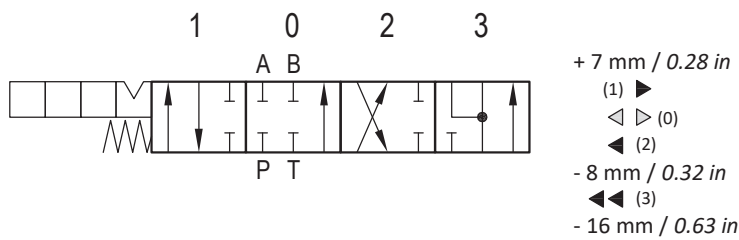


Type 8F (30 01 3621)



Type 5DY (30 01 3622)

For 13 kit



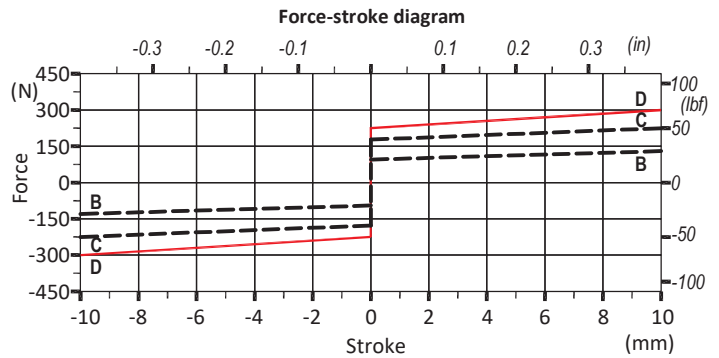
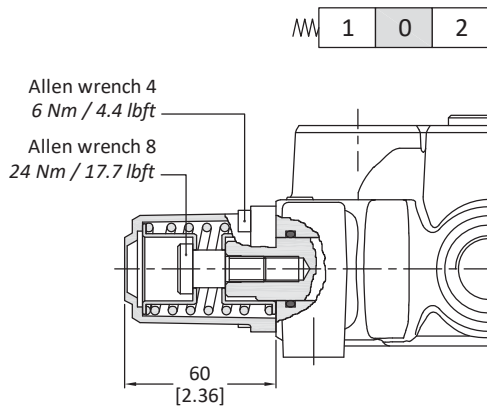
directional valve with left inlet

"A" side spool positioners

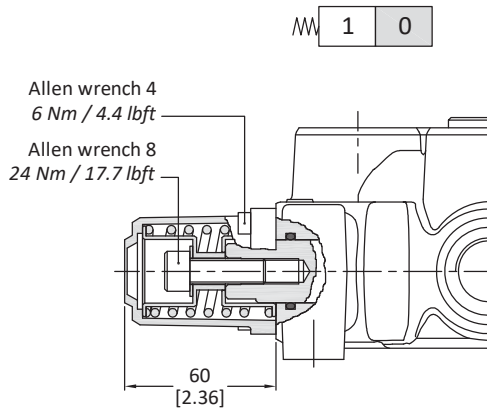
With spring return in neutral position

8 kit (30 07 5424)

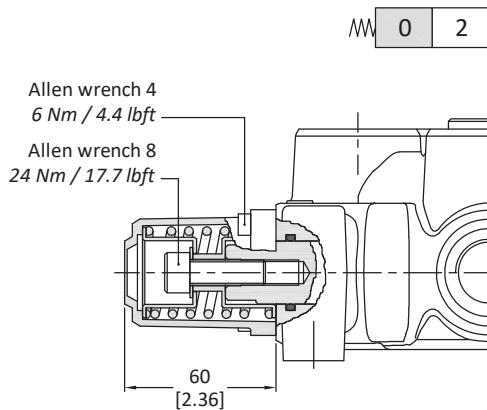
It's supplied with standard spring type D (see force-stroke diagram) and available with lighter spring type B (8MB) or heavier type C (8MC).



