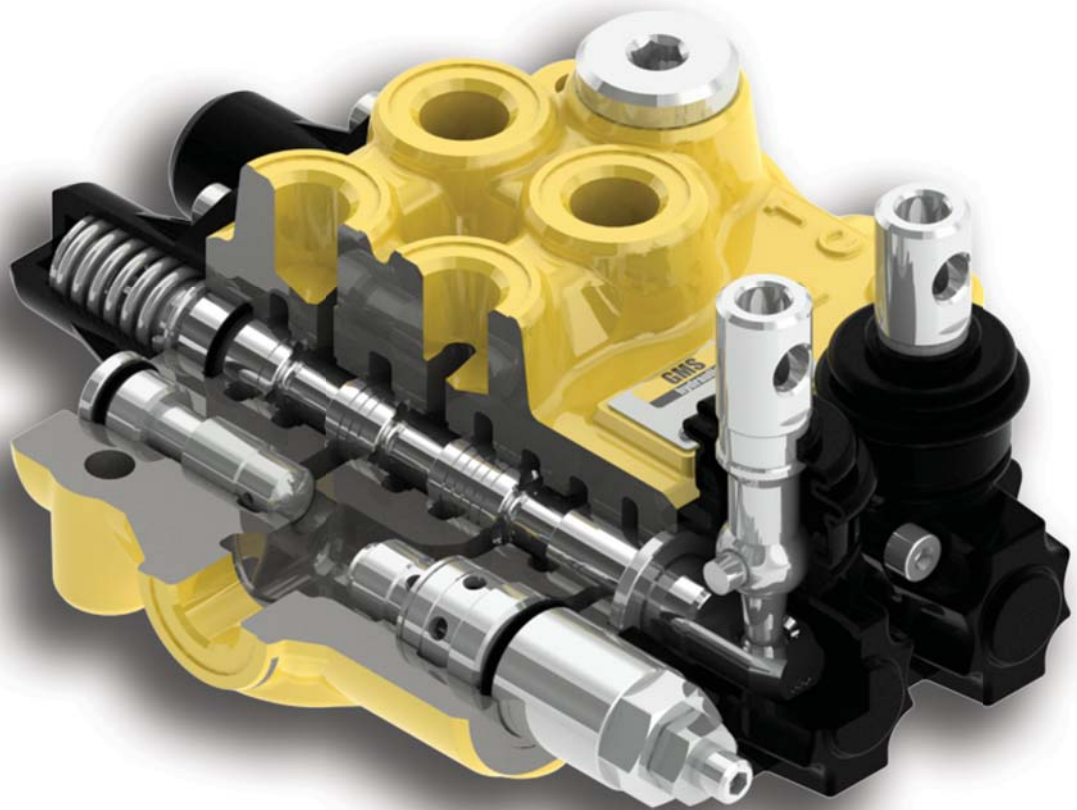




45L GM

GMS

HYDRAULIC

Specifications

Spool: 1,2,3,4,5,6,7 / Double - Single - Closed Center- Motor- Floating - Regenerative Spool

Liter: 45L Nominal - 65L Max

Ports: 3/8 Standard- 1/2-M18x1,5 Optional

Front Cap: Handle - Mechanical Joystick- Hydraulic Joystick- Remote Cable Control - Lock Handle

End Cap: Spring - Detent- Floating - Wood Splitter - Pneumatic - Proportional Coil - Hydraulic Control-Electro Hydraulic-Remote Cable Control

Open Center / Carry over / Parallel Circuit

Features

Simple, compact and heavy duty designed monoblock valves from 1 to 6 sections for open and closed centre hydraulic systems.

- ▶ fitted with a main pressure relief valve and a load check valve at GMC series.
- ▶ Available with parallel, series or tandem circuit. Series circuit GMCS. Tandem circuit GMT.
- ▶ Optional carry-over port (only for parallel or tandem circuit).
- ▶ Diameter 16 mm-0.63 in interchangeable spools.
- ▶ A wide variety of service port valve options.
- ▶ Actuation is manual, pneumatic, electro-pneumatic, hydraulic, electro-hydraulic, with solenoid and remote with flexible cables 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 January 2023:

Working conditions.....	page 3
Standard threads.....	page 3
Performance data.....	page 4
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Directional valve with right inlet.....	page 39
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Installation and maintenance.....	page 62

Valve general information

Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm²/s (46cSt) viscosity at 40°C (104°F) temperature.

Nominal flow rating		45 l/min.	12 US gpm
Max. flow		65 l	17 US gpm
Operating pressure (max.)		315 bar	4600 psi
Back pressure (max.)	T outlet port	20 bar	290 psi
Internal leakage (standard) A(B)⇒T	Δp=100 bar (1450 psi)	3cm ³ /min.	0.18 in ³ /min.
Hydraulic fluid		Mineral base oil	
Fluid temperature	with NBR seals	from - 20° to 80°C	from -4°F to 176°F
	with FPM (VITON) seals	from - 20° to 100°C	from -4°F to 212°F
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. contamination level		-/19/16 - ISO 4406	NAS 1638 - class 10
Ambient temperature for working conditions	with mechanical devices	from -40°C to 60°C	from -40°F to 140°F
	with pneumatic and hydraulic devices	from -30°C to 80°C	from -22°F to 140°F
	with electric devices	from -20°C to 50°C	from -4°F to 122°F

Standard threads

REFERENCE STANDARD			
	BSP	UN-UNF	METRIC
THREAD ACCORDING TO	ISO 228/1	ISO 263	ISO 262
	BS 2779	ANSI B1.1 unified	
CAVITY DIMENSION ACCORDING TO	ISO 1179-1	11926-1	9974-1
	SAE	J1926-1	J2244
	DIN 3852-2 shape X or Y		3852-1 shape X or Y

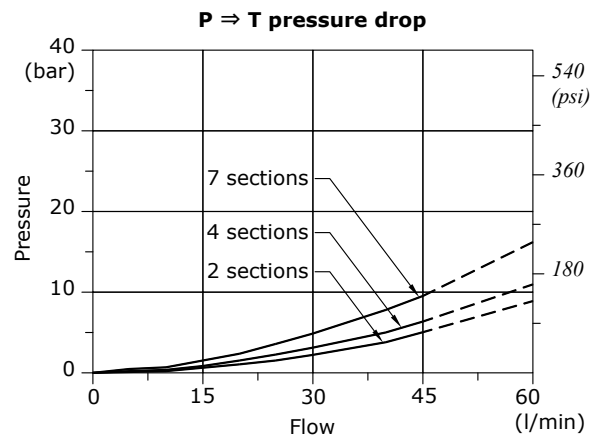
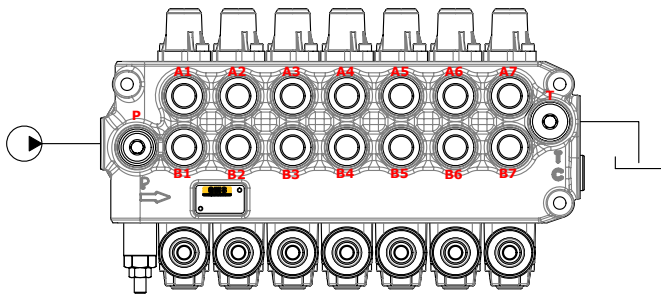
PORTS THREADING				
MAIN PORTS	BSP	OPTIONAL	UN-UNF	METRIC
P inlet and C carry-over	G 3/8	G 1/2	3/4-16 (SAE 8)	M18x1.5
A and B ports	G 3/8	G 1/2	9/16-18 (SAE 6)	M18x1.5
T outlet	G 1/2	G 1/2	3/4-16 (SAE 8)	M22x1.5
PILOT PORTS				
Hydraulic	G 1/4	-	-	-
Pneumatic	G 1/8	-	-	-

Valve general information

Performance data (pressure drop vs. flow)

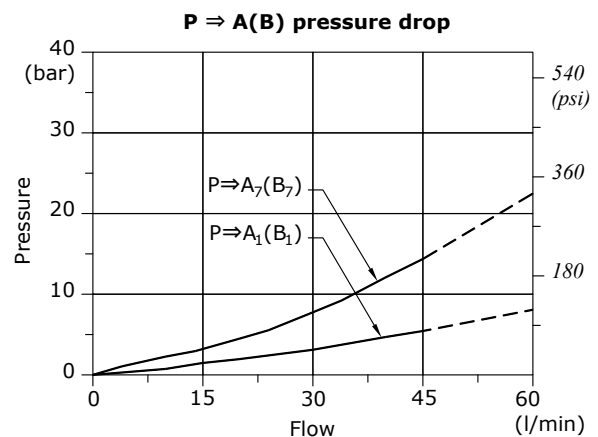
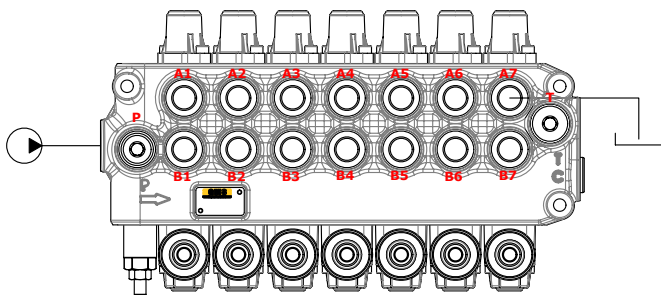
Open centre

From side inlet to side outlet.



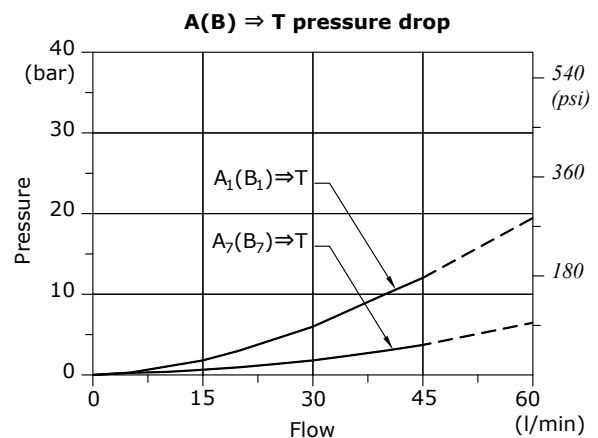
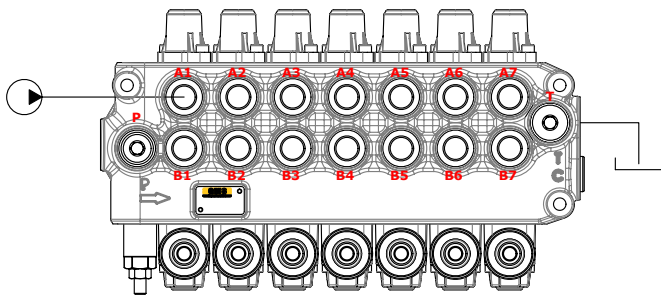
Inlet to work port

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

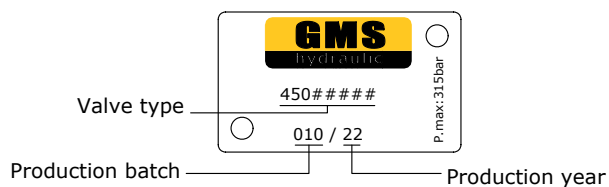
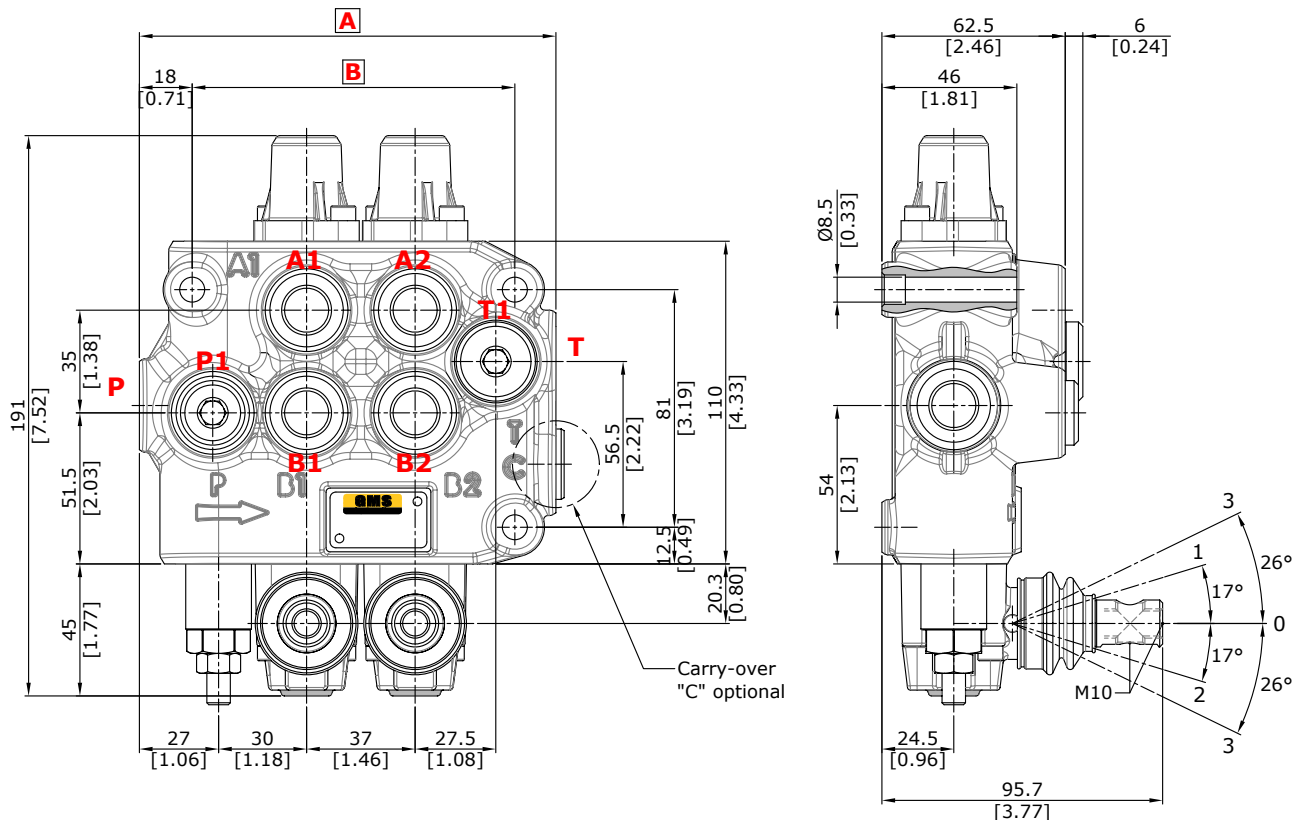
Dimensional data.....	: page 6
Hydraulic circuit.....	: page 7
Ordering codes.....	: page 8
Inlet relief options.....	: page 10
Spool options.....	: page 11
"A" side spool positioners.....	: page 12
"B" side options.....	: page 23
Complete controls	: page 27
Outlet port options.....	: page 32
Inlet port options.....	: page 33

Other executions

Directional valve 45L GMC08/2-P with parallel circuit.....	: page 34
Directional valve 45L GMCS08/2-S1 with series circuit.....	: page 35
Directional valve 45L GMT08/1-N.....	: page 36
Directional valve 45L GMT08/2-SP1 with tandem circuit.....	: page 37
Directional valve 45L GM08/5-SP4 with tandem circuit.....	: page 38

directional valve with left inlet

Dimensional data (parallel circuit)



TYPE	A		B		Weight	
	mm	in	mm	in	Kg	lb
45L GM08/1-P	105	4.13	73	2.87	3.1	6.83
45L GM08/2-P	142	5.60	110	4.33	4.4	9.70
45L GM08/3-P	179	7.05	147	5.79	5.7	12.57
45L GM08/4-P	216	8.50	184	7.24	7.2	15.87

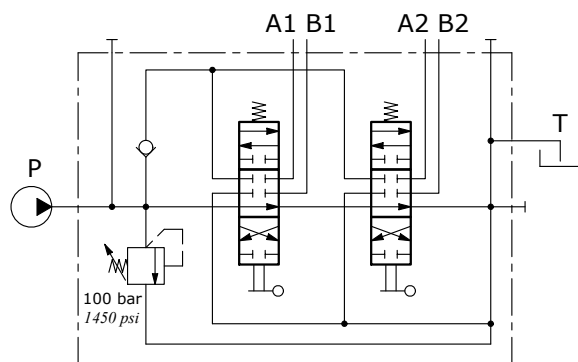
TYPE	A		B		Weight	
	mm	in	mm	in	Kg	lb
45L GM08/5-P	253	9.96	221	8.70	8.7	19.18
45L GM08/6-P	290	11.42	258	10.16	10.2	22.49
45L GM08/7-P	327	12.87	295	11.61	11.7	25.79

NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

directional valve with left inlet

Hydraulic circuit

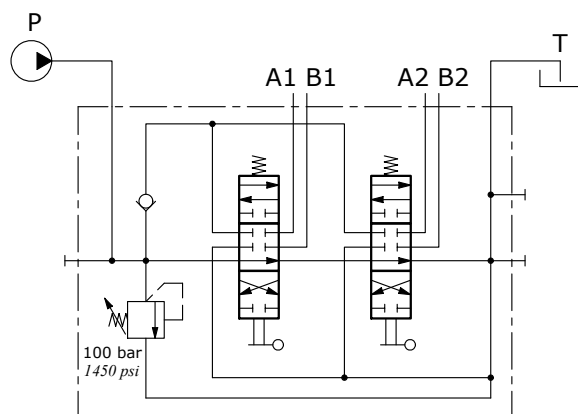
Standard configuration



Description example

45L GM08/2-P(X-100)/18L/18L/AET-**PSL2**

Upper inlet and outlet ports configuration



Description example

45L GM08/2-P(X-100)/18L/18L/AET-**PSA2**

directional valve with left inlet

Ordering codes

4. "A" side spool positioners page 12

TYPE	CODE	DESCRIPTION
8	30 07 5300	With spring return in neutral position
8D	30 07 5307	As type 8, M6 female threaded pin extension for dual control
8D2	30 07 5308	As type 8, M8 male threaded pin extension for dual control
8T	30 07 5301	With spring return in neutral position, for single acting spool type 3 and 4
8TL	30 07 5327	As type 8, for flexible cable control
8F2	30 07 5302	As type 8 with adjustable stroke limiter
19	30 07 5410	With spring return in position 0 from 1
20	30 07 5411	With spring return in position 0 from 2
11	30 07 5303	Detent in positions neutral, 1 and 2
12	30 07 5334	Detent in positions 1 and 2
15	30 07 5304	2 positions, detent in positions 1 and neutral
16	30 07 5408	2 positions, detent in positions 2 and neutral
17	30 07 5412	With spring return position 1
18	30 07 5305	With spring return position 2
17D	30 07 5413	With spring return position 1 and pin with M6 female thread for dual control
18D	30 07 5306	With spring return position 2 and pin with M6 female thread for dual control
9B	30 07 5309	With detent in position 1 and spring return in neutral position
10B	30 07 5310	With detent in position 2 and spring return in neutral position
11B	30 07 5311	Detent in positions 1 and 2 and spring return in neutral position
9BT	30 07 5312	With detent in position 1 and spring return in neutral position, for single acting spool type 3 and 4
10BT	30 07 5313	With detent in position 2 and spring return in neutral position, for single acting spool type 3 and 4
11BT	30 07 5314	Detent in positions 1 and 2 and spring return in neutral position, for single acting spool type 3 and 4
8MG1(NO)	30 07 5320	As type 8, operation with microswitch (NO) in position 1
8MG1(NC)	30 07 5323	As previous, (NC)
8MG2(NO)	30 07 5321	As type 8, operation with microswitch (NO) in position 2
8MG2(NC)	30 07 5324	As previous, (NC)
8MG3(NO)	30 07 5319	As type 8, operation with microswitch (NO) in positions 1 and 2
8MG3(NC)	30 07 5322	As previous, (NC)
8P	30 07 5329	ON/OFF pneumatic kit
8EP3	30 07 5420	12 VDC ON/OFF electro-pneumatic kit
	30 07 5330	24 VDC ON/OFF electro-pneumatic kit
8EP4	30 07 5343	12 VDC ON/OFF electro-pneumatic kit with manifold
	30 07 5344	24 VDC ON/OFF electro-pneumatic kit with manifold
8IZ	30 07 5432	Unilateral hydraulic proportional spool control kit
8EI3	30 07 5331	12 VDC ON/OFF electro-hydraulic kit
	30 07 5332	24 VDC ON/OFF electro-hydraulic kit
8EI3F	30 07 7605	12 VDC Proportional electro-hydraulic kit
	30 07 7606	24 VDC Proportional electro-hydraulic kit
13NZ	30 07 5316	4 positions with spring return in neutral position and detent in pos.3: for 5DY spool
13QN	30 07 5315	4 positions with spring return in neutral position and detent in pos.3: for 5BY and 5PY spool
11NZ	30 07 5317	Detent in positions neutral, 1,2 and detent in pos.3: for 5DY spool
13FZ	30 07 5318	4 positions with spring return in neutral and reduced spool stroke: for 8 spool

5. "B" side options page 23

TYPE	CODE	DESCRIPTION
L	30 07 5335	Standard lever box
LF1	30 07 5337	Lever box with spool stroke limiter in position 1
LCB	30 07 5426	Joystick lever for 2 sections operation
SL	-	Without lever box
SLP	30 07 5338	Without lever box, with dust-proof plate
TQ	30 07 5328	Flexible cable connection; for CT cables
LEB	30 07 5340	Safety lever box, vertical configuration
LUP	30 07 5341	Safety lever box, horizontal configuration
SLCZ	30 07 7621	Without lever box, with endcap.

6. Complete controls * page 27

TYPE	CODE	DESCRIPTION
ON/OFF Hydraulic control		
8IM	30 07 5348	ON/OFF Hydraulic control
Proportional hydraulic kit		
8IMSPSD	30 07 7558	With spool position sensor execution. (ON/OFF)
8IMSPSL	30 07 7561	With spool position sensor execution.
Rotative control type		
R	30 07 5333	Rotative control type

7. Outlet port options * page 32

TYPE	CODE	DESCRIPTION
AET	30 05 4923	Open centre plug
AEK	30 05 4927	Closed centre plug
AE	30 05 6002	G3/8 carry-over sleeve
AE1	30 05 4926	G1/2 carry-over sleeve

8. Inlet and outlet selection * page 7

TYPE	CODE	DESCRIPTION
PSL2	30 05 4918	G3/8 plug for upper inlet
	30 05 4919	G1/2 plug for upper outlet
PSA2	30 05 4918	G3/8 plug for side inlet
	30 05 4919	G1/2 plug for side outlet

a. "A" and "B" ports plugs *

TYPE	CODE	DESCRIPTION
G3/8	30 05 4918	For single acting spools type 3 and 4

b. Optional hand levers

TYPE	CODE	DESCRIPTION
M10x180	20 03 2380	Lenght L = 180mm / 7.09in

NOTE (*) – Codes are referred to **BSP** thread.

