

Directional valve with parallel circuit

Dimensional data	G-6
Hydraulic circuit	G-7
Ordering codes	G-8
Inlet relief options	G-10
Spools	G-12
“A” side spool positioners	G-14
“B” side options	G-29
Complete controls	G-37
Outlet port options	G-42
Inlet port options	G-43

Other executions

Directional valve 90L GMC10 with parallel circuit.	G-47
--	------

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		90 l/min.	
Max. flow		100 l	
Operating pressure (max.)		315 bar	4600 psi
Max. back pressure	on outlet port T	20 bar	290 psi
Internal leakage A(B)→T	Δp=100 bar – 1450psi with fluid and valve at 40°C	3cm ³ /min.	0.18 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 STANDARDS

		BSP	UN-UNF	METRIC
THREAD ACCORDING TO		ISO 228/1	ISO 263	ISO 262
		BS 2779	ANSI B1.1 unified	
CAVITY ACCORDING TO	ISO	1179	11926	9974-1
	SAE		J1926	
	DIN	3852-2 shape X o Y		3852-1 shape X o Y

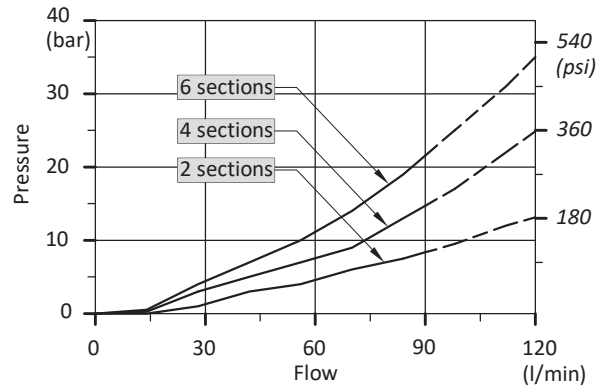
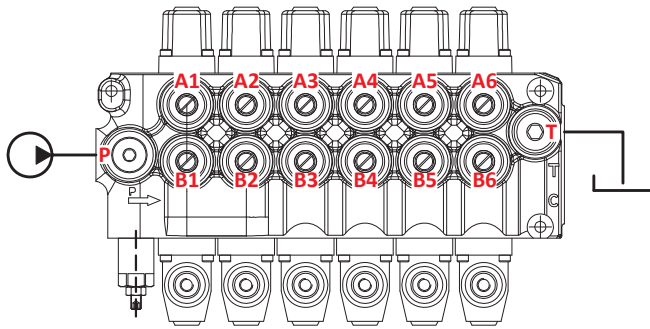
PORTS THREAD

MAIN PORTS	BSP	OPTIONAL	UN-UNF	METRIC
Inlet P and carry-over C	G 1/2	G 3/4	7/8 - 14 (SAE 10)	M18x1,5
Ports A and B	G 1/2	G 3/4	3/4 – 16 (SAE 8)	M18x1,5
Outlet T	G 3/4	-	7/8 - 14 (SAE 10)	M22x1,5
CONTROL PILOT PORTS				
Pneumatics	G 1/8		-	-
Hydraulics	G 1/4		-	-

Performance data (pressure drop vs. flow)

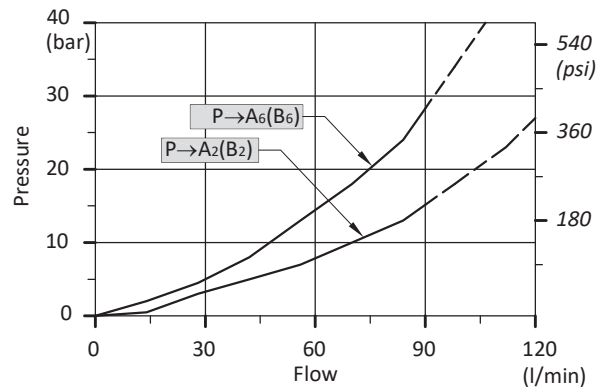
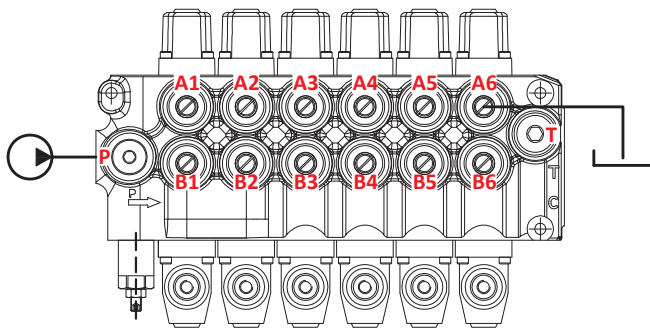
Open centre

From side inlet to side outlet.



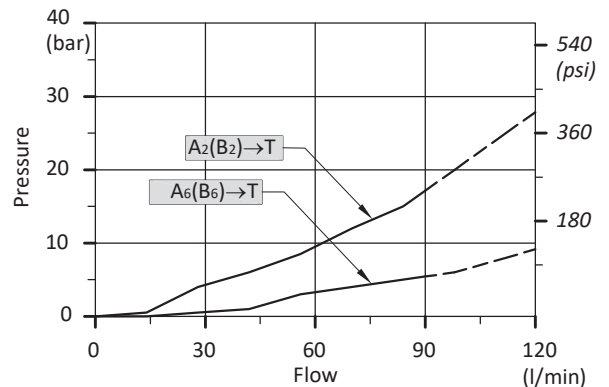
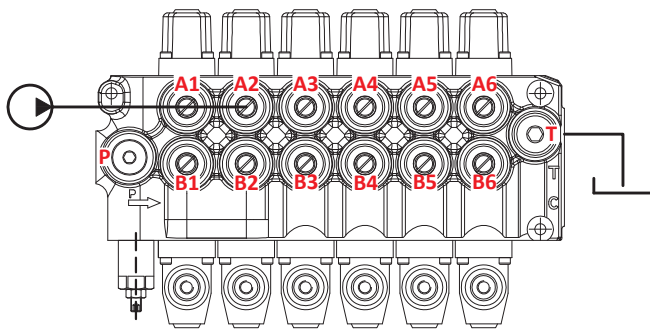
Inlet to work port

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



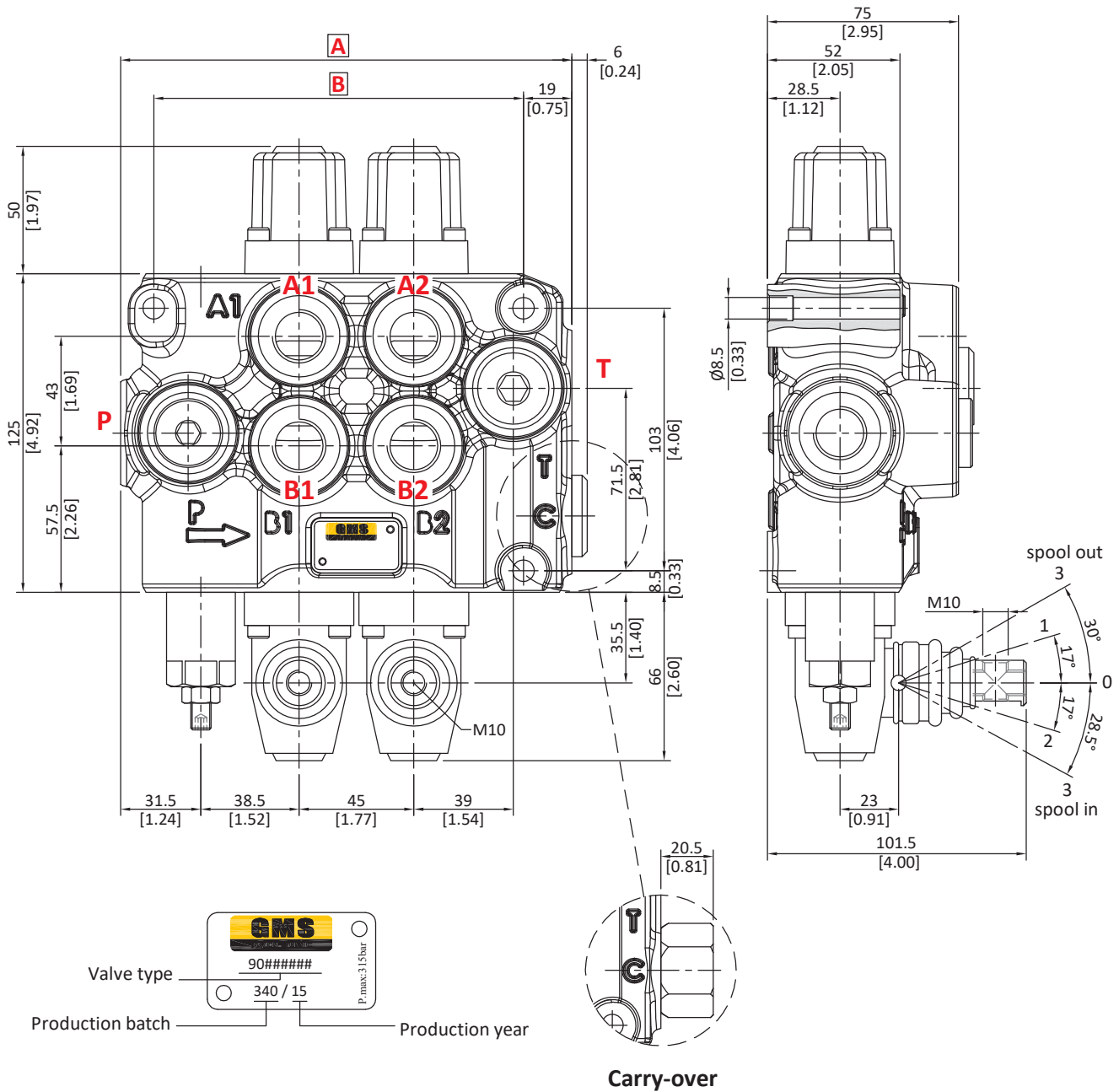
Work port to outlet

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)



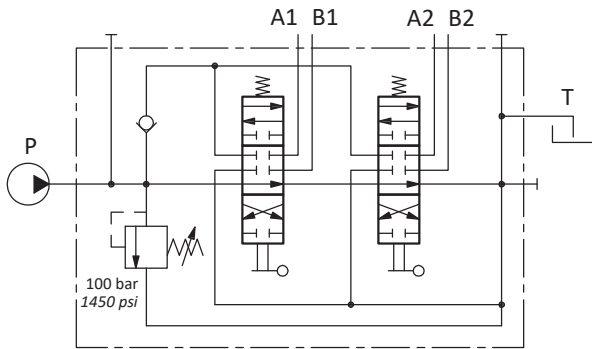
TYPE	A		B		Weight	
	mm	in	mm	in	kg	lb
90L GM 10/1-P	132	5.12	100	3.94	5.8	12.80
90L GM 10/2-P	177	6.89	145	5.71	8.3	18.30
90L GM 10/3-P	222	8.66	190	7.48	10.9	24.00

TYPE	A		B		Weight	
	mm	in	mm	in	kg	lb
90L GM 10/4-P	267	10.43	235	9.25	13.4	29.50
90L GM 10/5-P	312	12.21	280	11.02	16.5	36.40
90L GM 10/6-P	357	13.98	325	12.80	19.2	42.30

directional valve with left inlet

Hydraulic circuit

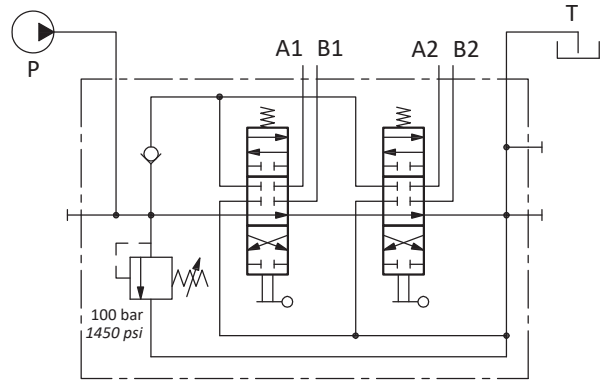
Standard configuration



Description example

90L GM10/2-P(X-100)/18L/18L/AET-PSL4

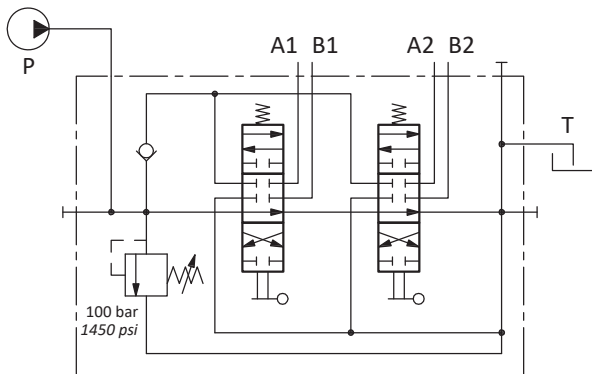
Configuration with upper inlet and outlet



Description example

90L GM10/2-P(X-100)/18L/18L/AET-PSA4

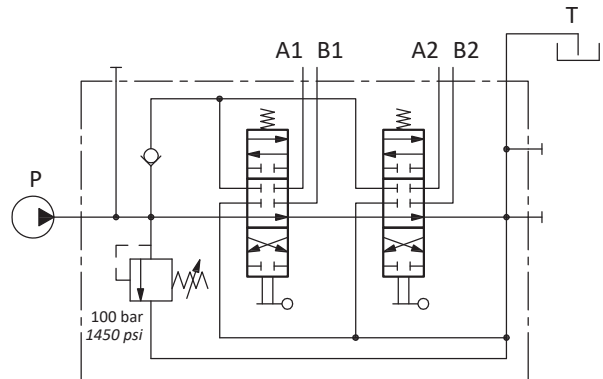
Configuration with upper inlet and side outlet



Description example

90L GM10/2-P(X-100)/18L/18L/AET-PSV4

Configuration with side inlet and upper outlet



Description example

90L GM10/2-P(X-100)/18L/18L/AET-PSB4

directional valve with left inlet

Ordering codes

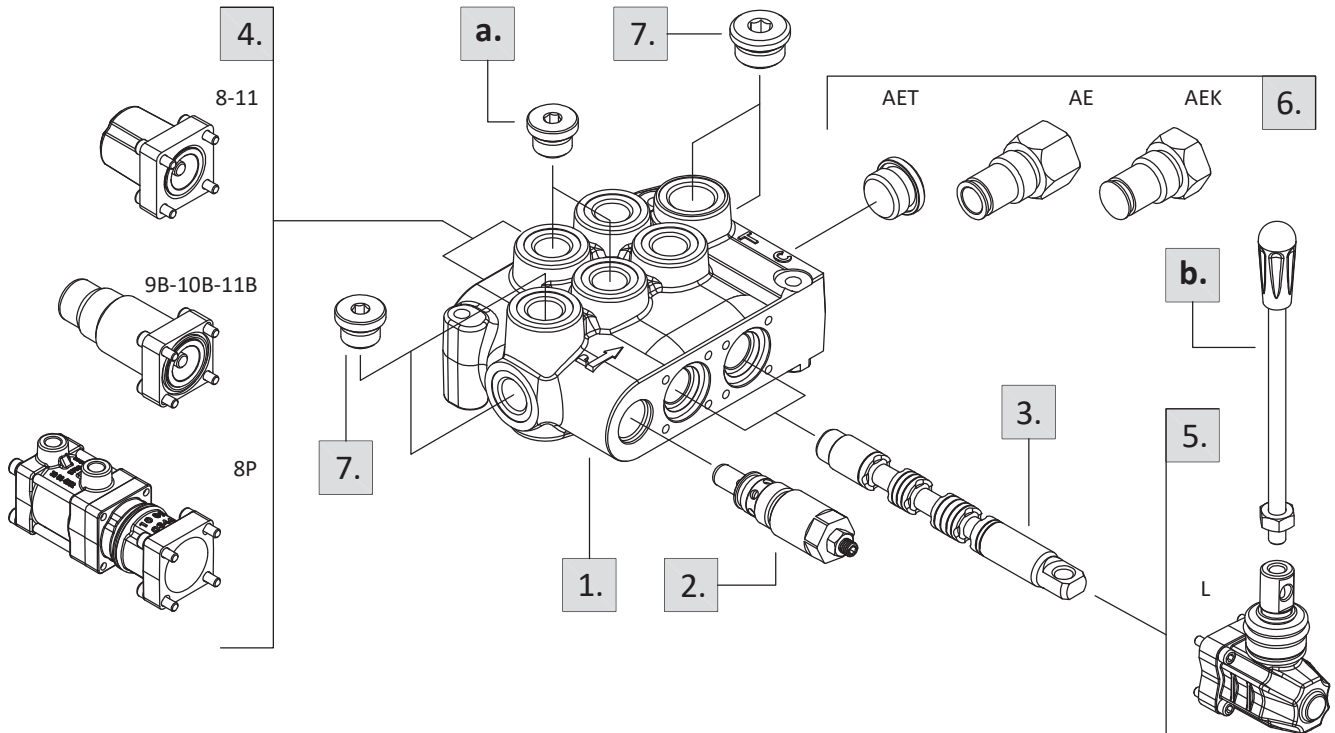
Description example:

90L GM10 / 2 - P (X - 100) / 1 8 L / 18L / AET - PSL4

1st section following section

1. 2. 3. 4. 5. 6. 7.

Valve setting (bar)



1. Body kits

TYPE	CODE	DESCRIPTION
1-P	-	Parallel, 1 section
2-P	-	Parallel, 2 sections
3-P	-	Parallel, 3 sections
4-P	-	Parallel, 4 sections
5-P	-	Parallel, 5 sections
6-P	-	Parallel, 6 sections

Include body, seals and load check valve.

2. Inlet relief options

page 10

TYPE	CODE	DESCRIPTION
KE10K01 : direct pressure relief valve type X		
(X-100)	30 05 4912	Range 20 to 315 bar / 290 to 4600 psi standard setting 100 bar / 1450 psi

TYPE	CODE	DESCRIPTION
KE10K02 : pilot operated pressure relief valve type Z		
(Z-100)	30 05 4915	Range 25 to 315 bar / 360 to 4600 psi standard setting 100 bar / 1450 psi

Standard setting is referred to 6 l/min flow.

V	30 05 4914	Relief valve blanking plug
---	------------	----------------------------

3. Spool options

page 12

TYPE	CODE	DESCRIPTION
1	30 01 3568	Double acting, 3 positions, with A and B closed in neutral position
1A	30 01 3645	Double acting, 3 positions, with A open to tank in neutral position
1B	30 01 3646	Double acting, 3 positions, with B open to tank in neutral position
2	30 01 3571	Double acting, 3 positions, with A and B open to tank in neutral position
2H	30 01 3572	Double acting, 3 positions, with A and B partially open to tank in neutral position
3	30 01 3573	Single acting on A, 3 positions, B plugged requires G3/8 plug (see part a.)
4	30 01 3574	Single acting on B, 3 positions, A plugged requires G3/8 plug (see part a.)
D4	30 01 3580	Double acting, 2 positions, without neutral position
Special spools for particular positioner kits page 13		
5BY	30 01 3569	Double acting, 4 positions, floating circuit in 4 th position with spool out
5DY	30 01 3570	Double acting, 4 positions, floating circuit in 4 th position with spool in
1(11A)	30 01 3575	Double acting, 3 positions, with A and B closed in neutral pos: for 11A positioner

directional valve with left inlet

Ordering codes

4. "A" side spool positioners *page 14*

TYPE	CODE	DESCRIPTION
8	30 07 5375	With spring return in neutral position
8D	30 07 5383	With spring return in neutral position and pin with M8 female thread for dual control
8D1	30 07 5402	With spring return in neutral position and pin with Ø 8mm (0.32in) radial hole
8D2	30 07 5384	With spring return in neutral position and pin with M8 male thread for dual control
8T	30 07 5376	With spring return in neutral position, for single acting spool type 3 and 4
8F2	30 07 5377	With spring return in neutral position and adjustable flow limiter
8TL	30 07 5397	As type 8 and pin control with flexible cable
19	30 07 5436	2 positions, with spring return in neutral position from position 1
20	30 07 5437	2 positions, with spring return in neutral position from position 2
11	30 07 5378	Detent in positions neutral, 1 and 2
12	30 07 5438	Detent in positions 1 and 2
15	30 07 5439	2 positions, detent in positions 1 and neutral
16	30 07 5440	2 positions, detent in positions 2 and neutral
11NZ	30 07 5394	Detent in positions neutral, 1,2 and 3
17	30 07 5441	With spring return position 1
18	30 07 5381	With spring return position 2
17D	30 07 5442	With spring return position 1 and pin with M8 female thread for dual control
18D	30 07 5382	With spring return position 2 and pin with M8 female thread for dual control
9B	30 07 5386	With detent in position 1 and spring return in neutral position
10B	30 07 5387	With detent in position 2 and spring return in neutral position
11B	30 07 5388	Detent in positions 1 and 2 and spring return in neutral position
9BT	30 07 5389	With detent in position 1 and spring return in neutral position, For single acting spool type 3 and 4
10BT	30 07 5390	With detent in position 2 and spring return in neutral position, For single acting spool type 3 and 4
11BT	30 07 5391	Detent in positions 1 and 2 and spring return in neutral position, For single acting spool type 3 and 4
8MG3(NO)	30 07 5435	With spring return in neutral position and microswitch in positions 1 and 2
8P	30 07 5399	ON/OFF pneumatic kit
8PF	30 07 5596	Proportional pneumatic kit
8EP3	30 07 5443	12 VDC ON/OFF electropneumatic kit
	30 07 5400	24 VDC ON/OFF electropneumatic kit
8EP4	30 07 5345	12 VDC ON/OFF electropneumatic kit with manifold
	30 07 5346	24 VDC ON/OFF electropneumatic kit with manifold
8EI3	30 07 5401	12 VDC ON/OFF electrohydraulic kit
	30 07 5361	24 VDC ON/OFF electrohydraulic kit
8EI3F2	-	12 VDC ON/OFF electrohydraulic kit with adjustable stroke limiter
-		24 VDC ON/OFF electrohydraulic kit with adjustable stroke limiter