19 kit (30 07 5591)



20 kit (30 07 5592)

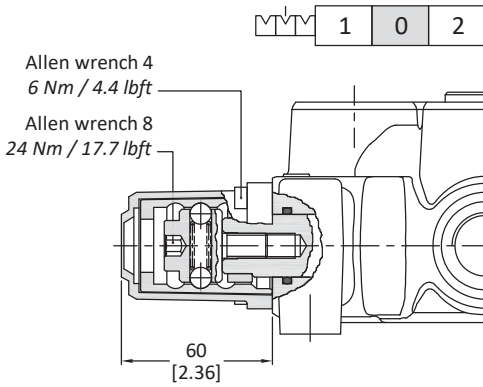


directional valve with left inlet

"A" side spool positioners

With detent

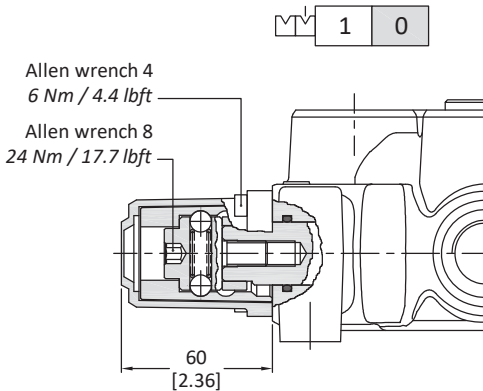
11 kit (30 07 5425)



Operating features

Locking and release force : 420 N / 94.4 lbf ±10%

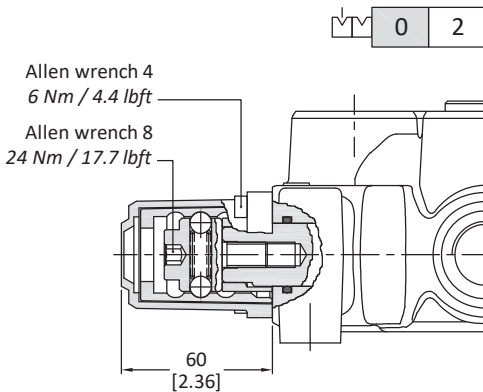
15 kit (30 07 5588)



Operating features

Locking and release force : 420 N / 94.4 lbf ±10%

16 kit (30 07 5589)



Operating features

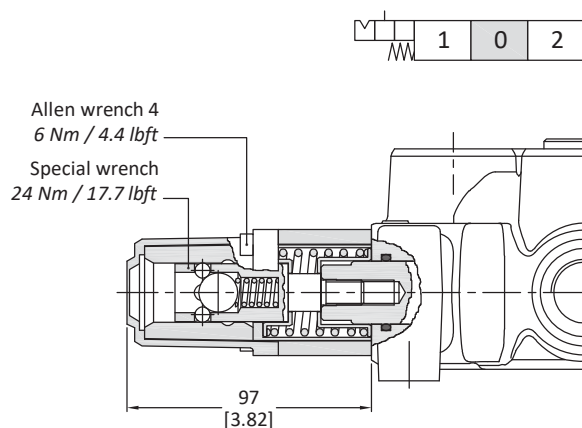
Locking and release force : 420 N / 94.4 lbf ±10%

directional valve with left inlet

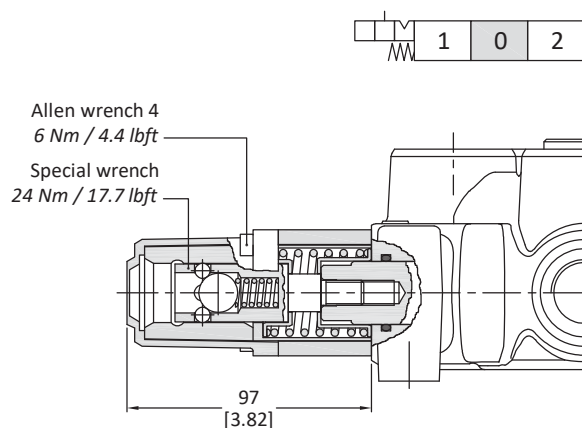
"A" side spool positioners

With detent and spring return to neutral position from either directions

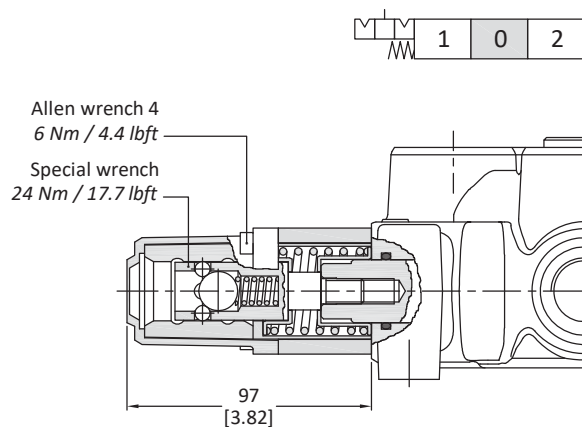
9B kit (30 07 5593)



10B kit (30 07 5586)



11B kit (30 07 5587)