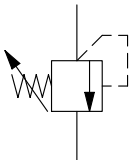
directional valve with left inlet

Inlet relief options

Direct pressure relief valve

30 05 4917 (X - 100)

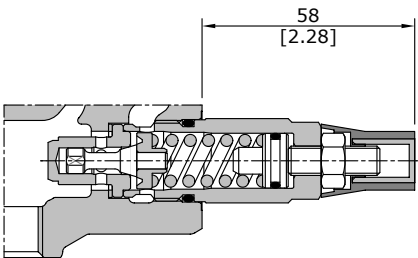
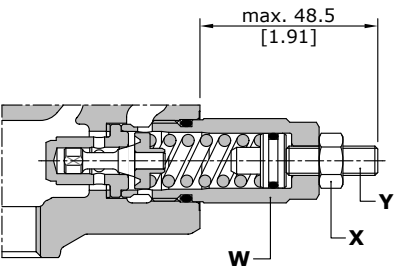
Configuration Valve setting (bar)



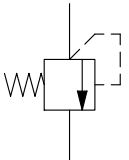
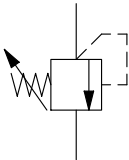
Adjustment type

Configuration X type: adjustable with screw

Configuration XH type: valve set and locked

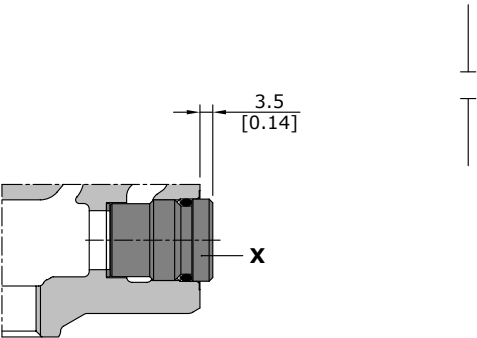


Wrenches and tightening torques
X = wrench 13 - 24 Nm (17.7 lbft)
Y = allen wrench 4
W = wrench 19 - 42 Nm (31 lbft)

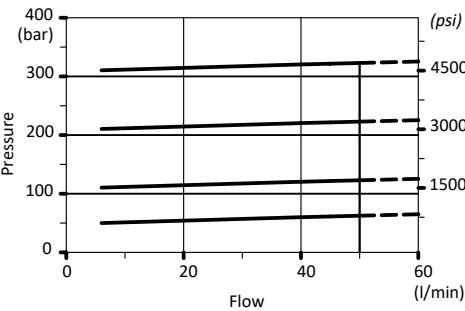


V: relief valve blanking plug

Performance data



Wrenches and tightening torques
X = allen wrench 8 - 42 Nm (31 lbft)

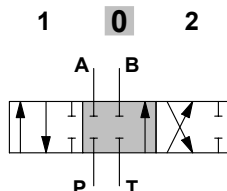


directional valve with left inlet

Spools options

1 (30 01 3501), 1CS (30 01 3502) spool type

Double acting, 3 positions, with A and B closed in neutral position

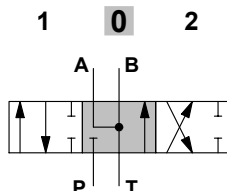


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

2 (30 01 3503), J7 (30 01 3506) spool type

Double acting, 3 positions, with A and B open to tank in neutral position

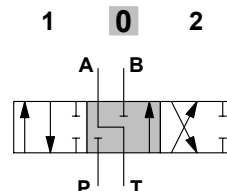


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

1A (30 01 3647) spool type

Double acting, 3 positions, with A open to tank in neutral position

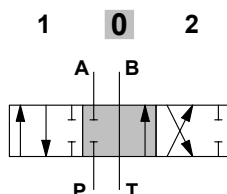


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

1B (30 01 3648) spool type

Double acting, 3 positions, with B open to tank in neutral position

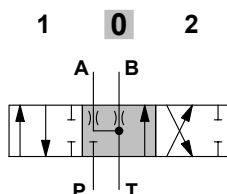


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

2H (30 01 3504) spool type

Double acting, 3 positions, with A and B partially open to tank in neutral position

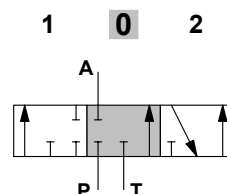


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

3 (30 01 3507) spool type

Single acting on A, 3 positions, B plugged; requires G3/8 plug

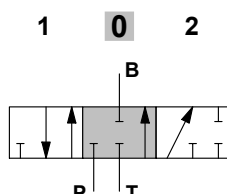


Spool stroke

position 1: + 4.2 mm (+ 0.17 in)
position 2: - 4.2 mm (- 0.17 in)

4 (30 01 3508) spool type

Single acting on B, 3 positions, A plugged; requires G3/8 plug

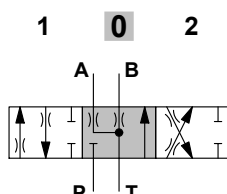


Spool stroke

position 1: + 4.2 mm (+ 0.17 in)
position 2: - 4.2 mm (- 0.17 in)

J6 (30 01 3505) spool type

Double acting, 3 positions, with A and B partially open to tank in neutral position

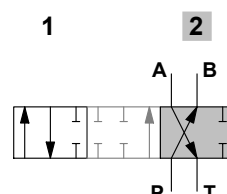


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

D4 (30 01 3818) spool type

Double acting, 2 positions, without neutral position

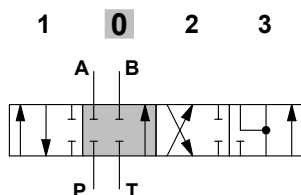


Spool stroke

position 1: + 12 mm (+ 0.48 in)

5DY (30 01 3511) spool type

Double acting, with A and B closed in neutral position, 4 positions, floating in position 3, with spool in

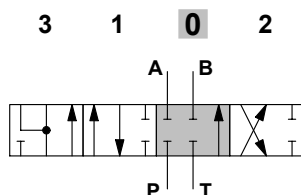


Spool stroke

position 1: + 4.5 mm (+ 0.18 in)
position 2: - 4.5 mm (- 0.18 in)
position 3: - 9 mm (- 0.35 in)

5BY (30 01 3509) spool type

Double acting, with A and B closed in neutral position, 4 positions, floating in position 3, with spool out

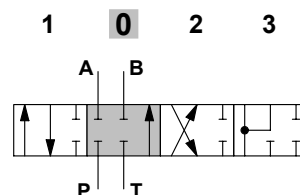


Spool stroke

position 3: + 9 mm (+ 0.35 in)
position 1: + 4.5 mm (+ 0.18 in)
position 2: - 4.5 mm (- 0.18 in)

8 (30 01 3513) spool type

Double acting, 4 positions, regenerative in position 3



Spool stroke

position 1: + 4.5 mm (+ 0.18 in)
position 2: - 4.5 mm (- 0.18 in)
position 3: - 7.5 mm (- 0.30 in)

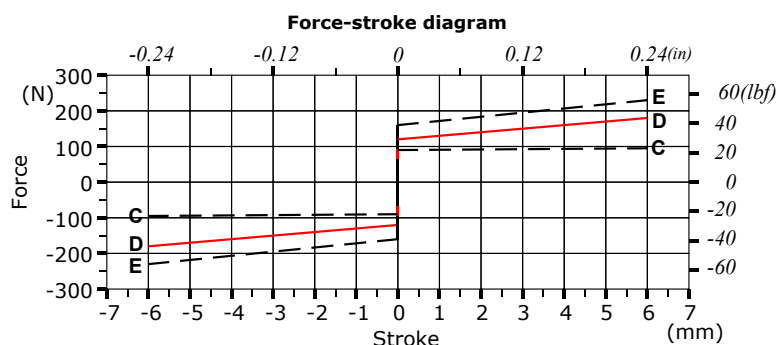
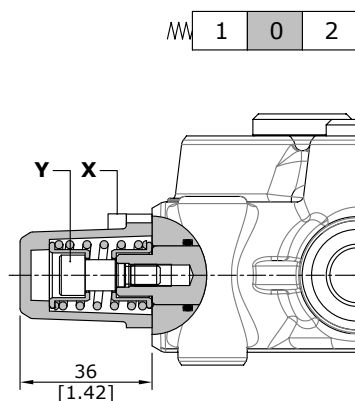
directional valve with left inlet

"A" side spool positioners

With spring return in neutral position

8 type (30 07 5300)

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**).

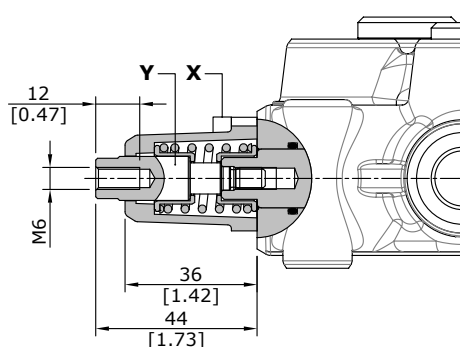


Wrenches and tightening torques

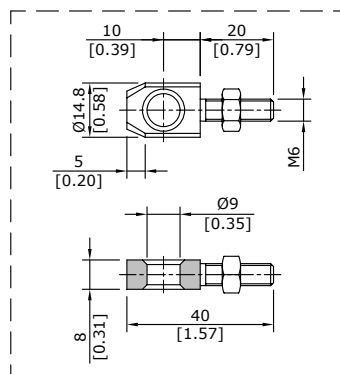
X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 6 - 9 Nm (6.6 lbft)

8D type (30 07 5307)

With M6 female threaded pin extension for dual control.



Spool end joint dimensions (optional)



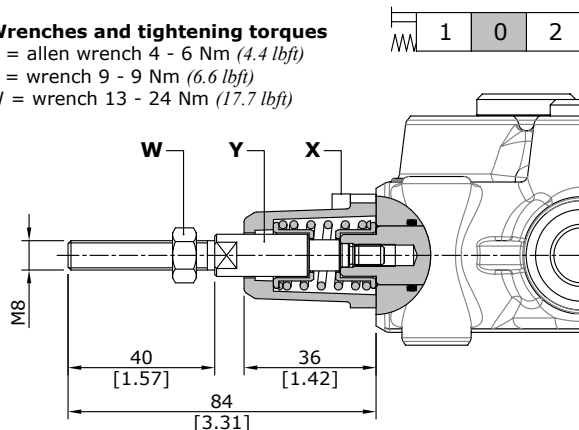
Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 10 - 9 Nm (6.6 lbft)

8D2 type (30 07 5308)

Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 9 - 9 Nm (6.6 lbft)
W = wrench 13 - 24 Nm (17.7 lbft)

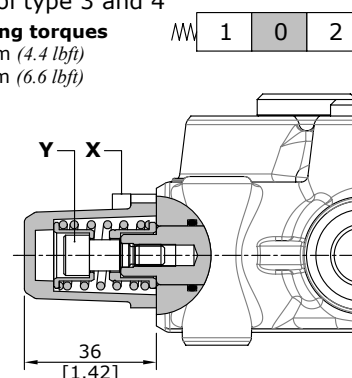


8T type (30 07 5301)

For single acting spool type 3 and 4

Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 6 - 9 Nm (6.6 lbft)

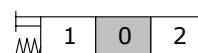
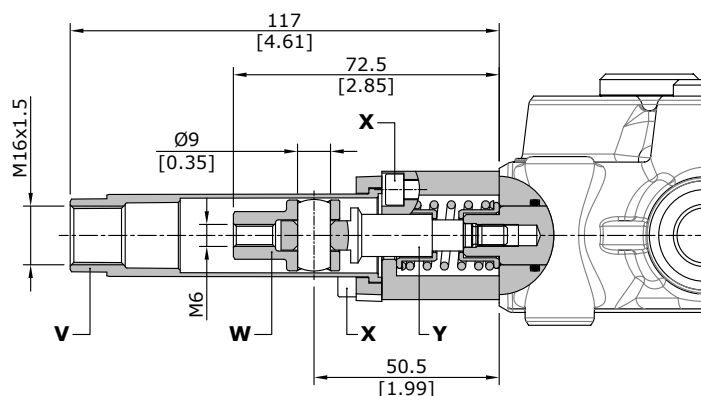


directional valve with left inlet

"A" side spool positioners

With spring return in neutral position

8TL type (30 07 5327)

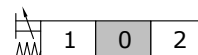
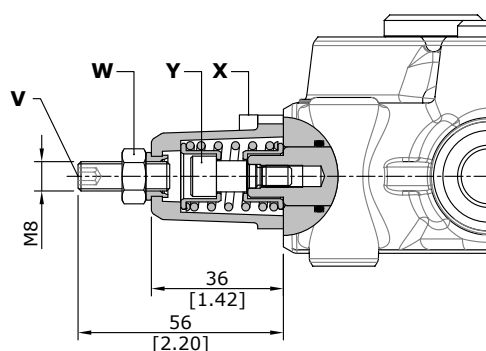


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 8 - 9 Nm (6.6 lbft)
W = wrench 13
V = wrench 20

8F2 type (30 07 5302)

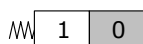
With spool stroke adjustment in position 2 (P→B)



Wrenches and tightening torques

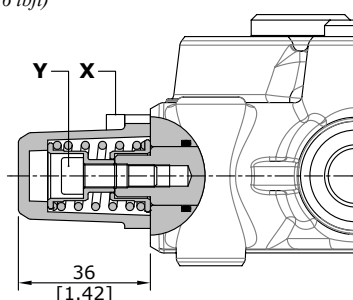
X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 6 - 9 Nm (6.6 lbft)
W = wrench 13 - 24 Nm (17.7 lbft)
V = allen wrench 4

19 type (30 07 5410)

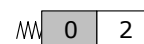


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 5 - 9 Nm (6.6 lbft)

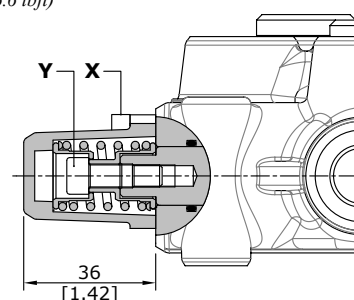


20 type (30 07 5411)



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 5 - 9 Nm (6.6 lbft)

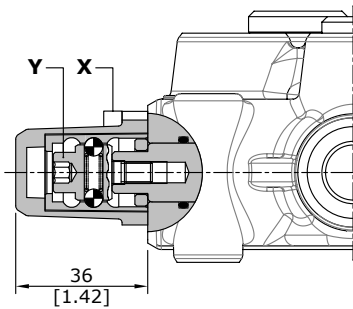


directional valve with left inlet

"A" side spool positioners

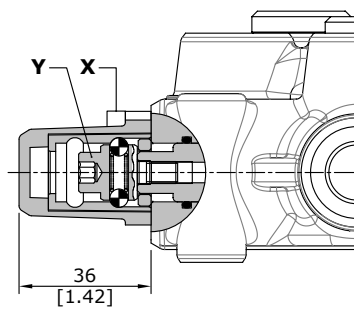
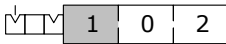
With detent

11 type (30 07 5303)



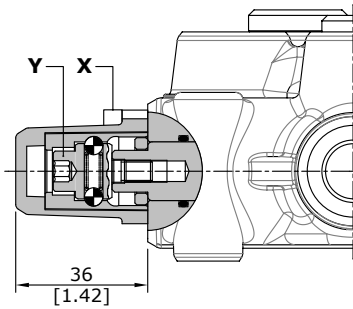
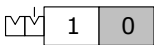
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm (4.4 lbf_t)
Y = allen wrench 6 - 9 Nm (6.6 lbf_t)

12 type (30 07 5334)



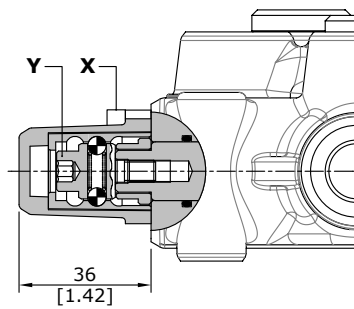
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm (4.4 lbf_t)
Y = allen wrench 6 - 9 Nm (6.6 lbf_t)

15 type (30 07 5304)



Wrenches and tightening torques
X = allen wrench 4 - 6 Nm (4.4 lbf_t)
Y = allen wrench 6 - 9 Nm (6.6 lbf_t)

16 type (30 07 5408)



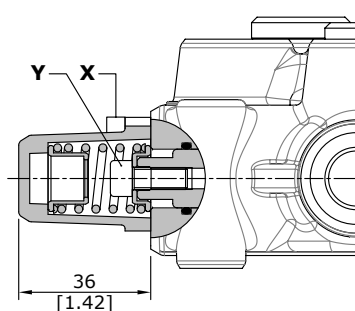
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm (4.4 lbf_t)
Y = allen wrench 6 - 9 Nm (6.6 lbf_t)

directional valve with left inlet

"A" side spool positioners

With spring return

17 type (30 07 5412)

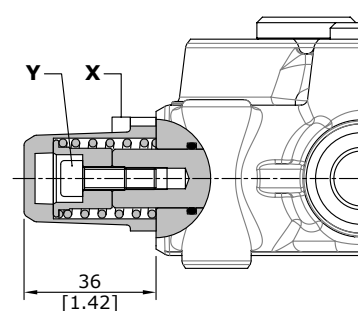
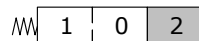


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = allen wrench 5 - 9 Nm (6.6 lbft)

18 type (30 07 5305)

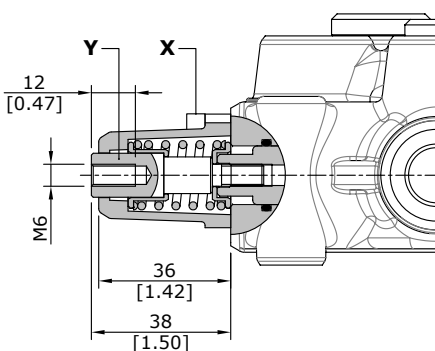
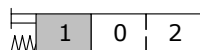


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = allen wrench 5 - 9 Nm (6.6 lbft)

17D type (30 07 5413)

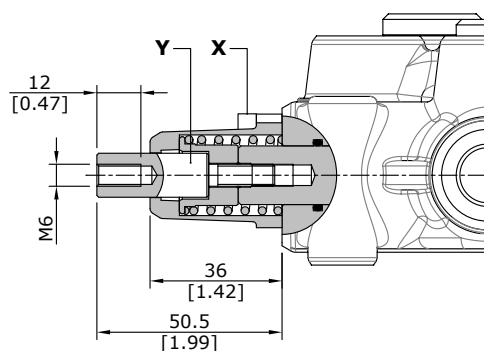
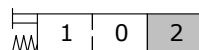


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = wrench 11 - 9 Nm (6.6 lbft)

18D type (30 07 5306)



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

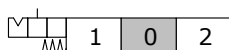
Y = wrench 11 - 9 Nm (6.6 lbft)

directional valve with left inlet

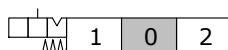
"A" side spool positioners

With detent and spring return to neutral position from either directions

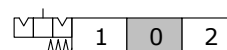
9B type (30 07 5309)
detent in position 1
(curve A)



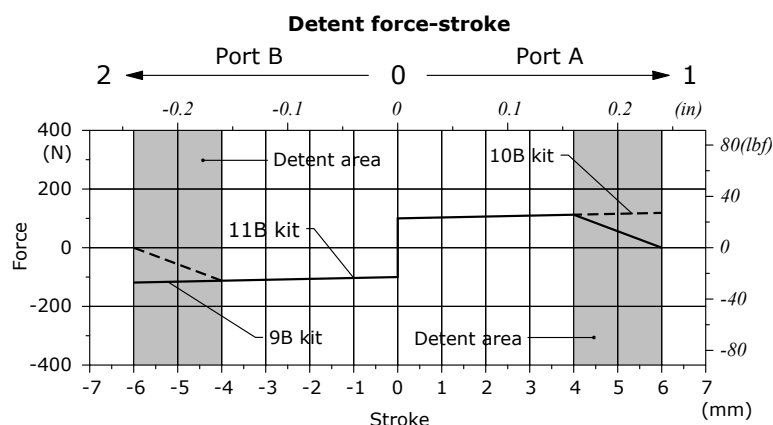
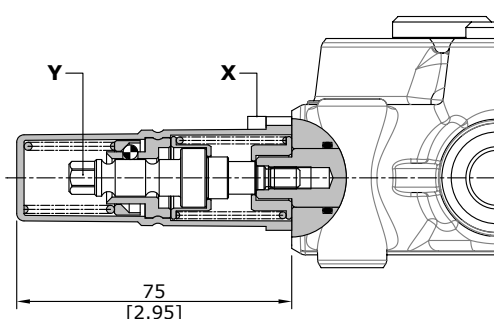
10B type (30 07 5310)
detent in position 2
(curve B)



11B type (30 07 5311)
detent in position 1 and 2
(curves A and B)



11B type



Wrenches and tightening torques

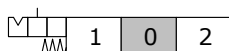
X = allen wrench 4 - 6 Nm (4.4 lbf)
Y = wrench 8 - 9 Nm (6.6 lbf)

Position 1 - Detent force: 120 N (27 lbf) $\pm$ 10% / Release force: 230 N (51.7 lbf) $\pm$ 10%

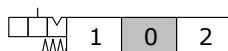
Position 2 - Detent force: 120 N (27 lbf) $\pm$ 10% / Release force: 230 N (51.7 lbf) $\pm$ 10%

For single acting spool type 3 and 4
Stroke : 4.2mm

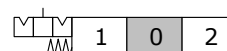
9BT type (30 07 5312)
detent in position 1
(curve A)



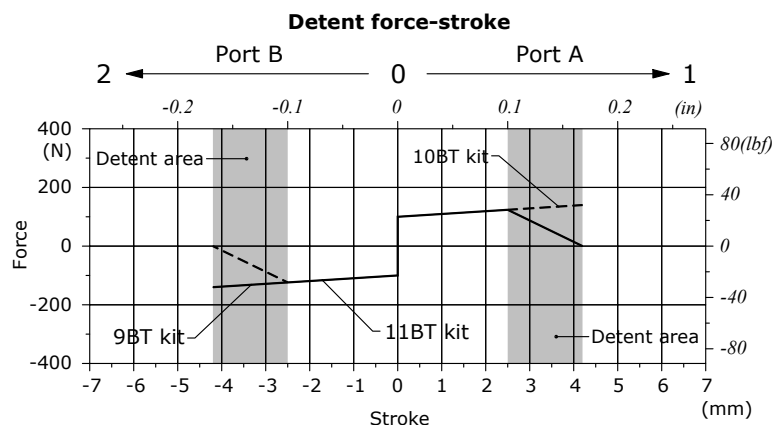
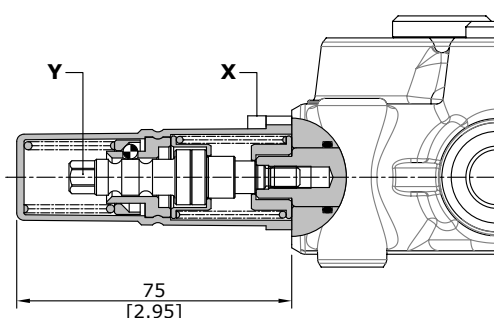
10BT type (30 07 5313)
detent in position 2
(curve B)



11BT type (30 07 5314)
detent in position 1 and 2
(curves A and B)



11BT type



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbf)
Y = wrench 8 - 9 Nm (6.6 lbf)

Position 1 - Detent force: 120 N (27 lbf) $\pm$ 10% / Release force: 230 N (51.7 lbf) $\pm$ 10%

Position 2 - Detent force: 120 N (27 lbf) $\pm$ 10% / Release force: 230 N (51.7 lbf) $\pm$ 10%

directional valve with left inlet

"A" side spool positioners

With microswitch

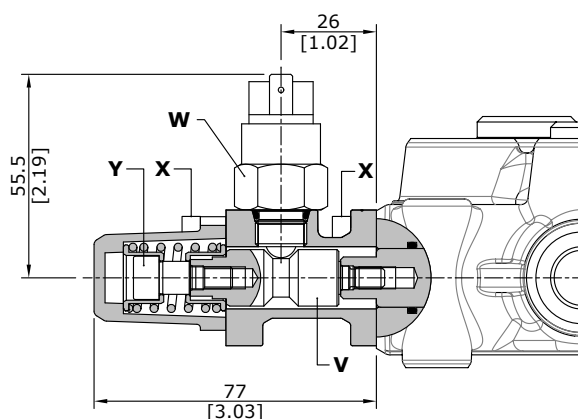
8MG3(NO) type (30 07 5319)

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

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

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

For more information contact Sales Department.



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbf ft)

Y = allen wrench 6 - 9 Nm (6.6 lbf ft)

W = wrench 22 - 42 Nm (31 lbf ft)

V = wrench 10 - 9.8 Nm (7.2 lbf ft)

Operating features

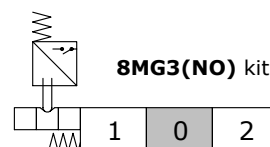
MICROSWITCH

Mechanical life

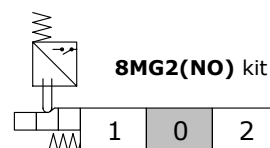
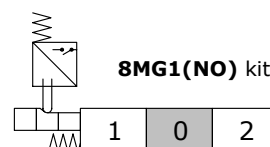
: 5×10^5 operations

Electrical life (resistive load): 5×10^4 operations 10A / 12VDC

: 5×10^4 operations 3A / 24VDC

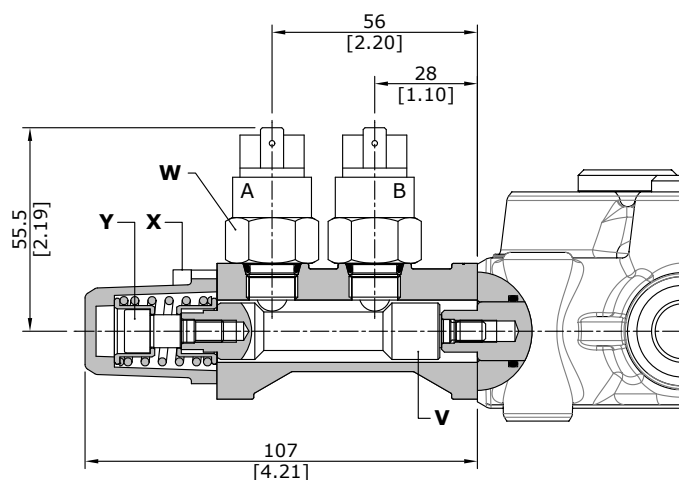


Other configurations



8MG1\MG2(NC\NC) type (30 07 5326)

With double microswitch in position 1 and 2.



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbf ft)

Y = allen wrench 6 - 9 Nm (6.6 lbf ft)

W = wrench 22 - 42 Nm (31 lbf ft)

V = wrench 10 - 9.8 Nm (7.2 lbf ft)

Operating features

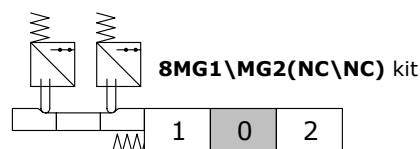
MICROSWITCH

Mechanical life

: 5×10^5 operations

Electrical life (resistive load): 5×10^4 operations 10A / 12VDC

: 5×10^4 operations 3A / 24VDC



Positions	A	B
1		
0		
2		

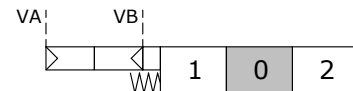
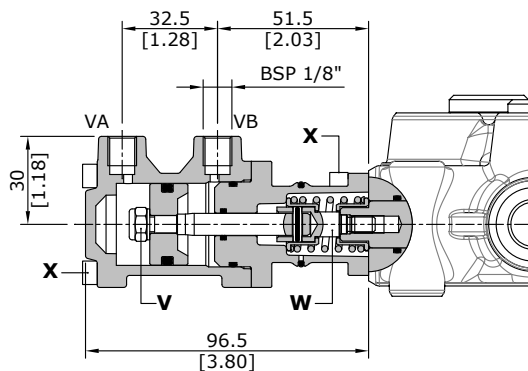
directional valve with left inlet

"A" side spool positioners

ON/OFF pneumatic kit

ON/OFF pneumatic: 8P type (30 07 5329)

With spring return to neutral position.



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

W = wrench 10 - 9 Nm (6.6 lbft)

V = wrench 10 - 9 Nm (6.6 lbft)

Common features

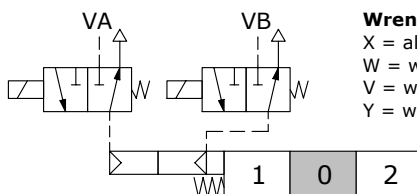
Pilot pressure.....: min. 5.5 bar (min. 80 psi)

: max. 10 bar (min. 145 psi)

ON/OFF electro-pneumatic kit

Electro-pneumatic: 8EP3 type

With spring return to neutral position.