4. "A" side spool positioners *page 14*

TYPE	CODE	DESCRIPTION
		Special positioners for particular spools
11A	-	With detent in position 1 and 2, automatic release in neutral position
		Particular positioner kits for special spools
13NZ	30 07 5393	4 pos. with spring return in neutral position and detent in 4 th pos.: for spool 5DY
13QN	30 07 5392	4 pos. with spring return in neutral position and detent in 4 th pos.: for spool 5BY

5. "B" side options *page 29*

TYPE	CODE	DESCRIPTION
L	30 07 5403	Standard lever box
LF1	30 07 5405	Lever box with spool stroke limiter in position 1
SLP	30 07 5406	Without lever box, with dust-proof plate
LB	30 07 5407	Steel lever
LEB	30 07 5409	Safety lever box
TQ	30 07 5398	Flexible cable connection; for CG cables
LCB	30 07 5433	Joystick lever for 2 sections operation

6. Outlet port options *page 40*

TYPE	CODE	DESCRIPTION
AET	30 05 4923	Open centre plug
AEK	30 05 4927	Closed centre plug
AE1	30 05 4929	G1/2 carry-over sleeve

7. Inlet and outlet selection *

TYPE	CODE	DESCRIPTION
PSL4	30 05 4919	G1/2 plug for upper inlet
	30 05 4920	G3/4 plug for upper outlet
PSA4	30 05 4919	G1/2 plug for side inlet
	30 05 4920	G3/4 plug for side outlet

8. Complete controls *page 37*

TYPE	CODE	DESCRIPTION
		Proportional hydraulic control type 8IM, 13IM and rotative control type R .

a. "A" and "B" ports plugs

TYPE	CODE	DESCRIPTION
G1/2	30 05 4919	For single acting spools type 3 and 4

b. Optional handlevers

TYPE	CODE	DESCRIPTION
AL01/M10x200	30 05 4989	Lenght L = 200mm / 7.87in

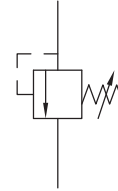
directional valve with left inlet

Inlet relief options

Direct pressure relief valve

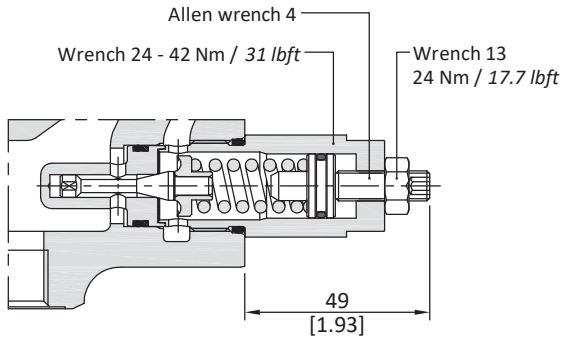
KE10K01 (X - 100)

Standard setting in bar
Adjustment type (X, XH)

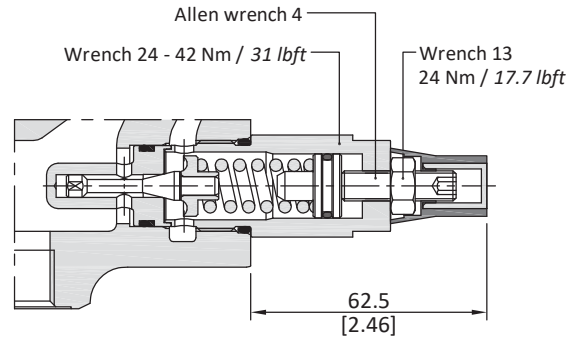


Adjustment type

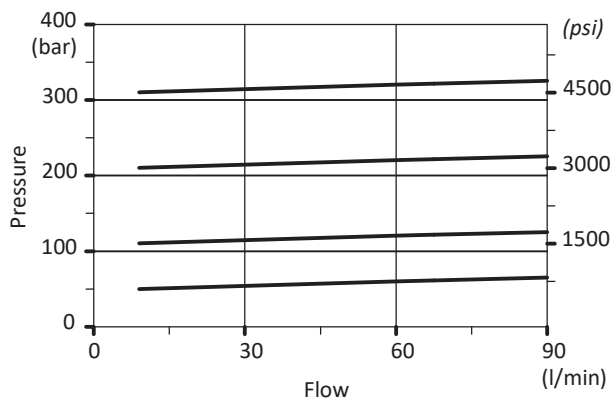
X: with screw



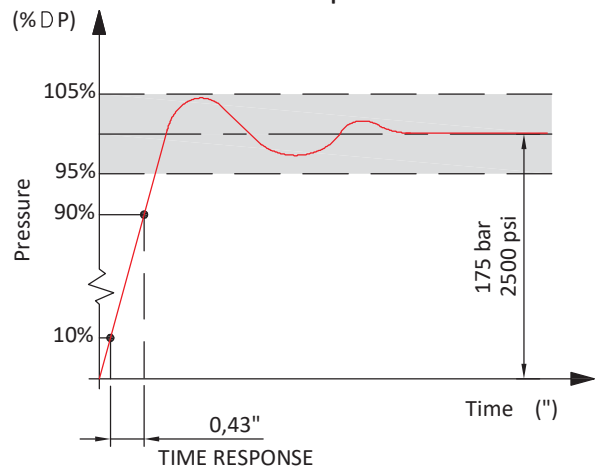
XH: valve set and locked



Performance data



Time response



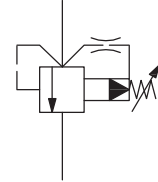
directional valve with left inlet

Inlet relief options

Pilot pressure relief valve

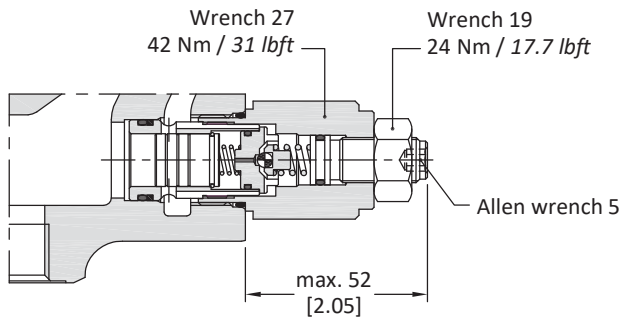
KE10K02 (Z - 100)

Standard setting in bar
Adjustment type (Z, ZH)

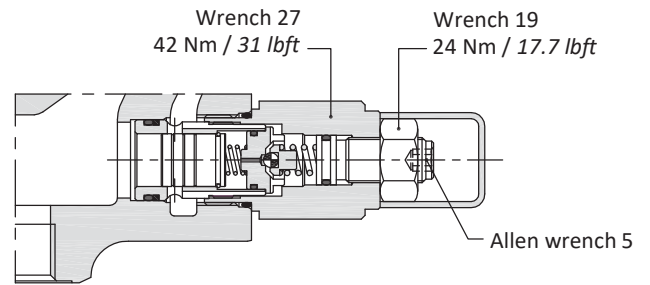


Adjustment type

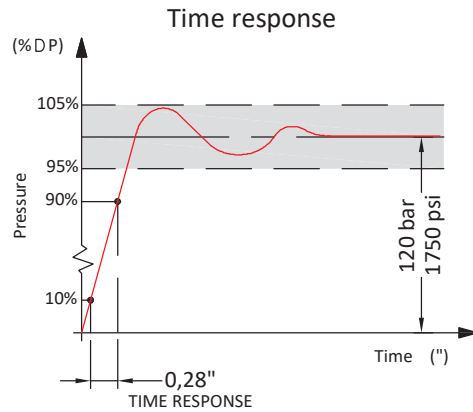
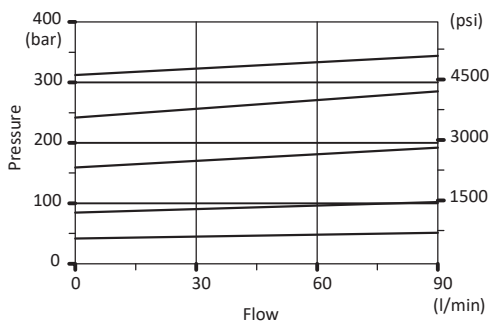
Z: with screw



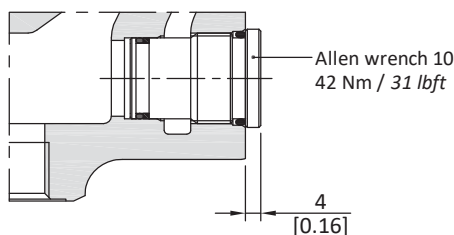
ZH: valve set and locked



Performance data



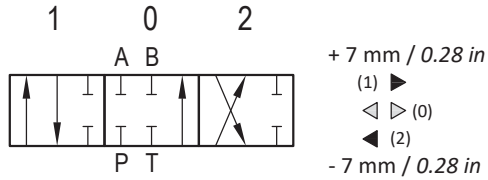
V: relief valve blanking plug



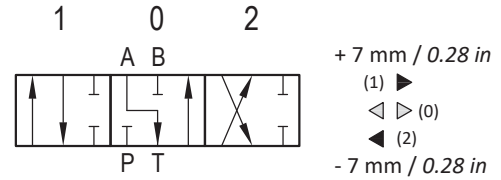
directional valve with left inlet

Spools options

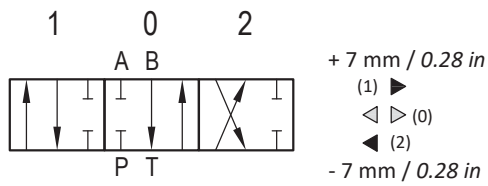
Type 1 (30 01 3568)



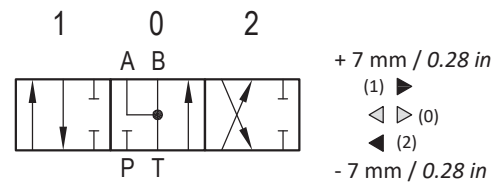
Type 1A (30 01 3645)



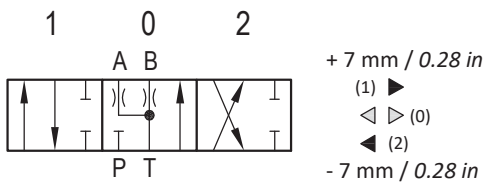
Type 1B (30 01 3646)



Type 2 (30 01 3571)

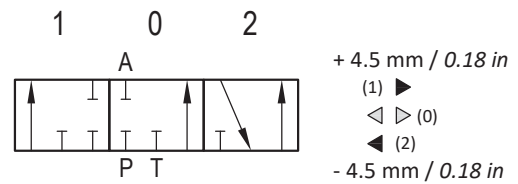


Type 2H (30 01 3572)



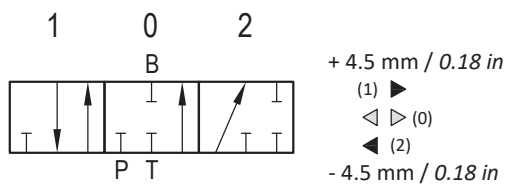
Type 3 (30 01 3573)

For 8T kit



Type 4 (30 01 3574)

For 8T kit

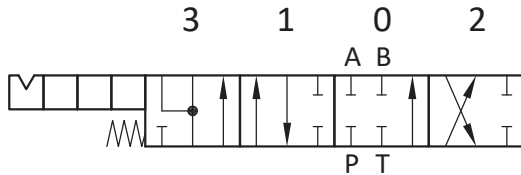


directional valve with left inlet

Spools options

Type 5BY (30 01 3569)

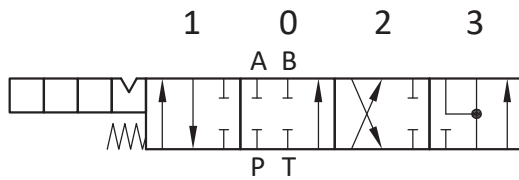
For 13QN kit



- + 12 mm / 0.47 in
(3) ▶▶
- + 6 mm / 0.24 in
(1) ▶
- ◁ ▷ (0)
- ◀ (2)
- 6 mm / 0.24 in

Type 5DY (30 01 3570)

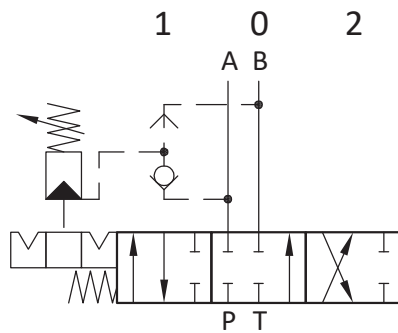
For 13NZ kit



- + 6 mm / 0.24 in
(1) ▶
- ◁ ▷ (0)
- ◀ (2)
- 5 mm / 0.20 in
- ◀◀ (3)
- 10.5 mm / 0.41 in

Type 1(11A) (30 01 3575)

For 11A kit



- +7 mm / 0.28 in
(1) ▶
- ◁ ▷ (0)
- ◀ (2)
- 7 mm / 0.28 in

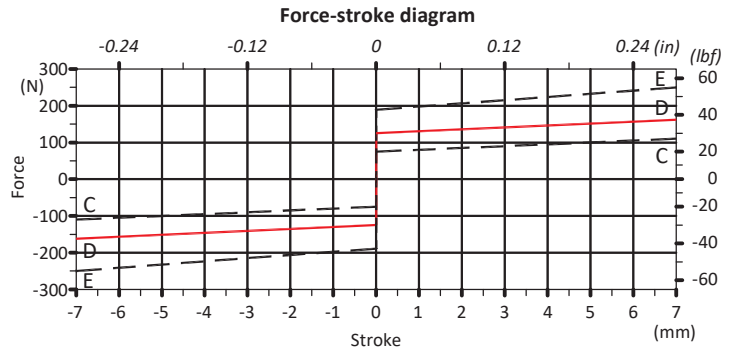
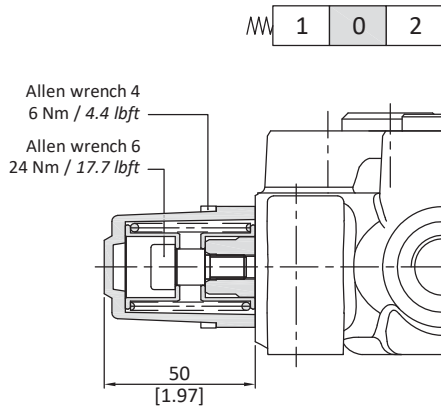
directional valve with left inlet

"A" side spool positioners

With spring return in neutral position

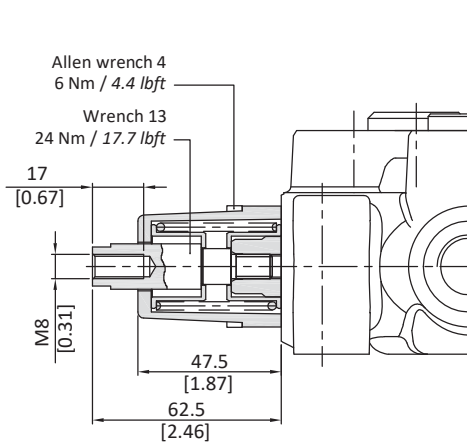
8 kit (30 07 5375)

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

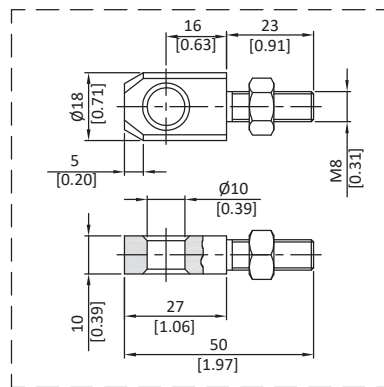


8D kit (30 07 5383)

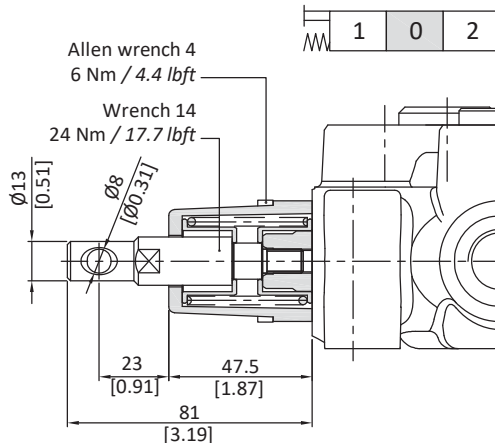
Spool end joint is available on request in order to screw onto pin.



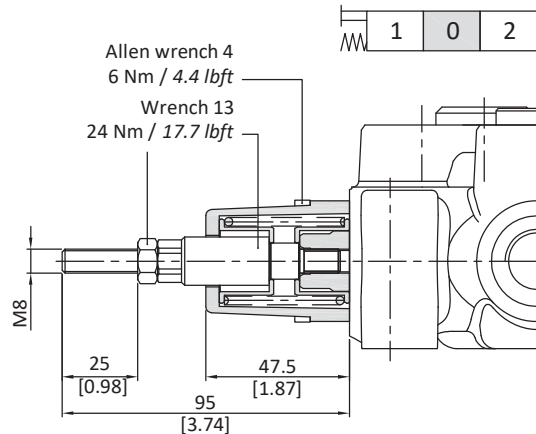
Spool end joint dimensions (optional)



8D1 kit (30 07 5402)



8D2 kit (30 07 5384)

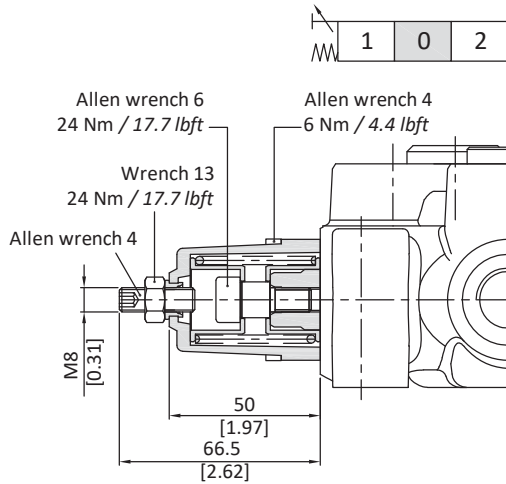


directional valve with left inlet

"A" side spool positioners

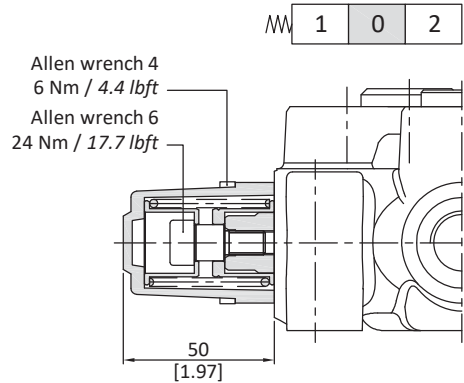
With spring return in neutral position

8F2 kit (30 07 5377)

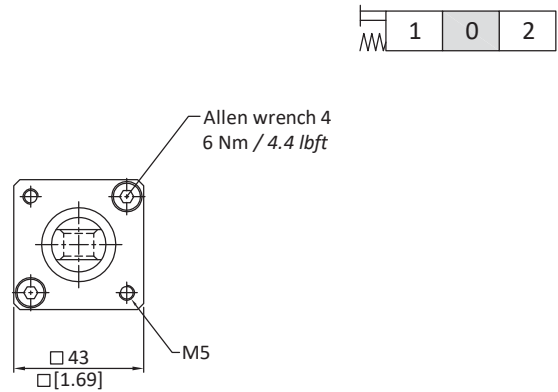
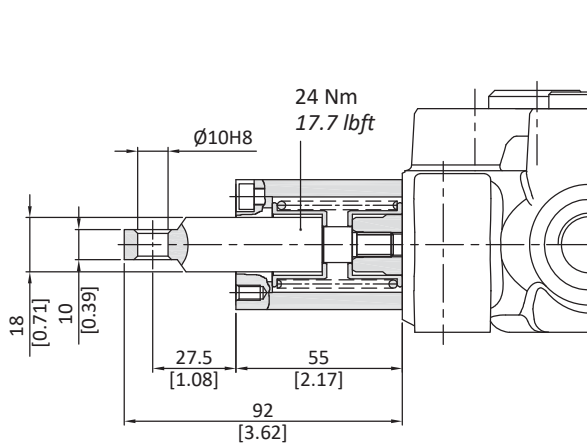


8T kit (30 07 5376)

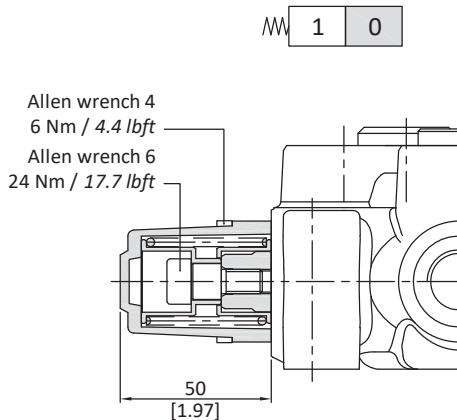
Stroke : 4.5mm



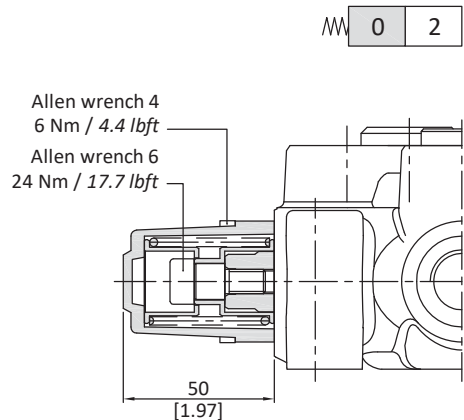
8TL kit (30 07 5397)



19 kit (30 07 5436)



20 kit (30 07 5437)