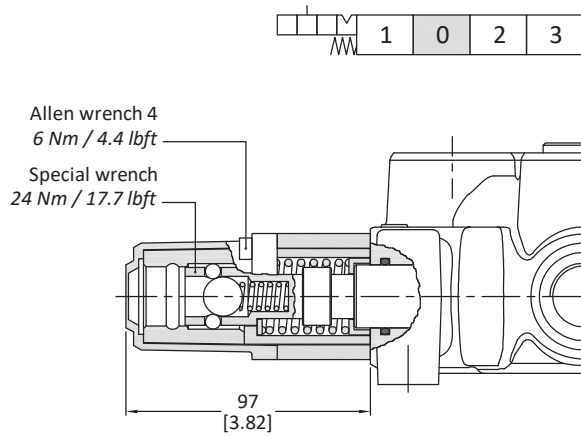
directional valve with left inlet

"A" side spool positioners

Particular positioner kits for special spools

13 kit (30 07 5584)

Detent in 4th position with spool in: available only for spool type **5DY**



directional valve with left inlet

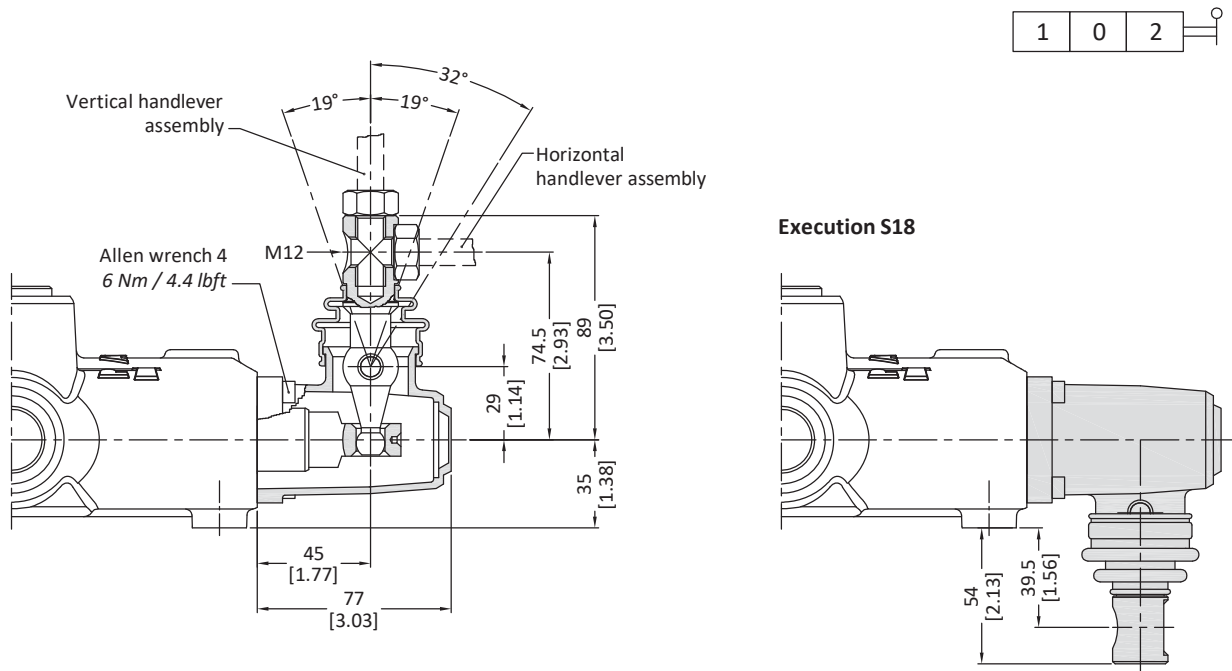
"B" side options

Lever control

Type L (30 07 5423)