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

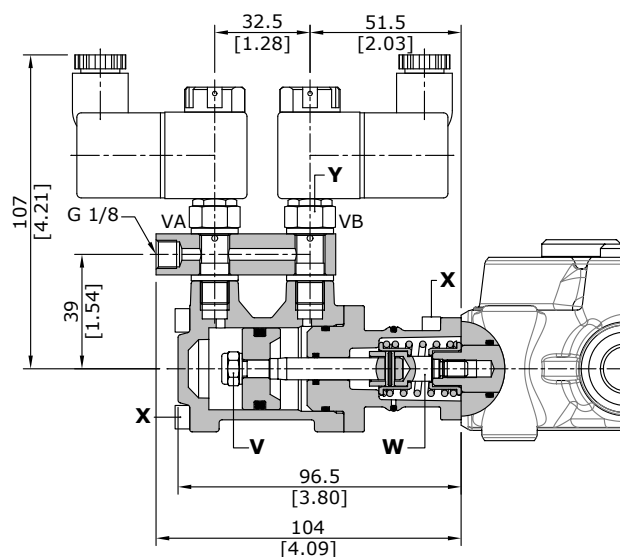
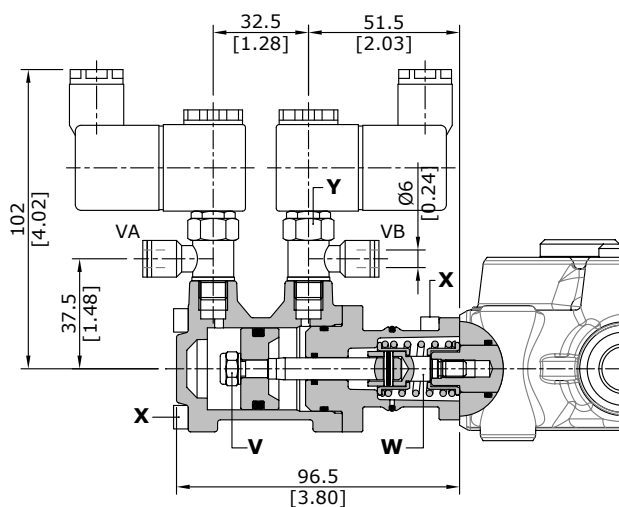
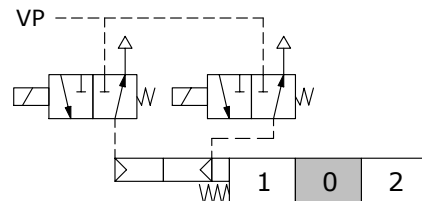
W = wrench 10 - 9 Nm (6.6 lbft)

V = wrench 10 - 9 Nm (6.6 lbft)

Y = wrench 15 - 6 Nm (4.4 lbft)

Electro-pneumatic: 8EP4 type

With spring return to neutral position.



Common features

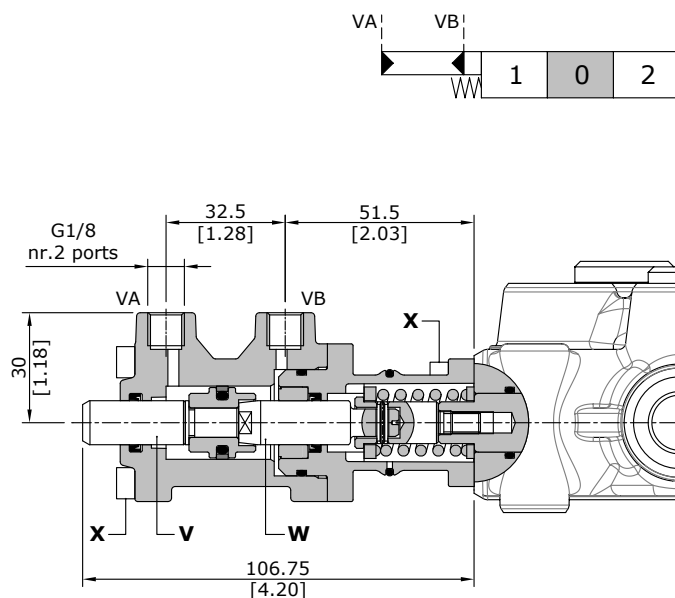
Pilot pressure.....: min. 5.5 bar (min. 80 psi)

: max. 10 bar (min. 145 psi)

directional valve with left inlet

"A" side spool positioners

Unilateral hydraulic proportional spool control kit 81Z (30 07 5432)



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbf_t)

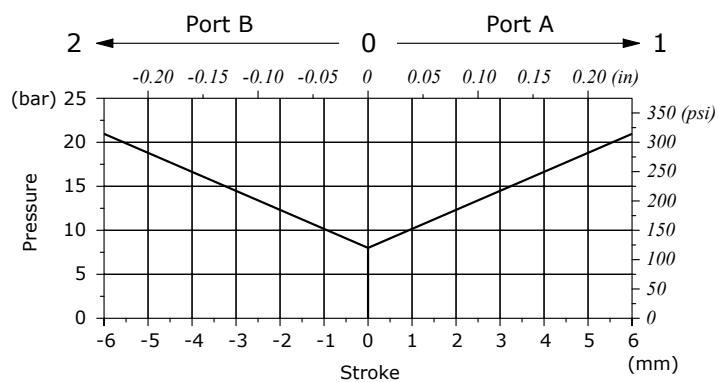
W = wrench 9 - 9 Nm (6.6 lbf_t)

V = allen wrench 6 - 9 Nm (6.6 lbf_t)

Features

adjustment range: from 8 to 22 bar
(from 110 to 310 psi)

Pressure - stroke diagram

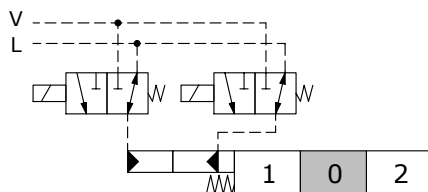


directional valve with left inlet

"A" side spool positioners

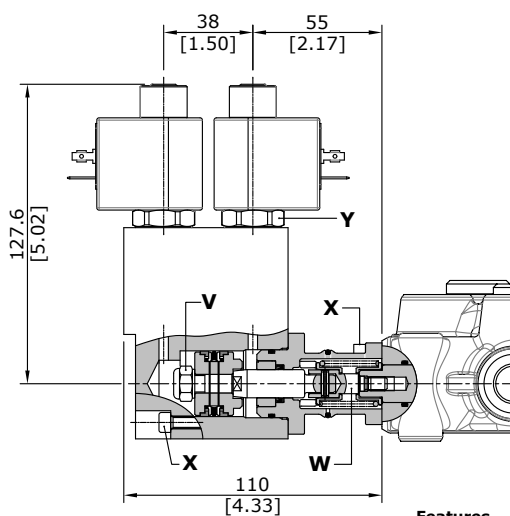
ON/OFF electro-hydraulic kit and proportional electro-hydraulic kit

ON/OFF electro-hydraulic: 8EI3 type



Wrenches and tightening torques

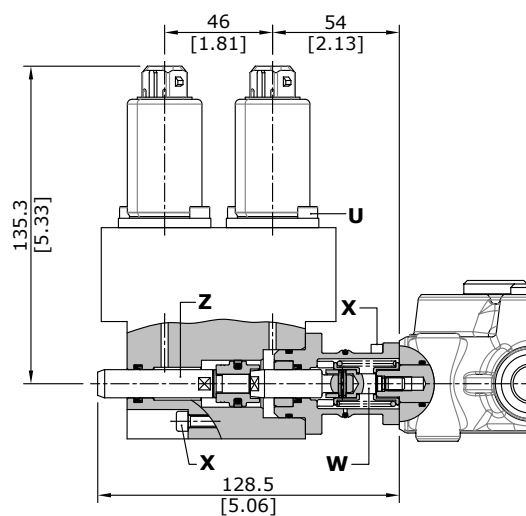
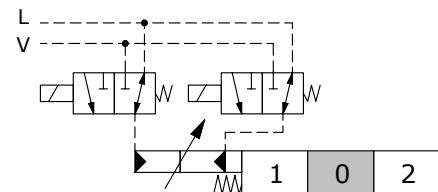
X = allen wrench 4 - 6 Nm (4.4 lbft)
W = wrench 10 - 9 Nm (6.6 lbft)
V = wrench 13 - 9 Nm (6.6 lbft)
Y = wrench 24 - 9.8 Nm (7.2 lbft)
Z = wrench 11 - 9 Nm (6.6 lbft)
U = allen wrench 4



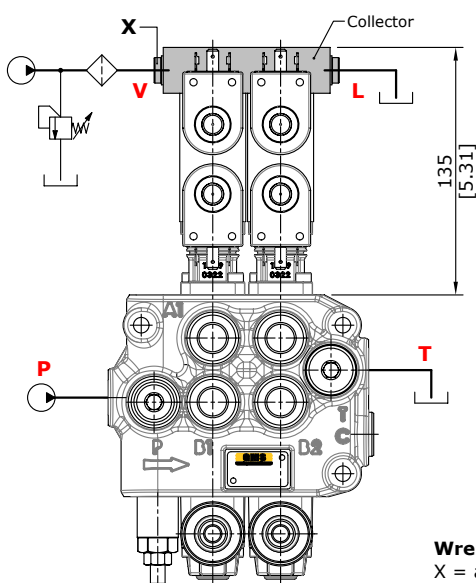
Features

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

Proportional electro-hydraulic: 8EI3F type



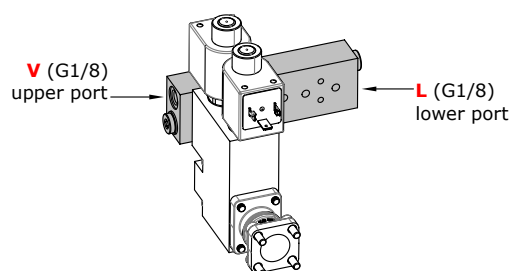
Collector kit for external pilot and drain



Wrenches and tightening torques

X = allen wrench 5 - 24 Nm (17.7 lbft)

Description example:
45L GM08/2-P(X-100)/18EI3L/18EI3L/
AET-PSL2-KE2S0-24VDC



COLLECTOR KIT CODES

Type	Code *	Description
KE1S0	30 07 5537	Kit for one section
KE2S0	30 07 5512	Kit for 2 sections
KE3S0	30 07 5513	Kit for 3 sections
KE4S0	30 07 5514	Kit for 4 sections
KE5S0	30 07 5515	Kit for 5 sections
KE6S0	30 07 5516	Kit for 6 sections
KE7S0	30 07 7633	Kit for 7 sections

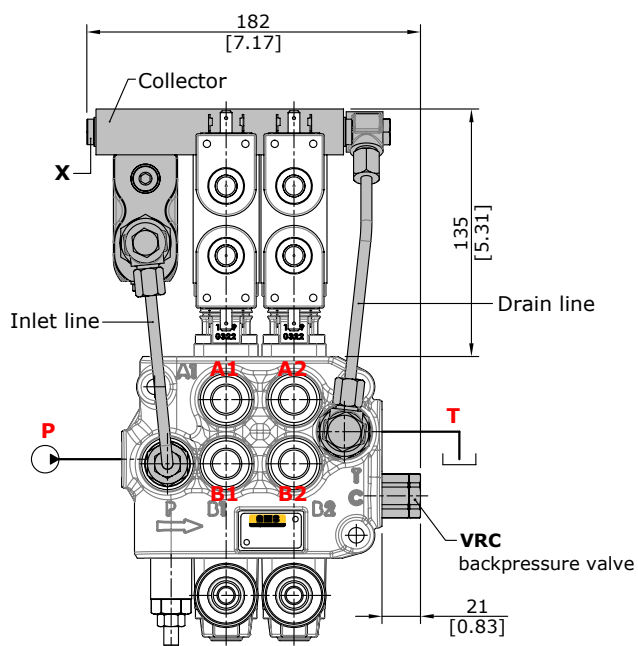
(*) codes are referred to BSP thread

"A" side spool positioners

ON/OFF electro-hydraulic kit 8EI3 type

Collector kit for internal pilot and drain

The kit include collector, VRP pressure reducing valve and pipes.

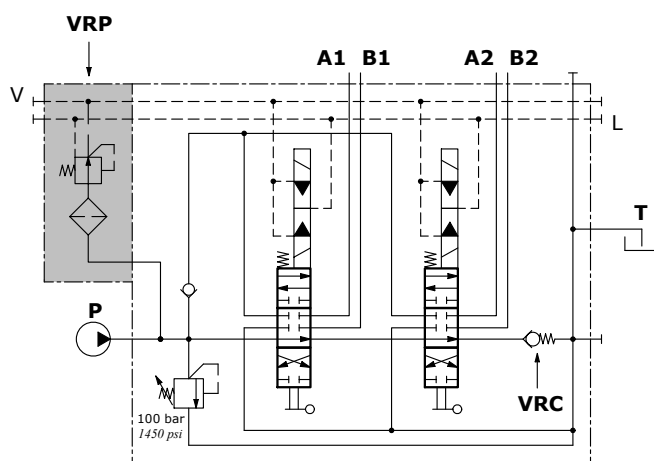


Wrenches and tightening torques

X = allen wrench 5 - 24 Nm (17.7 lbf ft)

Description example:
45L GM08/2-P(X-100)/
18EI3L/18EI3L/
VRC-PSL2-KE2R0-24VDC

Features
VRP VALVE
Output pressure.....: 25 bar / 363 psi
Max. flow.....: 8 l/min
Filtering.....: 80 µ



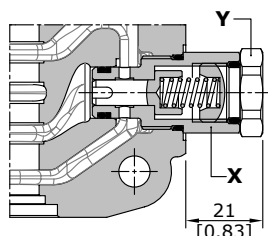
COLLECTOR KIT CODES

Type	Code *	Description
KE1R0	30 07 5476	Kit for one section
KE2R0	30 07 5477	Kit for 2 sections
KE3R0	30 07 5478	Kit for 3 sections
KE4R0	30 07 5479	Kit for 4 sections
KE5R0	30 07 5480	Kit for 5 sections
KE6R0	30 07 5481	Kit for 6 sections
KE7R0	30 07 7634	Kit for 7 sections

(*) codes are referred to BSP thread

VRC backpressure valve

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



Wrenches and tightening torques

X = wrench 22 - 42 Nm (31 lbf ft)
Y = wrench 22 - 24 Nm (17.7 lbf ft)

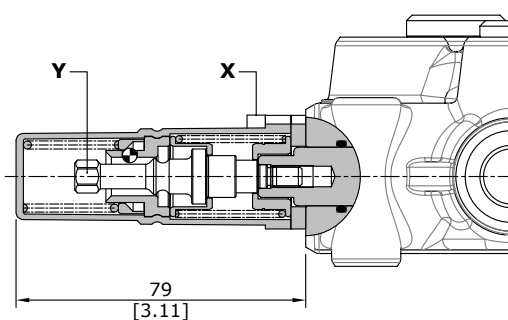
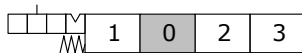
directional valve with left inlet

"A" side spool positioners

Particular positioner kits for special spools

13NZ type (30 07 5316)

4 positions with spring return in neutral and detent in position 3: **for 5DY spool.**

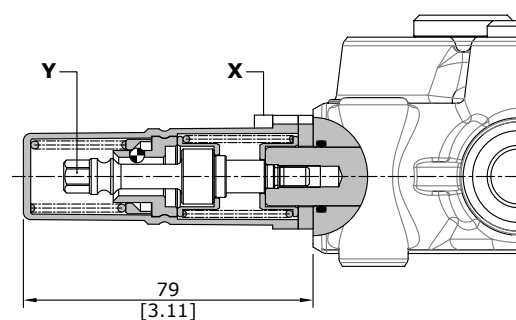
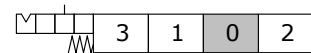


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 8 - 9 Nm (6.6 lbft)

13QN type (30 07 5315)

4 positions with spring return in neutral and detent in position 3: **for 5BY spool.**

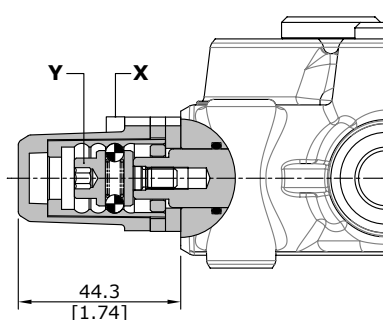
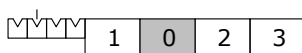


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 8 - 9 Nm (6.6 lbft)

11NZ type (30 07 5317)

4 positions, detent in all positions. **for 5DY spool.**

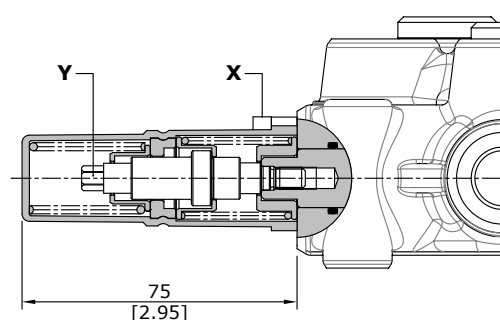
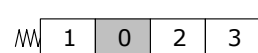


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 6 - 9 Nm (6.6 lbft)

13FZ type (30 07 5318)

4 positions with spring return in neutral and reduced spool stroke: **for 8 spool**



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 6 - 9 Nm (6.6 lbft)

45L GM

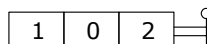
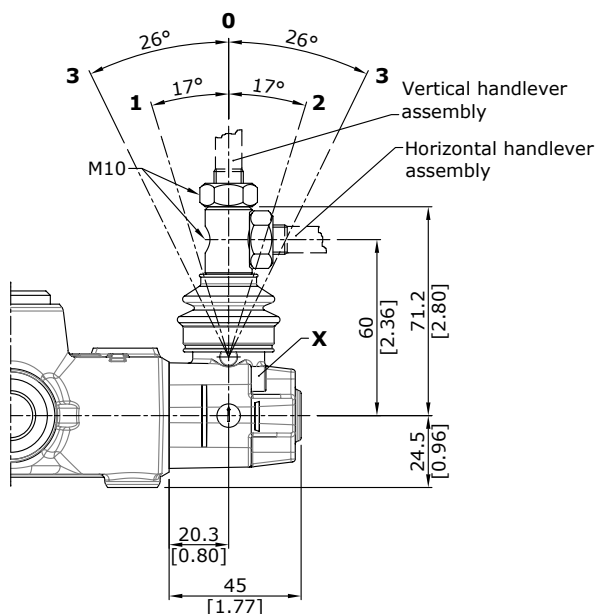
directional valve with left inlet

"B" side options

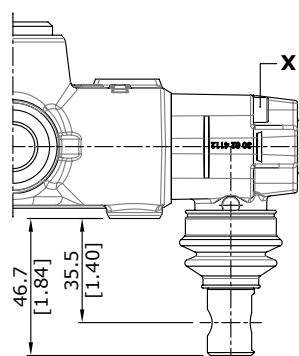
Lever control

L type (30 07 5335)

Alluminium lever pivot box with protective rubber bellow; it can be roated 180° (configuration **L180**).



configuration L180

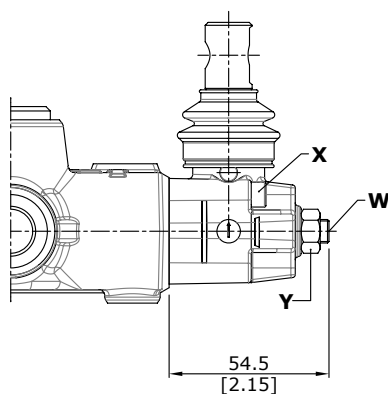
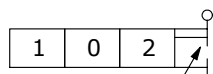


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

LF1 type (30 07 5337)

With spool stroke adjustment in position 12 (P→A). It can be roated 180° (configuration **LF1180**).



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = wrench 13 - 24 Nm (17.7 lbft)

W = allen wrench 4

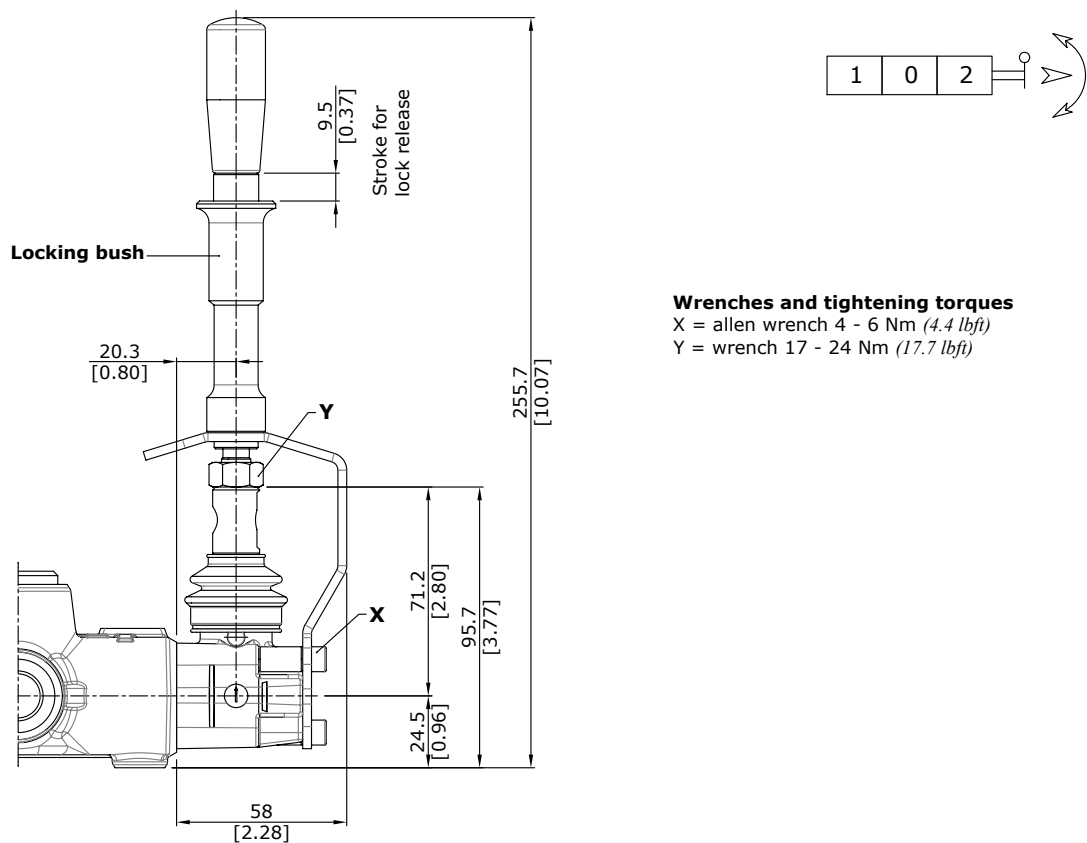
directional valve with left inlet

"B" side options

Lever control

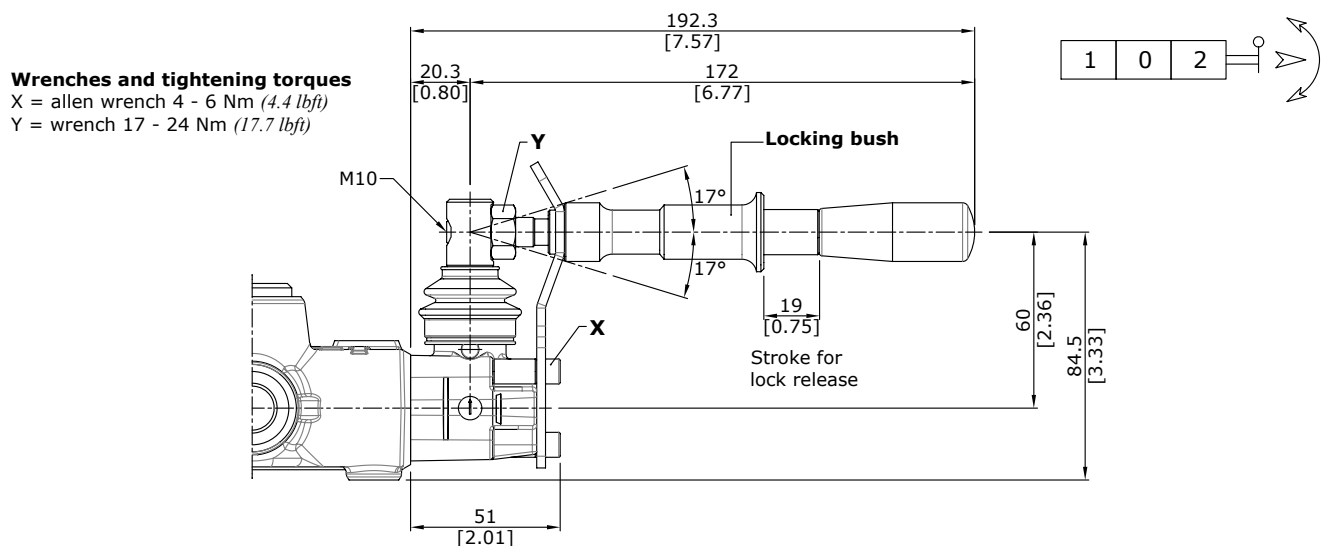
Safety lever LEB type (30 07 5340)

Safety levers with lock in neutral complete with handlever; lift handlever knob to operate.