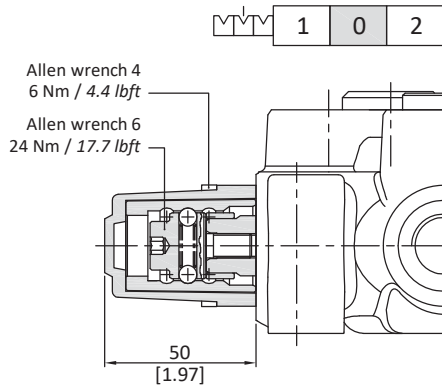


directional valve with left inlet

"A" side spool positioners

With detent

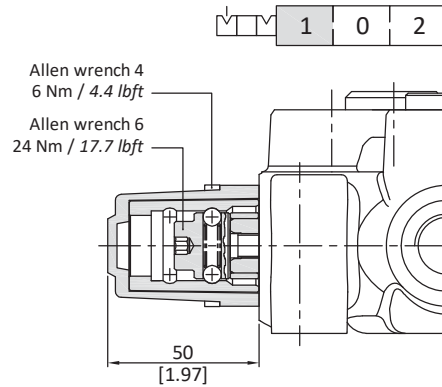
11 kit (30 07 5378)



Operating features

Locking and release force : 260 N / 58 lbf ±10%

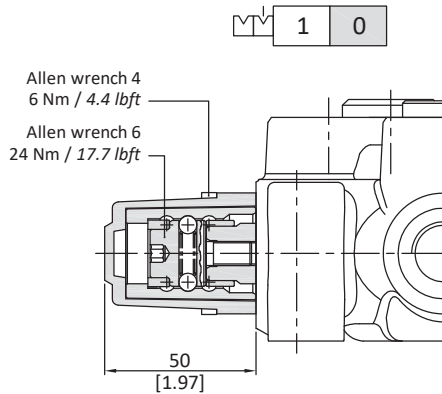
12 kit (30 07 5438)



Operating features

Locking and release force : 260 N / 58 lbf ±10%

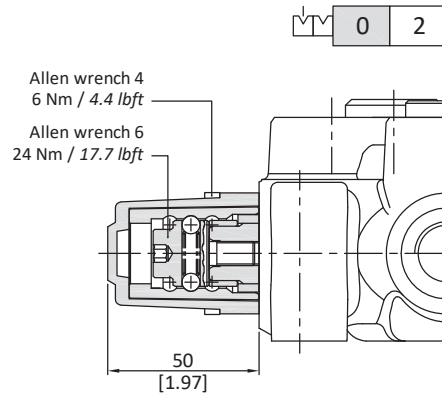
15 kit (30 07 5439)



Operating features

Locking and release force : 260 N / 58 lbf ±10%

16 kit (30 07 5440)

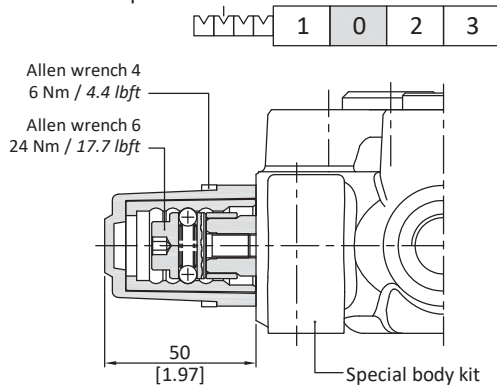


Operating features

Locking and release force : 260 N / 58 lbf ±10%

11NZ kit (30 07 5394)

Suitable to 5DY spool



Operating features

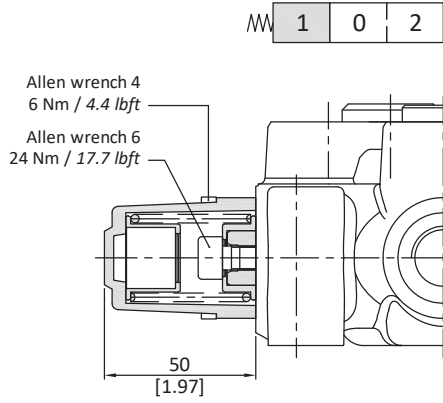
Locking and release force : 260 N / 58 lbf ±10%

directional valve with left inlet

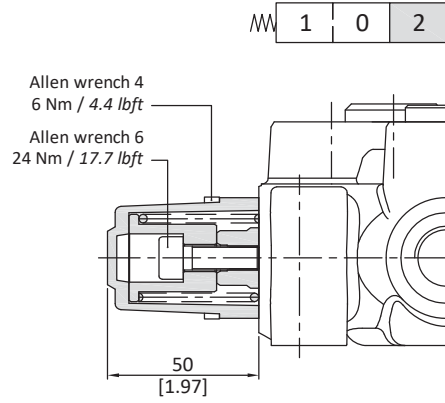
"A" side spool positioners

With spring return

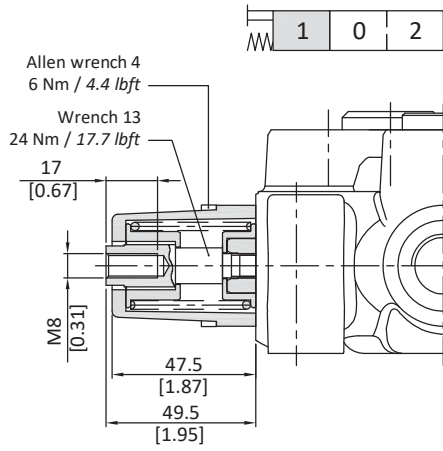
17 kit (30 07 5441)



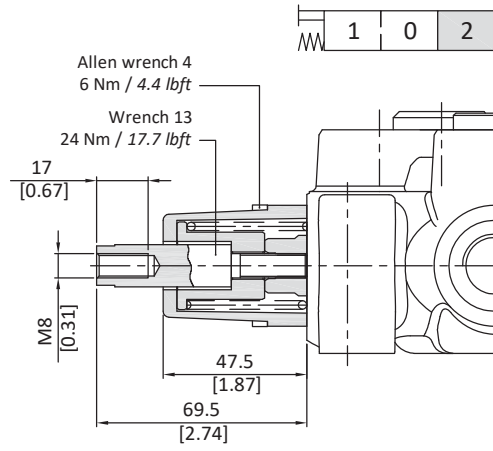
18 kit (30 07 5381)



17D kit (30 07 5442)



18D kit (30 07 5382)

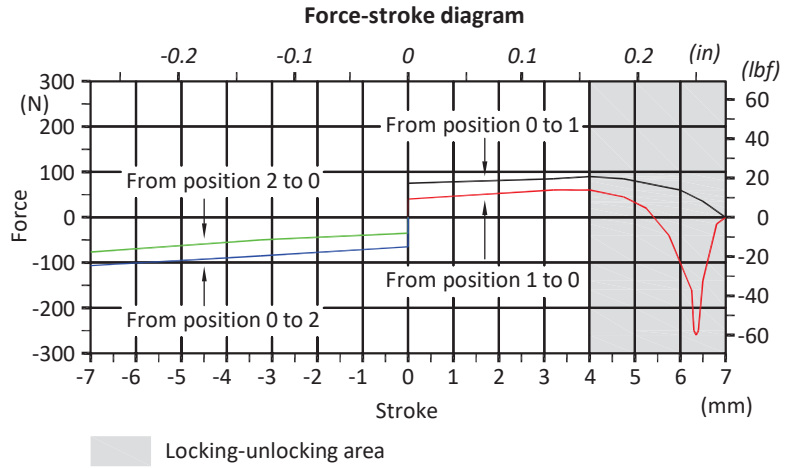
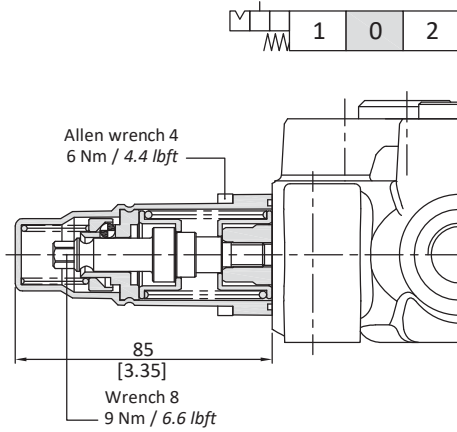


directional valve with left inlet

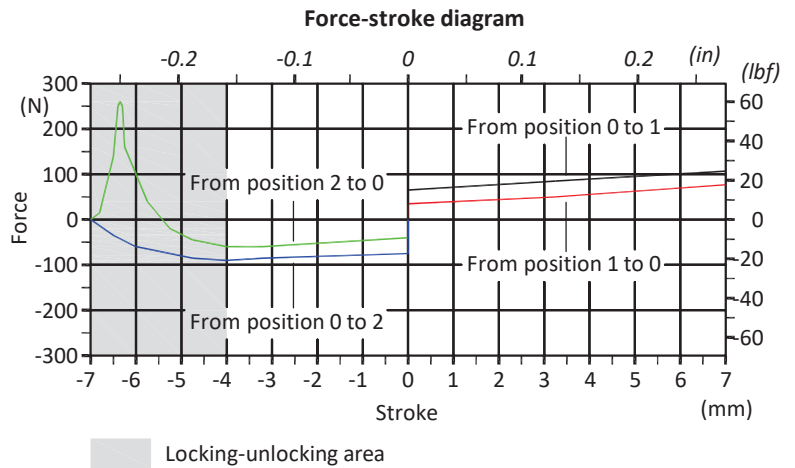
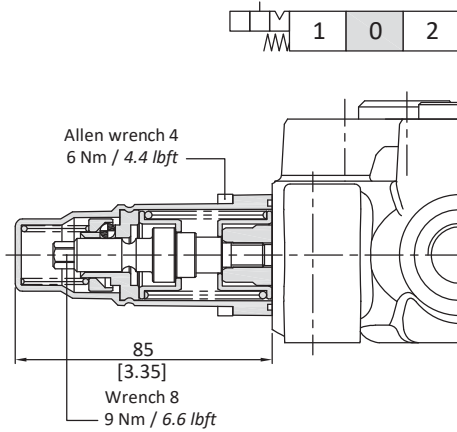
"A" side spool positioners

With detent and spring return to neutral position from either directions

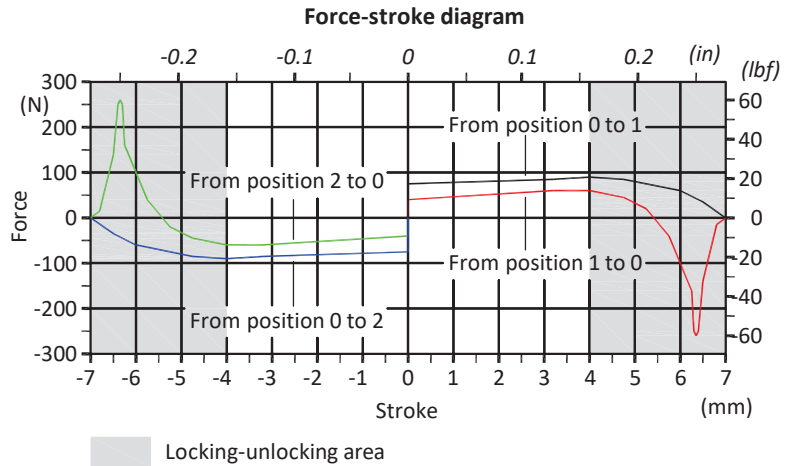
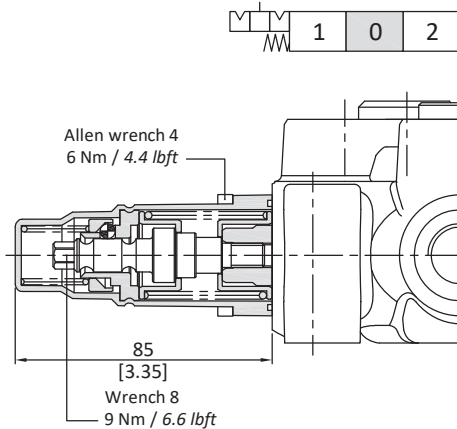
9B kit (30 07 5386)



10B kit (30 07 5387)



11B kit (30 07 5388)



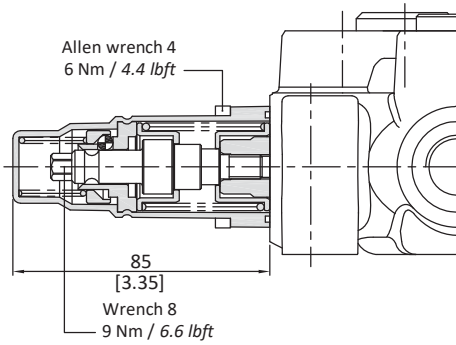
directional valve with left inlet

"A" side spool positioners

With detent and spring return to neutral position from either directions

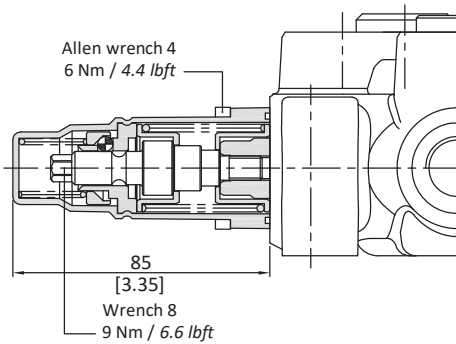
9BT kit (30 07 5389)

For single acting spool
Stroke : 4.5mm



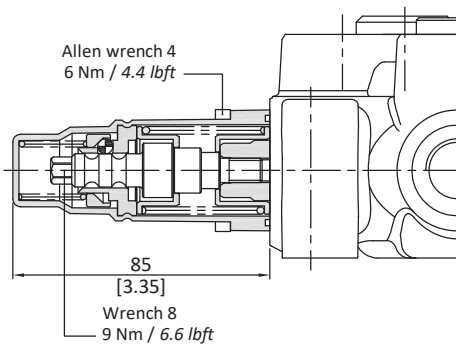
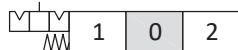
10BT kit (30 07 5390)

For single acting spool
Stroke : 4.5mm



11BT kit (30 07 5391)

For single acting spool
Stroke : 4.5mm



directional valve with left inlet

"A" side spool positioners

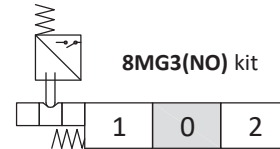
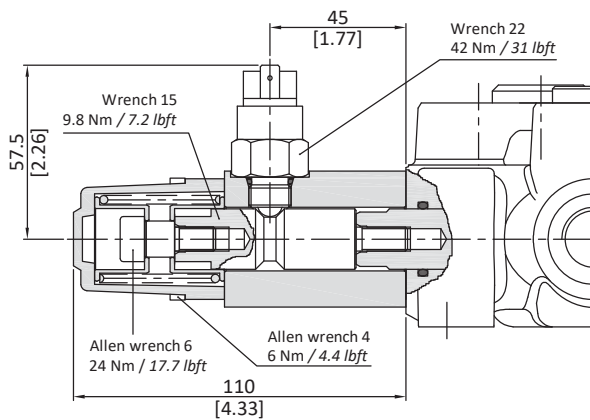
With microswitch type 8MG3(NO) (30 07 5435)

With spring return in neutral position and microswitch operated in both directions.

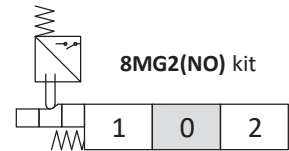
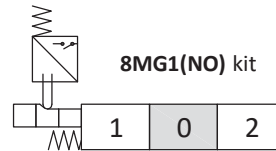
Also available **8MG1(NO)** configuration (microswitch operated in position 1) and **8MG2(NO)** configuration (microswitch operated in position 2); dimensions are the same of **8MG3(NO)** configuration.

Same configurations are available with normally closed (NC) contact.

For more information contact Sales Department.



Other configurations



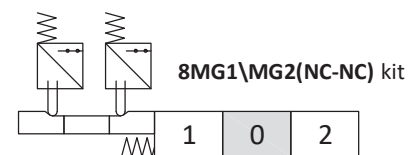
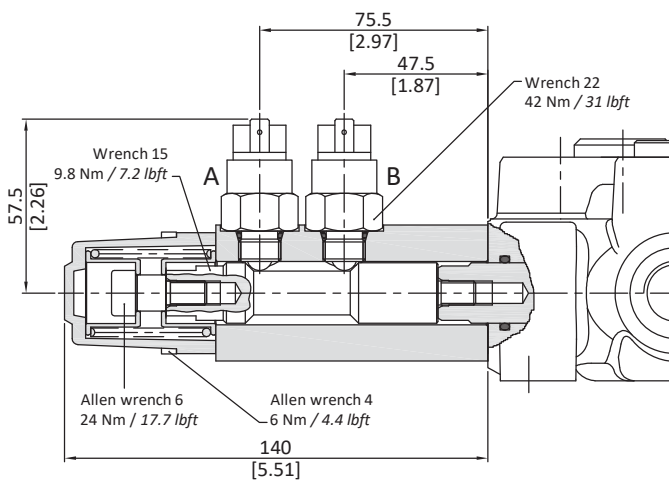
Operating features

MICROSWITCH

Mechanical life : 5x10⁵ operations
 Electrical life (resistive load) : 5x10⁴ operations 10A / 12VDC
 : 5x10⁴ operations 3A / 24VDC

Type 8MG1\MG2(NC-NC) (30 07 5396)

With double microswitch in position 1 and 2.



Positions	A	B
1		
0		
2		

Operating features

MICROSWITCH

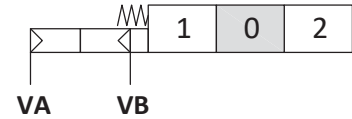
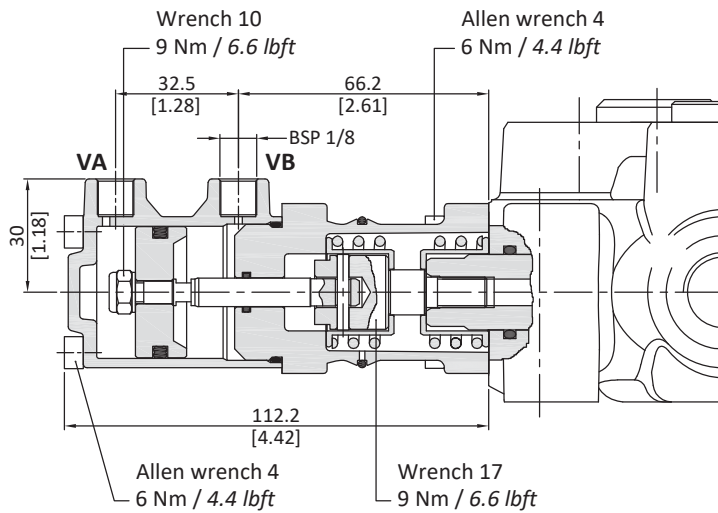
Mechanical life : 5x10⁵ operations
 Electrical life (resistive load) : 5x10⁴ operations 10A / 12VDC
 : 5x10⁴ operations 3A / 24VDC

directional valve with left inlet

"A" side spool positioners

ON/OFF pneumatic kit type 8P (30 07 5399)

With spring return to neutral position.

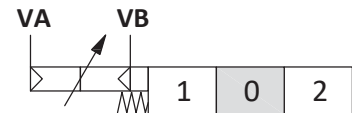
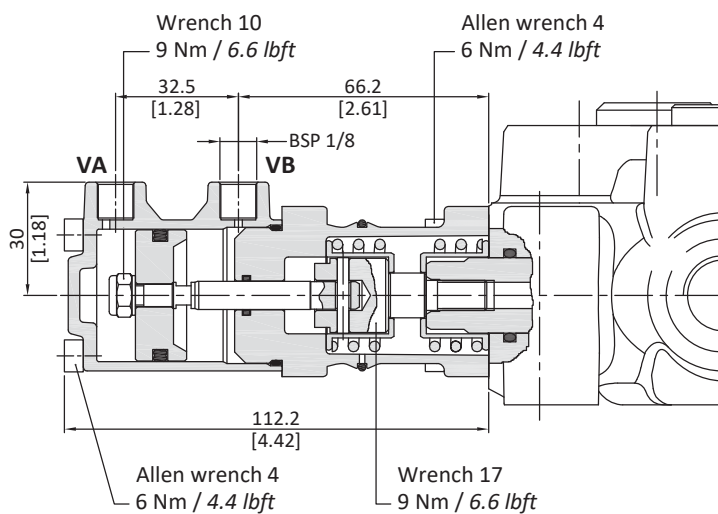


Operating features

Pilot pressure.....: min. 5.5 bar / 80 psi
: max.10 bar / 145 psi

8PF pneumatic proportional kit (30 07 5596)

With spring return to neutral position.