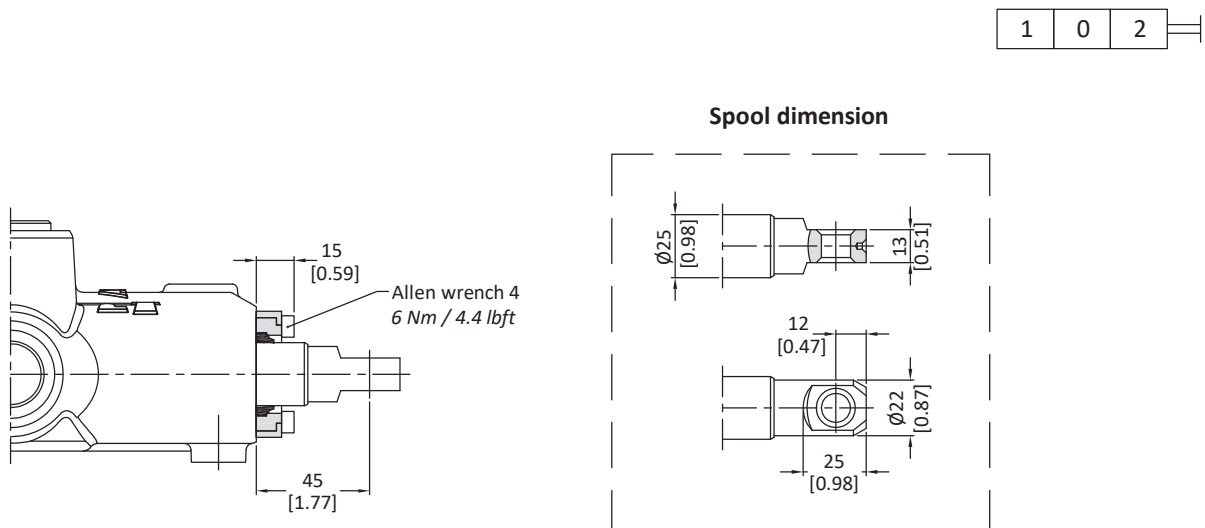
Type L180

Alluminium with protection boot lever pivot box; it can be rotated 180° (execution LM10180).



Type SLP (30 07 5358)

Mechanical control with dust proof plate.



directional valve with left inlet

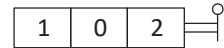
"B" side options

Lever control

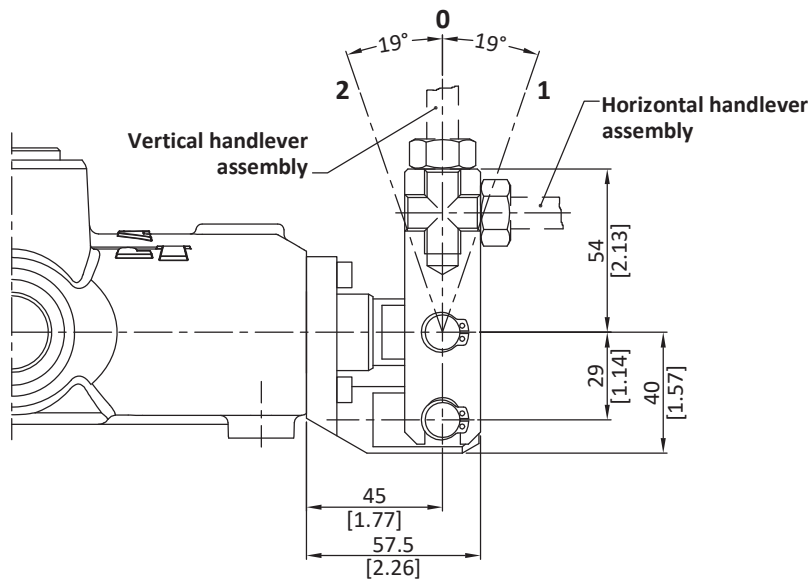
Type LB (30 07 5357)

Steel manufacture.

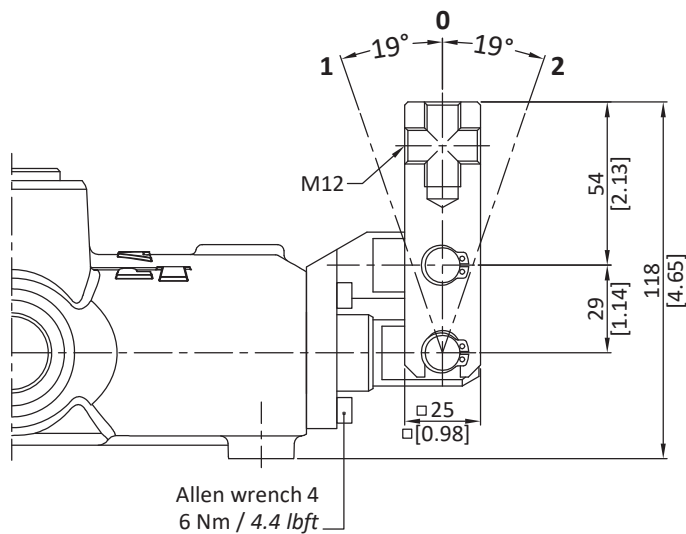
Pivot can be assembled below (LB1 configuration) or above (LB3 configuration).