Safety lever LUP type (30 07 5341)

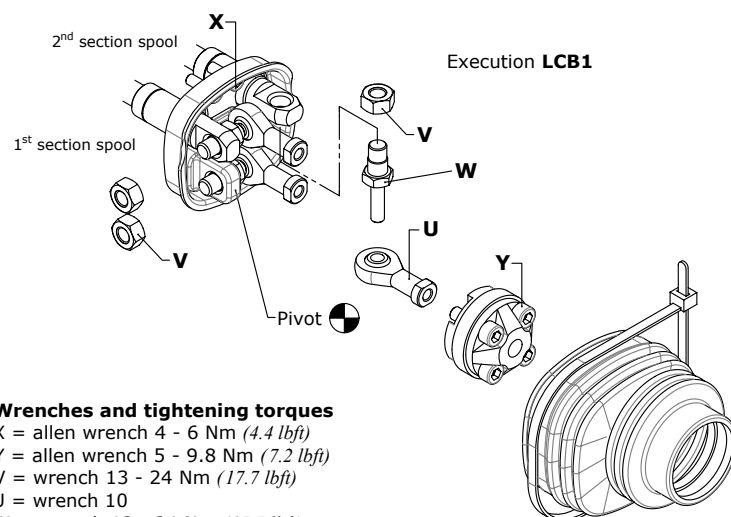
Available as **LUP** configuration



directional valve with left inlet

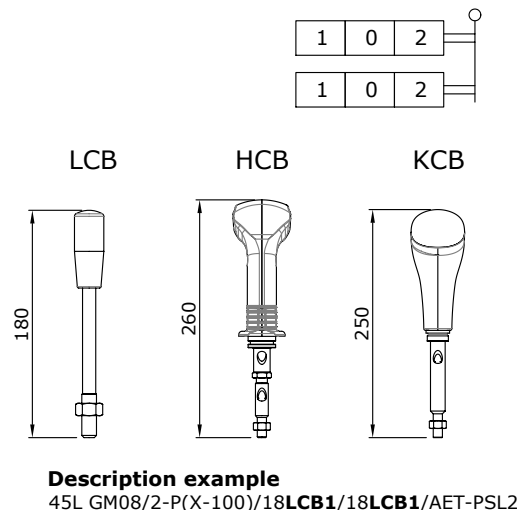
"B" side options

LCB mechanical joystick for two sections control (30 07 5426)



Wrenches and tightening torques

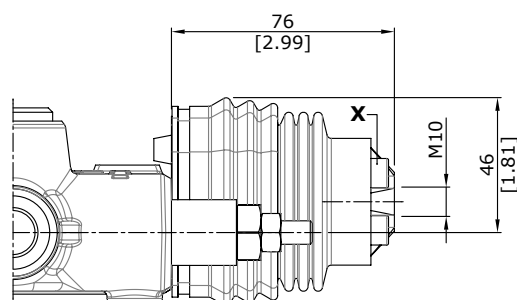
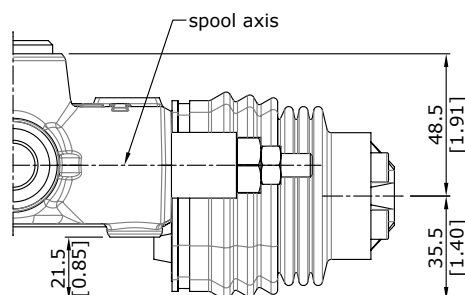
X = allen wrench 4 - 6 Nm (4.4 lbft)
 Y = allen wrench 5 - 9.8 Nm (7.2 lbft)
 V = wrench 13 - 24 Nm (17.7 lbft)
 U = wrench 10
 W = wrench 12 - 24 Nm (17.7 lbft)



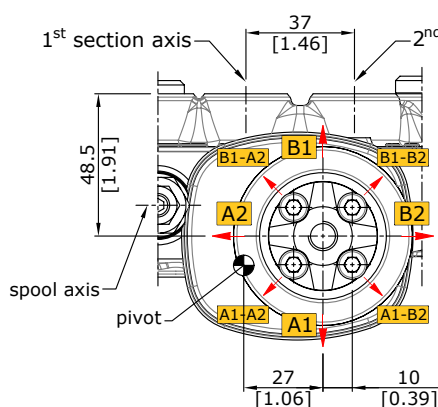
Dimensions and movement scheme for left inlet directional valve

Wrenches and tightening torques

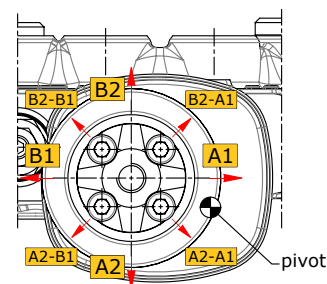
X = allen wrench 5 - 9.8 Nm (7.2 lbft)



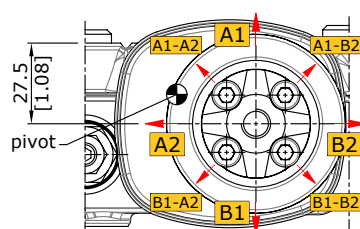
Execution LCB1
 pivot placed down on the left



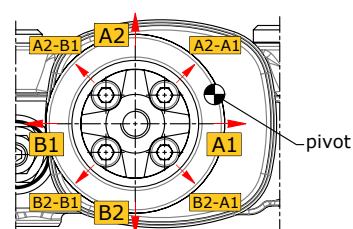
Execution LCB2
 pivot placed down on the right



Execution LCB3
 pivot placed above on the left



Execution LCB4
 pivot placed above on the right

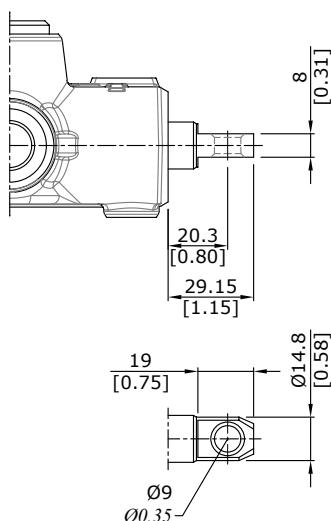
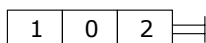


NOTE : Don't use with spool type 5DY.

directional valve with left inlet

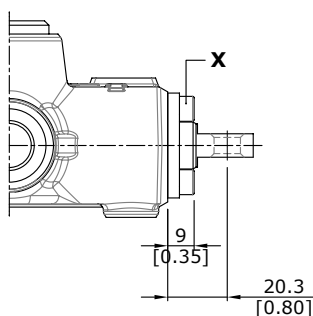
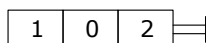
"B" side options

SL type



SLP type (30 07 5338)

Mechanical control with dust-proof plate kit.

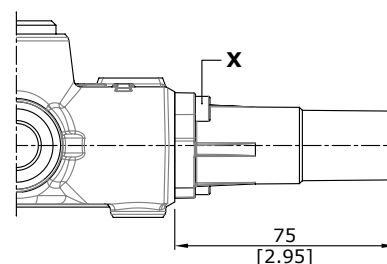
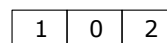


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

SLCZ type (30 07 7621)

Protection cap usable with pneumatic, electropneumatic, and electrohydraulic spool positioners.

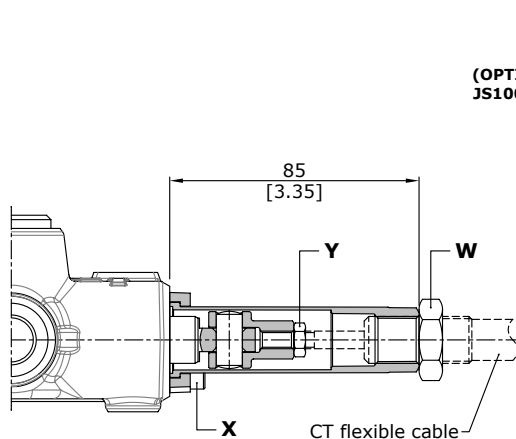
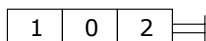


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

TQ cable remote control kit (30 07 5328)

Prearranged for remote control with flexible cable.

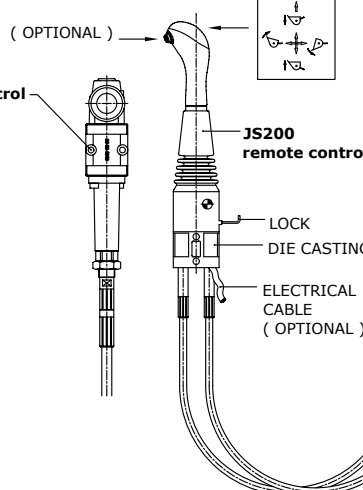


Wrenches and tightening torques

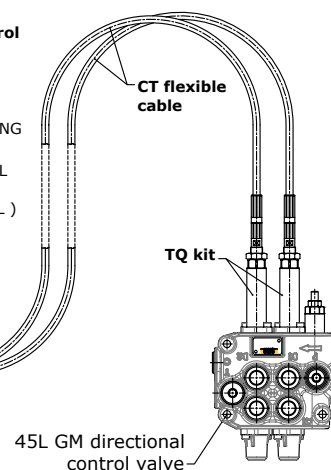
X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = wrench 10 - 9.8 Nm (7.2 lbft)

W = wrench 24 - 24 Nm (17.7 lbft)



Example of cable control



NOTE : For further information about remote cable control, require related documentation.

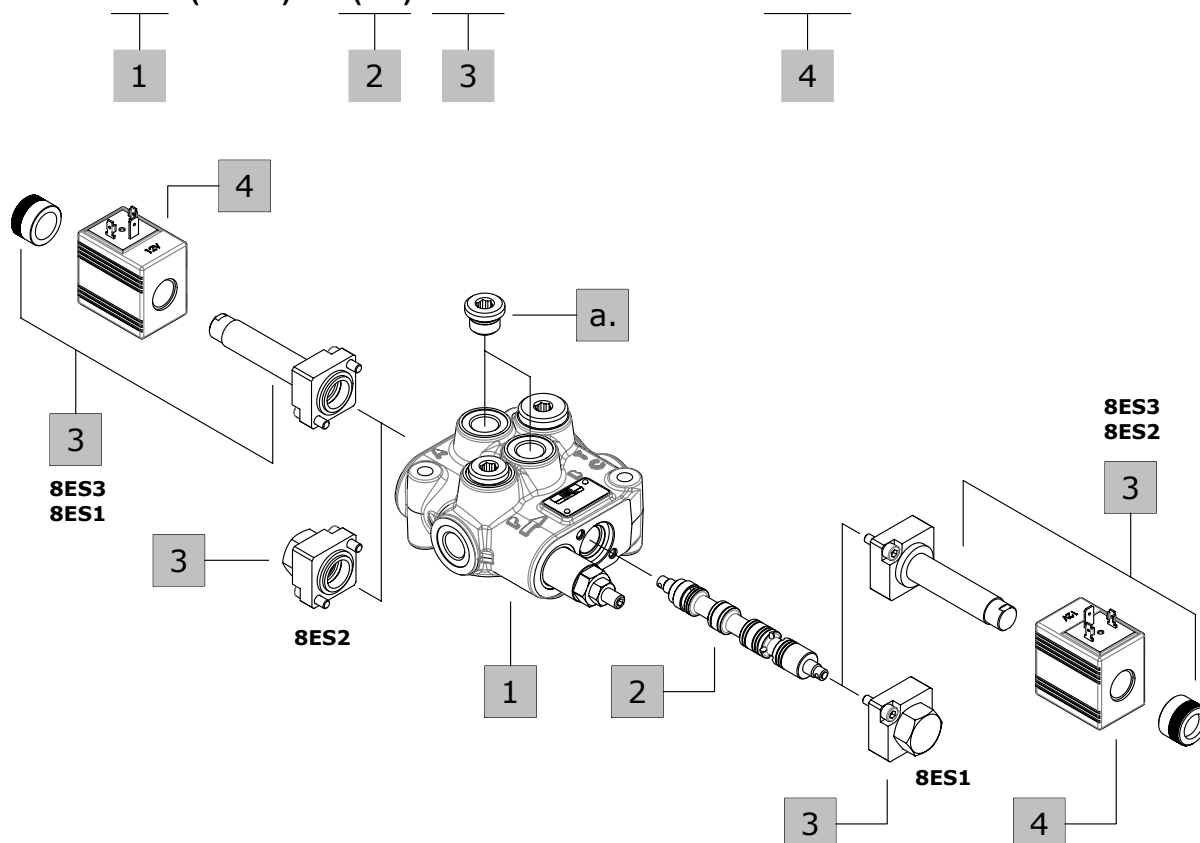
Complete controls

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:

45L GM08 / 1 - P (X-100) / 1(ES) 8ES3 / AET - PSL2 - 12VDC



1. Body kits *

TYPE	CODE	DESCRIPTION
1-P	30 08 9101	Parallel, 1 section
2-P	30 08 9102	Parallel, 2 sections
3-P	30 08 9103	Parallel, 3 sections
4-P	30 08 9104	Parallel, 4 sections
5-P	30 08 9105	Parallel, 5 sections
6-P	30 08 9106	Parallel, 6 sections
7-P	30 08 9107	Parallel, 7 sections

Include body, seals, rings and load check valve.

2. Spools

TYPE	CODE	DESCRIPTION
1(ES)	30 01 3643	Double acting, 3 positions, with A and B closed in neutral position
2(ES)	30 01 3644	Double acting, 3 positions, with A and B open to tank in neutral position

3. Control kit

TYPE	CODE	DESCRIPTION
8ES1	30 07 5474	P→A, with spring return to neutral position
8ES2	30 07 5474	P→B, with spring return to neutral position
8ES3	30 07 5475	Double acting with spring return to neutral position

4. Coils

TYPE	CODE	DESCRIPTION
12VDC	20 03 2295	Nominal voltage 12VDC
24VDC	20 03 2296	Nominal voltage 24VDC

a. "A" and "B" ports plugs

TYPE	CODE	DESCRIPTION
G3/8	30 05 4918	For single acting controls type 8ES1 and 8ES2

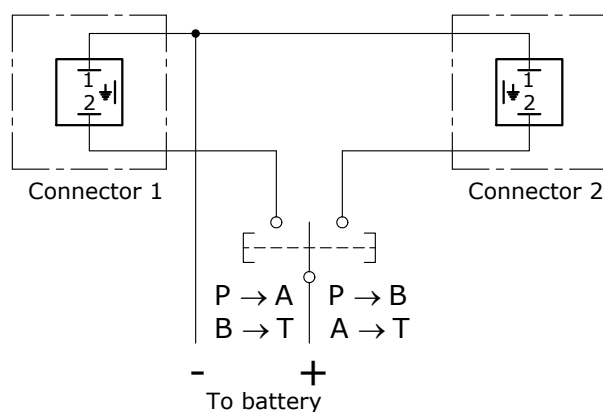
NOTE (*) – Codes are referred to **BSP** thread.

directional valve with left inlet

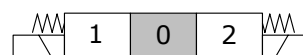
Complete controls

8ES solenoid control

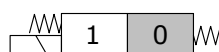
Electric wiring example



8ES3 kit double acting



8ES1 kit single acting on A



8ES2 kit single acting on B



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

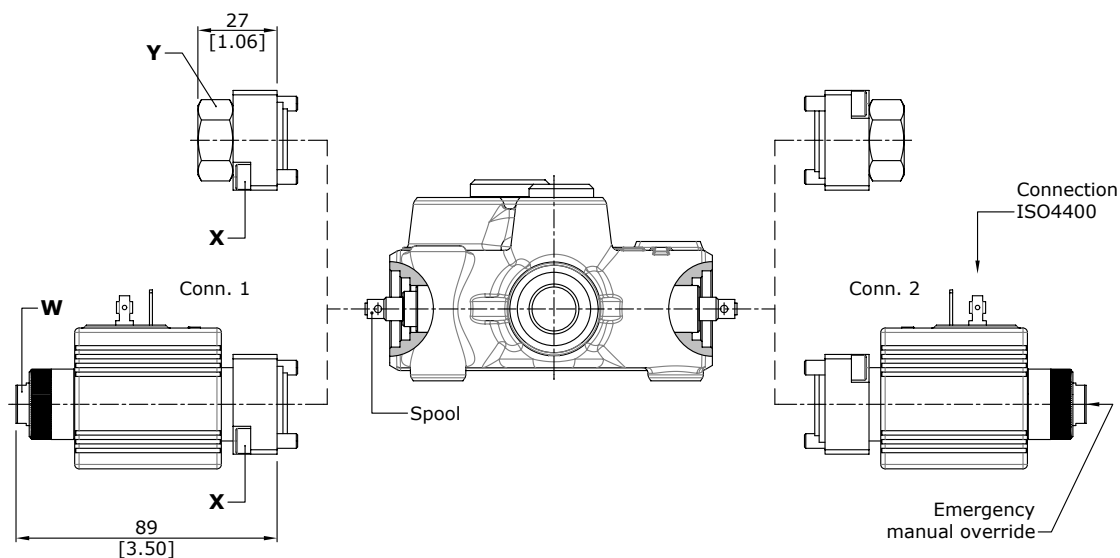
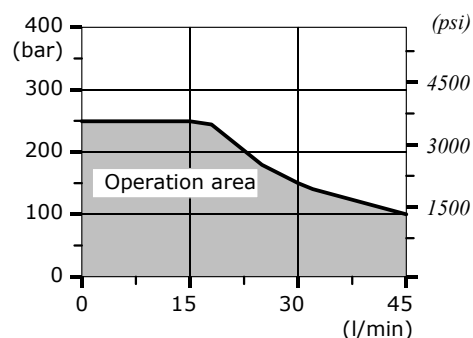
Nominal voltage tolerance..... : $\pm 10\%$

Power rating..... : 36 W

Coil insulation..... : class H

Duty cycle..... : 100%

Operating condition diagram



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = Wrench 24 - 24 Nm (17.7 lbft)

W = Wrench 13 - 24 Nm (17.7 lbft)

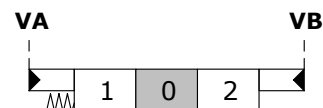
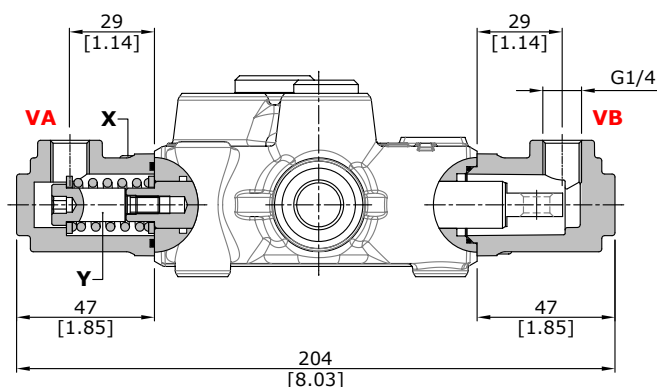
directional valve with left inlet

Complete controls

Proportional hydraulic controls

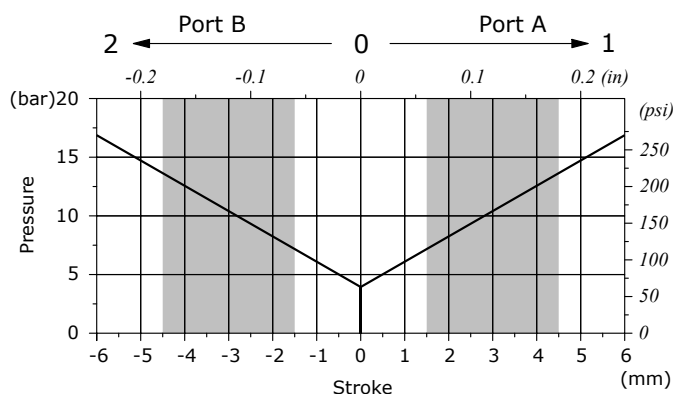
8IM type (30 07 5348)

It can be used with standard spools and body



Diagrams and features of proportional hydraulic controls

Pressure - stroke diagram (for controls represented)



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbf·ft)

Y = allen wrench 6 - 9 Nm (6.6 lbf·ft)

Operating features

Pilot pressure : max. 50 bar (725 psi)

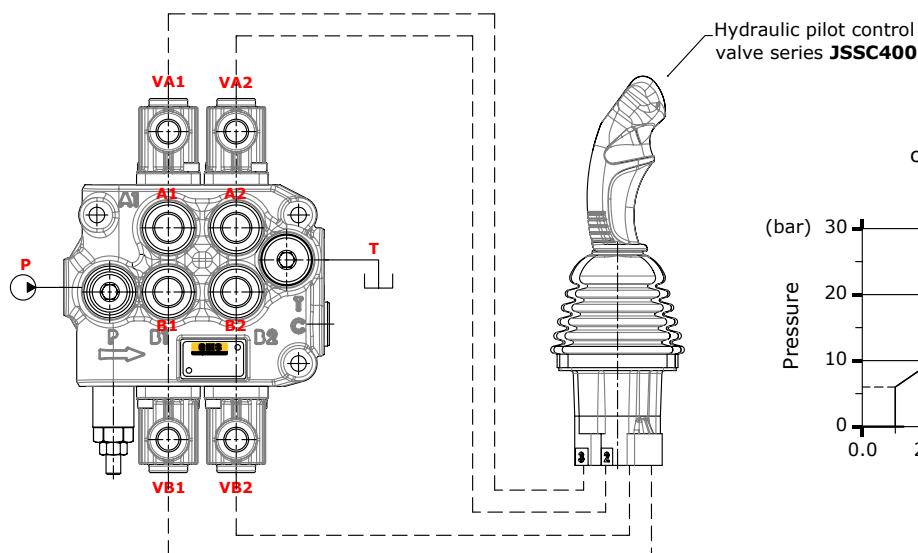
Internal leakage A(B) → T ($\Delta = 100$ bar - (1450 psi)
/ T = 40°C)

..... : max. 6 cm³/min - 0.37 in³/min

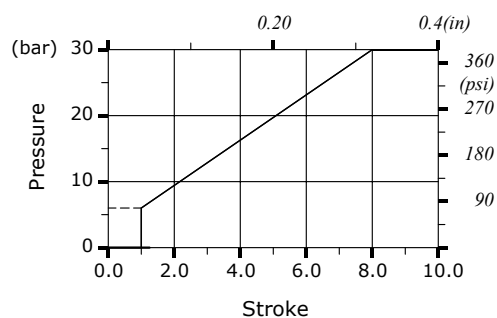
□ Spool overlap area

■ Metering area

Connection example



8IM control kit curve 001 without step



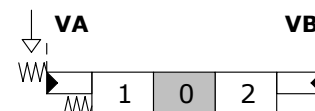
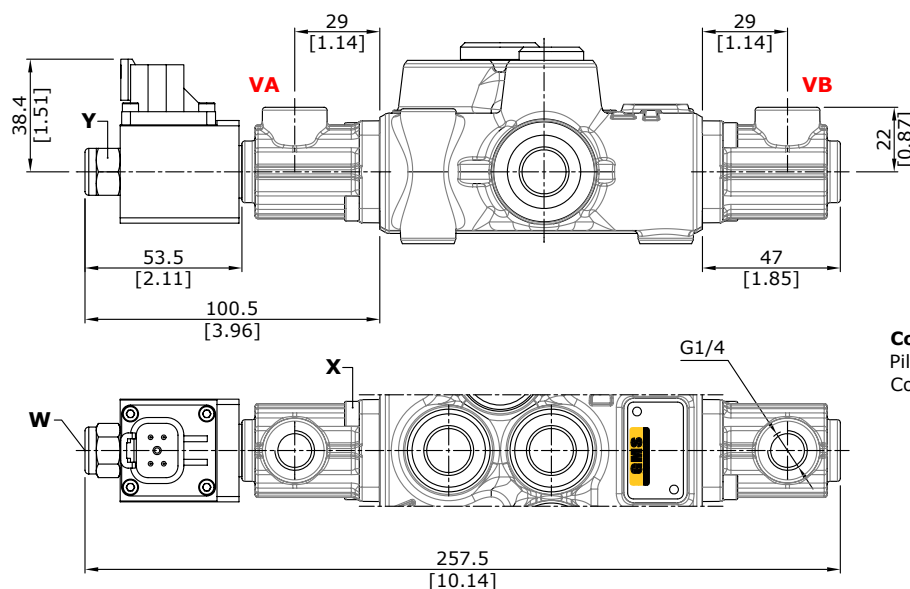
directional valve with left inlet

Complete controls

Proportional hydraulic control type

8IMSPSD (30 07 7558), 8IMSPSL (30 07 7561)

With spool position sensor.