Operating features

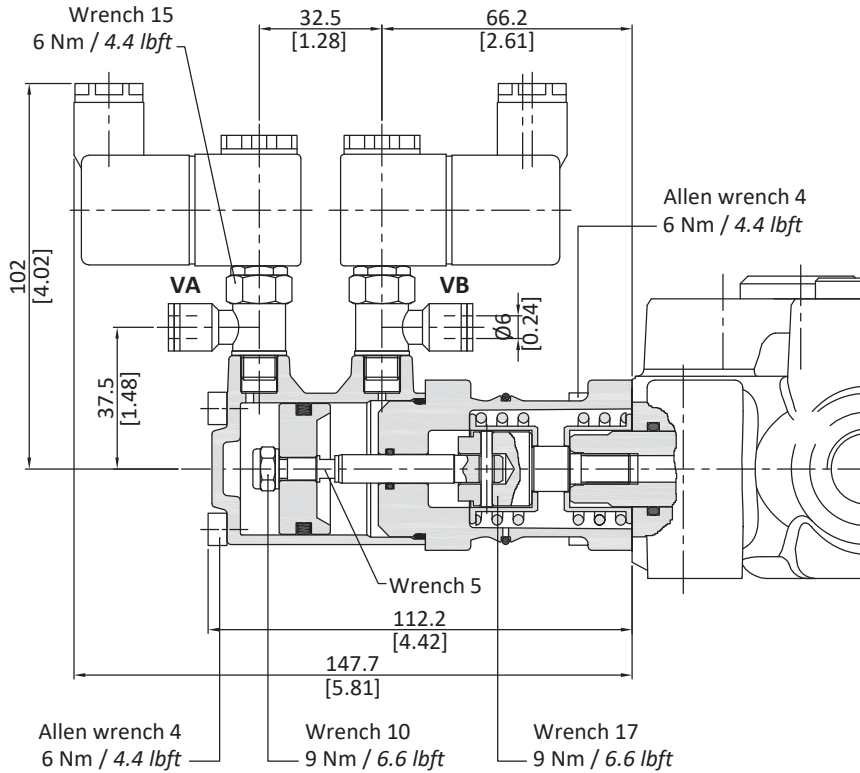
Pilot pressure.....: min. 5.5 bar / 80 psi
: max.10 bar / 145 psi

directional valve with left inlet

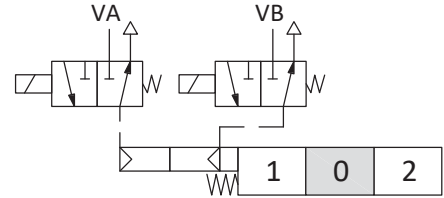
"A" side spool positioners

ON/OFF electropneumatic kit type 8EP3 - 30 07 5443 (12V) - 30 07 5400 (24V)

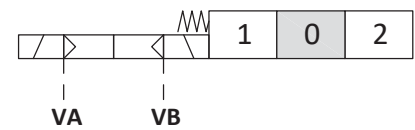
With spring return to neutral position.



Scheme



Scheme ISO 1219



Operating features

CONTROL

Pilot pressure : 6 bar / 87 psi
: max. 15 bar / 218 psi

COIL

Nominal voltage tolerance : ±10%

Power rating : 8 W

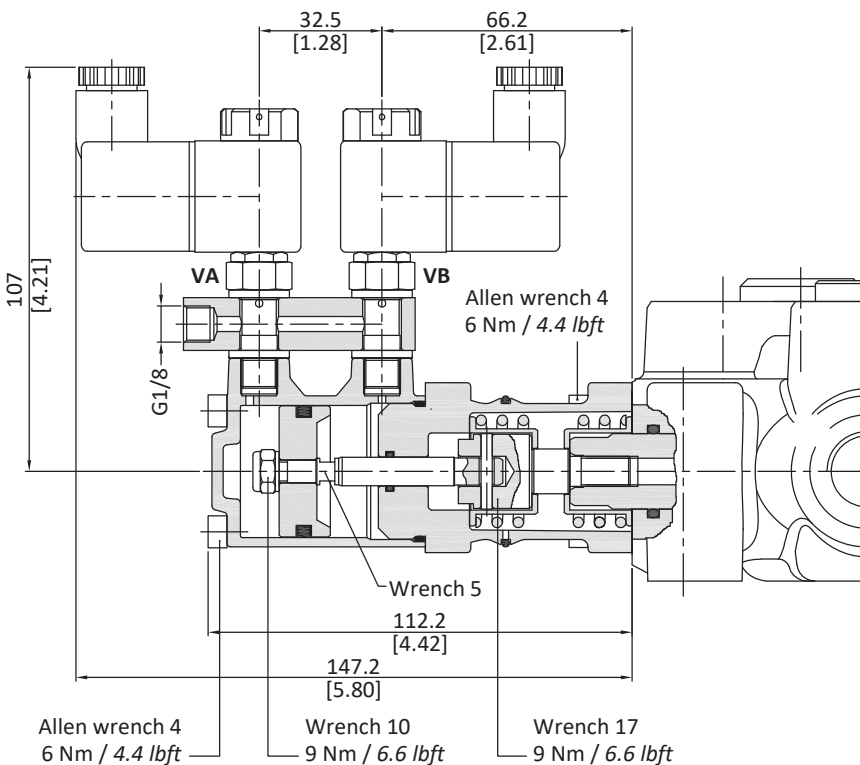
Nominal current : 12 VDC

: 24 VDC

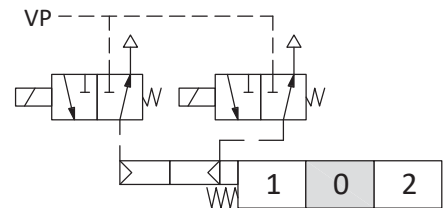
Coil insulation : Class H

Weather protection : IP65

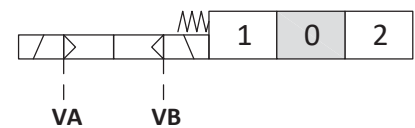
ON/OFF electropneumatic kit type 8EP4 - 30 07 5345 (12V) - 30 07 5346 (24V)



Scheme



Scheme ISO 1219

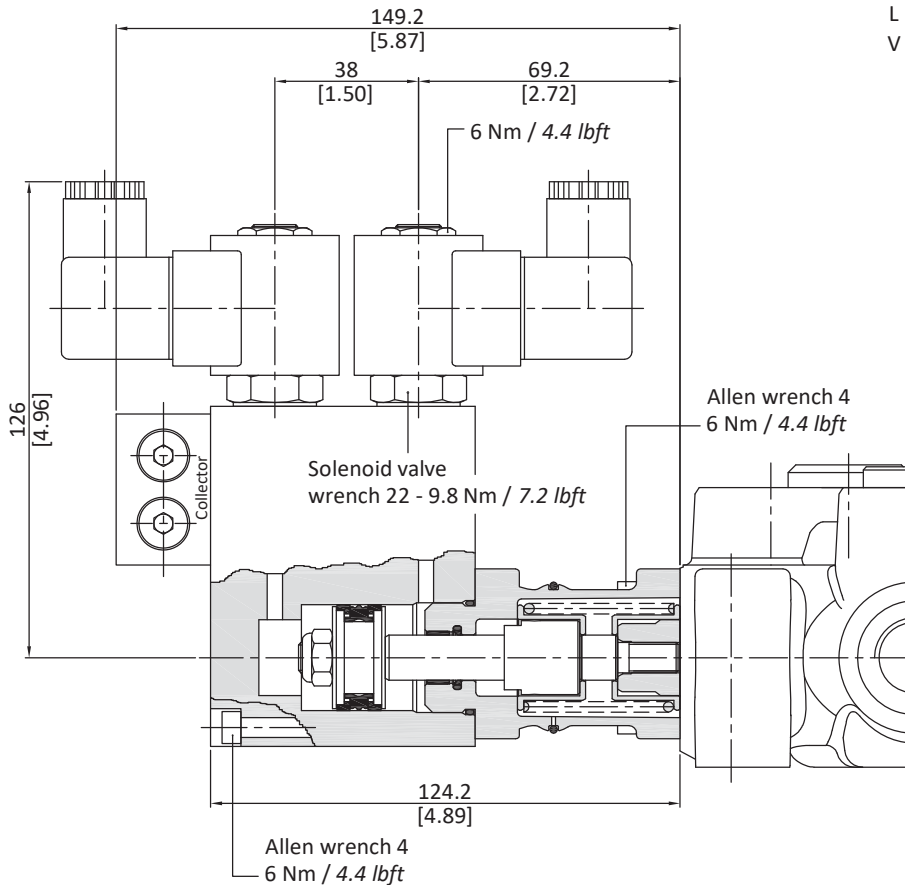


directional valve with left inlet

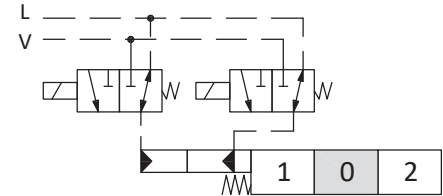
"A" side spool positioners

ON/OFF electrohydraulic kit type 8E13 - 30 07 5401 (12V) - 30 07 5361 (24V)

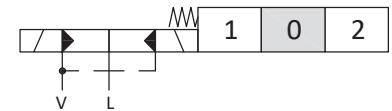
With external pilot and drain.



Scheme



Scheme ISO 1219



Operating features

CONTROL

Pilot pressure	: min. 10 bar / 145 psi
	: max. 50 bar / 725 psi
Max. backpressure on drain L	: 25 bar / 360 psi

COIL

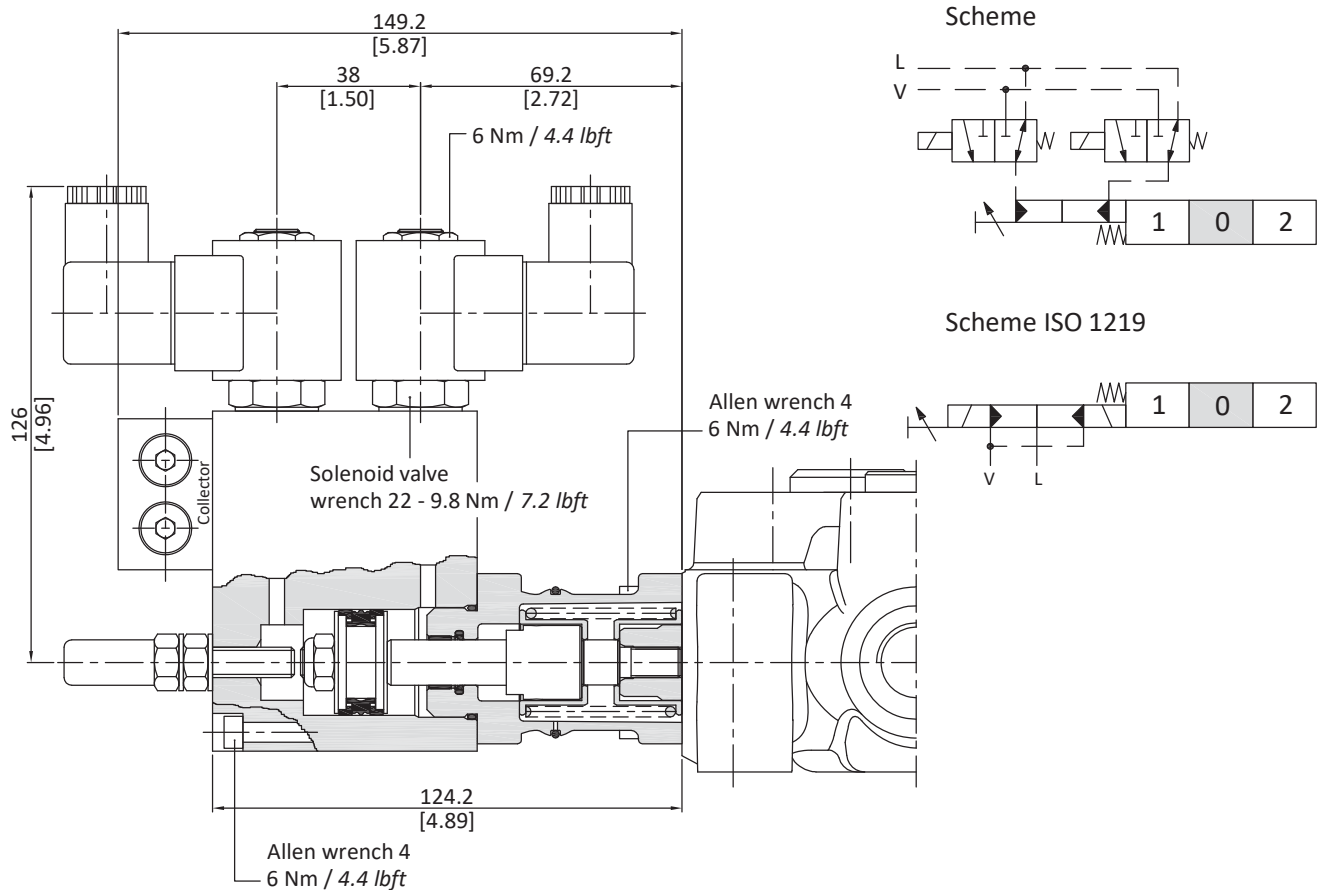
Nominal voltage tolerance	: ±10%
Power rating	: 21 W
Nominal current	: 1.75 A - 12 VDC / 0.87 A - 24 VDC
Coil insulation	: Class F
Weather protection	: IP65

directional valve with left inlet

"A" side spool positioners

ON/OFF electrohydraulic kit type 8EI3F2

Collector kit with pilot and drain lines with stroke limiter



Operating features

CONTROL

Pilot pressure : min. 10 bar / 145 psi
 : max. 50 bar / 725 psi
 Max. backpressure on drain L : 25 bar / 360 psi

COIL

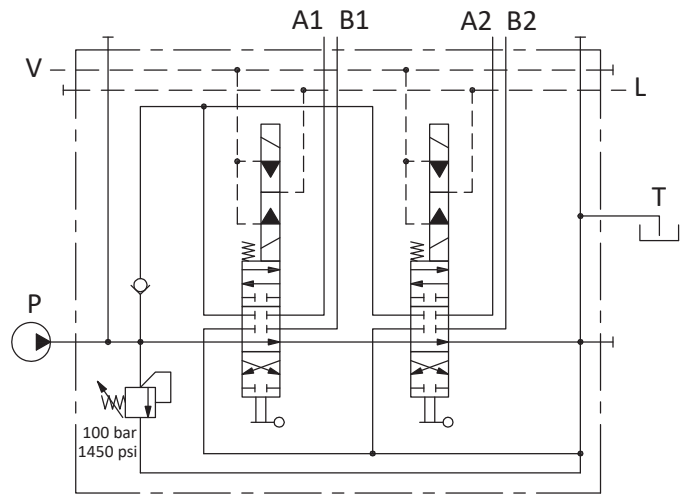
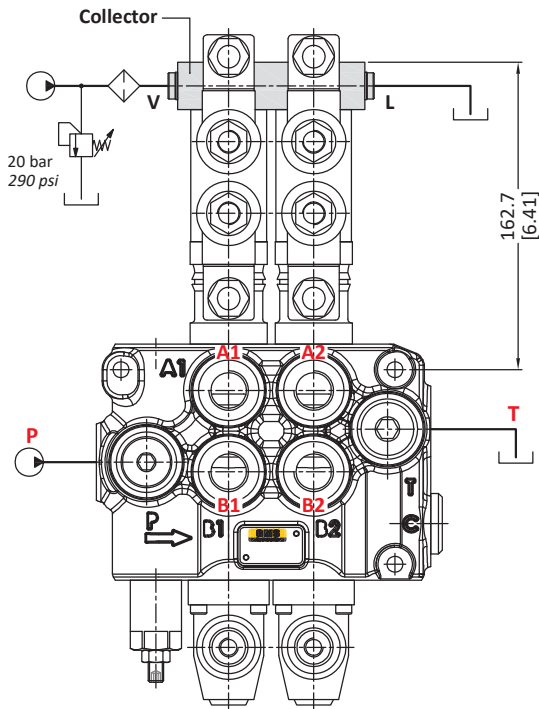
Nominal voltage tolerance : ±10%
 Power rating : 21 W
 Nominal current : 1.75 A - 12 VDC / 0.87 A - 24 VDC
 Coil insulation : Class F
 Weather protection : IP65

directional valve with left inlet

"A" side spool positioners

ON/OFF electrohydraulic kit type 8EI3

Collector kit for external pilot and drain



Description example :
 90L GM10/2-P(X-100)/18EI3L/18EI3L/
 AET-PSL4-KE2S0-24VDC

COLLECTOR KIT CODES

Type	Code	Description
KE1S0	30 07 5537	Kit one section
KE2S0	30 07 5527	Kit for 2 sections
KE3S0	30 07 5528	Kit for 3 sections
KE4S0	30 07 5529	Kit for 4 sections
KE5S0	30 07 5530	Kit for 5 sections
KE6S0	30 07 5531	Kit for 6 sections

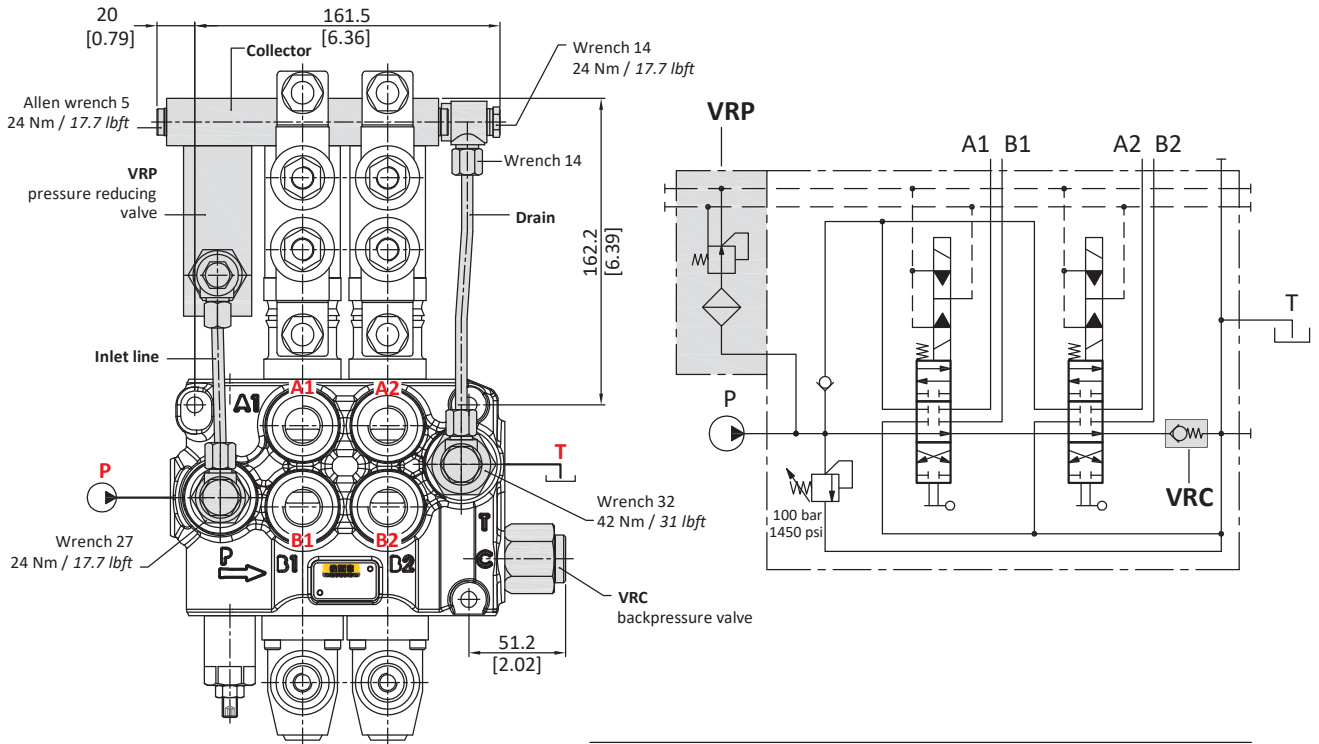
directional valve with left inlet

"A" side spool positioners

ON/OFF electrohydraulic kit type 8E13

Collector kit with pilot and drain lines

The kit is made of collector, VRP pressure reducing valve and pipes.



Description example :
 90L GM10/2-P(X-100)/18E13L/18E13L/
 VRC-PSL4-KE2R0-24VDC

Operating features

VRP VALVE

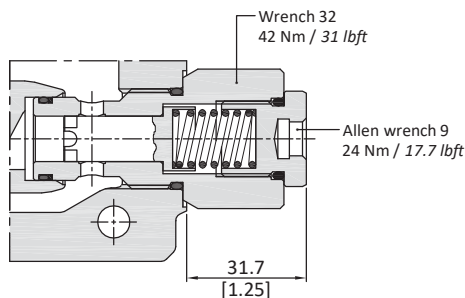
Output pressure : 20 bar / 290 psi
 Max. flow : 8 l/min
 Filtering : 80 μ

COLLECTOR KIT CODES

Type	Code	Description
KE1R0	30 07 5494	Kit one section
KE2R0	30 07 5495	Kit for 2 sections
KE3R0	30 07 5496	Kit for 3 sections
KE4R0	30 07 5497	Kit for 4 sections
KE5R0	30 07 5498	Kit for 5 sections
KE6R0	30 07 5499	Kit for 6 sections

VRC valve:

Valve assembled on flow through passage provides pilot pressure to the actuator.