Configuration LB1



Configuration LB3

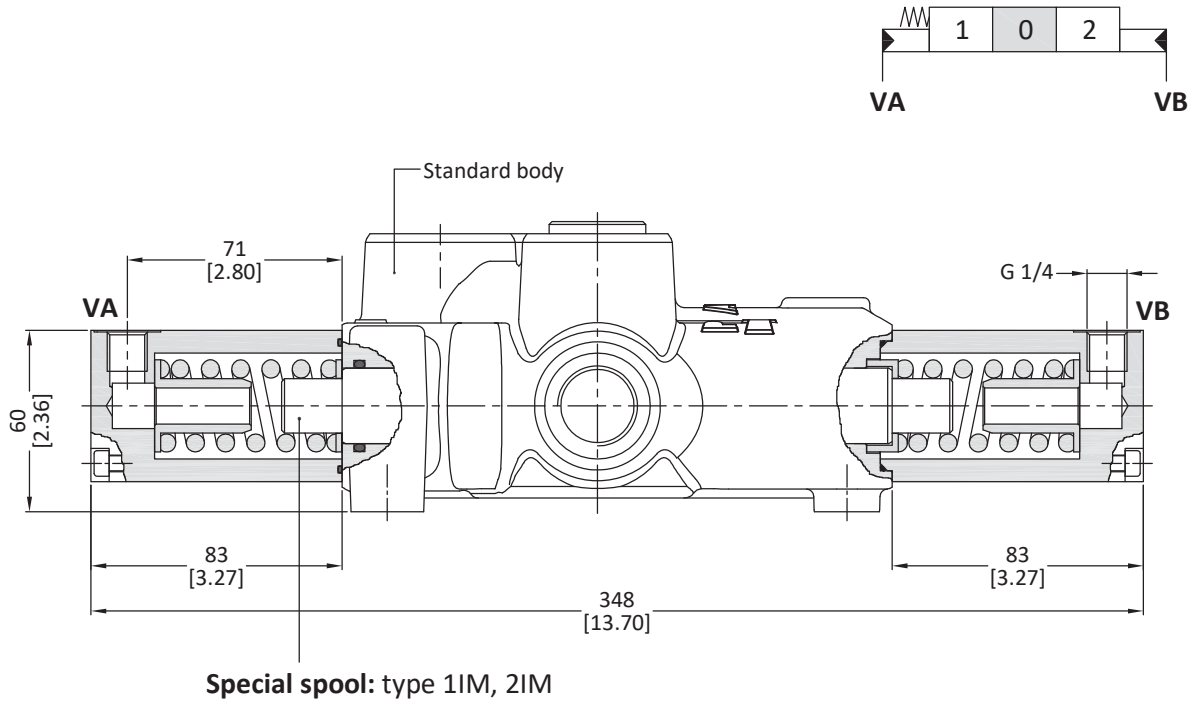


directional valve with left inlet

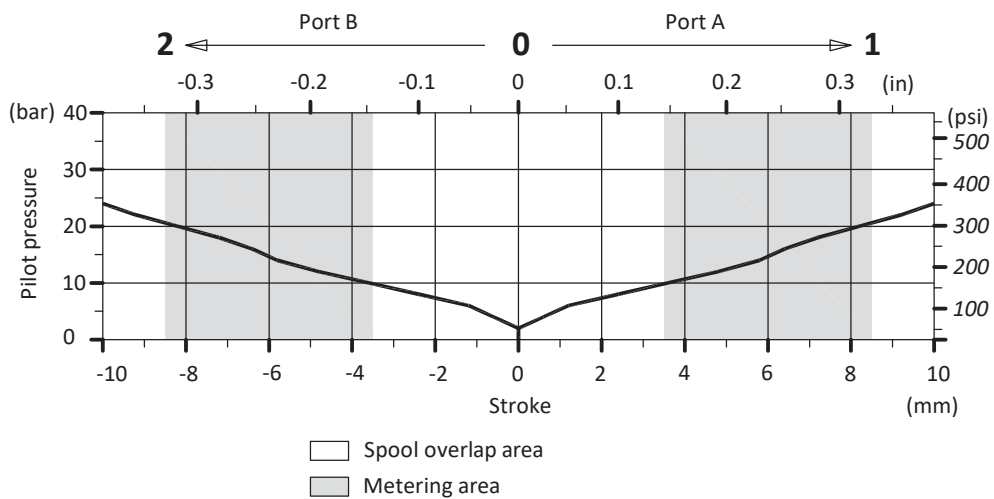
Complete controls

Hydraulic spool control type 8IM (30 07 5422)