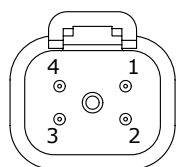


Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 17 - 9.8 Nm (7.23 lbft)
W = allen wrench 4 - 9.8 Nm (7.23 lbft)

Control features

Pilot pressure..... : max. 100 bar (1450 psi)
Connector : Deutsch DT04-4P

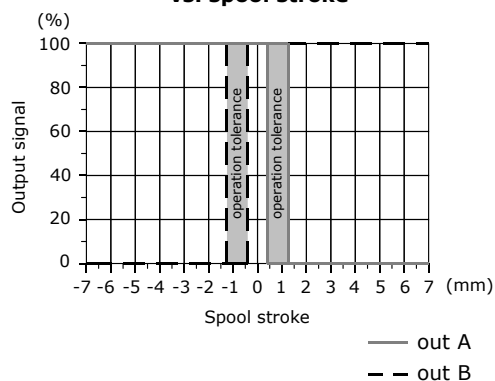


Connector PIN-OUT			
Functions			
Pin	for 5V supply	for 8-32V supply	
1	+5V	signal OUT	
2	N.C.	GND	
3	GND	Vb+	
4	signal Out	not connected	

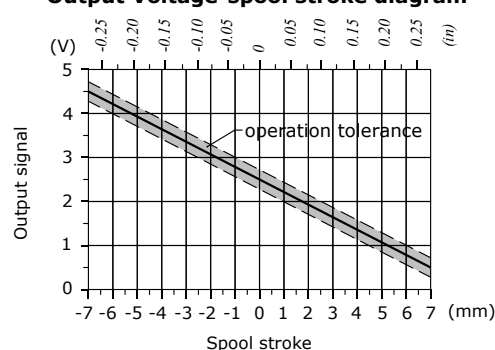
Spool position sensor features

Voltage supply range..... : from 9 to 32 VDC or 5 VDC
Current absorption..... : <10 mA
Mechanical life..... : 3x10⁶
Connector type..... : Deutsch DT04-4P
Weather protection..... : IP 67 - IP 69K
Working temperature..... : -40/+105 °C
Minimum load resistance..... : 10 KΩ
Working pressure max..... : 350 bar • 5100 psi
Max. mechanical stroke..... : ± 10mm
Max. electrical stroke..... : ± 10mm

Output signal (SPSD example)
vs. spool stroke



Output Voltage-spool stroke diagram



Output signal
Range..... : from 0.5 to 4.5 V
Linearity..... : ± 5%
Spool in neutral..... : 2.5 ± 0.2 V
Max current..... : 1 mA
Mechanical vibrations,
shock, bumps..... : IEC 68-2-6,27,29
EMC compatibility..... : ISO 13766 - ISO 15982

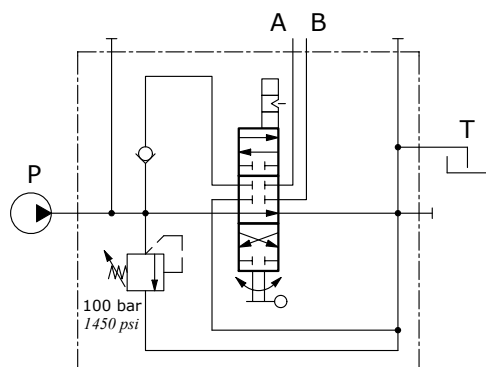
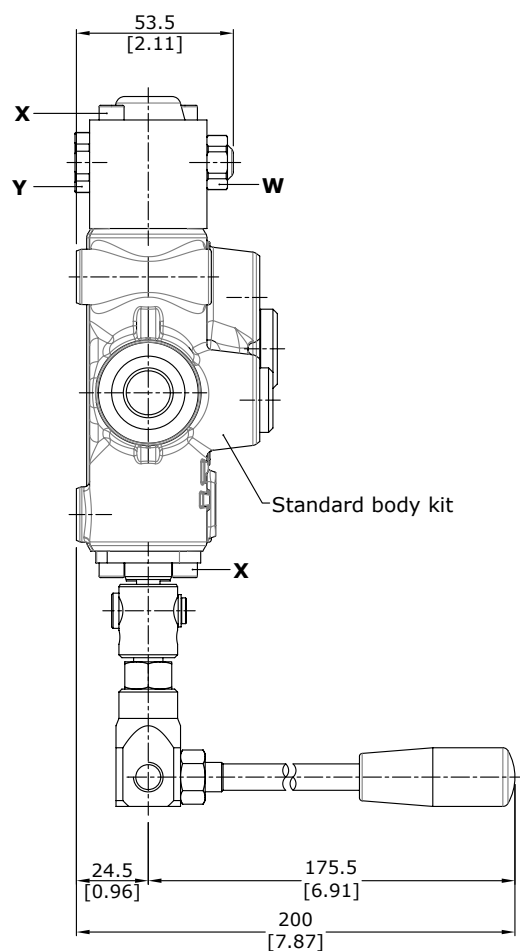
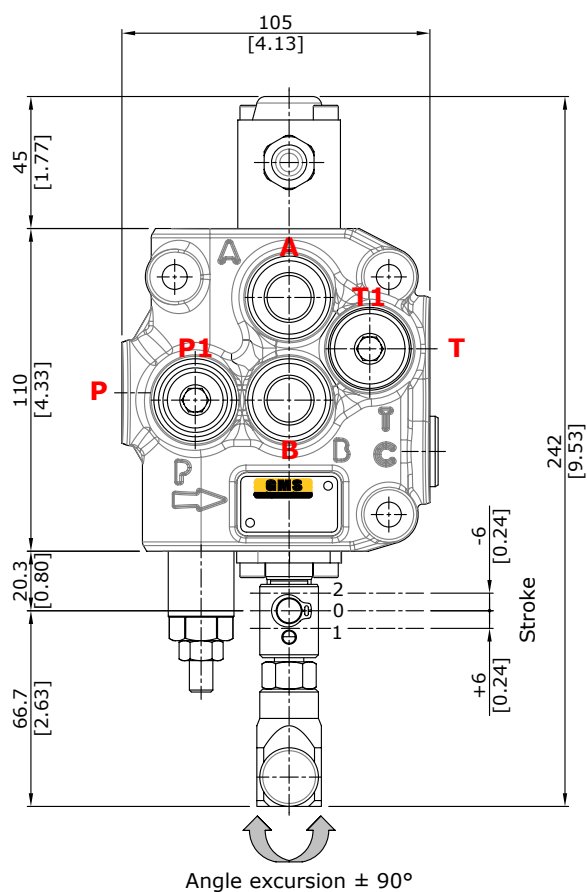
45L GM

directional valve with left inlet

Special configurations

Directional valve with rotary control kit

R type (30 07 5333)



Description example
45L GM08/1(X-100)/1 R SLP/AET-PSL2

Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = wrench 19 - 9.8 Nm (7.23 lbft)

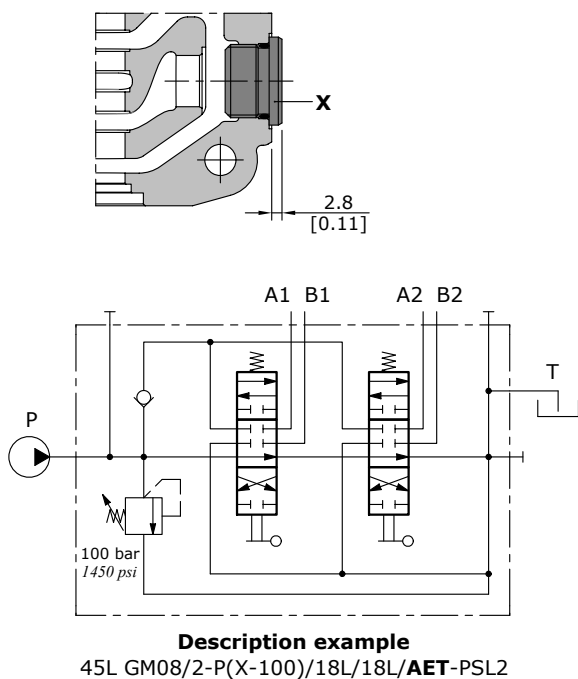
W = wrench 17 - 9.8 Nm (7.23 lbft)

directional valve with left inlet

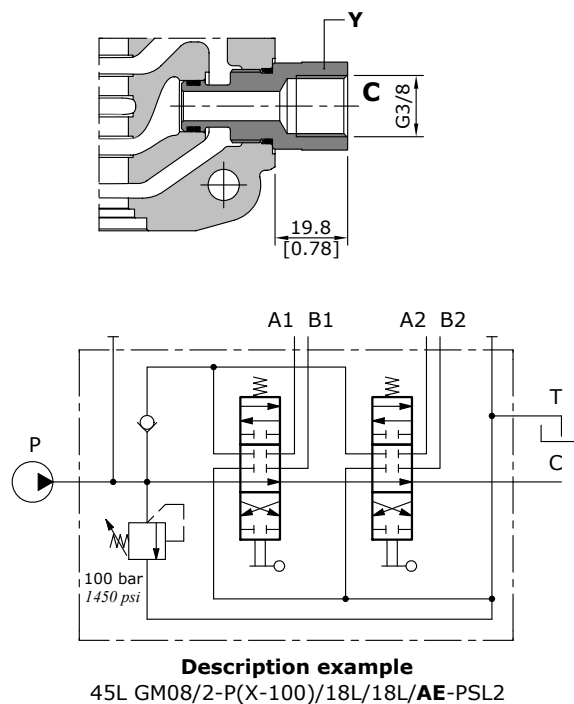
Outlet port options

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

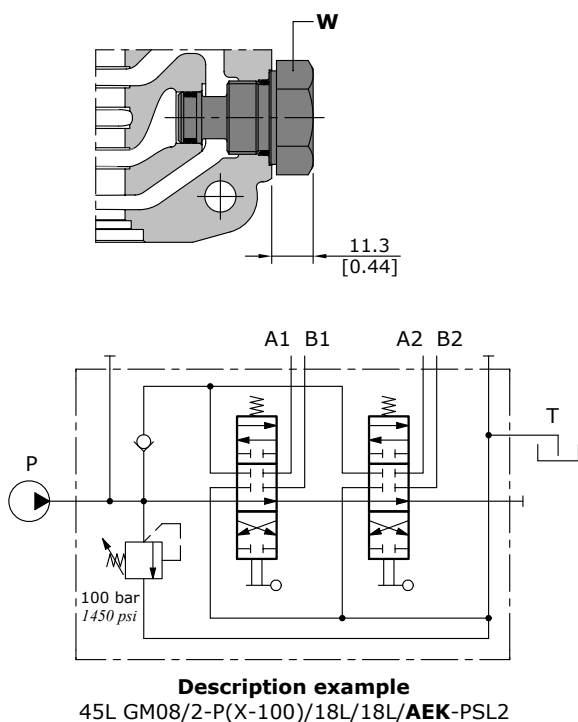
AET: open centre (standard)



AE: with carry-over



AEK: closed centre



Wrenches and tightening torques

X = allen wrench 8 - 42 Nm (31 lbft)
Y = wrench 24 - 42 Nm (31 lbft)
W = wrench 27 - 42 Nm (31 lbft)

directional valve with left inlet

Inlet port options

With solenoid pilot unloader valve

Description example:

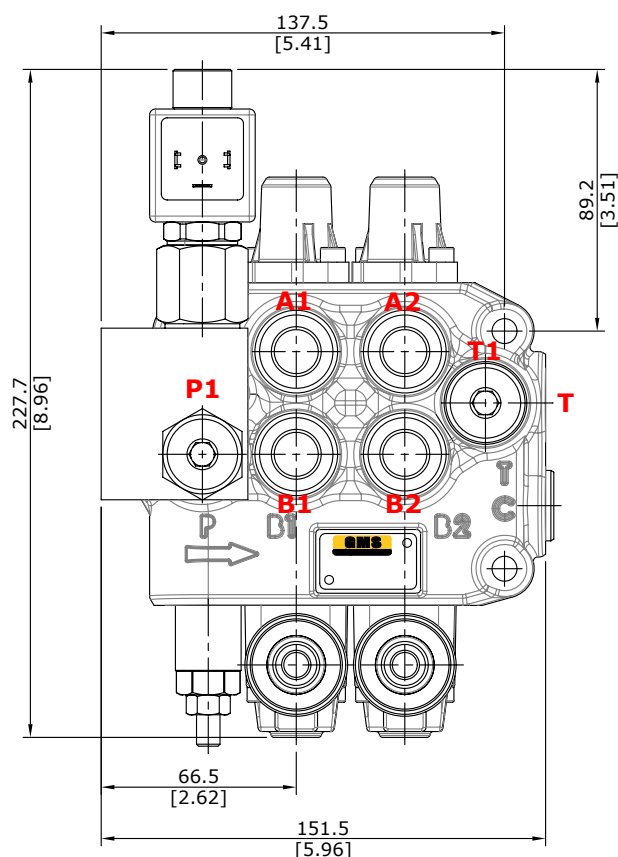
45L GM08/2-P(X-100) **ELN(NO) - 12VDC**

Solenoid operated valve: **ELN** Feeding voltage:
ELP for solenoid operated
ELT

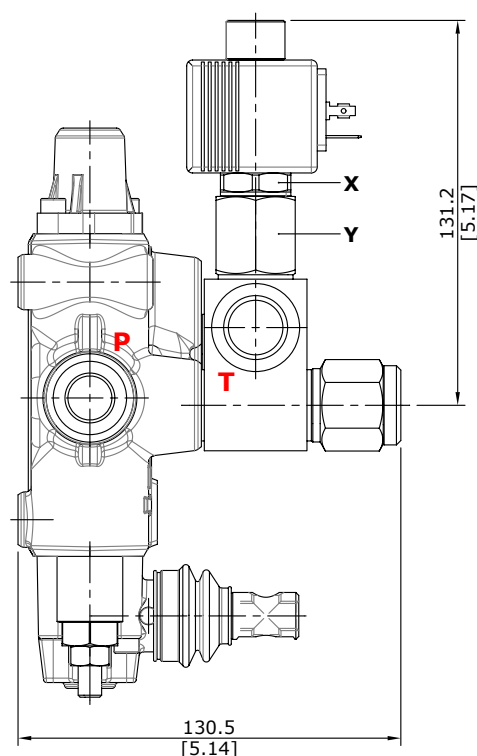
Solenoid operated

Emergency with push button and spring return; for detent position turn the button after press it.

WARNING: the manual override option is intended for emergency use, not for continuous duty operation.



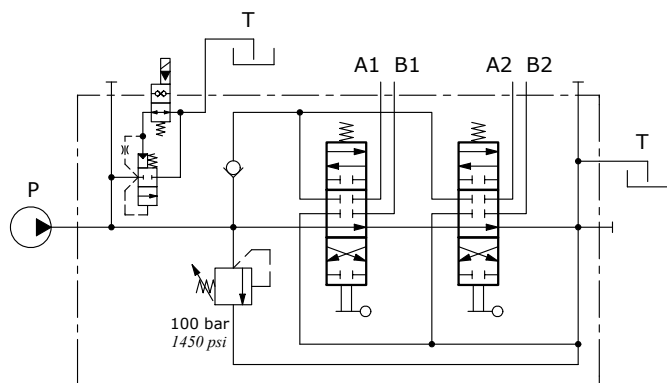
Normally open configuration type ELN



Wrenches and tightening torques

X = wrench 24 - 35 Nm (26 lbf ft)

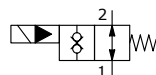
Y = wrench 27 - 42 Nm (31 lbf ft)



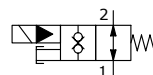
Description example

45L GM08/2-P(X-100) **ELN(NO)-12VDC/18L/18L/AET-PSL2**

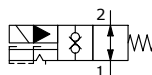
ELN: without emergency



ELP: push button type



ELT: "push & twist" type



Valve operating features

Maximum operating pressure : 250 bar

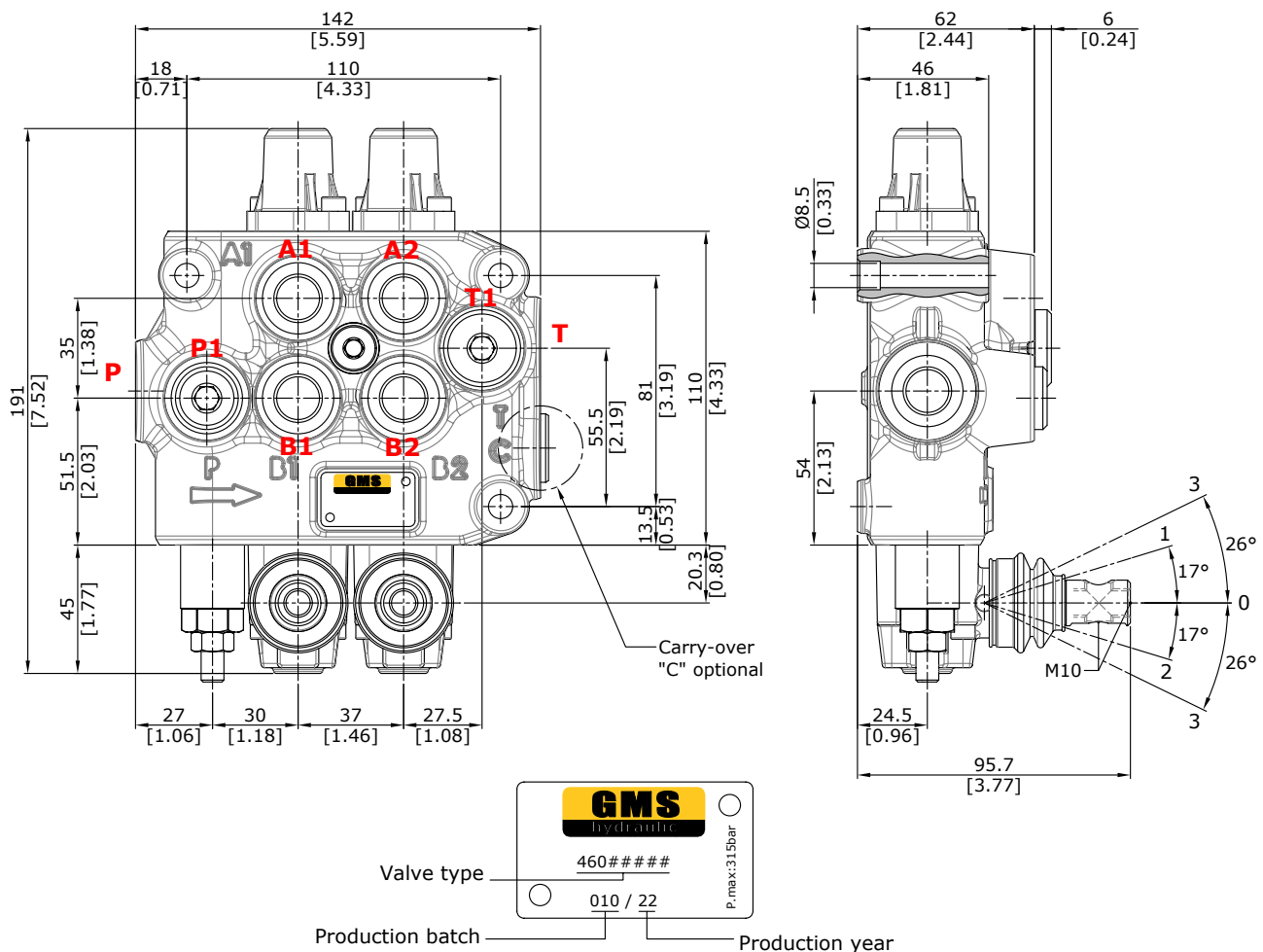
Maximum flow : 15 l/min

Internal leakage: max 5 drops/min @ 250bar

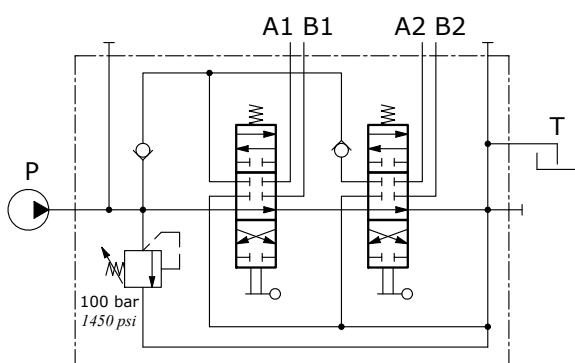
directional valve with left inlet

45L GMC

Dimensional data (parallel circuit)



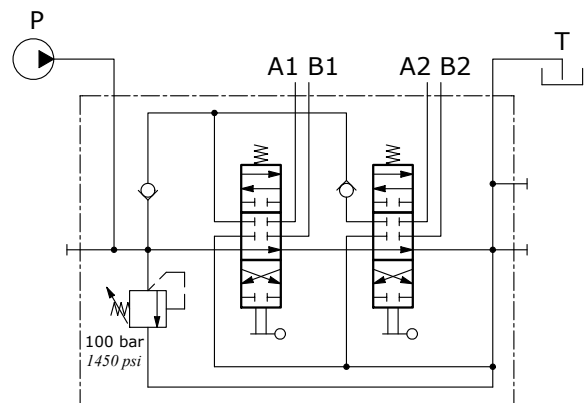
Standard configuration



Description example

45L GMC08/2-P(X-100)/18L/18L/AET-PSL2

Upper inlet and outlet ports configuration



Description example

45L GMC08/2-P(X-100)/18L/18L/AET-PSA2

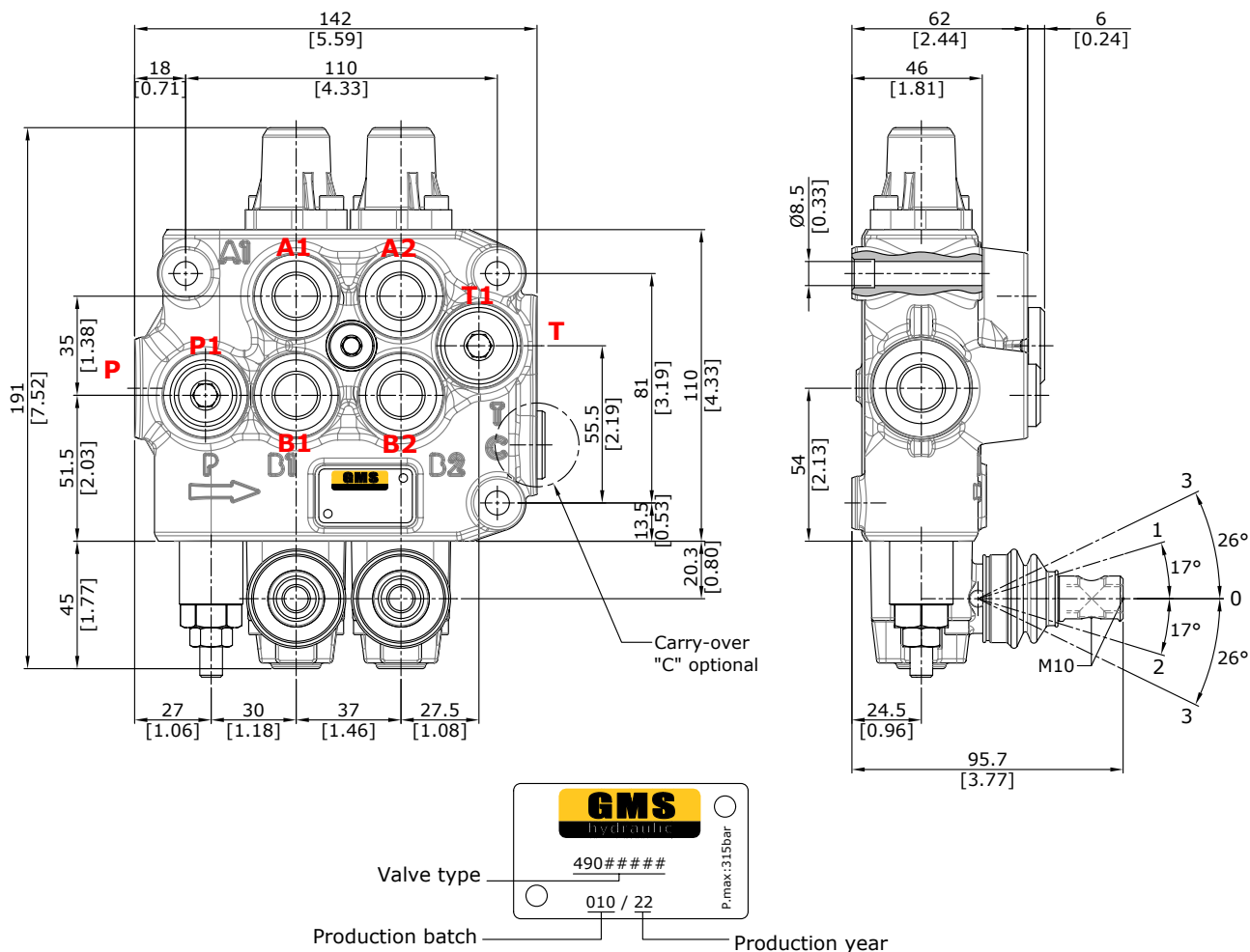
NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

45L GMCS

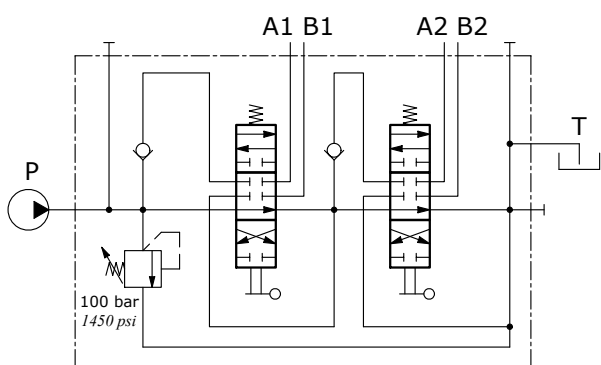
directional valve with left inlet

Dimensional data (series circuit)

The description of **45L GMCS** valve with series circuit is marked with letter "**S**" and one figure which indicate the downstream sections from series connection.