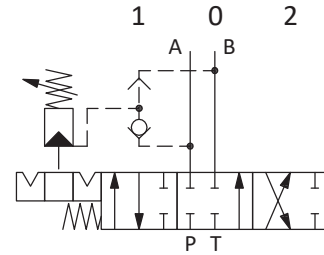
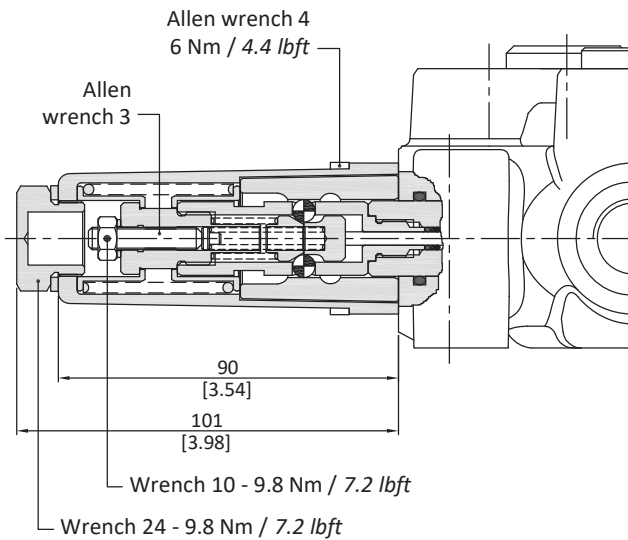
directional valve with left inlet

"A" side spool positioners

With detent and automatic release in neutral position

11A kit

Detent in positions 1 and 2 with automatic release when pressure towards ports exceeds setting: standard setting 100 bar / 1450 psi, range from 40 to 120 bar / from 580 to 1750 psi.
 This kit needs spool type **1(11A)**



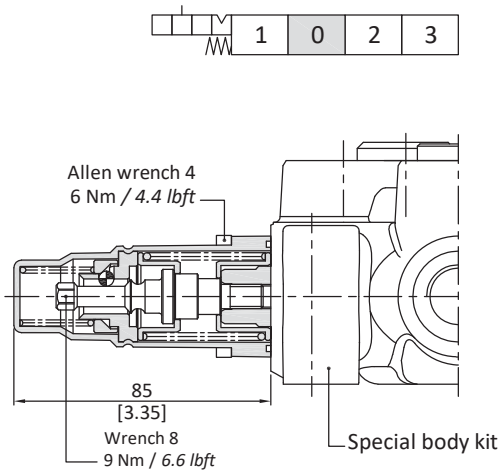
directional valve with left inlet

"A" side spool positioners

Particular positioner kits for special spools

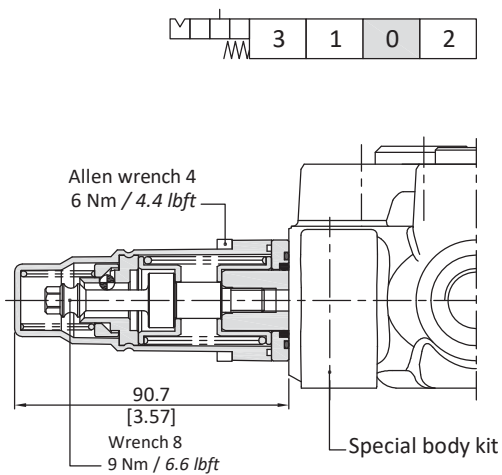
13NZ kit (30 07 5393)

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



13QN kit (30 07 5392)

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



directional valve with left inlet

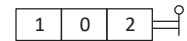
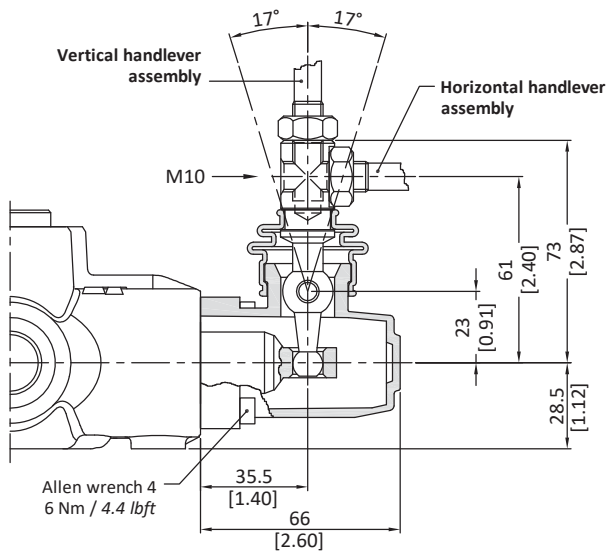
"B" side options

Lever control

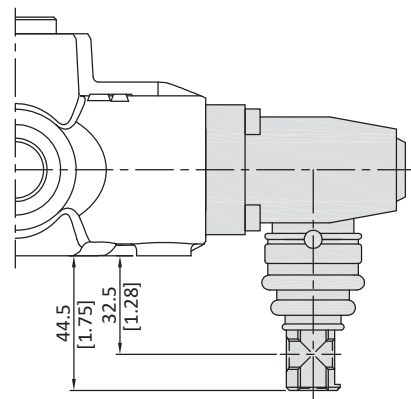
Type L (30 07 5403)

Type L180 (30 07 5404)

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

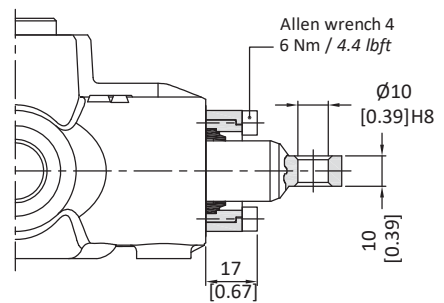
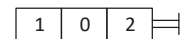
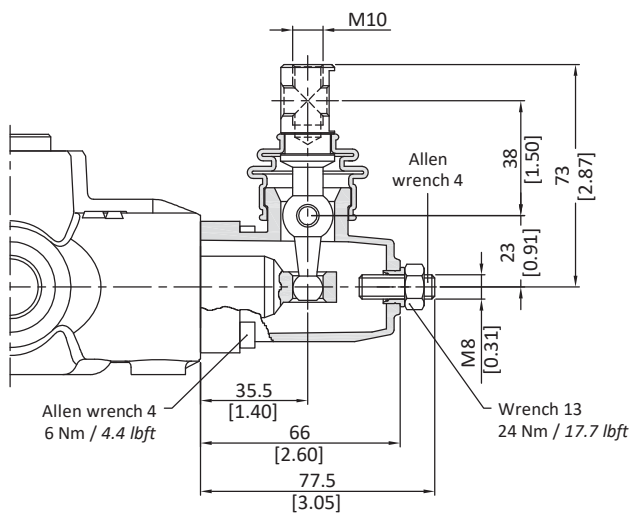
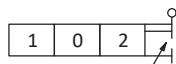


Execution L180



Type LF1 (30 07 5405)

Type SLP (30 07 5406)



directional valve with left inlet

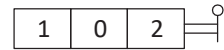
"B" side options

Lever control

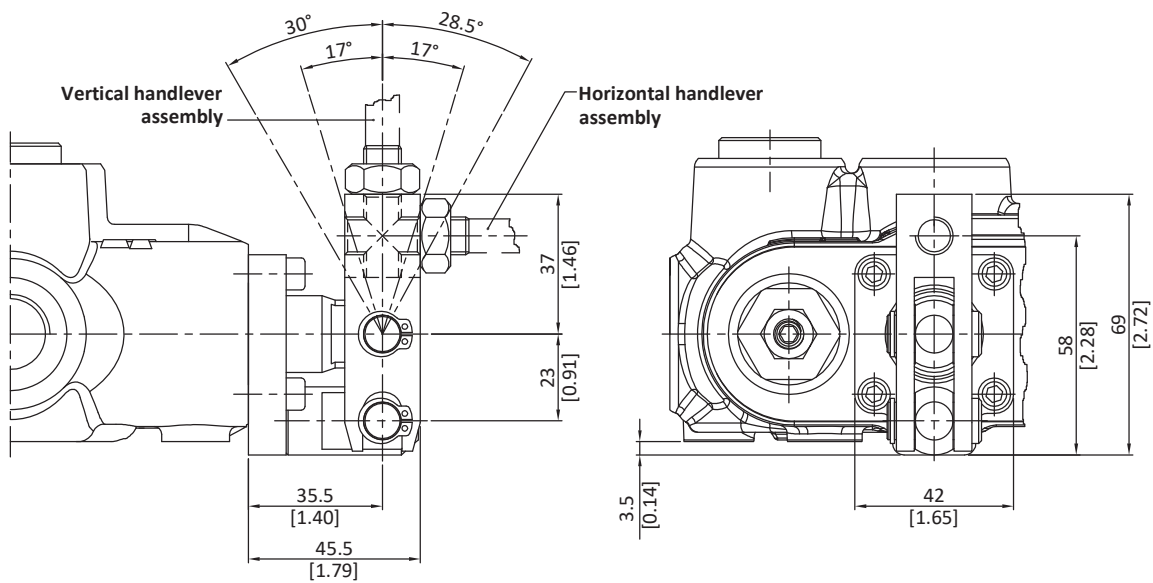
Type LB (30 07 5407)

Steel manufacture.

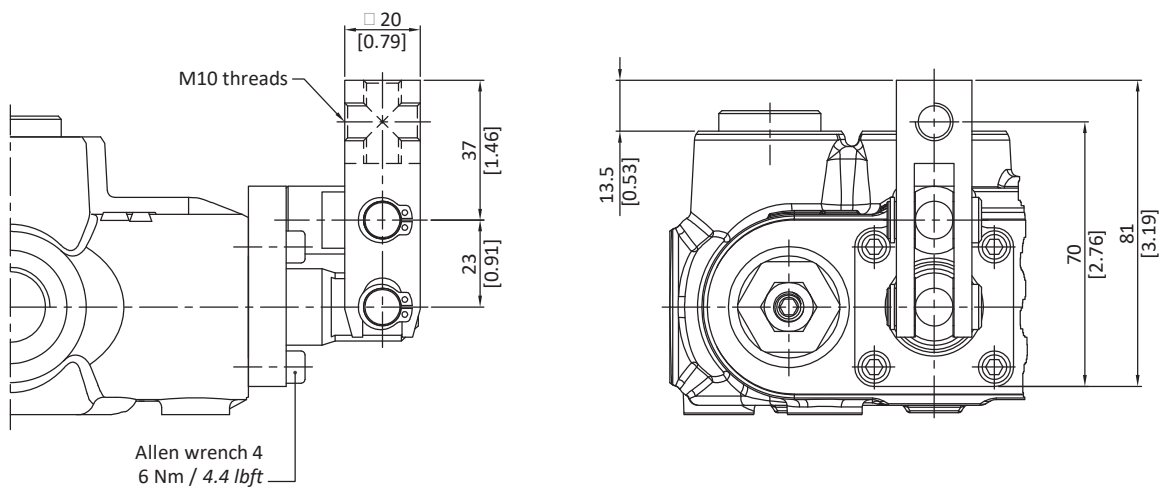
Pivot can be assembled below (LB1 configuration) or above (LB3 configuration).



Configuration LB1



Configuration LB3



directional valve with left inlet

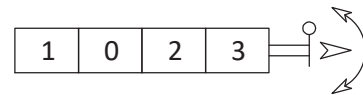
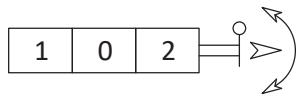
"B" side options

Special lever controls

Safety levers with lock in neutral complete with handlever; lift handlever knob to operate.
With insulated handlever type **LEBP, LEBS**

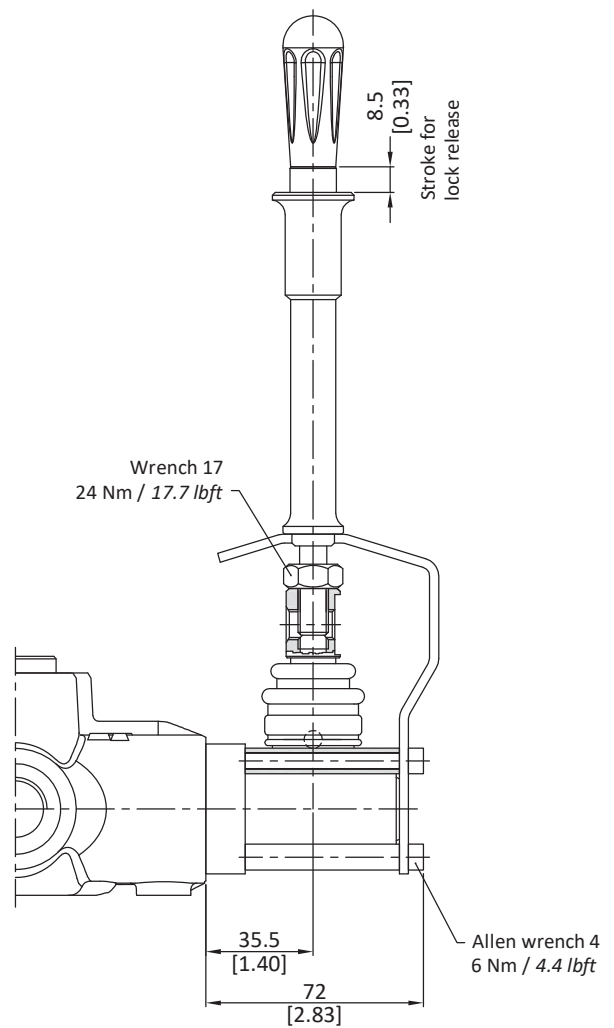
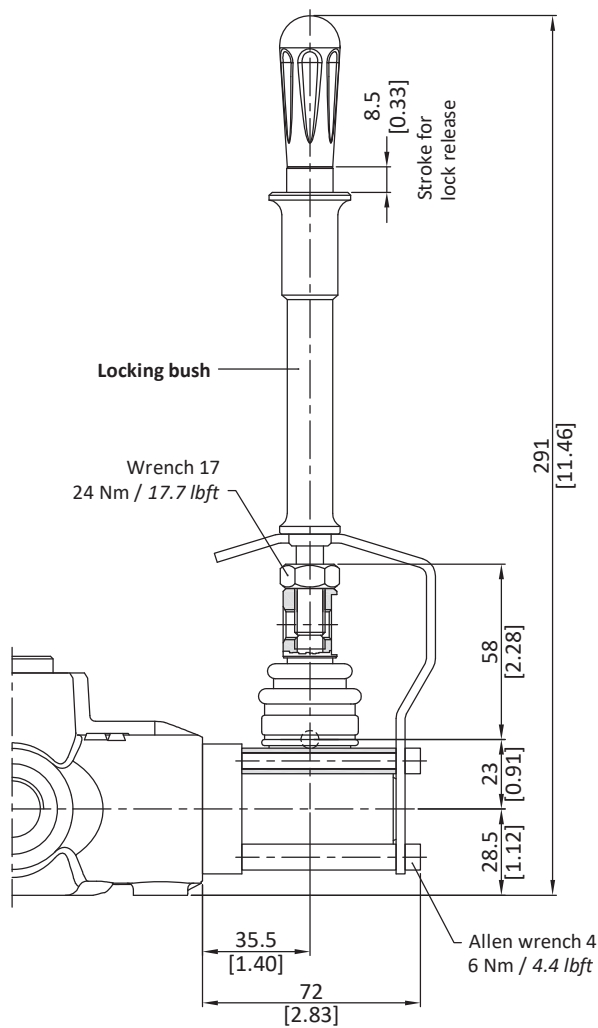
Type LEB

To be used with body valves without auxiliary relief valves flanged on the working ports.



LEB (30 07 5409)

LEBS



directional valve with left inlet

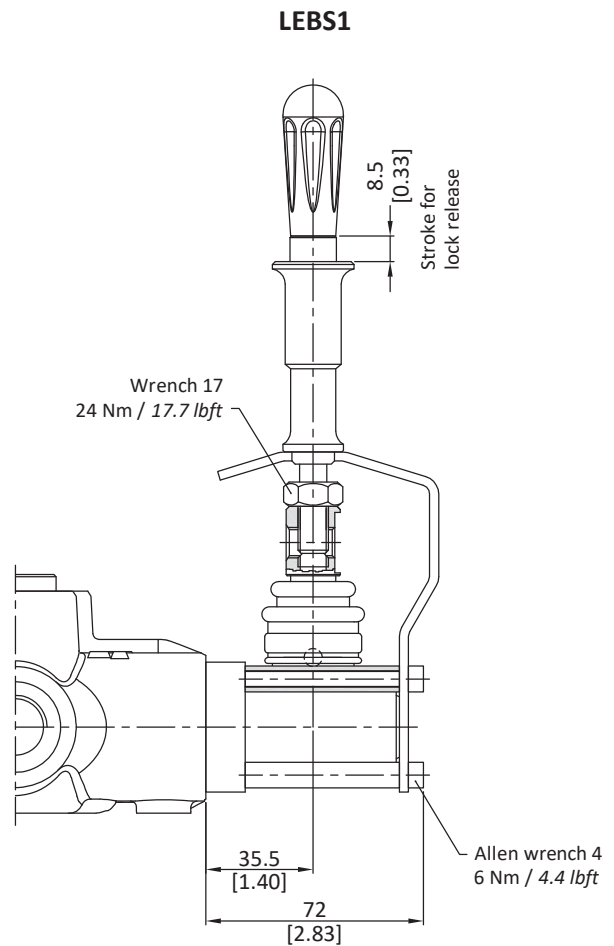
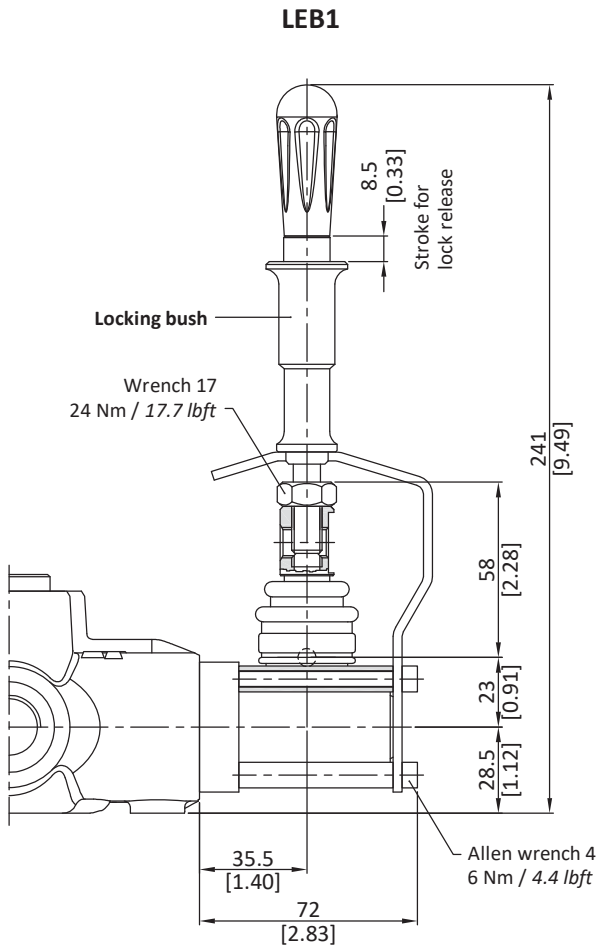
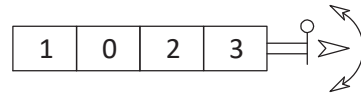
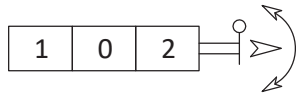
"B" side options

Special lever controls

Safety levers with lock in neutral complete with handlever; lift handlever knob to operate.
With insulated handlever type **LEB1P, LEBS1P**

Type LEB

To be used with body valves without auxiliary relief valves flanged on the working ports.



directional valve with left inlet

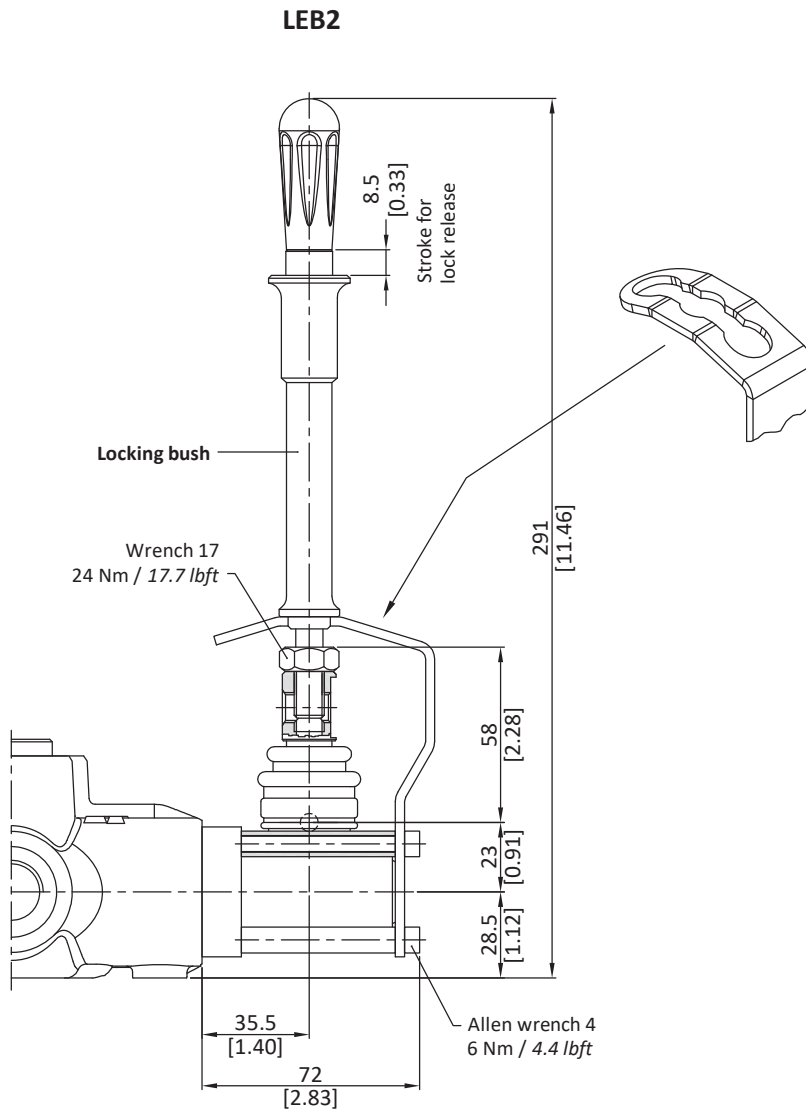
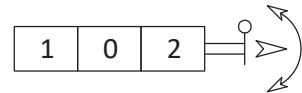
"B" side options

Special lever controls

Safety levers with lock in neutral complete with handlever; lift handlever knob to operate.
With insulated handlever type **LEB2P**

Type LEB

To be used with body valves without auxiliary relief valves flanged on the working ports.