For single acting and double acting spools



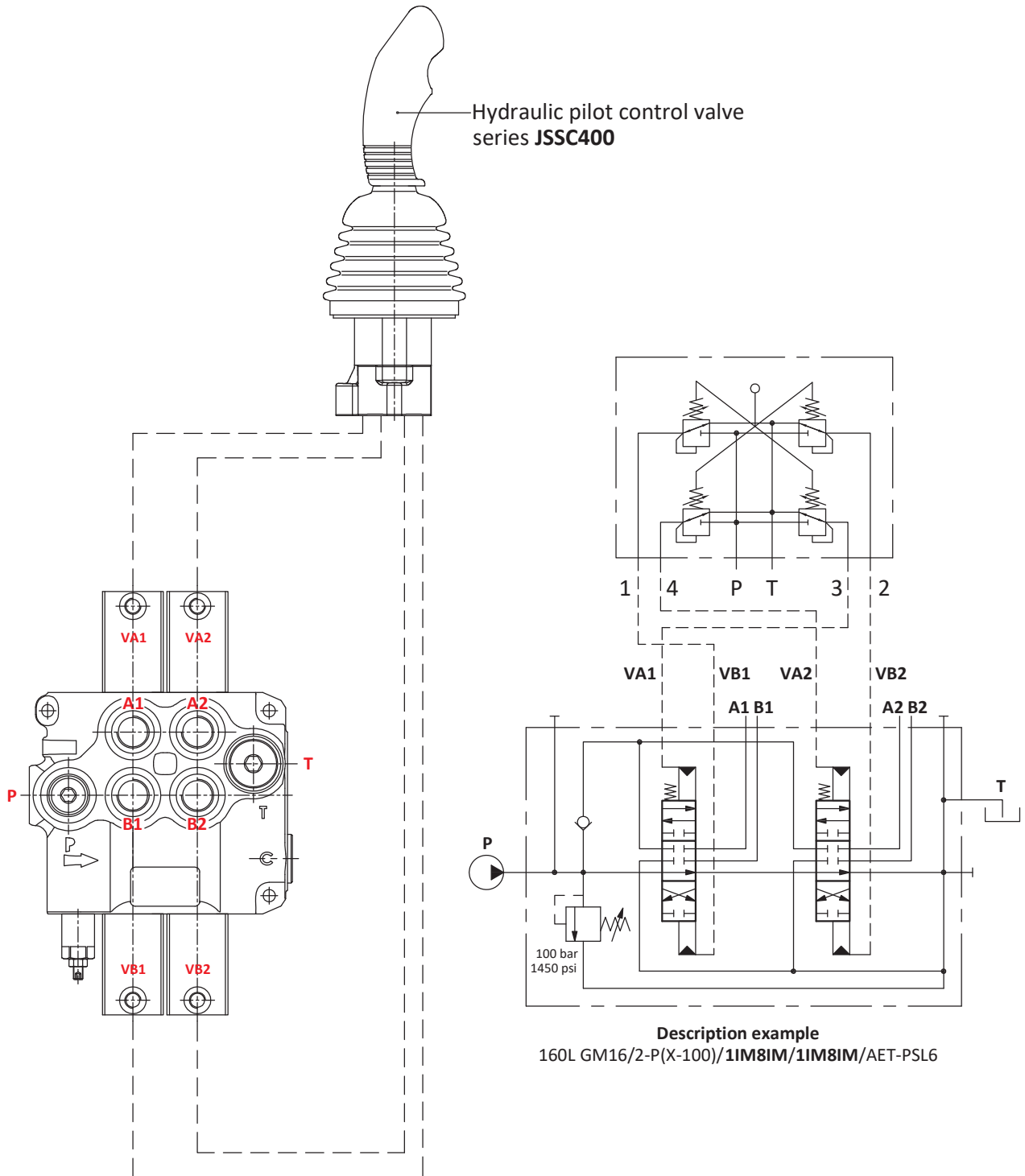
Pilot pressure - stroke diagram



directional valve with left inlet

Complete controls

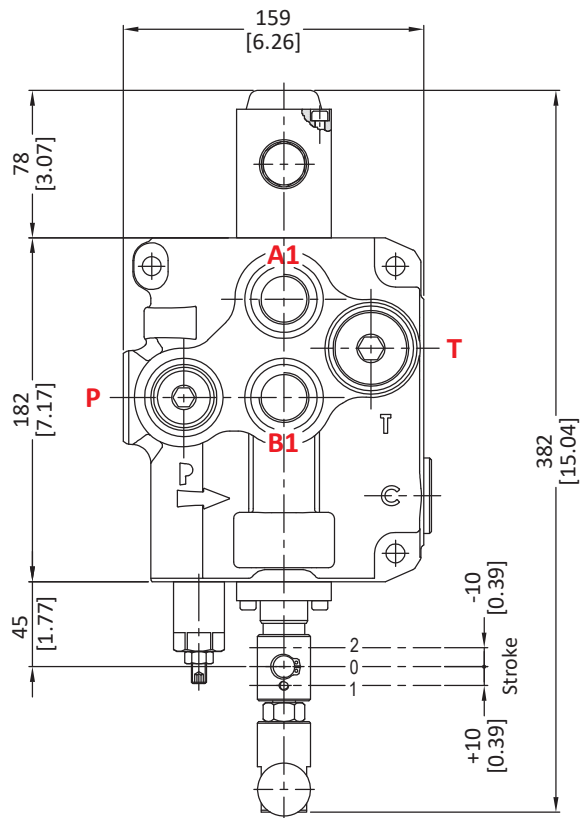
Connection example



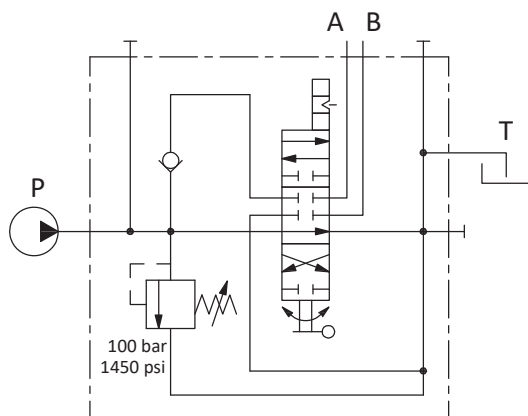
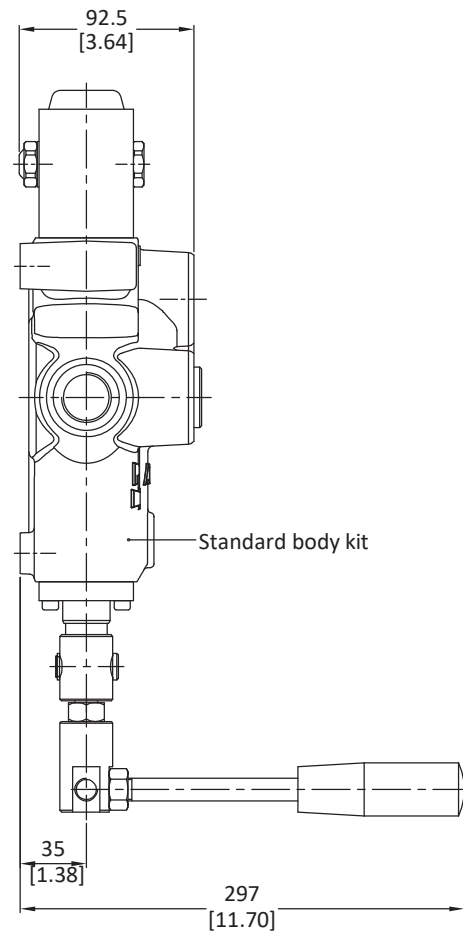
directional valve with left inlet

Special configurations

Directional valve with rotary control kit (30 07 5362)



Angle excursion $\pm 90^\circ$



Description example

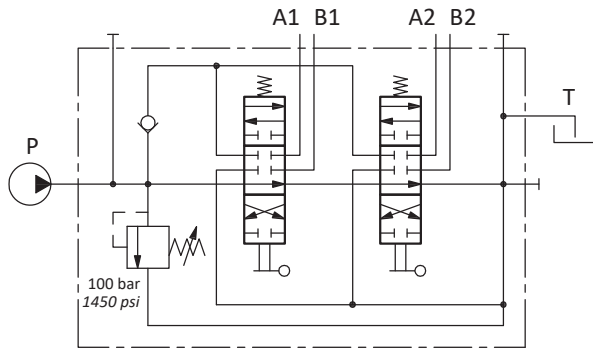
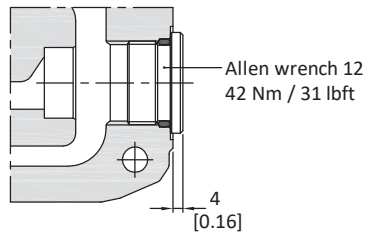
160L GM16/1-P(X-100)/1 R SLP/AET-PSL6