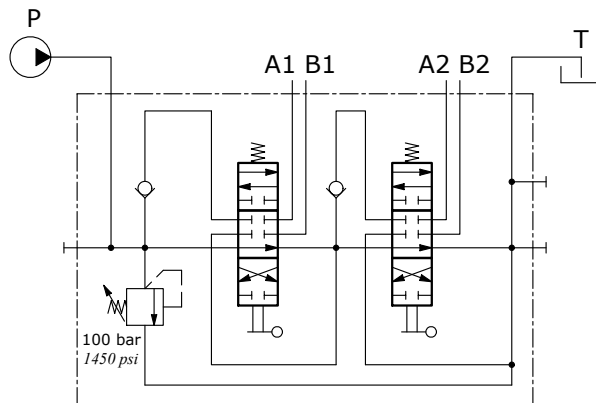
Standard configuration



Description example

45L GMCS08/2-S1(X-100)/18L/18L/AET-PSL2

Upper inlet and outlet ports configuration



Description example

45L GMCS08/2-S1(X-100)/18L/18L/AET-PSA2

NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

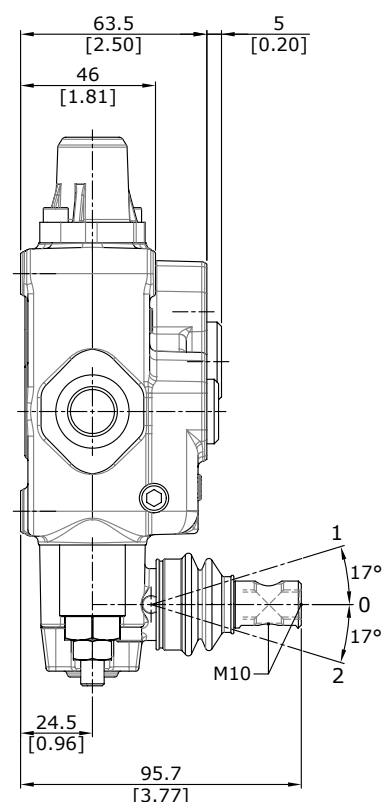
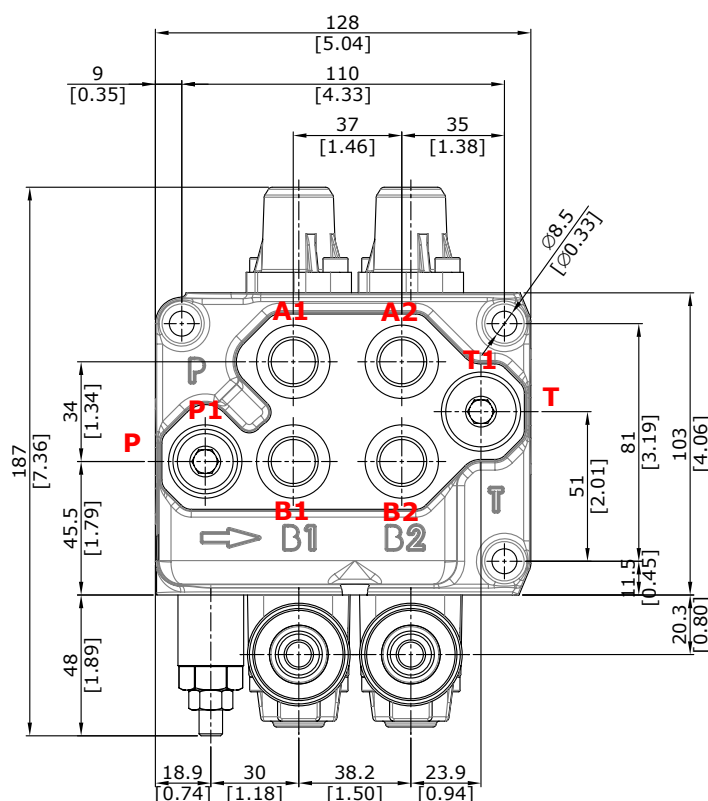
45L GM

45L GMT

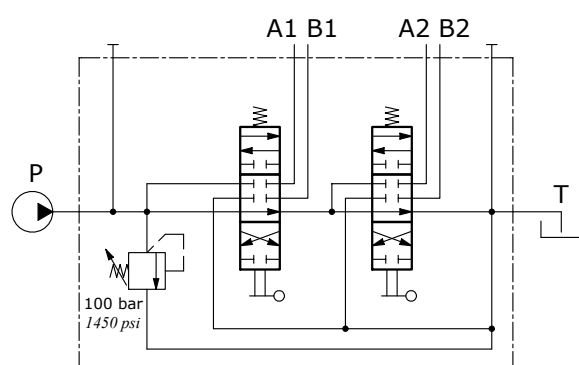
directional valve with left inlet

Dimensional data (with tandem circuit)

The description of **45L GMT** valve with tandem circuit is marked with letters "**SP**" and one figure which indicate the downstream sections from tandem connection.



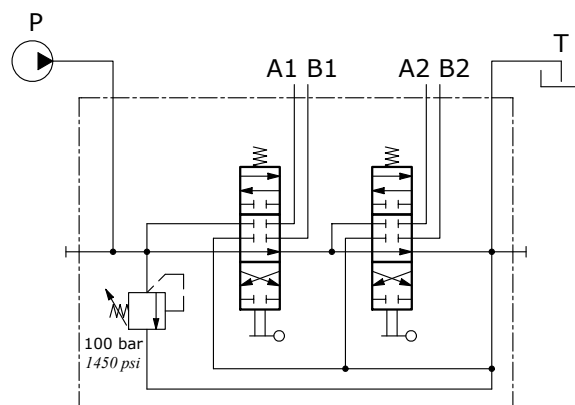
Standard configuration



Description example

45L GMT08/2-SP1(X-100)/18L/18L-PSL2

Upper inlet and outlet ports configuration



Description example

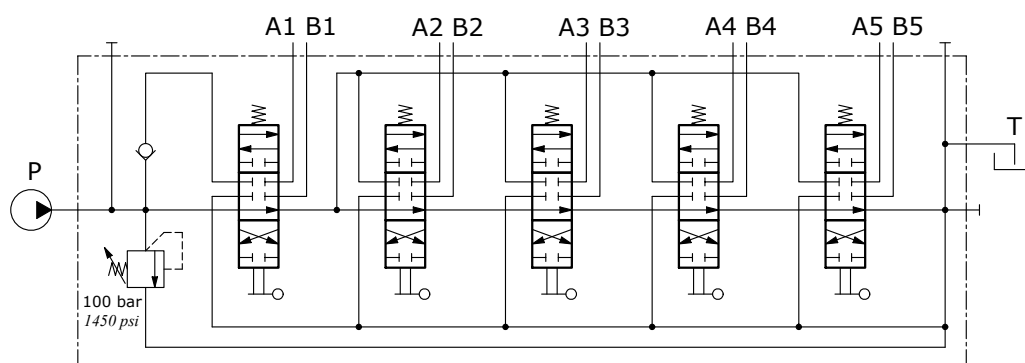
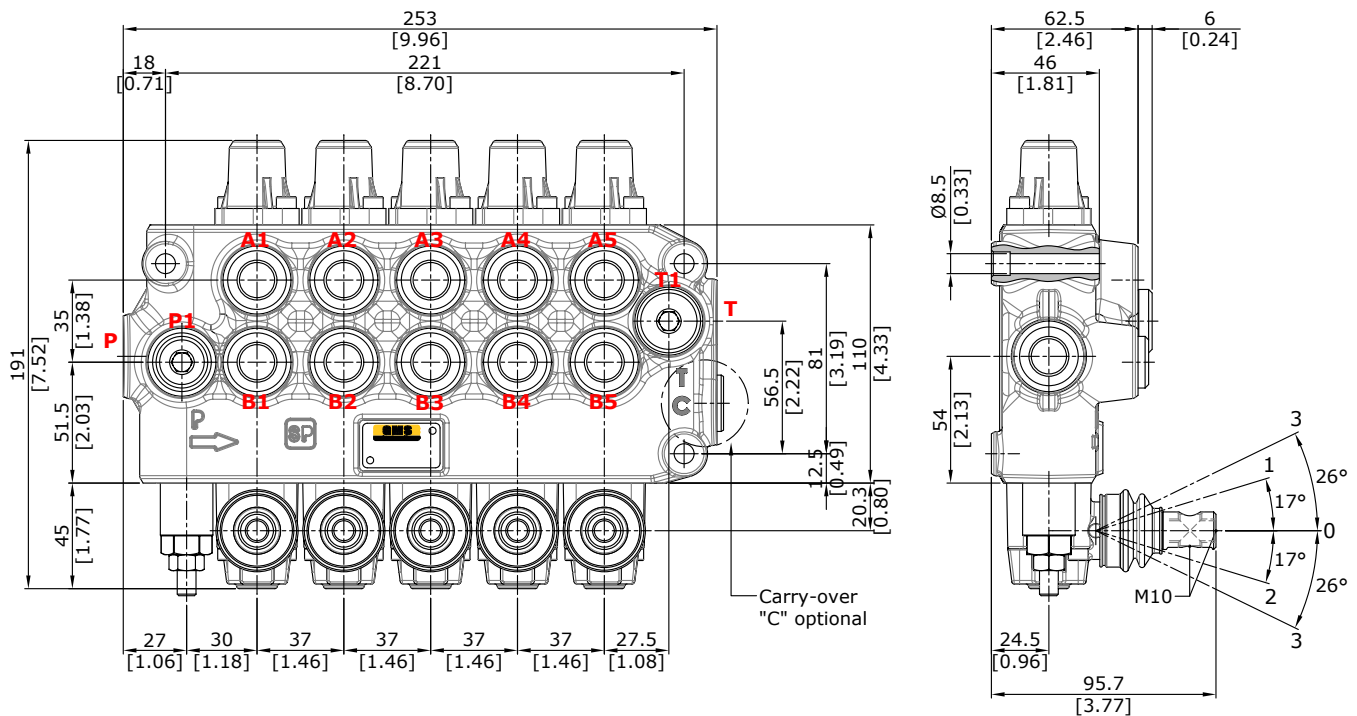
45L GMT08/2-SP1(X-100)/18L/18L-PSA2

NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

directional valve with left inlet

Dimensional data (with tandem circuit)

The description of **45L GM** valve with tandem circuit is marked with letters "**SP**" and one figure which indicate the downstream sections from tandem connection.



Description example
45L GM08/5-**SP4**(X-100)/18L/18L/18L/18L/18L/AET-PSL2

NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

Directional valve with right inlet

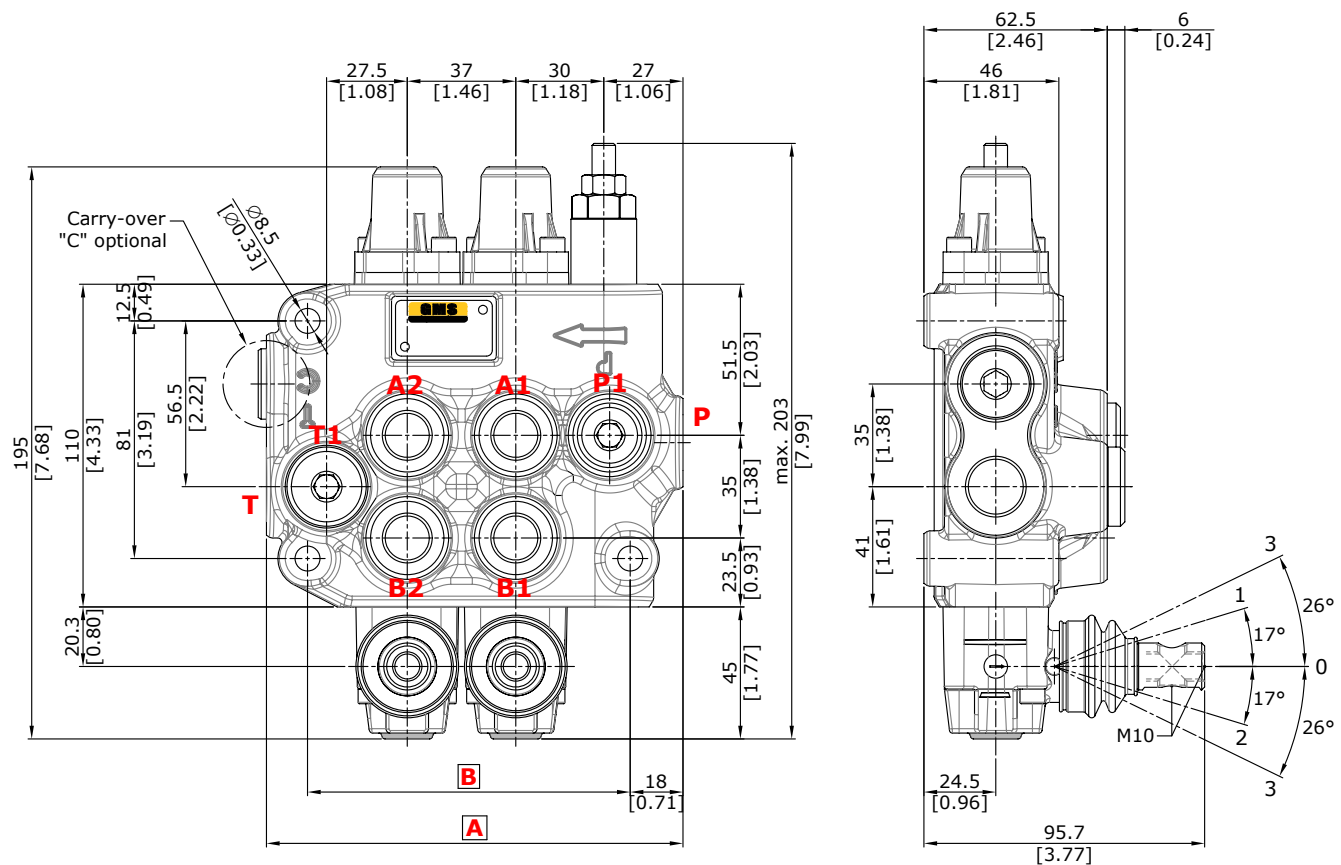
Dimensional data.....	: page 40
Hydraulic circuit.....	: page 41
Ordering codes.....	: page 42
Inlet relief options.....	: page 10
Spool options.....	: page 44
"A" side spool positioners.....	: page 45
"B" side options.....	: page 23
Complete controls	: page 27
Outlet port options.....	: page 32
Inlet port options.....	: page 33

Other executions

Directional valve 45L GMC08/2-P with parallel circuit.....	: page 55
Directional valve 45L GMCS08/2-S1 with series circuit.....	: page 56
Directional valve 45L GMT08/1-N.....	: page 57
Directional valve 45L GMT08/2-SP1 with tandem circuit.....	: page 58
Directional valve 45L GM08/5-SP4 with tandem circuit.....	: page 59

directional valve with right inlet

Dimensional data (parallel circuit)



TYPE	A		B		Weight	
	mm	in	mm	in	Kg	lb
45L GM08/1-P	105	4.13	73	2.87	3.1	6.83
45L GM08/2-P	142	5.60	110	4.33	4.4	9.70
45L GM08/3-P	179	7.05	147	5.79	5.7	12.57
45L GM08/4-P	216	8.50	184	7.24	7.2	15.87

TYPE	A		B		Weight	
	mm	in	mm	in	Kg	lb
45L GM08/5-P	253	9.96	221	8.70	8.7	19.18
45L GM08/6-P	290	11.42	258	10.16	10.2	22.49
45L GM08/7-P	327	12.87	295	11.61	11.7	25.79

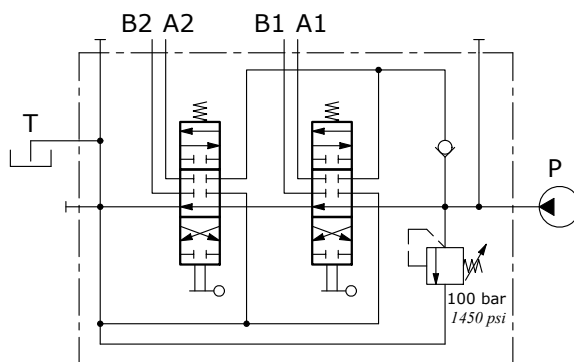
NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

45L GM

directional valve with right inlet

Hydraulic circuit

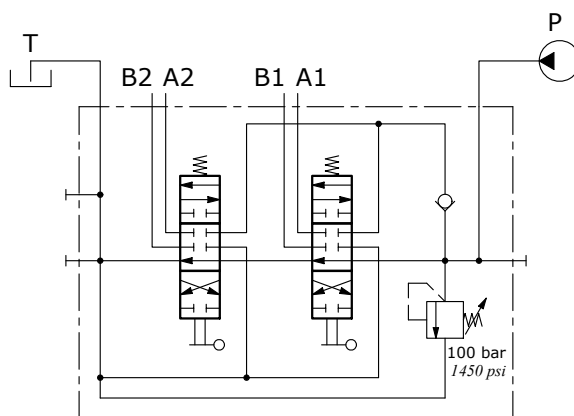
Standard configuration



Description example

45L GM08/2-P(X-100)/ED-18L/ED-18L/AET-**PSL2**

Upper inlet and outlet ports configuration



Description example

45L GM08/2-P(X-100)/ED-18L/ED-18L/AET-**PSA2**

directional valve with right inlet

Ordering codes

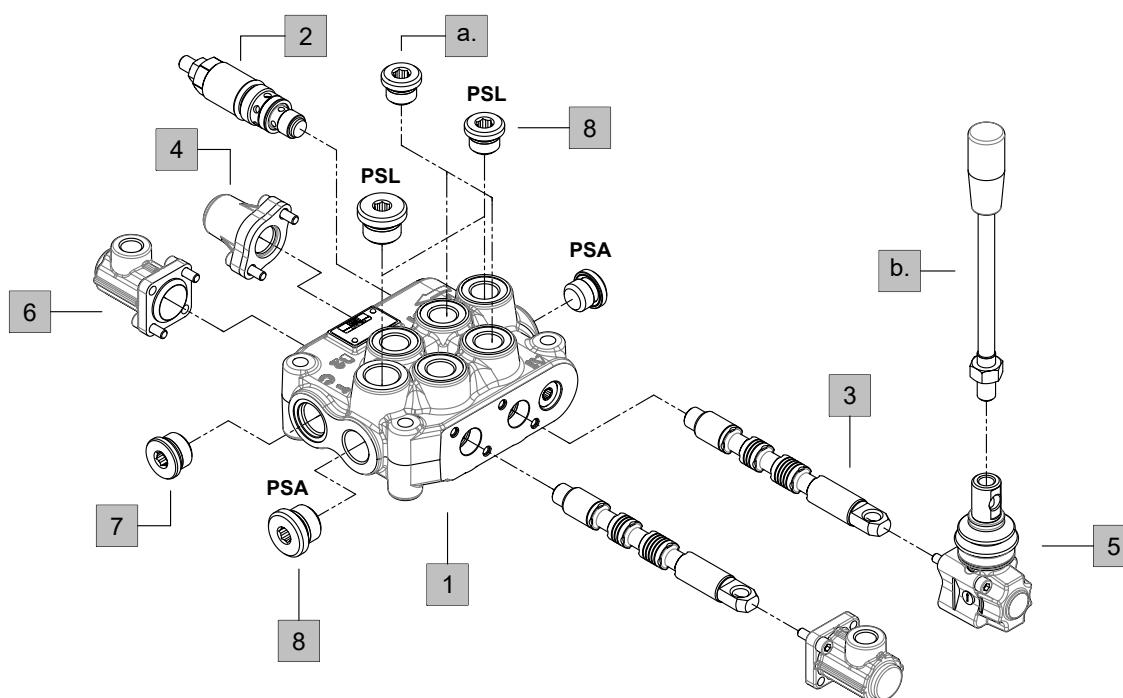
Description example:

45L GM08 / 2 - P (X - 100) / ED - 1 8 L / ED - 1 8IM / AET - PSL2

1 2 3 4 5 6 7 8

1st section following section

Valve setting (bar)



1. Body kits *

TYPE	CODE	DESCRIPTION
1-P	30 08 9067	Parallel, 1 section
2-P	30 08 9068	Parallel, 2 sections
3-P	30 08 9069	Parallel, 3 sections
4-P	30 08 9070	Parallel, 4 sections
5-P	30 08 9071	Parallel, 5 sections
6-P	30 08 9072	Parallel, 6 sections
7-P	30 08 9073	Parallel, 7 sections

Include body, seals, rings and load check valve.

2. Inlet relief options

page 10

TYPE	CODE	DESCRIPTION
Direct pressure relief valve X type (standard)		
(X-100)	30 05 4917	Range 20-315 bar (290-4600 psi) standard setting 100 bar (1450 psi)
Standard setting is referred to 6 l/min flow.		
V	30 05 5004	Relief valve blanking plug

3. Spools

page 44

TYPE	CODE	DESCRIPTION
ED-1	30 01 3516	Double acting, 3 positions, with A and B closed in neutral position
ED-1A	-	Double acting, 3 positions, with A open to tank in neutral position
ED-1B	-	Double acting, 3 positions, with B open to tank in neutral position

3. Spools

TYPE	CODE	DESCRIPTION
ED-2	30 01 3517	Double acting, 3 positions, with A and B to tank in neutral position
ED-2H	-	Double acting, 3 positions, with A and B partially open to tank in neutral position
ED-3	30 01 3514	Single acting on A, 3 positions, B plugged; requires G3/8 plug (see part a)
ED-4	30 01 3515	Single acting on B, 3 positions, A plugged; requires G3/8 plug (see part a)
ED-4FAS	30 01 3642	Double acting, 3 positions, with A and carry-over C open to tank in neutral position
ED-4FASB	30 01 3764	Double acting, 3 positions, with A-B and carry-over C open to tank in neutral position
ED-4FASC	30 01 3800	Double acting, 3 positions, with A and B closed in neutral position
ED-1E	30 01 3641	Double acting, 3 positions, with A and B closed in neutral position
ED-5BY	-	Double acting, 4 positions, float in position 3 with spool out, 13QN type positioner kit is required

NOTE (*) - Codes are referred to **BSP** thread.

directional valve with right inlet

Ordering codes

4. "A" side spool positioners page 45

TYPE	CODE	DESCRIPTION
8	30 07 5427	With spring return in neutral position
8D	30 07 5449	As type 8, M6 female threaded pin extension for dual control
8D2	30 07 5450	As type 8, M8 male threaded pin extension for dual control
8T	-	With spring return in neutral position, for single acting spool type 3 and 4
8TL	-	As type 8, for flexible cable control
8F2	30 07 5444	As type 8 with adjustable stroke limiter
8OR	30 07 7546	As type 8, for outrigger control
19	30 07 5471	With spring return in position 0 from 1
20	30 07 5472	With spring return in position 0 from 2
11	30 07 5445	Detent in positions neutral, 1 and 2
12	30 07 5446	Detent in positions 1 and 2
15	30 07 5447	2 positions, detent in positions 1 and neutral
16	30 07 5448	2 positions, detent in positions 2 and neutral
17	30 07 5467	With spring return position 1
18	30 07 5468	With spring return position 2
17D	30 07 5469	With spring return position 1 and pin with M6 female thread for dual control
18D	30 07 5470	With spring return position 2 and pin with M6 female thread for dual control
9B	30 07 5451	With detent in position 1 and spring return in neutral position
10B	30 07 5452	With detent in position 2 and spring return in neutral position
11B	30 07 5453	Detent in positions 1 and 2 and spring return in neutral position
9BT	-	With detent in position 1 and spring return in neutral position, for single acting spool type 3 and 4
10BT	-	With detent in position 2 and spring return in neutral position, for single acting spool type 3 and 4
11BT	-	Detent in positions 1 and 2 and spring return in neutral position, for single acting spool type 3 and 4
8MG3(NO)	30 07 5455	As type 8, operation with microswitch (NO) in positions 1 and 2
8P	30 07 5463	ON/OFF pneumatic kit
8EP3	30 07 5473	12 VDC ON/OFF electro-pneumatic kit
	30 07 5464	24 VDC ON/OFF electro-pneumatic kit
8EP4	-	12 VDC ON/OFF electro-pneumatic kit with manifold
	-	24 VDC ON/OFF electro-pneumatic kit with manifold
8EI3	30 07 5465	12 VDC ON/OFF electro-hydraulic kit
	30 07 5466	24 VDC ON/OFF electro-hydraulic kit
8EI3F	-	12 VDC Proportional electro-hydraulic kit
	-	24 VDC Proportional electro-hydraulic kit
13QN	30 07 5315	4 positions with spring return in neutral position and detent in pos.3: for ED-SBY spool

5. "B" side options page 23

TYPE	CODE	DESCRIPTION
L	30 07 5335	Standard lever box
LF1	30 07 5337	Lever box with spool stroke limiter in position 1
LCB	30 07 5426	Joystick lever for 2 sections operation
SL	-	Without lever box
SLP	30 07 5338	Without lever box, with dust-proof plate
TQ	30 07 5328	Flexible cable connection; for CT cables
LEB	30 07 5340	Safety lever box, vertical configuration
LUP	30 07 5341	Safety lever box, horizontal configuration
SLCZ	30 07 7621	Without lever box, with endcap.

6. Complete controls * page 27

TYPE	CODE	DESCRIPTION
Proportional hydraulic control type 8IM and ON/OFF solenoid controls type 8ES and rotative control type R .		