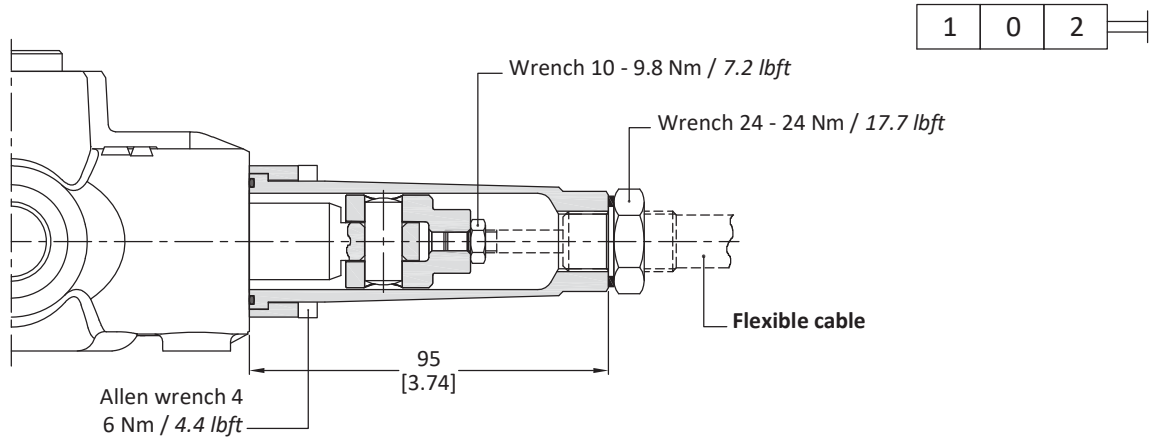


directional valve with left inlet

"B" side options

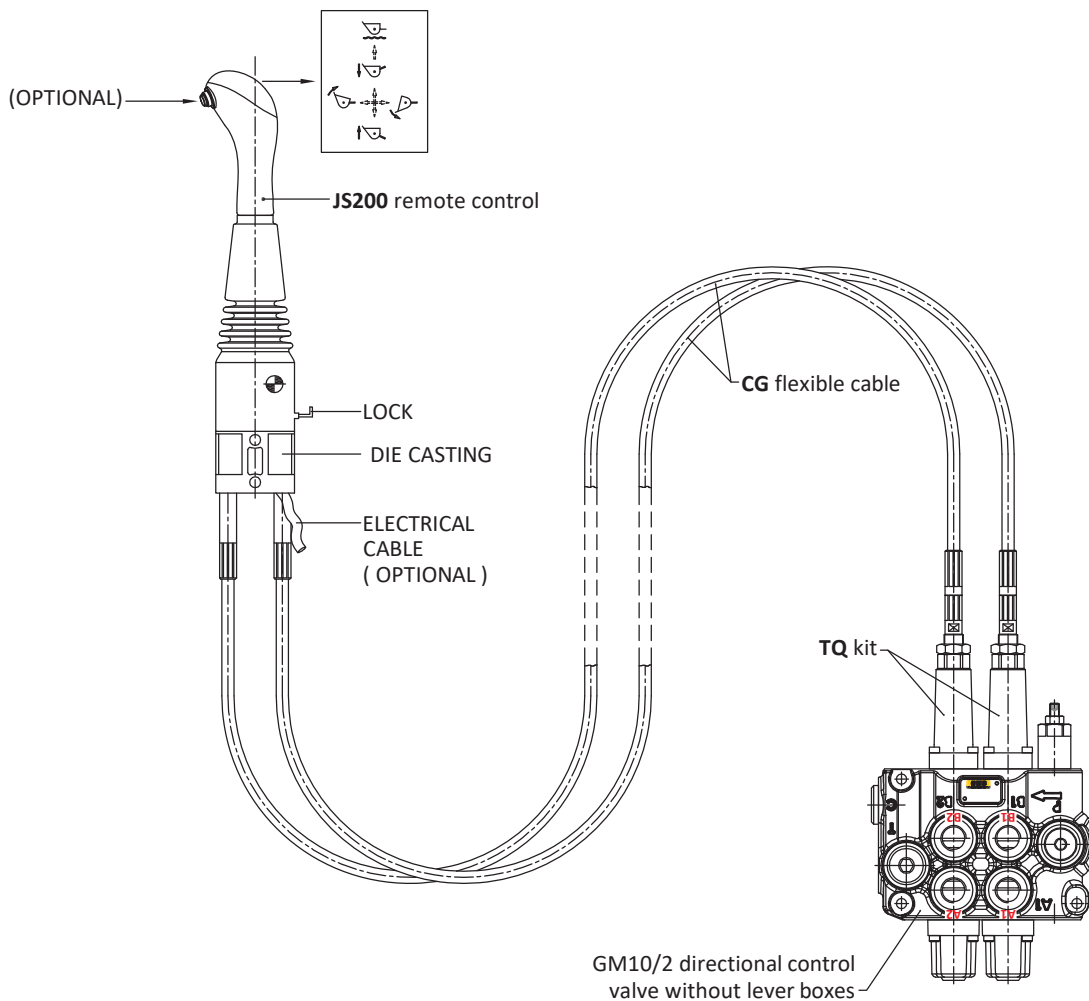
TQ cable remote control kit (30 07 5398)

Waterproof cap prearranged for remote control with flexible cable.



NOTE - For more information about remote cable control, require appropriate documentation.

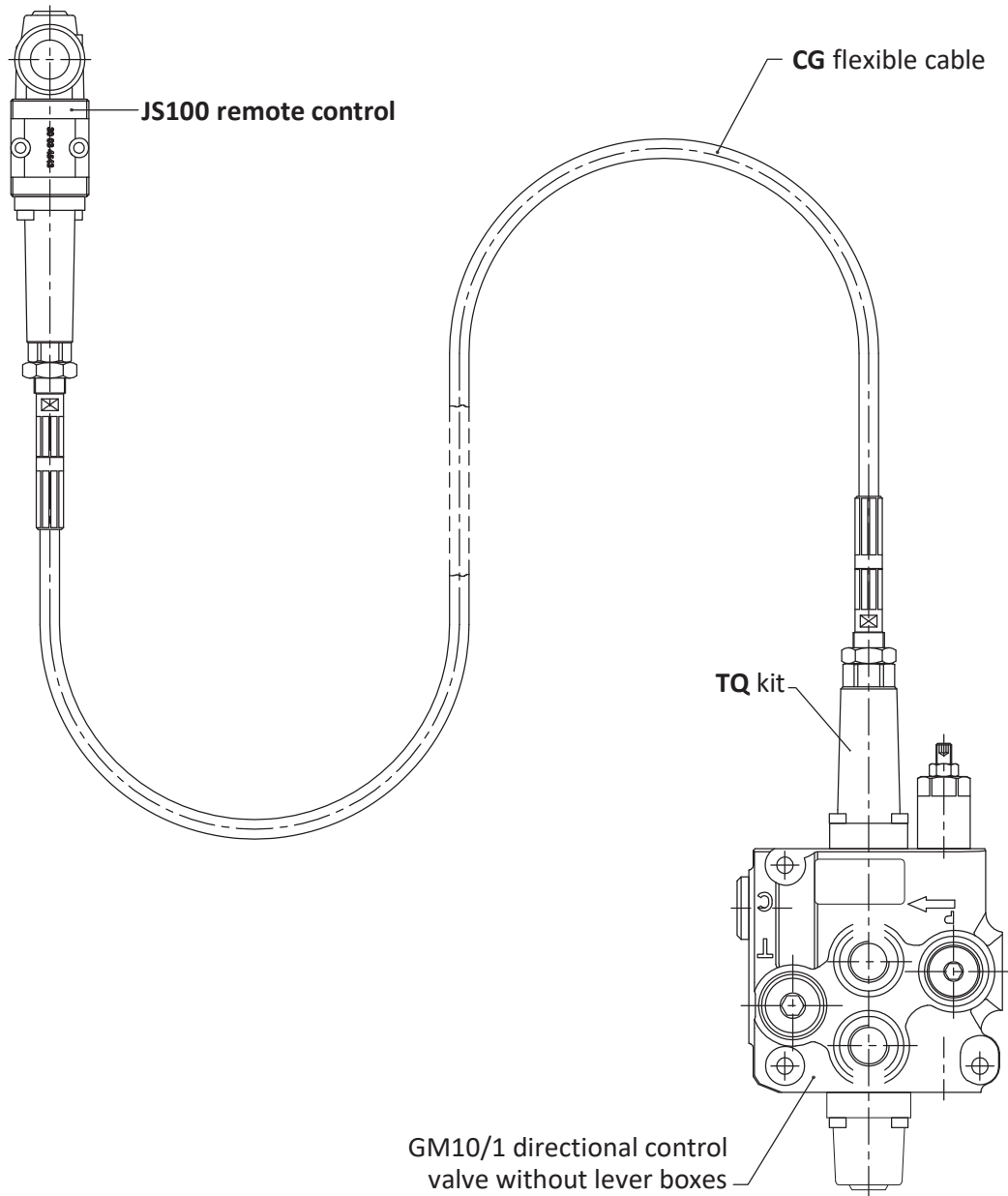
Connection example



directional valve with left inlet

"B" side options

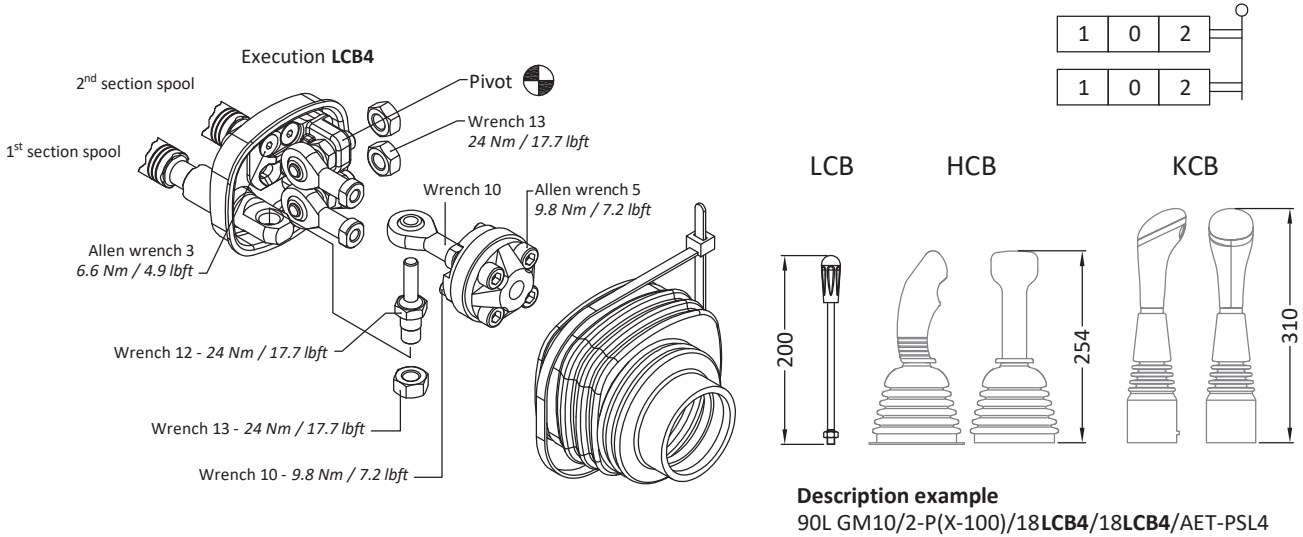
Connection example



directional valve with left inlet

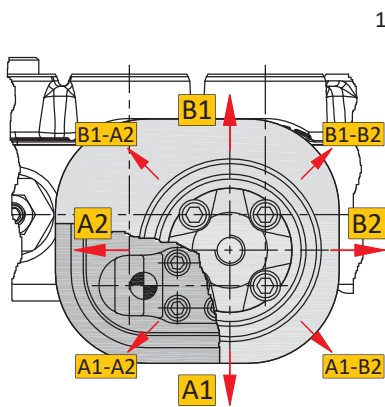
"B" side options

LCB mechanical joystick for two sections control (30 07 5433)

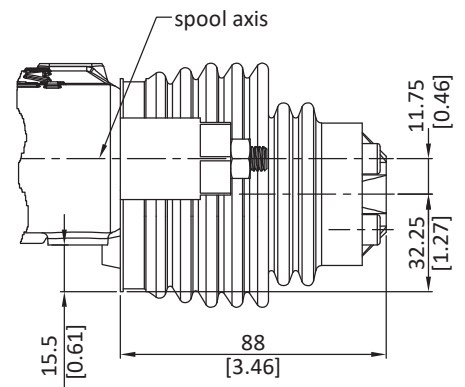
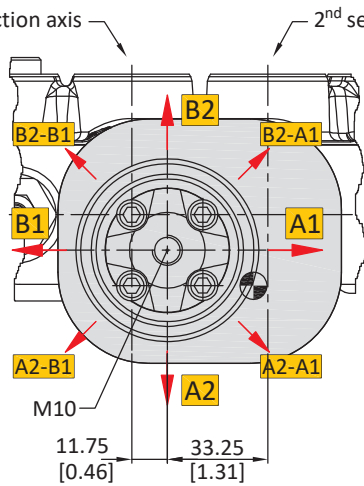


Dimensions and movement scheme

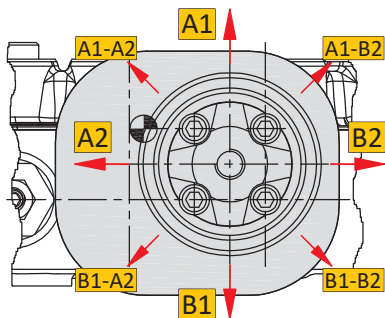
Execution LCB1
pivot placed down on the left



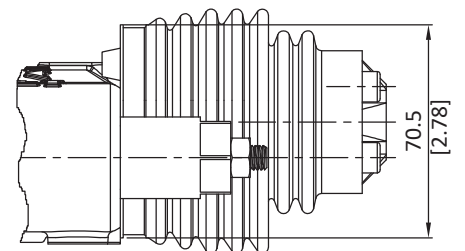
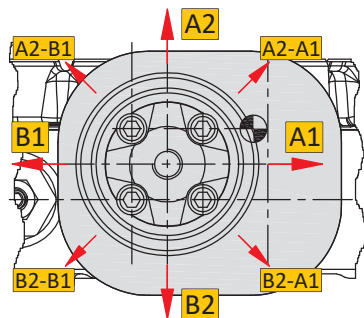
Execution LCB2
pivot placed down on the right



Execution LCB3
pivot placed above on the left



Execution LCB4
pivot placed above on the right



directional valve with left inlet

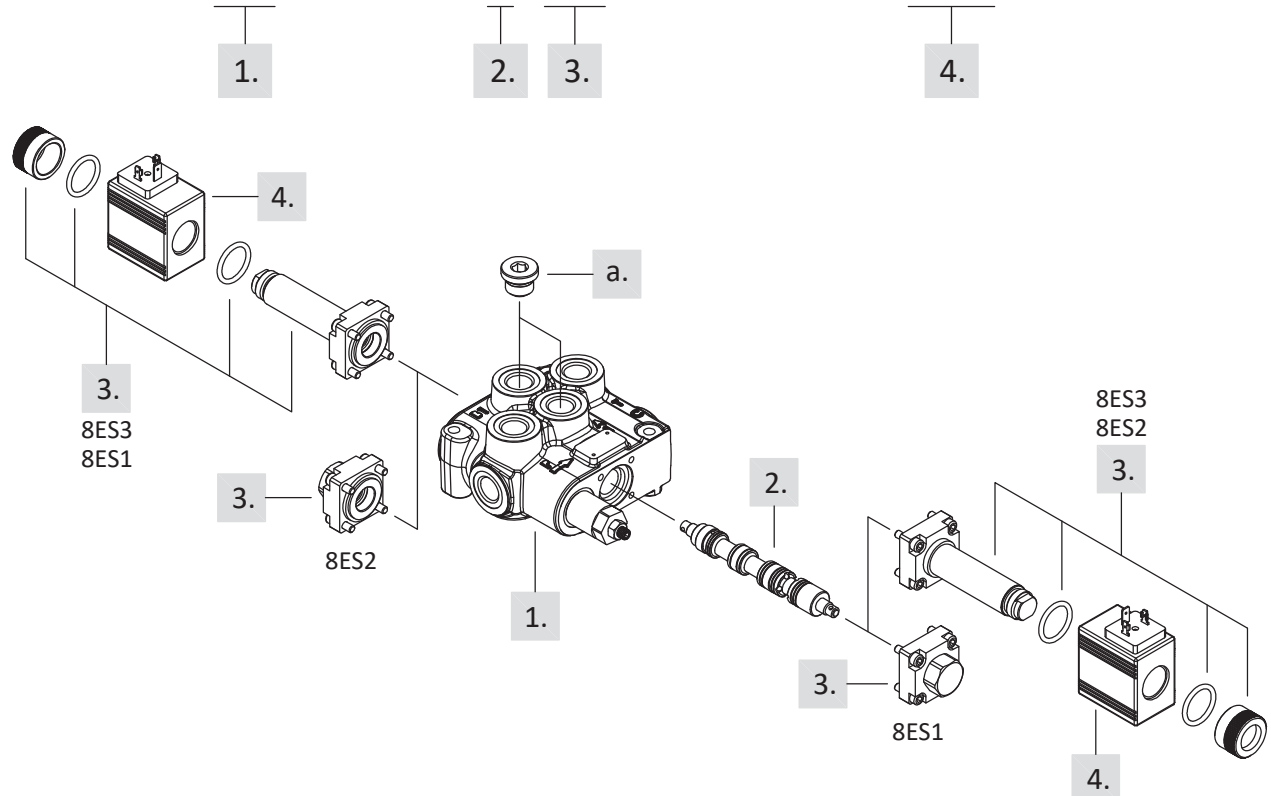
Complete controls

8ES solenoid control

Solenoid direct control with spring return to neutral position.
It needs special spools and standard body (body kit without seals on spool).

Description example:

90L GM10 / 1 - P (X - 100) / 1 8ES3 / AET - PSL4 - 24VDC



1. Body kit			3. Control kit		
TYPE	CODE	DESCRIPTION	TYPE	CODE	DESCRIPTION
90L GM10/1-P	-	1 section	8ES1	30 07 5568	Single acting P→ A, with spring return to neutral position
90L GM10/2-P	-	2 section	8ES2	30 07 5568	Single acting P→ B, with spring return to neutral position
90L GM10/3-P	-	3 section	8ES3	30 07 5569	Double acting, with spring return to neutral position
90L GM10/4-P	-	4 section			
90L GM10/5-P	-	5 section			
90L GM10/6-P	-	6 section			

2. Spool options			4. Coils		
TYPE	CODE	DESCRIPTION	TYPE	CODE	DESCRIPTION
1(ES)	30 01 3657	Double acting, 3 positions, with A and B closed in neutral position	With ISO4400 connector		
2(ES)	30 01 3658	Double acting, 3 positions, with A and B open to tank in neutral position	12VDC	20 03 2300	Nominal voltage 12VDC
			24VDC	20 03 2301	Nominal voltage 24VDC

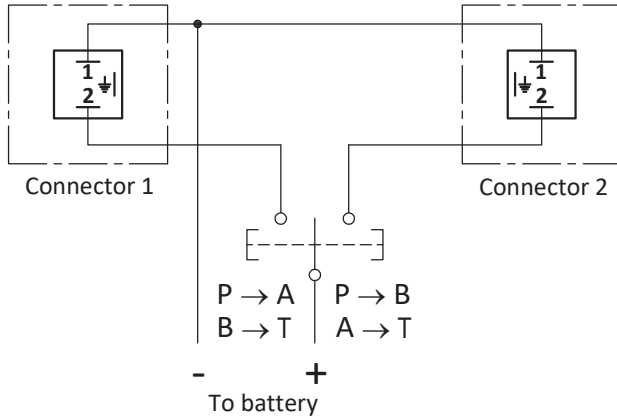
a. "A" and "B" ports plugs		
TYPE	CODE	DESCRIPTION
G1/2	30 05 4919	For single acting controls type 8ES1 and 8ES2

directional valve with left inlet

Complete controls

8ES solenoid control

Electric wiring example



Operating features

CONTROL

Internal leakage A(B)→T

($\Delta p = 100 \text{ bar} - 1450 \text{ psi} / T = 40^\circ\text{C}$) : max. $15 \text{ cm}^3/\text{min} - 0.91 \text{ in}^3/\text{min}$

COIL

Nominal voltage tolerance : $\pm 10\%$

Power rating : 36 W

Coil insulation : class H

Duty cycle : 100%

8ES3 kit
double acting



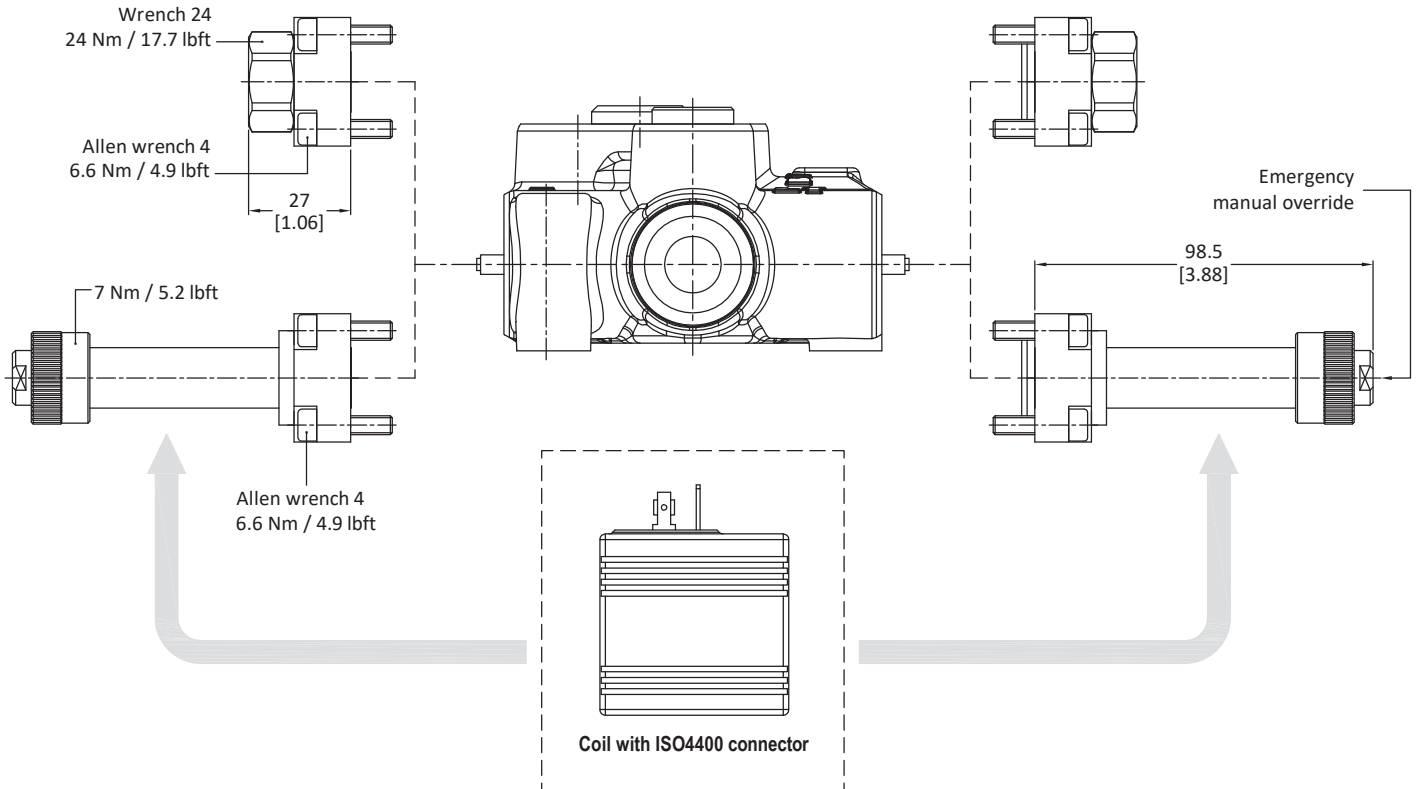
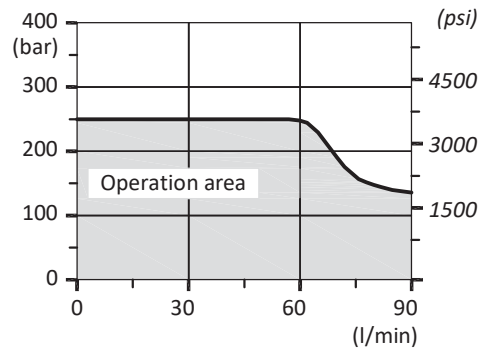
8ES1 kit
single acting on A