directional valve with left inlet

Outlet port options

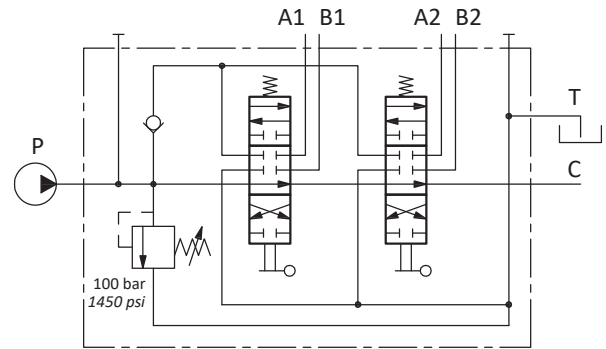
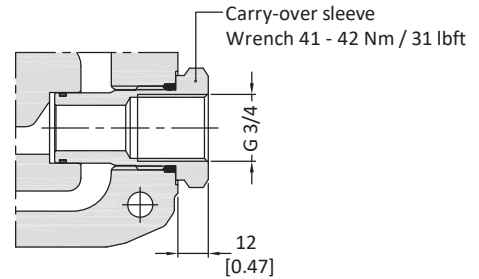
It's possible to have open centre, closed centre and carry-over.

AET: open centre (standard)



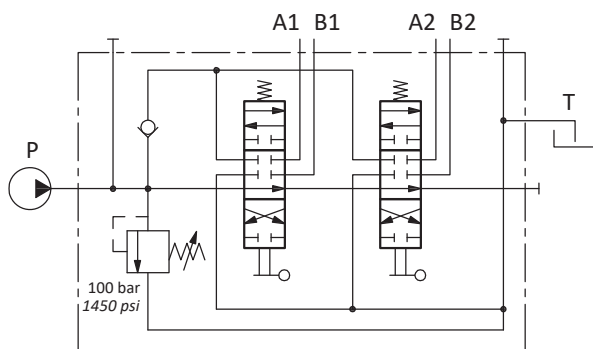
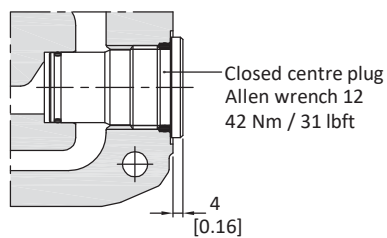
Description example
160L GM16/2-P(X-100)/18L/18L/AET-PSL6

AE: with carry-over



Description example
160L GM16/2-P(X-100)/18L/18L/AE2-PSL6

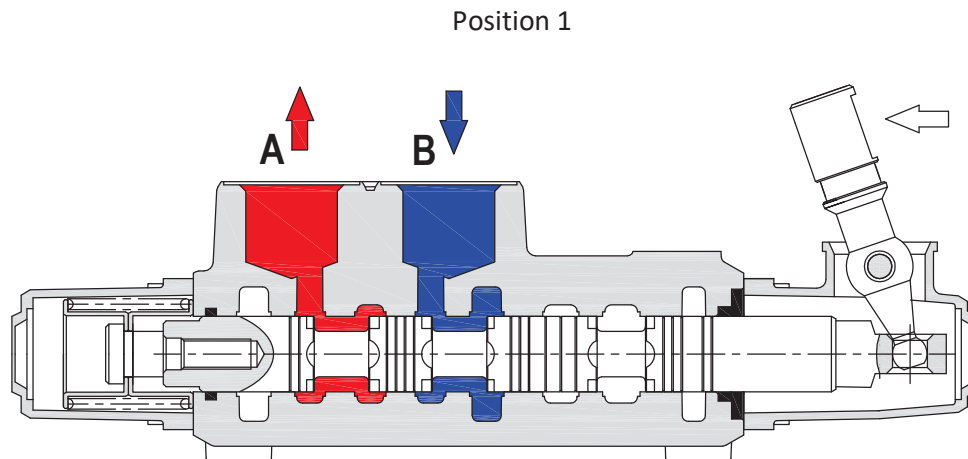
AEK: closed centre



Description example
160L GM16/2-P(X-100)/18L/18L/AEK-PSL6

Sectional drawing

When hand lever pushed (spool out position) P to A port. B to T port.



When hand lever pulled (spool in position) P to B port. A to T port.