7. Outlet port options * page 32

TYPE	CODE	DESCRIPTION
AET	30 05 4923	Open centre plug
AEK	30 05 4927	Closed centre plug
AE	30 05 6002	G3/8 carry-over sleeve
AE1	30 05 4926	G1/2 carry-over sleeve

8. Inlet and outlet selection * page 41

TYPE	CODE	DESCRIPTION
PSL2	30 05 4918	G3/8 plug for upper inlet
	30 05 4919	G1/2 plug for upper outlet
PSA2	30 05 4918	G3/8 plug for side inlet
	30 05 4919	G1/2 plug for side outlet

a. "A" and "B" ports plugs *

TYPE	CODE	DESCRIPTION
G3/8	30 05 4918	For single acting spools type 3 and 4

b. Optional handlevers

TYPE	CODE	DESCRIPTION
M10x180	20 03 2380	Lenght L = 180mm / 7.09in

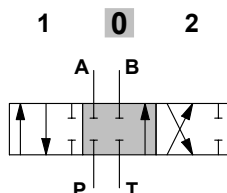
NOTE (*) – Codes are referred to **BSP** thread.

directional valve with right inlet

Spools options

ED-1 (30 01 3516) spool type

Double acting, 3 positions, with A and B closed in neutral position

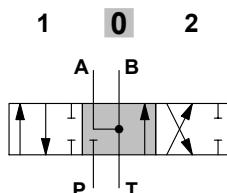


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

ED-2 (30 01 3517) spool type

Double acting, 3 positions, with A and B open to tank in neutral position

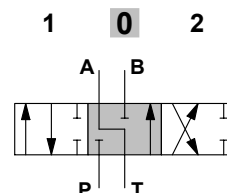


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

ED-1A spool type

Double acting, 3 positions, with A open to tank in neutral position

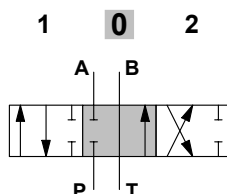


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

ED-1B spool type

Double acting, 3 positions, with B open to tank in neutral position

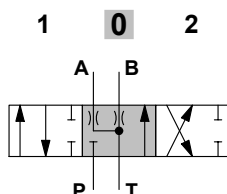


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

ED-2H spool type

Double acting, 3 positions, with A and B partially open to tank in neutral position

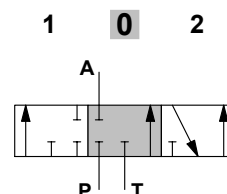


Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

ED-3 (30 01 3514) spool type

Single acting on A, 3 positions, B plugged; requires G3/8 plug

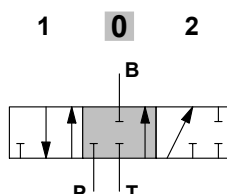


Spool stroke

position 1: + 4.2 mm (+ 0.17 in)
position 2: - 4.2 mm (- 0.17 in)

ED-4 (30 01 3515) spool type

Single acting on B, 3 positions, A plugged; requires G3/8 plug

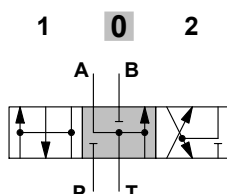


Spool stroke

position 1: + 4.2 mm (+ 0.17 in)
position 2: - 4.2 mm (- 0.17 in)

ED-4FAS (30 01 3642) spool type

Double acting, 3 positions, with A and carry-over C open to tank in neutral position

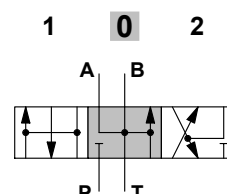


Spool stroke

position 1: + 5.5 mm (+ 0.22 in)
position 2: - 5.5 mm (- 0.22 in)

ED-4FASB (30 01 3764) spool type

Double acting, 3 positions, with A-B and carry-over C open to tank in neutral position

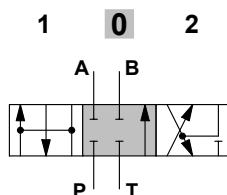


Spool stroke

position 1: + 5.5 mm (+ 0.22 in)
position 2: - 5.5 mm (- 0.22 in)

ED-4FASC (30 01 3800) spool type

Double acting, 3 positions, with A and B closed in neutral position

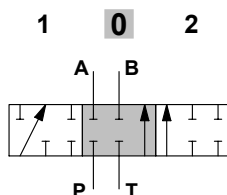


Spool stroke

position 1: + 5.5 mm (+ 0.22 in)
position 2: - 5.5 mm (- 0.22 in)

ED-1E (30 01 3641) spool type

Double acting, 3 positions, with A and B closed in neutral position

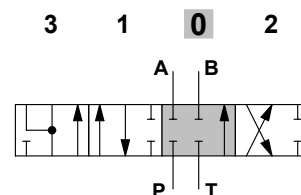


Spool stroke

position 1: + 5.5 mm (+ 0.22 in)
position 2: - 5.5 mm (- 0.22 in)

ED-5BY spool type

Double acting, with A and B closed in neutral position, 4 positions, floating in position 3, with spool out



Spool stroke

position 3: + 9 mm (+ 0.35 in)
position 1: + 4.5 mm (+ 0.18 in)
position 2: - 4.5 mm (- 0.18 in)

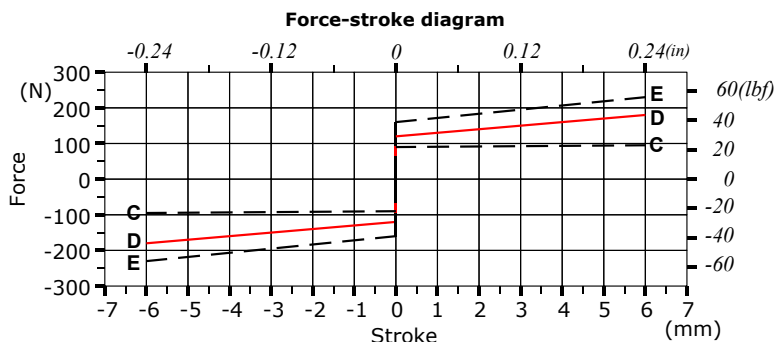
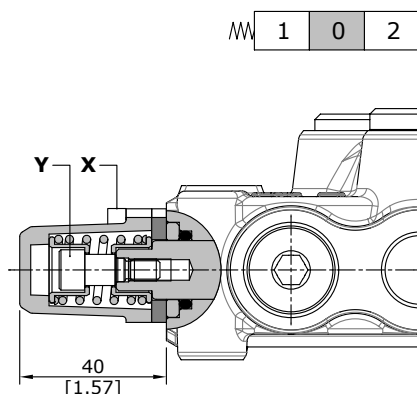
directional valve with right inlet

"A" side spool positioners

With spring return in neutral position

8 type (30 07 5427)

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**).

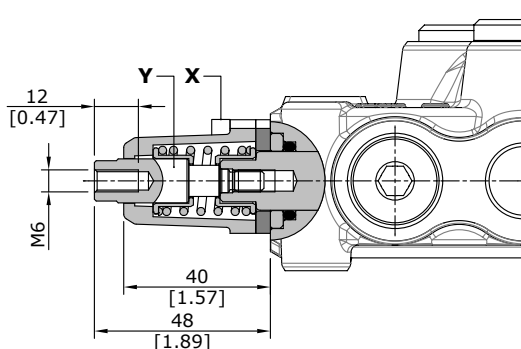


Wrenches and tightening torques

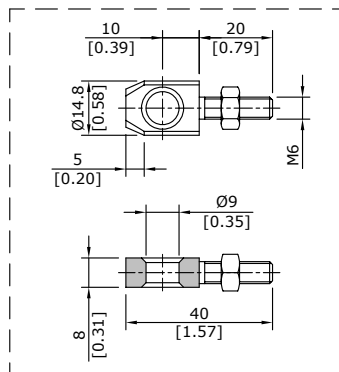
X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 6 - 9 Nm (6.6 lbft)

8D type (30 07 5449)

With M6 female threaded pin extension for dual control.



Spool end joint dimensions (optional)



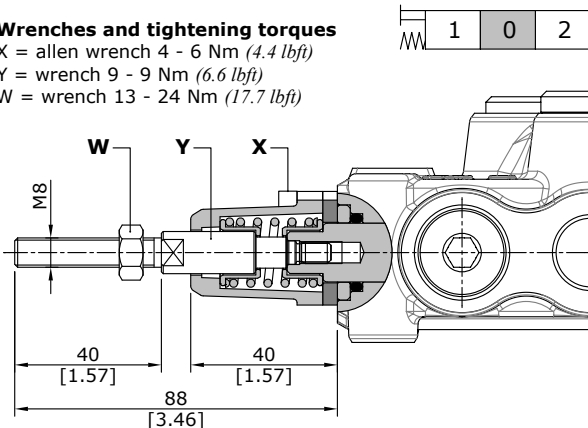
Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 10 - 9 Nm (6.6 lbft)

8D2 type (30 07 5450)

Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 9 - 9 Nm (6.6 lbft)
W = wrench 13 - 24 Nm (17.7 lbft)

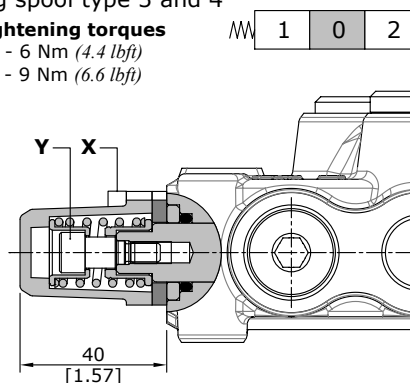


8T type

For single acting spool type 3 and 4

Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 6 - 9 Nm (6.6 lbft)

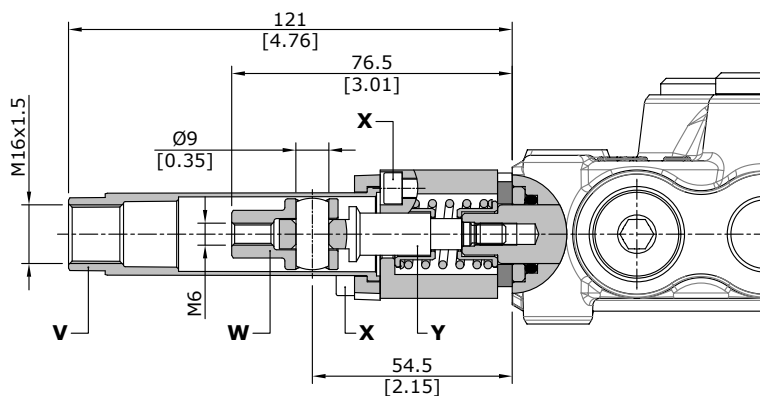
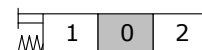


directional valve with right inlet

"A" side spool positioners

With spring return in neutral position

8TL type



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = wrench 8 - 9 Nm (6.6 lbft)

W = wrench 13

V = wrench 20

8F2 type (30 07 5444)

With spool stroke adjustment in position 2 (P→B)

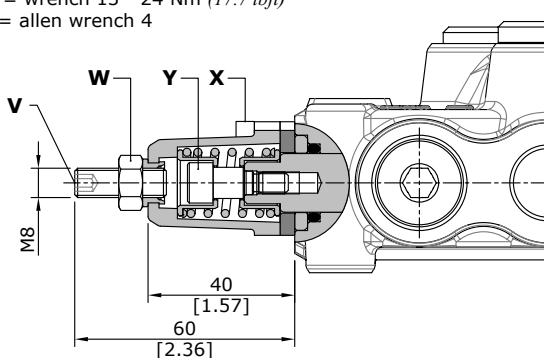
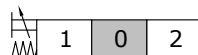
Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = allen wrench 6 - 9 Nm (6.6 lbft)

W = wrench 13 - 24 Nm (17.7 lbft)

V = allen wrench 4



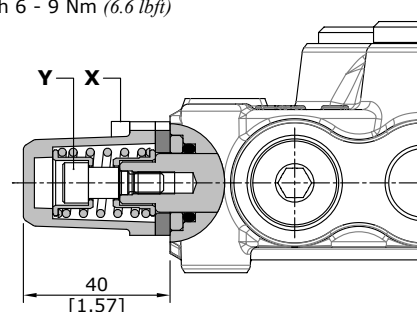
8OR type (30 07 7546)

For spool type ED-4FAS, ED-4FASB, ED-4FASC and ED-1E
Stroke : 5.5mm

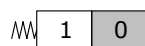
Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = allen wrench 6 - 9 Nm (6.6 lbft)



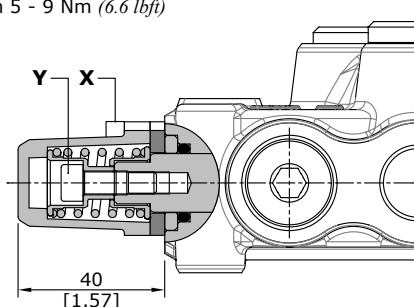
19 type (30 07 5471)



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = allen wrench 5 - 9 Nm (6.6 lbft)



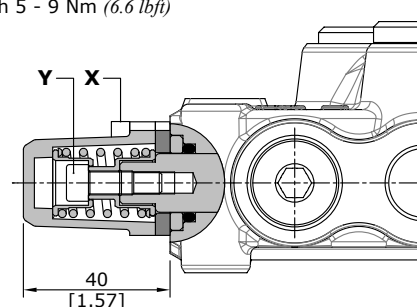
20 type (30 07 5472)



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = allen wrench 5 - 9 Nm (6.6 lbft)

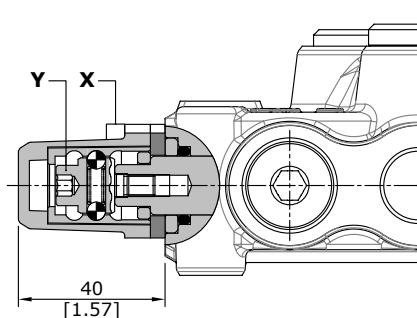
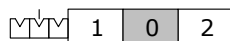


directional valve with right inlet

"A" side spool positioners

With detent

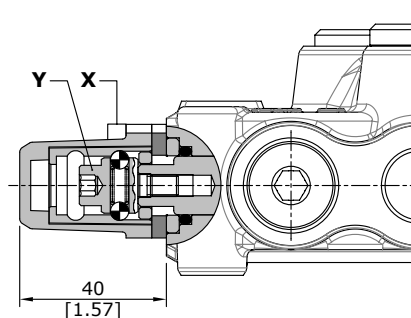
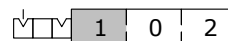
11 type (30 07 5445)



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbf_t)
Y = allen wrench 6 - 9 Nm (6.6 lbf_t)

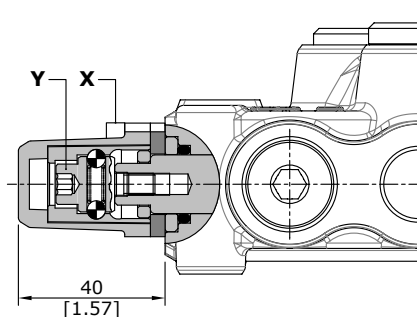
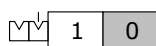
12 type (30 07 5446)



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbf_t)
Y = allen wrench 6 - 9 Nm (6.6 lbf_t)

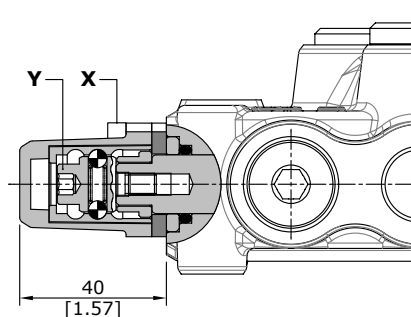
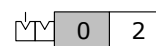
15 type (30 07 5447)



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbf_t)
Y = allen wrench 6 - 9 Nm (6.6 lbf_t)

16 type (30 07 5448)



Wrenches and tightening torques

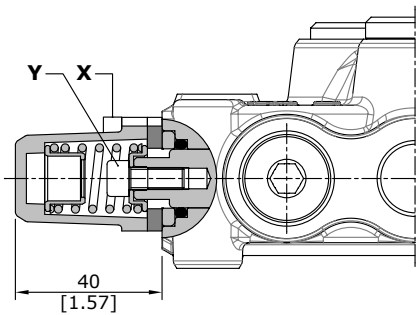
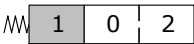
X = allen wrench 4 - 6 Nm (4.4 lbf_t)
Y = allen wrench 6 - 9 Nm (6.6 lbf_t)

directional valve with right inlet

"A" side spool positioners

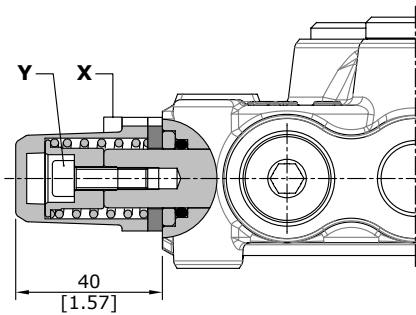
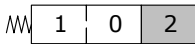
With spring return

17 type (30 07 5467)



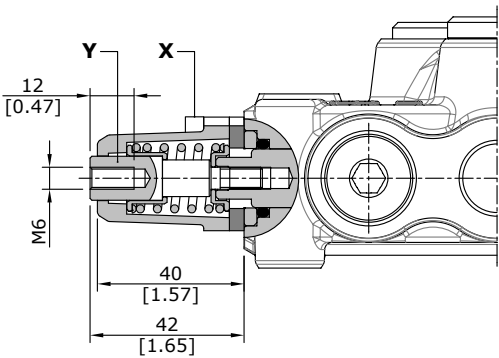
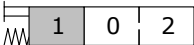
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 5 - 9 Nm (6.6 lbft)

18 type (30 07 5468)



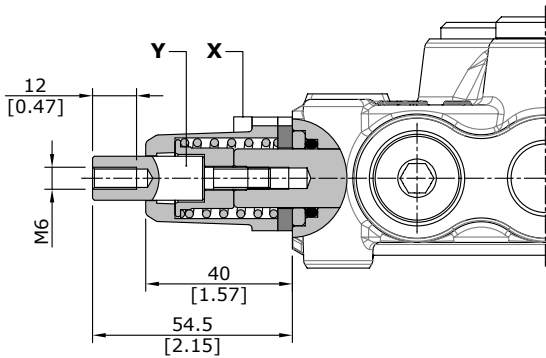
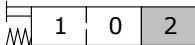
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 5 - 9 Nm (6.6 lbft)

17D type (30 07 5469)



Wrenches and tightening torques
X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 11 - 9 Nm (6.6 lbft)

18D type (30 07 5470)



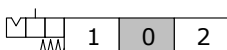
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = wrench 11 - 9 Nm (6.6 lbft)

directional valve with right inlet

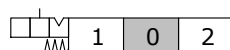
"A" side spool positioners

With detent and spring return to neutral position from either directions

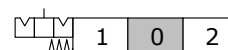
9B type (30 07 5451)
detent in position 1
(curve A)



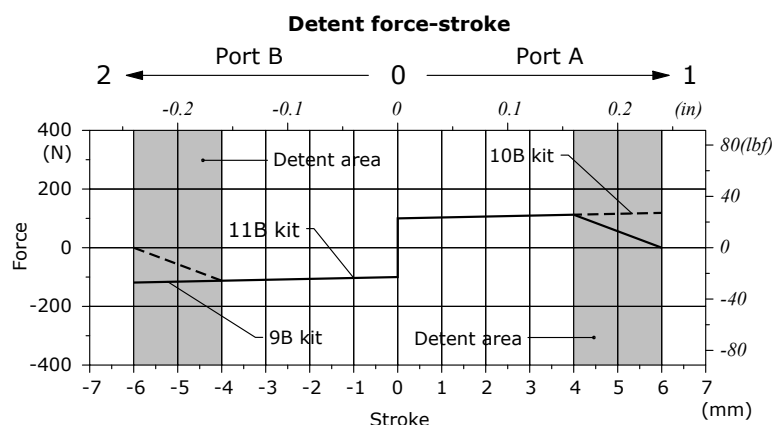
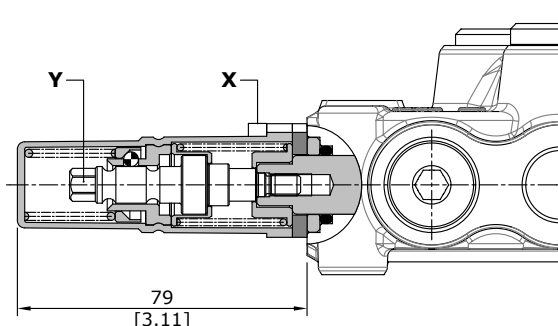
10B type (30 07 5452)
detent in position 2
(curve B)



11B type (30 07 5453)
detent in position 1 and 2
(curves A and B)



11B type



Wrenches and tightening torques

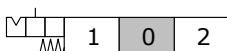
X = allen wrench 4 - 6 Nm (4.4 lbf)
Y = wrench 8 - 9 Nm (6.6 lbf)

Position 1 - Detent force: 120 N (27 lbf) $\pm$ 10% / Release force: 230 N (51.7 lbf) $\pm$ 10%

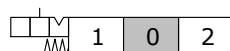
Position 2 - Detent force: 120 N (27 lbf) $\pm$ 10% / Release force: 230 N (51.7 lbf) $\pm$ 10%

For single acting spool type 3 and 4
Stroke : 4.2mm

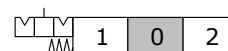
9BT type
detent in position 1
(curve A)



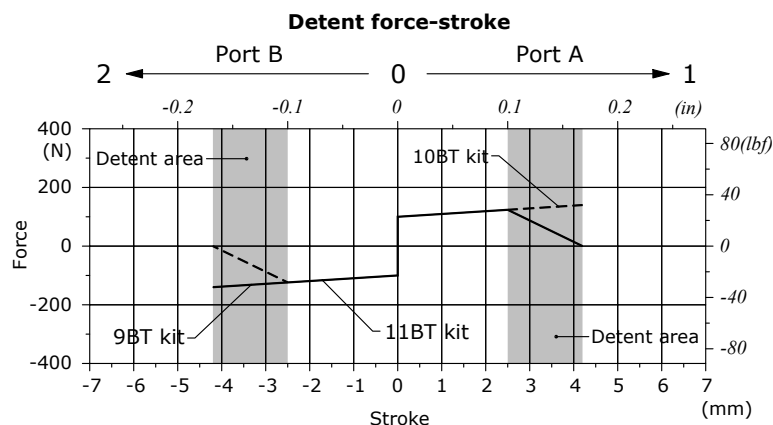
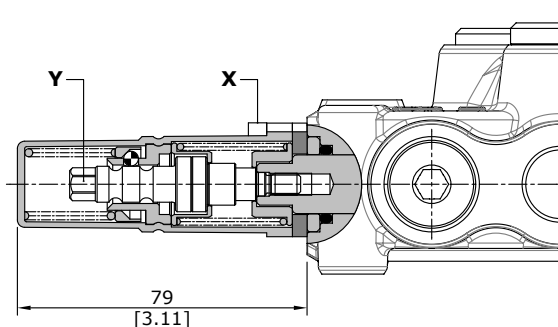
10BT type
detent in position 2
(curve B)



11BT type
detent in position 1 and 2
(curves A and B)



11BT type



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbf)
Y = wrench 8 - 9 Nm (6.6 lbf)

Position 1 - Detent force: 120 N (27 lbf) $\pm$ 10% / Release force: 230 N (51.7 lbf) $\pm$ 10%

Position 2 - Detent force: 120 N (27 lbf) $\pm$ 10% / Release force: 230 N (51.7 lbf) $\pm$ 10%

directional valve with right inlet

"A" side spool positioners

With microswitch

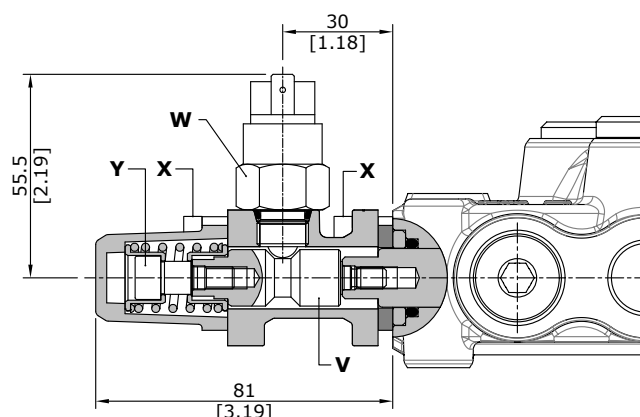
8MG3(NO) type (30 07 5455)

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

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

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

For more information contact Sales Department.



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = allen wrench 6 - 9 Nm (6.6 lbft)

W = wrench 22 - 42 Nm (31 lbft)

V = wrench 10 - 9.8 Nm (7.2 lbft)

Operating features

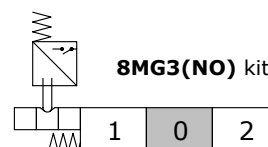
MICROSWITCH

Mechanical life

: 5×10^5 operations

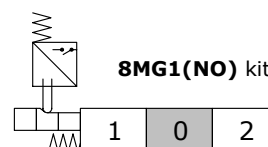
Electrical life (resistive load) : 5×10^4 operations 10A / 12VDC

: 5×10^4 operations 3A / 24VDC

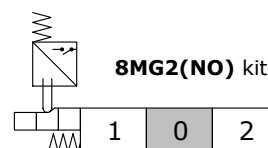


8MG3(NO) kit

Other configurations



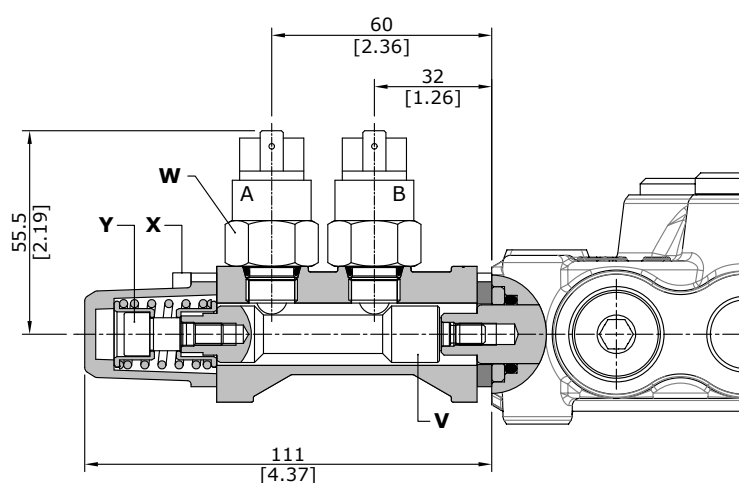
8MG1(NO) kit



8MG2(NO) kit

8MG1\MG2(NC\NC) type (30 07 5462)

With double microswitch in position 1 and 2.