8ES2 kit
single acting on B



Operating condition diagram

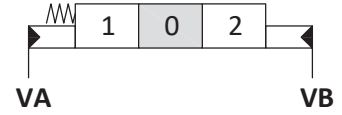
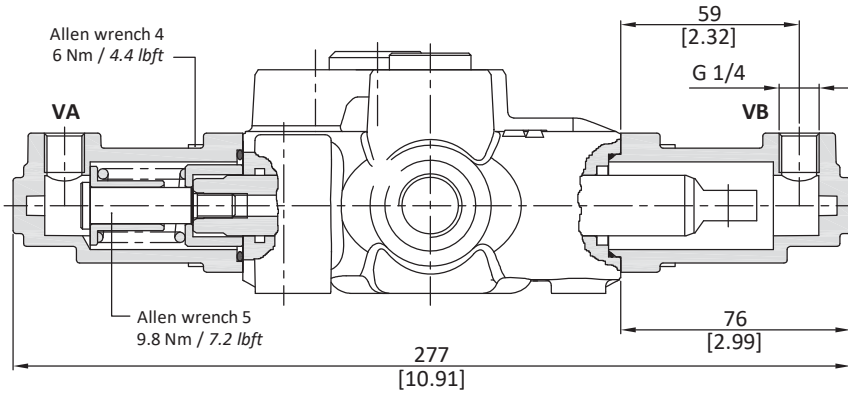


directional valve with left inlet

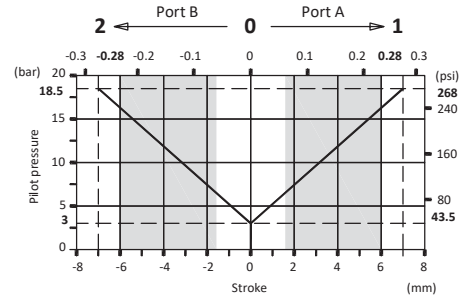
Complete controls

Proportional hydraulic control type 8IM (30 07 5414)

It can be used with standard spools and body



Pilot pressure - stroke diagram

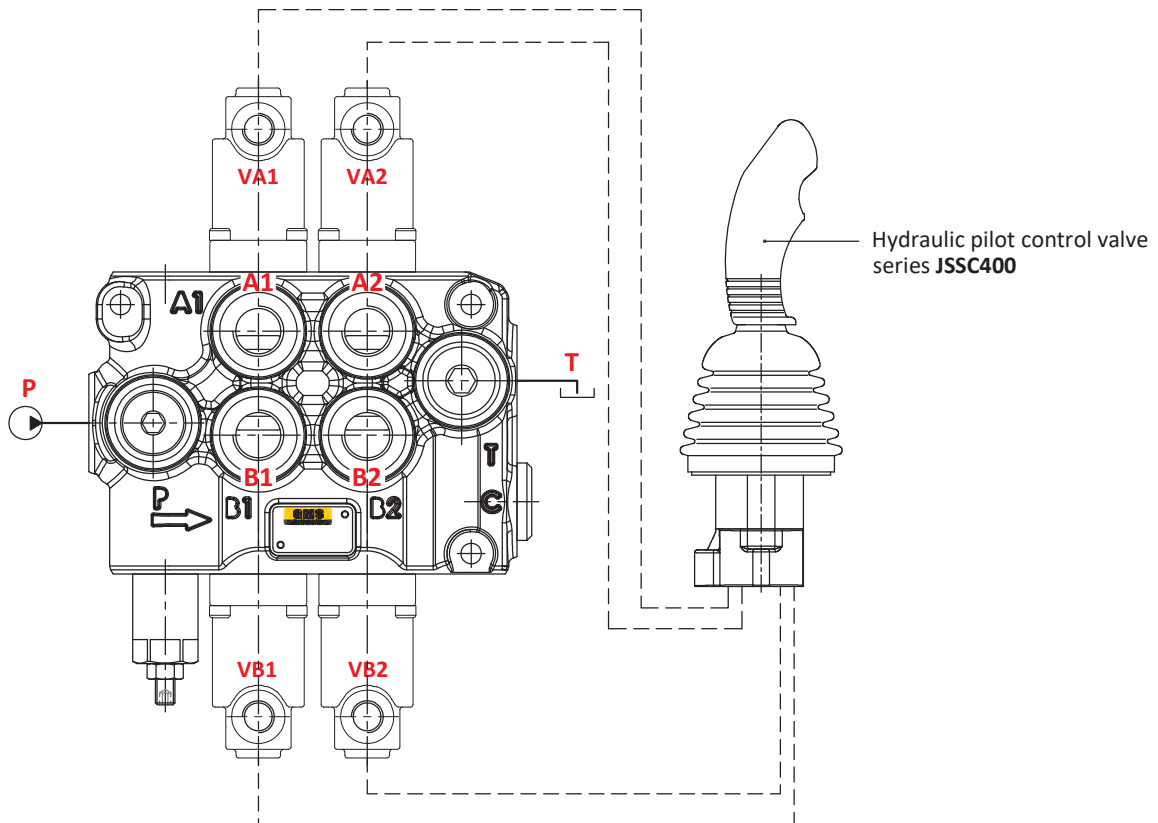


□ Spool overlap area
■ Metering area

Operating features

- Pilot pressure : max. 50 bar / 725 psi
- Internal leakage A(B) → T ($\Delta p = 100 \text{ bar} - 1450 \text{ psi} / T = 40^\circ\text{C}$)
- : max. 6cm³/min - 0.37 in³/min

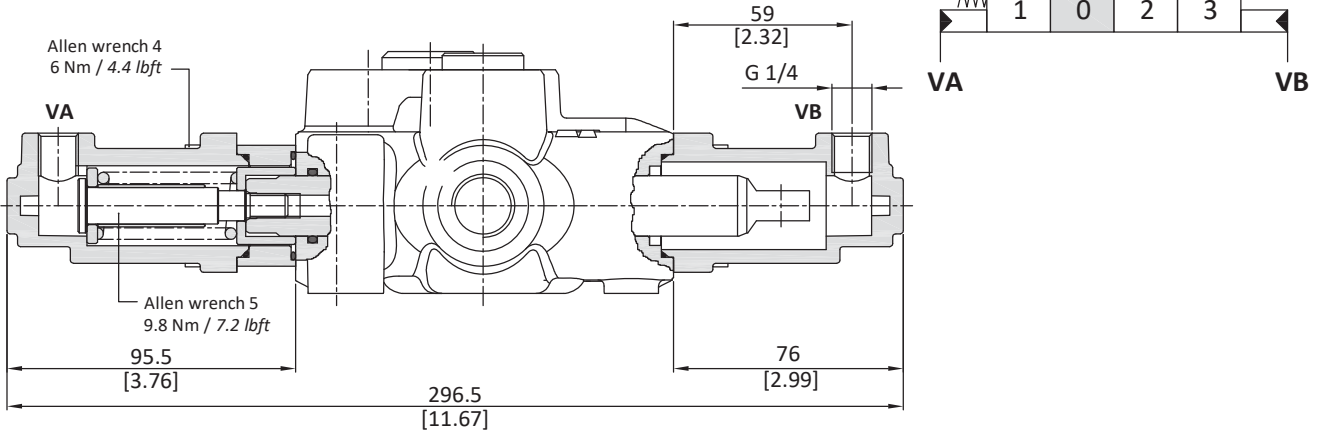
Connection example



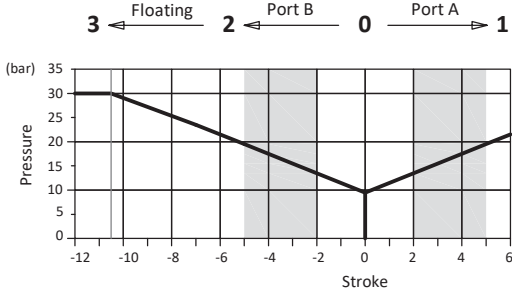
directional valve with left inlet

Complete controls

Proportional hydraulic control type 13IM (30 07 5431)



Pilot pressure - stroke diagram

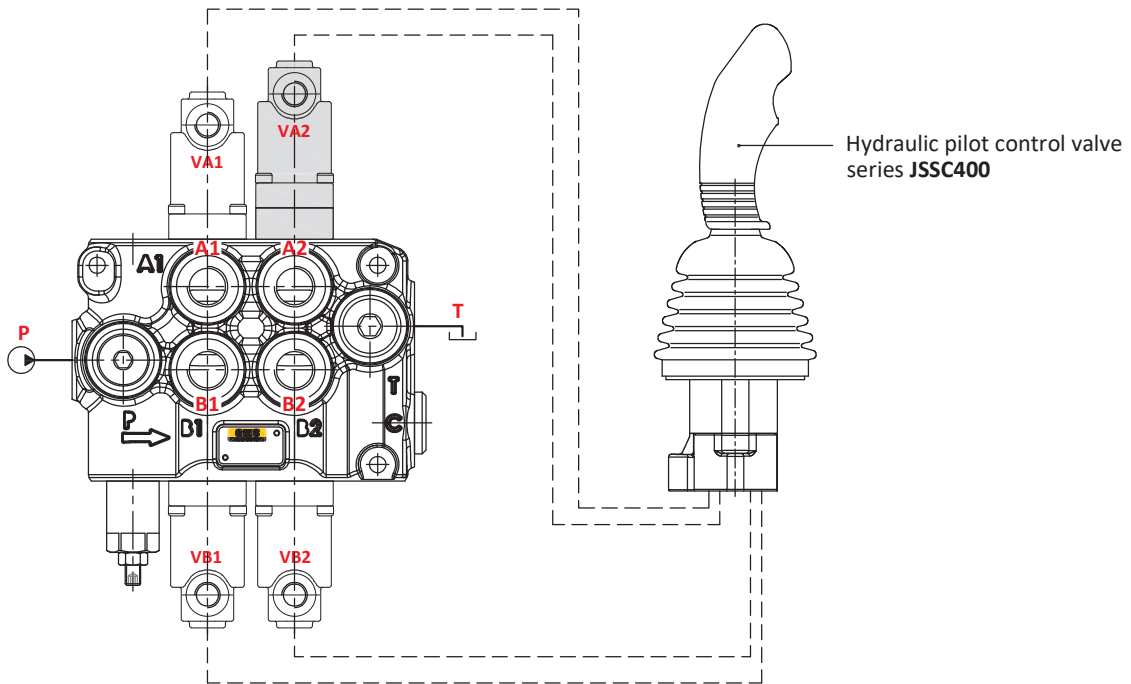


Operating features

Pilot pressure : max. 50 bar / 725 psi
 Internal leakage A(B) → T ($\Delta p = 100$ bar - 1450 psi / T = 40°C)
 : max. 6cm³/min - 0.37 in³/min

- Spool overlap area
- Metering area
- Floating area

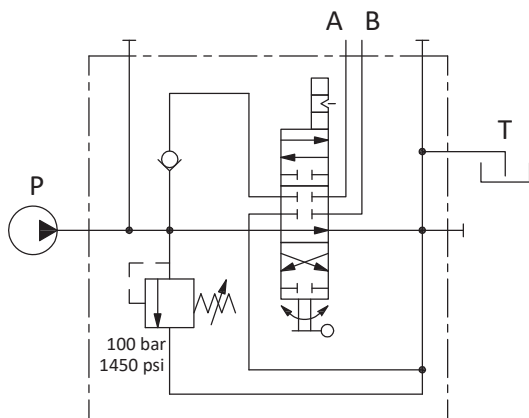
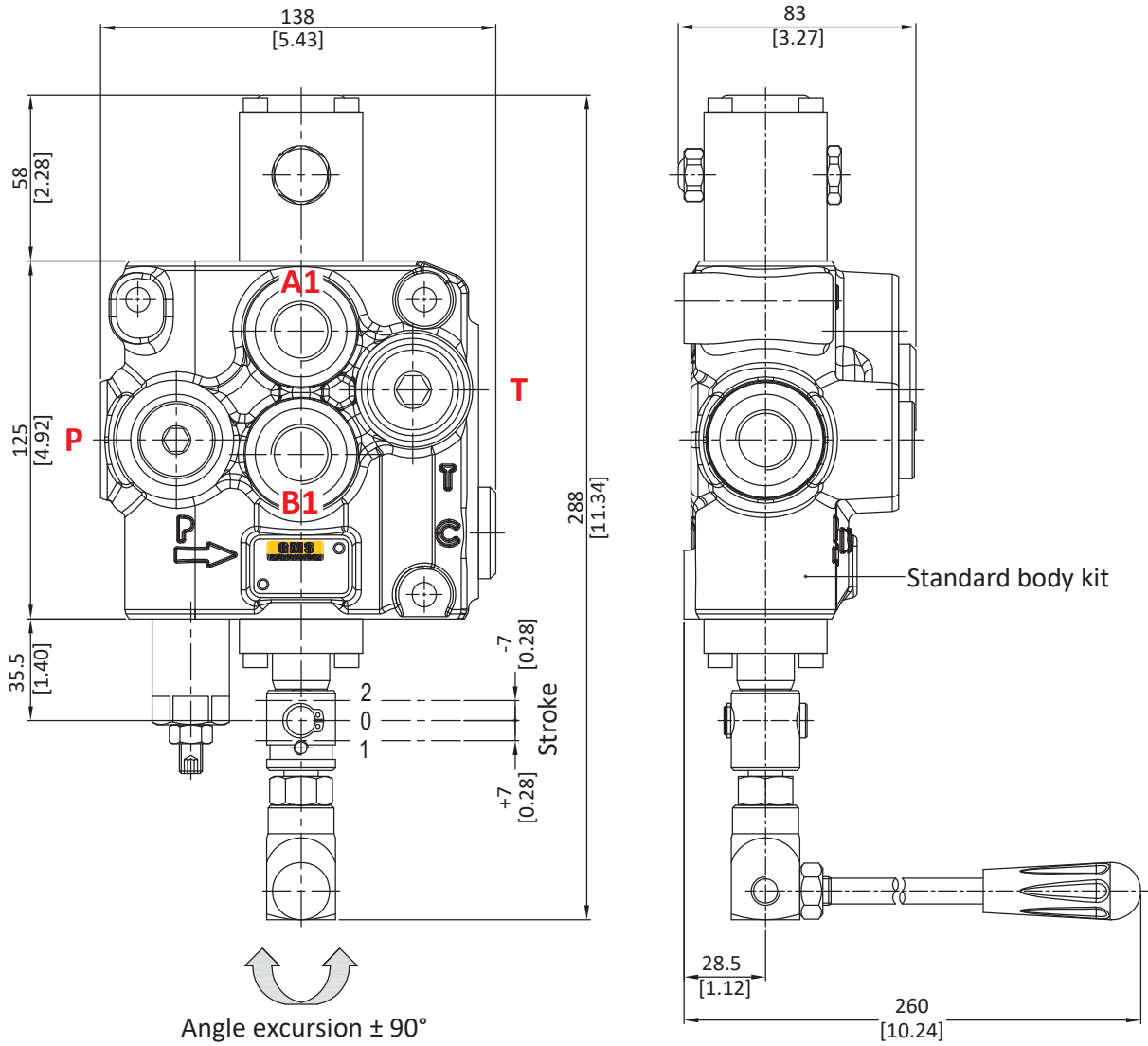
Connection example



directional valve with left inlet

Special configurations

Directional valve with rotary control kit (30 07 5379)



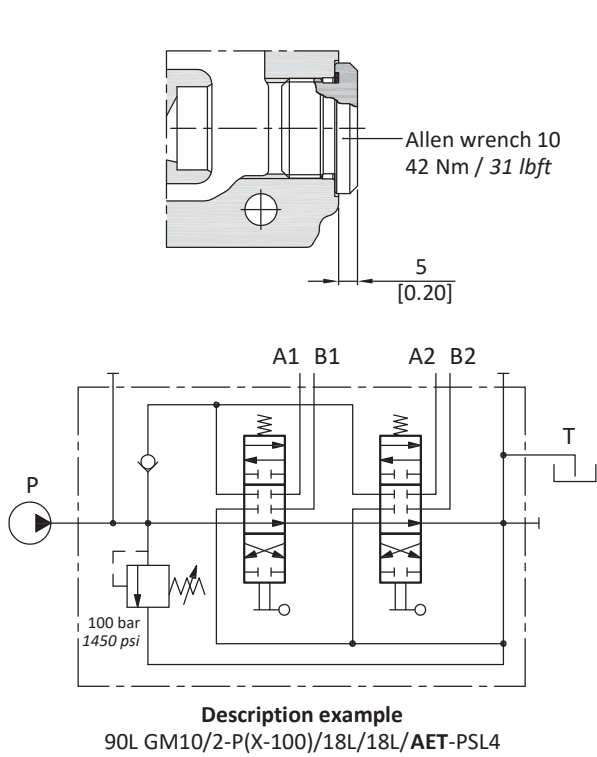
Description example
90L GM10/1-P(X-100)/1 R SLP/AET-PSL4

directional valve with left inlet

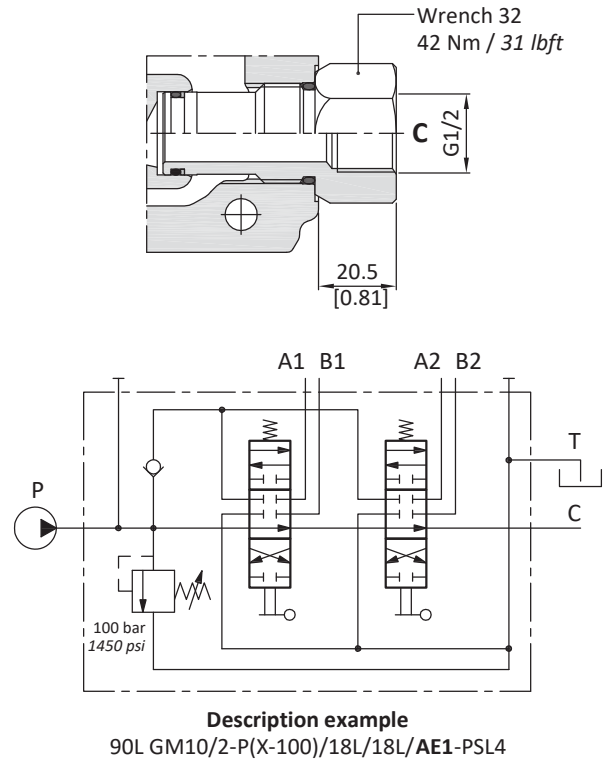
Outlet port options

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

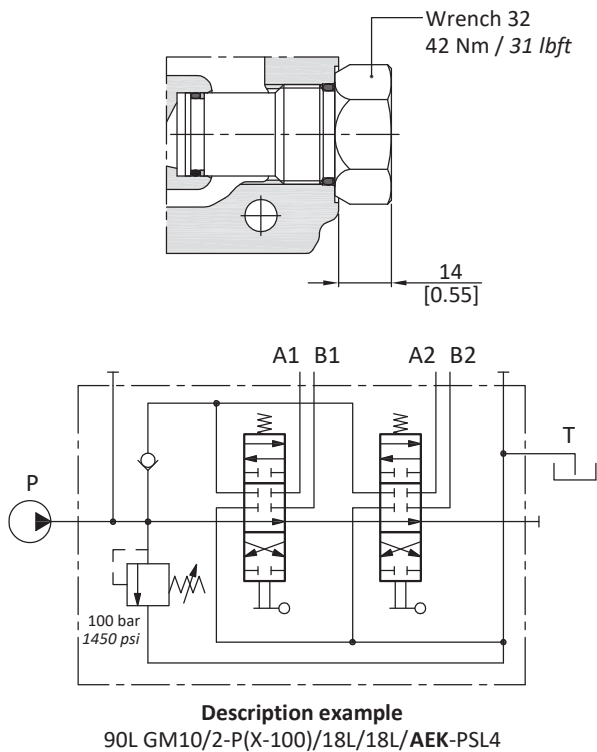
AET: open centre (standard)



AE: with carry-over



AEK: closed centre

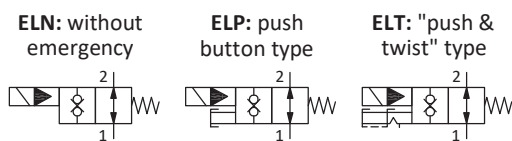
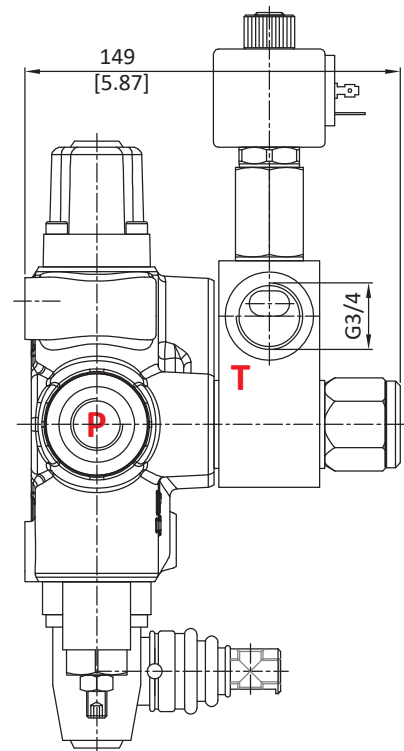
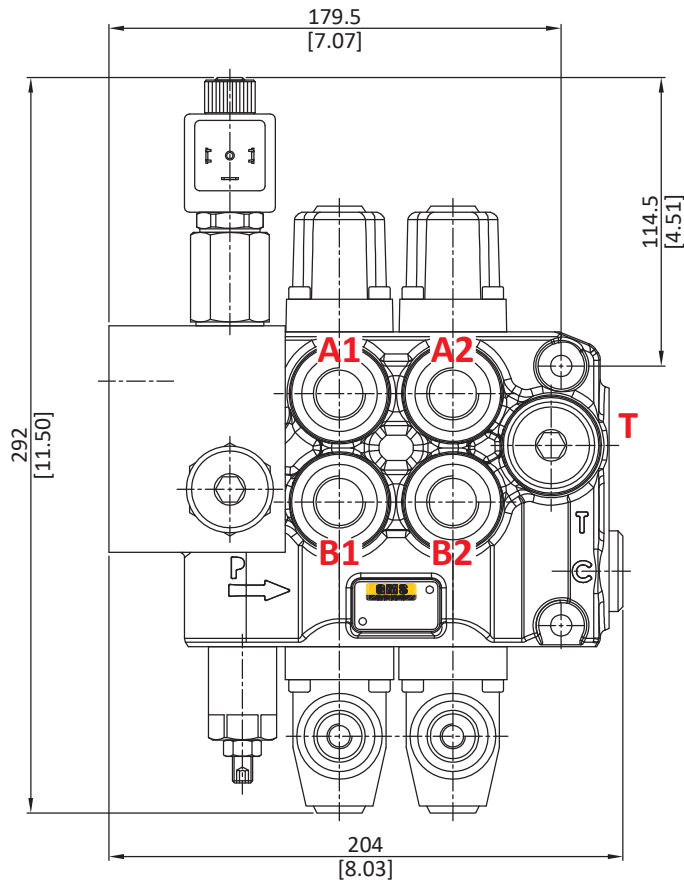


directional valve with left inlet

Inlet port options

With solenoid pilot unloader valve

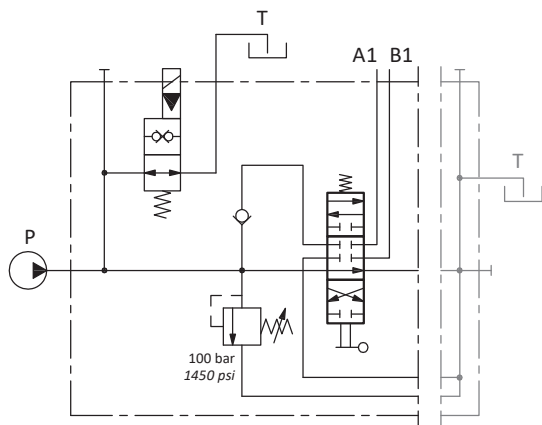
With push button for manual override.



Operating features

VALVE
 Maximum operating pressure : 250 bar
 Maximum flow : 15 l/min
 Internal leakage: max 5 drops/min @ 250bar

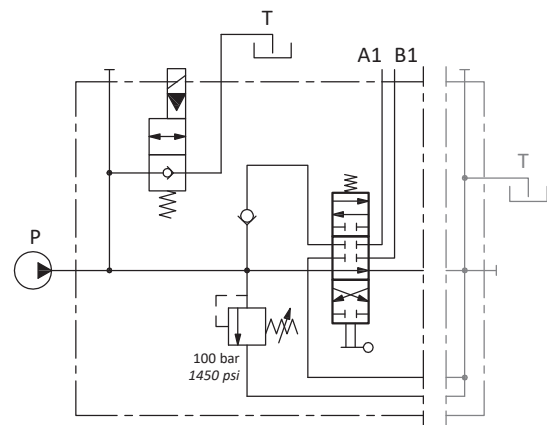
Normally open configuration type ELN



Description example

90L GM10/2-P(X-100)/18L/...../AET-PSL4-ELN-12VDC

Normally closed configuration type ELN(NC)



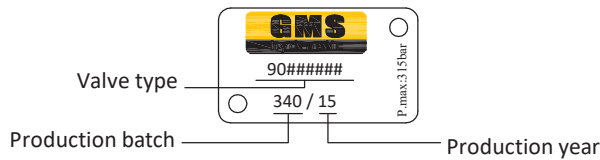
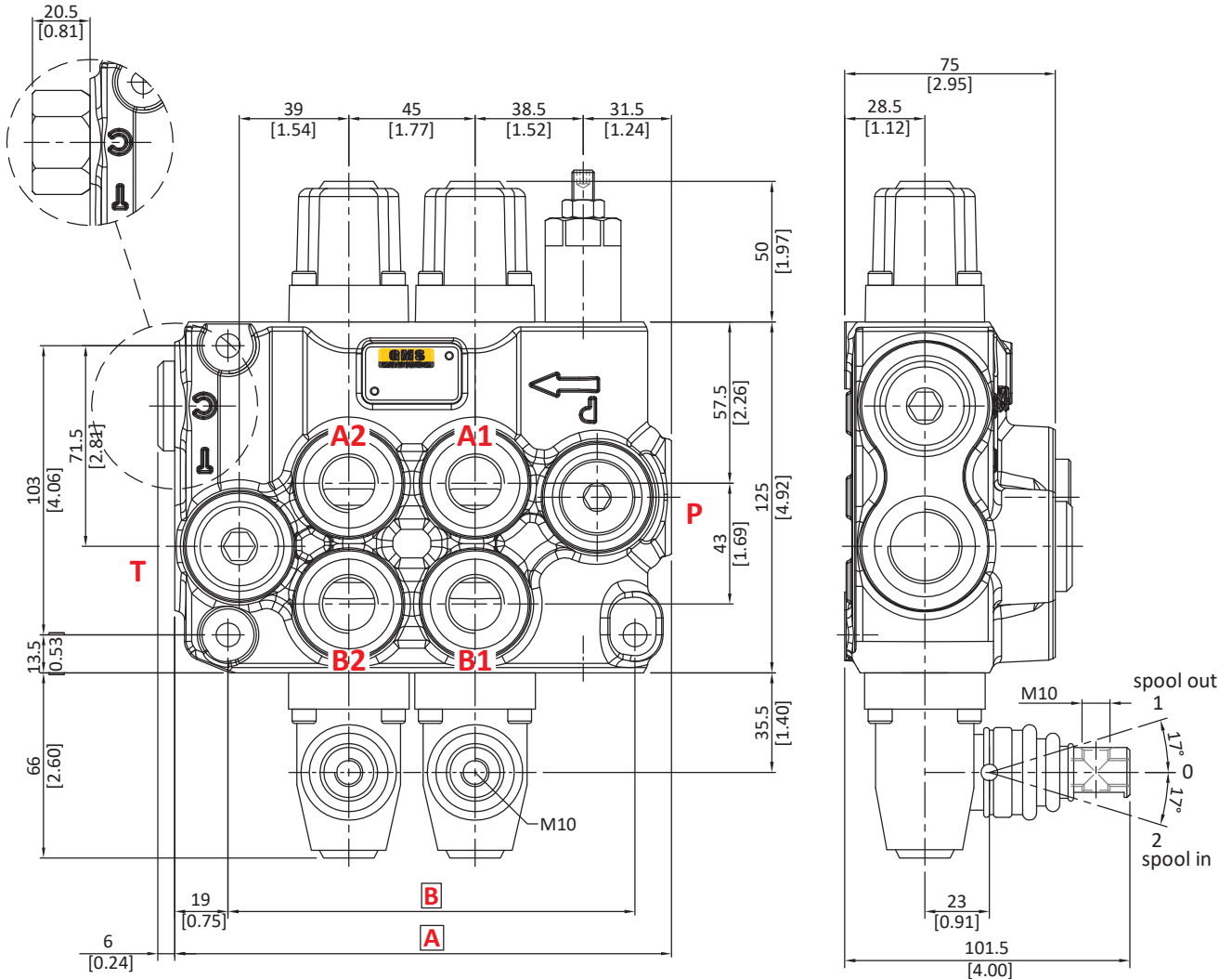
Description example

90L GM10/2-P(X-100)/18L/...../AET-PSL4-ELN(NC)-12VDC

directional valve with right inlet

Dimensional data (parallel circuit)

Carry-over



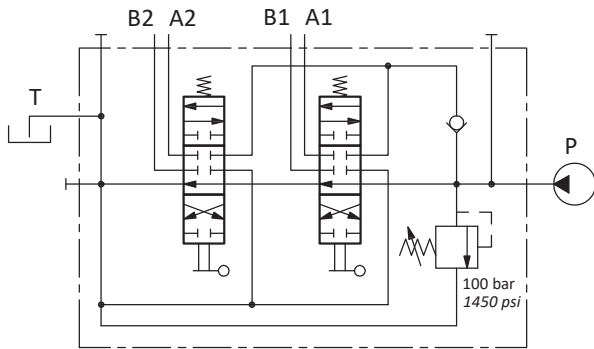
TYPE	A		B		Weight	
	mm	in	mm	in	kg	lb
90L GM 10/1-P	130	5.12	100	3.94	5.8	12.80
90L GM 10/2-P	175	6.89	145	5.71	8.3	18.30
90L GM 10/3-P	220	8.66	190	7.48	10.9	24.00

TYPE	A		B		Weight	
	mm	in	mm	in	kg	lb
90L GM 10/4-P	265	10.43	235	9.25	13.4	29.50
90L GM 10/5-P	310	12.21	280	11.02	16.5	36.40
90L GM 10/6-P	355	13.98	325	12.80	19.2	42.30

directional valve with right inlet

Hydraulic circuit

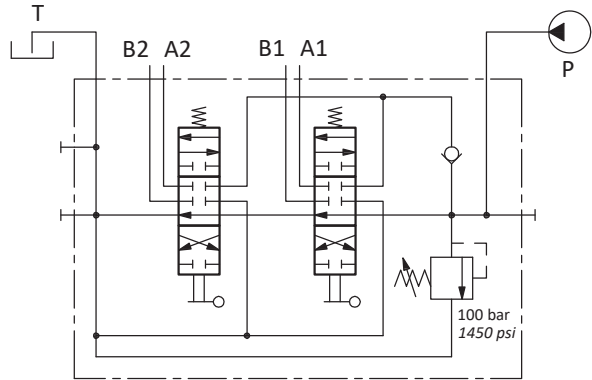
Standard configuration



Description example

90L GM10/2-P(X-100)/ED-18L/ED-18L/AET-PSL4

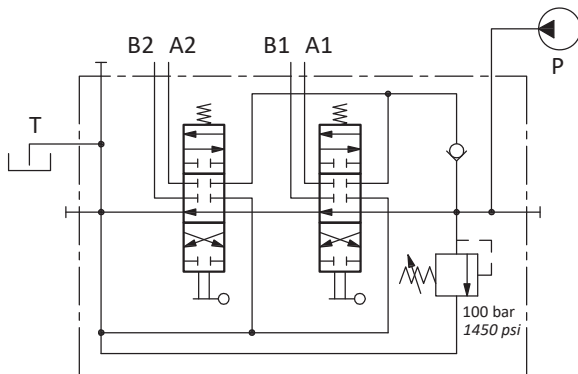
Configuration with upper inlet and outlet



Description example

90L GM10/2-P(X-100)/ED-18L/ED-18L/AET-PSA4

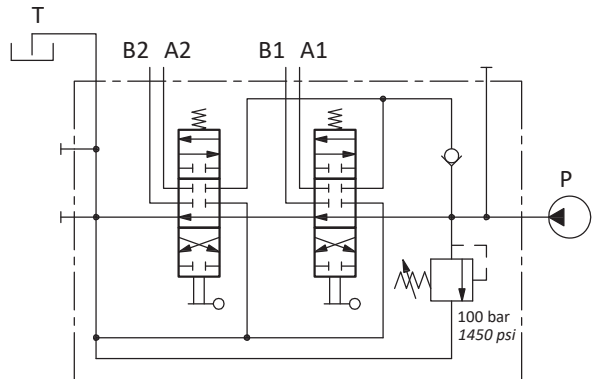
Configuration with upper inlet and side outlet



Description example

90L GM10/2-P(X-100)/ED-18L/ED-18L/AET-PSV4

Configuration with side inlet and upper outlet



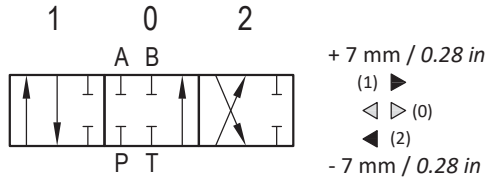
Description example

90L GM10/2-P(X-100)/ED-18L/ED-18L/AET-PSB4

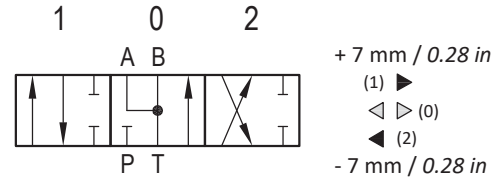
directional valve with right inlet

Spools options

Type ED-1 (30 01 3576)

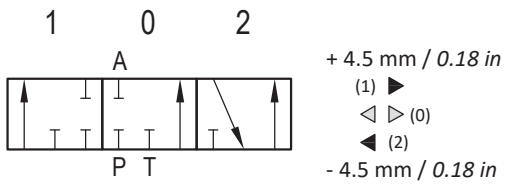


Type ED-2 (30 01 3577)



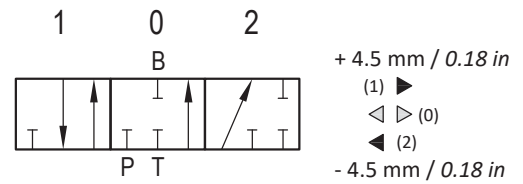
Type ED-3 (30 01 3578)

For 8T kit



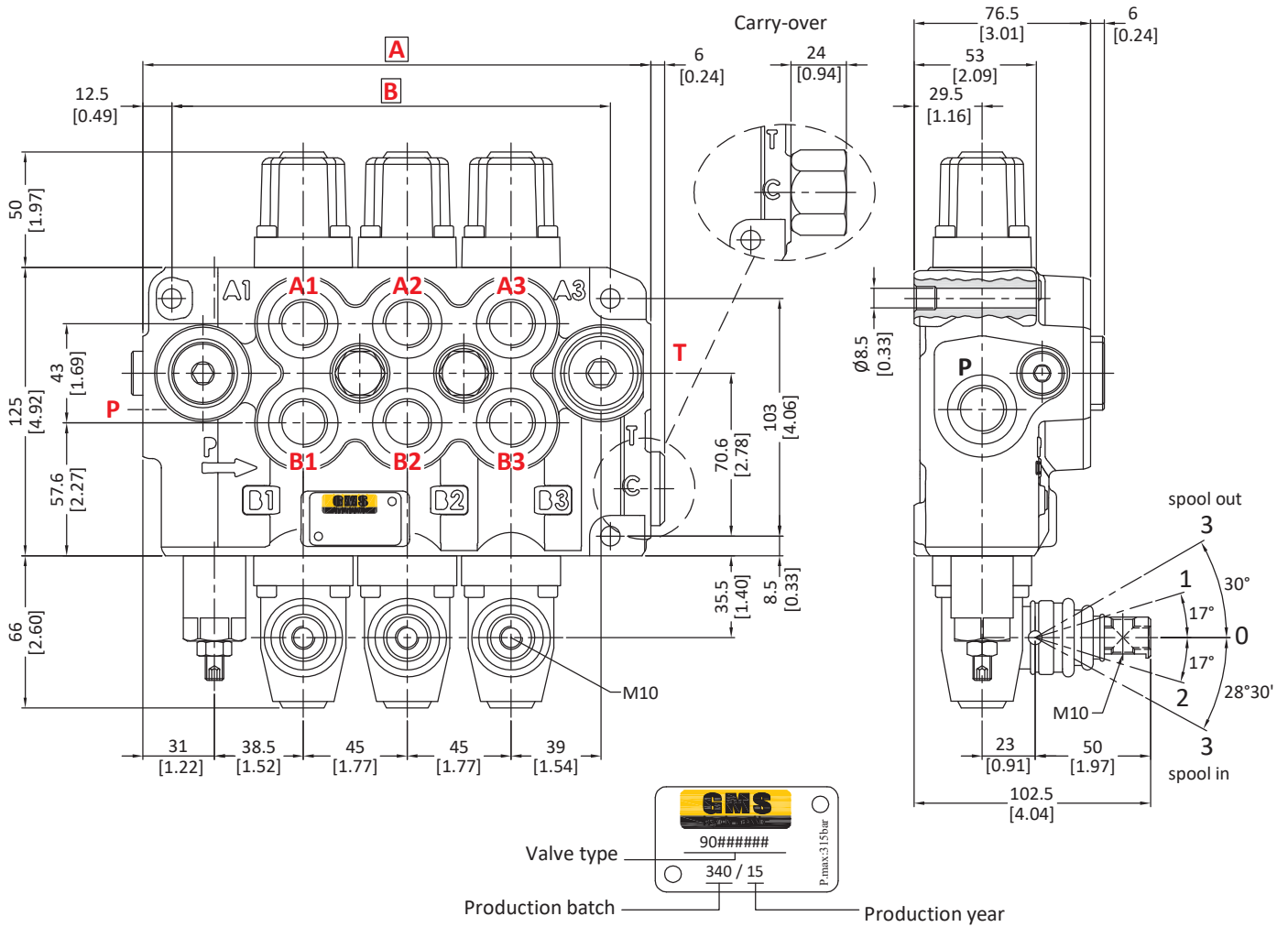
Type ED-4 (30 01 3579)

For 8T kit



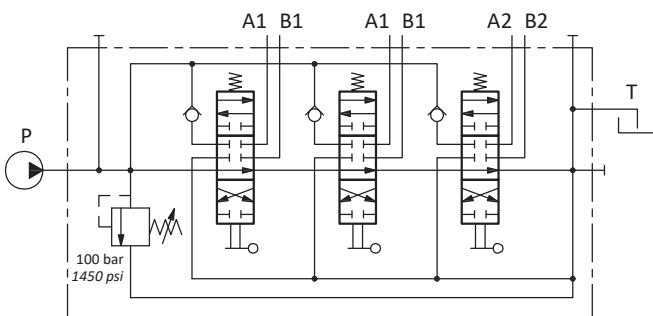
directional valve with left inlet

Dimensional data



TYPE	A		B		Weight	
	mm	in	mm	in	kg	lb
90L GMC 10/2-P	175	6.89	145	5.71	7.00	15.43
90L GMC 10/3-P	220	8.66	190	7.48	11.00	24.25

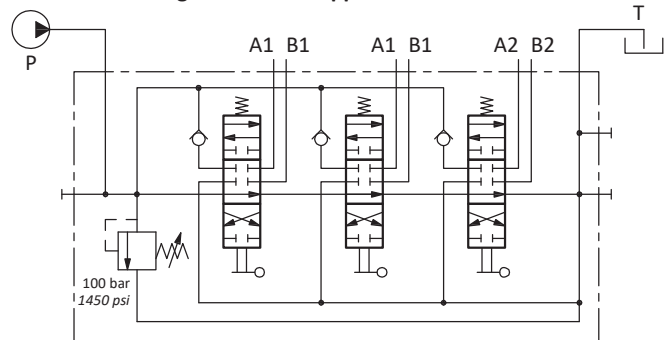
Standard configuration



Description example

90L GMC10/2-P(X-100)/18L/18L/AET-PSL4

Configuration with upper inlet and outlet

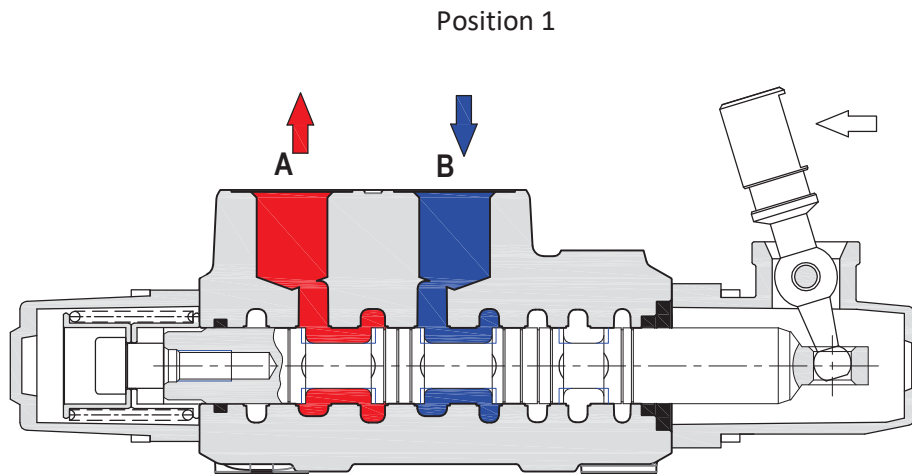


Description example

90L GMC10/2-P(X-100)/18L/18L/AET-PSA4

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.