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

Y = allen wrench 6 - 9 Nm (6.6 lbft)

W = wrench 22 - 42 Nm (31 lbft)

V = wrench 10 - 9.8 Nm (7.2 lbft)

Operating features

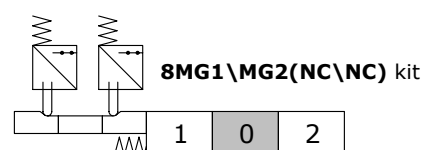
MICROSWITCH

Mechanical life

: 5×10^5 operations

Electrical life (resistive load) : 5×10^4 operations 10A / 12VDC

: 5×10^4 operations 3A / 24VDC



8MG1\MG2(NC\NC) kit

Positions	A	B
1		
0		
2		

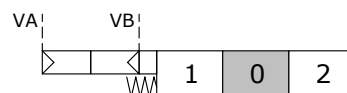
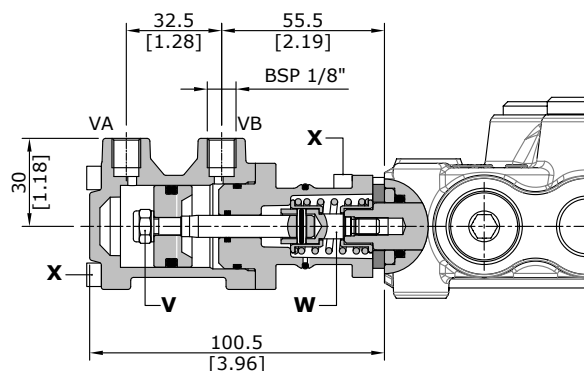
directional valve with right inlet

"A" side spool positioners

ON/OFF pneumatic kit

ON/OFF pneumatic: 8P type (30 07 5463)

With spring return to neutral position.



Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

W = wrench 10 - 9 Nm (6.6 lbft)

V = wrench 10 - 9 Nm (6.6 lbft)

Common features

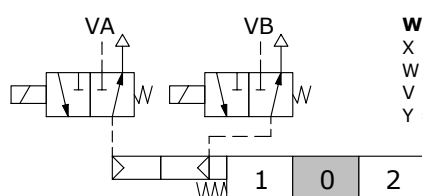
Pilot pressure.....: min. 5.5 bar (min. 80 psi)

: max. 10 bar (min. 145 psi)

ON/OFF electro-pneumatic kit

Electro-pneumatic: 8EP3 type

With spring return to neutral position.



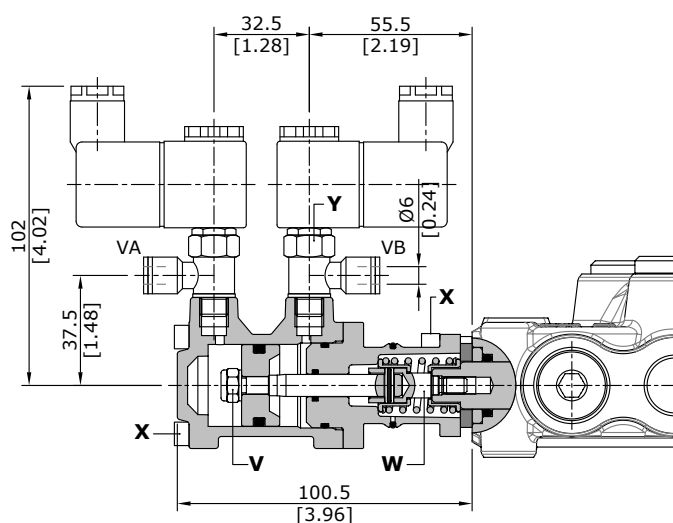
Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)

W = wrench 10 - 9 Nm (6.6 lbft)

V = wrench 10 - 9 Nm (6.6 lbft)

Y = wrench 15 - 6 Nm (4.4 lbft)



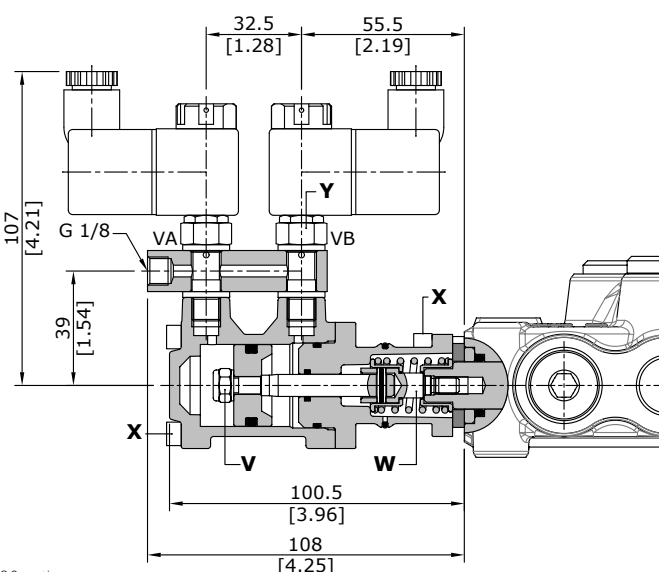
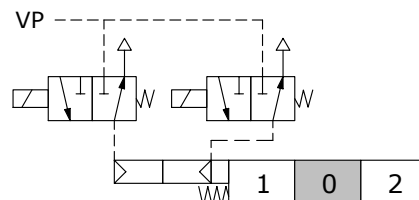
Common features

Pilot pressure.....: min. 5.5 bar (min. 80 psi)

: max. 10 bar (min. 145 psi)

Electro-pneumatic: 8EP4 type

With spring return to neutral position.

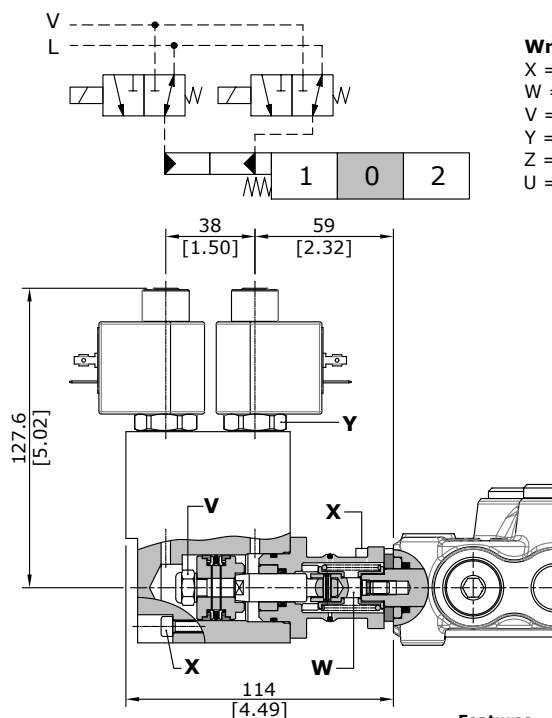


directional valve with right inlet

"A" side spool positioners

ON/OFF electro-hydraulic kit and proportional electro-hydraulic kit

ON/OFF electro-hydraulic: 8EI3 type



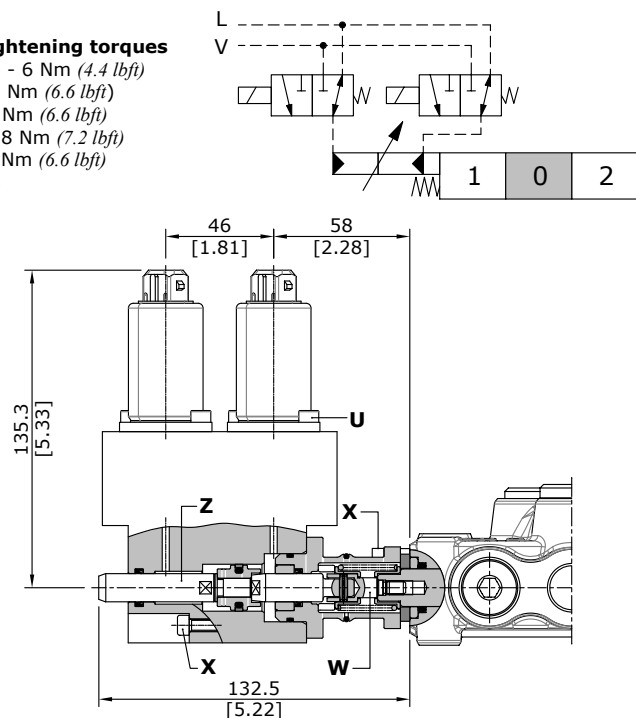
Wrenches and tightening torques

X = allen wrench 4 - 6 Nm (4.4 lbft)
W = wrench 10 - 9 Nm (6.6 lbft)
V = wrench 13 - 9 Nm (6.6 lbft)
Y = wrench 24 - 9.8 Nm (7.2 lbft)
Z = wrench 11 - 9 Nm (6.6 lbft)
U = allen wrench 4

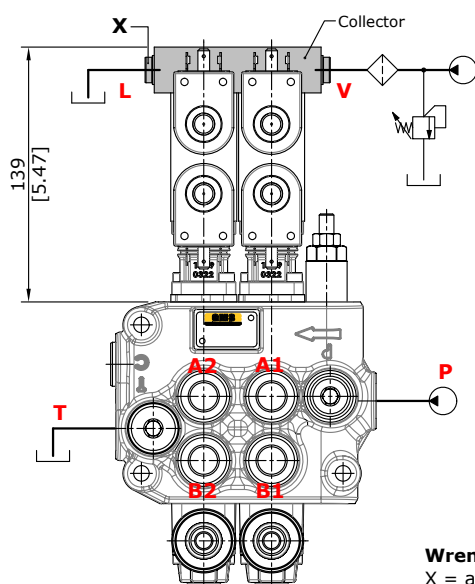
Features

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

Proportional electro-hydraulic: 8EI3F type



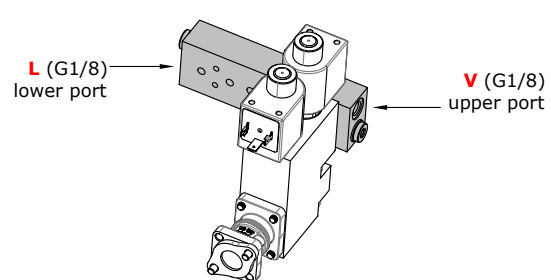
Collector kit for external pilot and drain



Wrenches and tightening torques

X = allen wrench 5 - 24 Nm (17.7 lbft)

Description example:
45L GM08/2-P(X-100)/ED-18EI3L/ED-18EI3L/
AET-PSL2-KE2S0-24VDC



COLLECTOR KIT CODES

Type	Code *	Description
KE1S0	30 07 5537	Kit for one section
KE2S0	30 07 5512	Kit for 2 sections
KE3S0	30 07 5513	Kit for 3 sections
KE4S0	30 07 5514	Kit for 4 sections
KE5S0	30 07 5515	Kit for 5 sections
KE6S0	30 07 5516	Kit for 6 sections
KE7S0	30 07 7633	Kit for 7 sections

(*) codes are referred to BSP thread

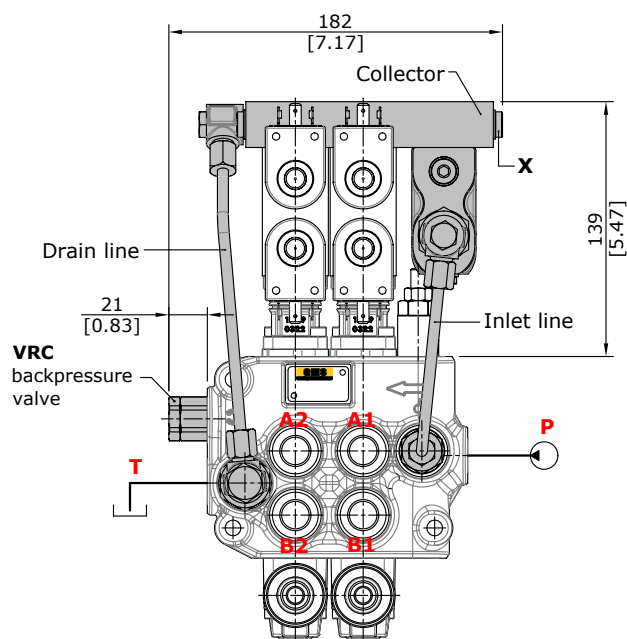
directional valve with right inlet

"A" side spool positioners

ON/OFF electro-hydraulic kit 8EI3 type

Collector kit for internal pilot and drain

The kit include collector, VRP pressure reducing valve and pipes.



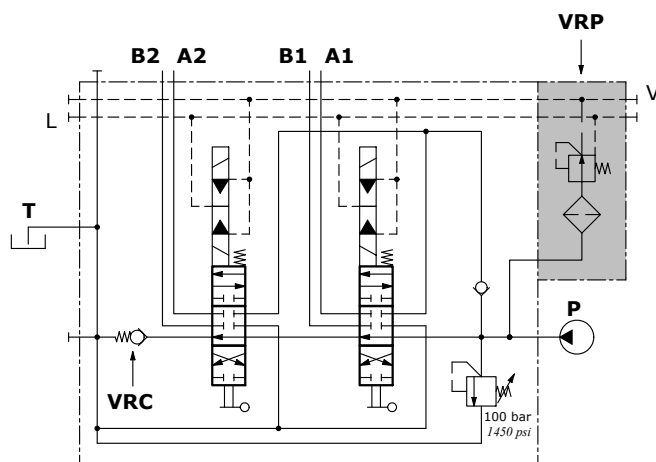
Wrenches and tightening torques

X = allen wrench 5 - 24 Nm (17.7 lbf_t)

Description example:
45L GM08/2-P(X-100)/
ED-18EI3L/ED-18EI3L/
VRC-PSL2-KE2R0-24VDC

Features

VRP VALVE
Output pressure.....: 25 bar / 363 psi
Max. flow.....: 8 l/min
Filtering.....: 80 µ



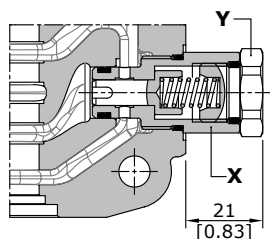
COLLECTOR KIT CODES

Type	Code *	Description
KE1R0	30 07 5476	Kit for one section
KE2R0	30 07 5477	Kit for 2 sections
KE3R0	30 07 5478	Kit for 3 sections
KE4R0	30 07 5479	Kit for 4 sections
KE5R0	30 07 5480	Kit for 5 sections
KE6R0	30 07 5481	Kit for 6 sections
KE7R0	30 07 7634	Kit for 7 sections

(*) codes are referred to BSP thread

VRC backpressure valve

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



Wrenches and tightening torques

X = wrench 22 - 42 Nm (31 lbf_t)
Y = wrench 22 - 24 Nm (17.7 lbf_t)

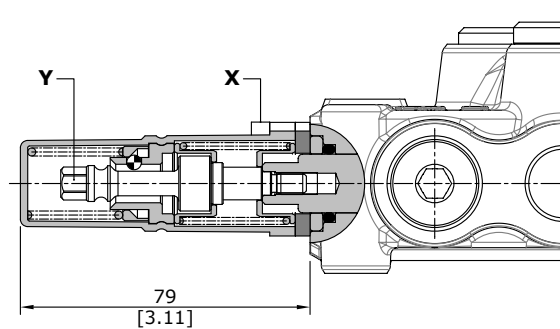
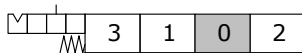
directional valve with right inlet

"A" side spool positioners

Particular positioner kits for special spools

13QN type (30 07 5315)

4 positions with spring return in neutral and detent in position
3: for ED-5BY spool.



Wrenches and tightening torques

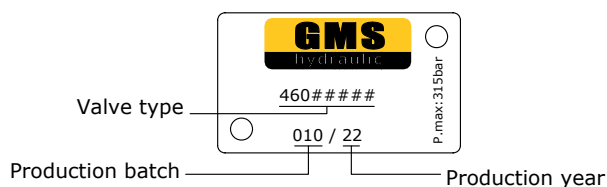
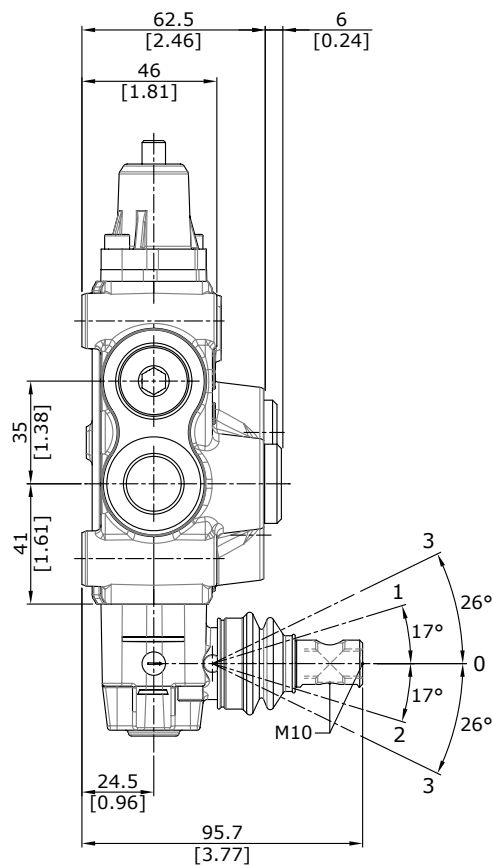
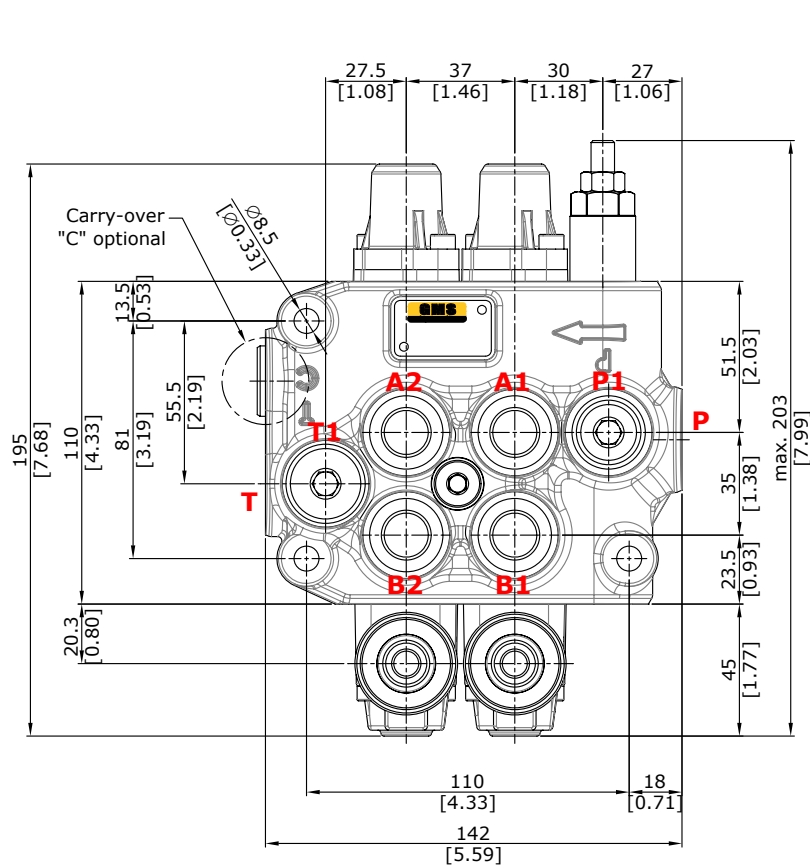
X = allen wrench 4 - 6 Nm (4.4 lbf·ft)

Y = wrench 8 - 9 Nm (6.6 lbf·ft)

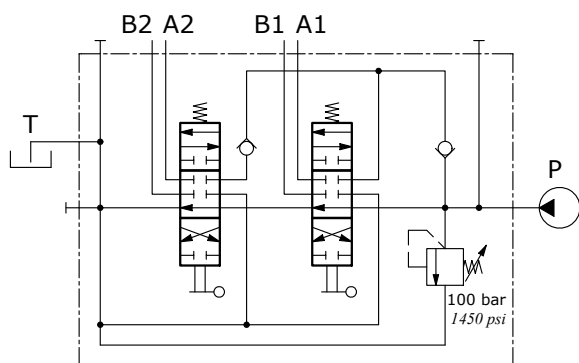
45L GMC

Dimensional data (parallel circuit)

directional valve with right inlet



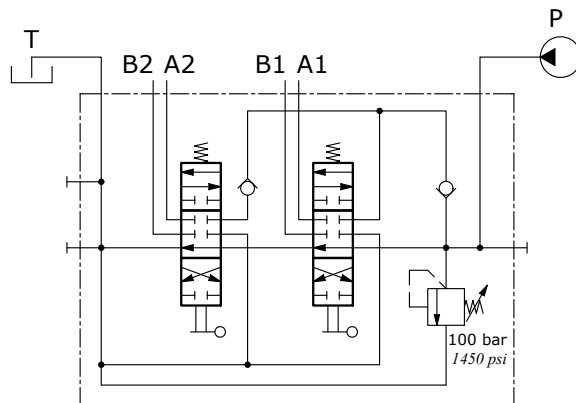
Standard configuration



Description example

45L GMC08/2-P(X-100)/ED-18L/ED-18L/AET-PSL2

Upper inlet and outlet ports configuration



Description example

45L GMC08/2-P(X-100)/ED-18L/ED-18L/AET-PSA2

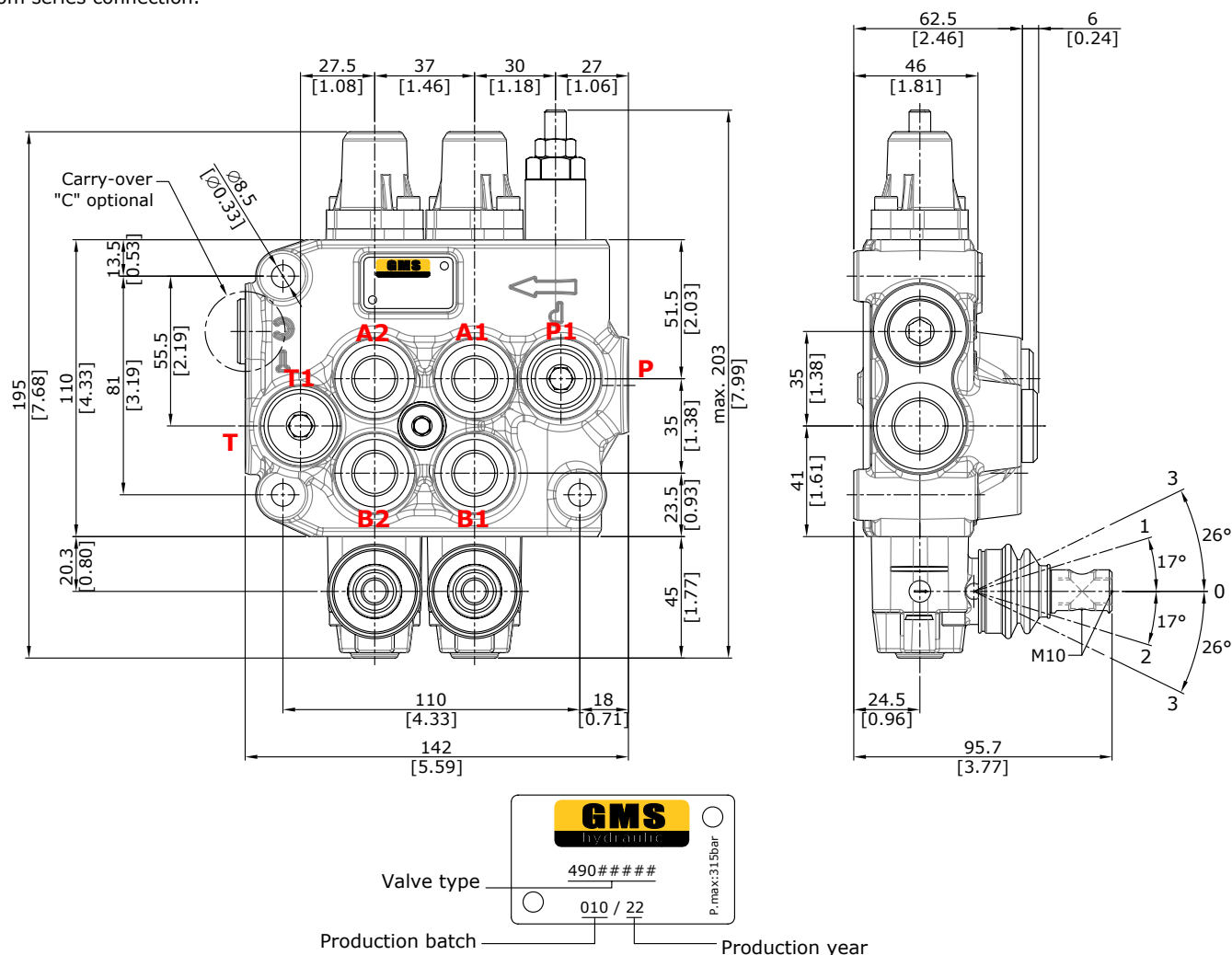
NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

directional valve with right inlet

45L GMCS

Dimensional data (series circuit)

The description of **45L GMCS** valve with series circuit is marked with letter "**S**" and one figure which indicate the downstream sections from series connection.



Standard configuration

Upper inlet and outlet ports configuration

Description example

45L GMCS08/2-S1(X-100)/ED-18L/ED-18L/AET-PSL2

Description example

45L GMCS08/2-S1(X-100)/ED-18L/ED-18L/AET-PSA2

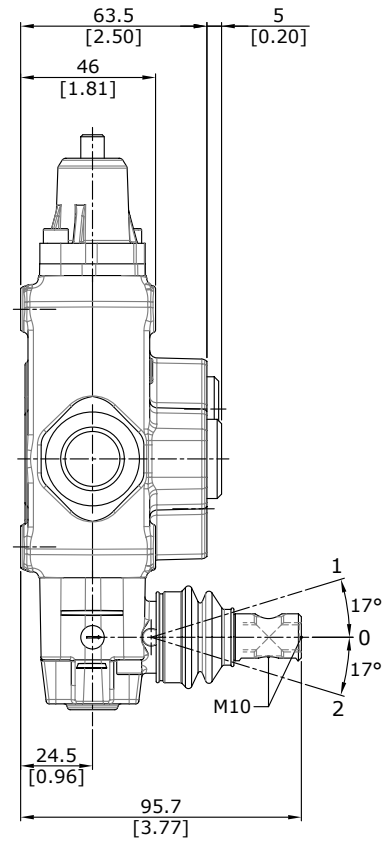
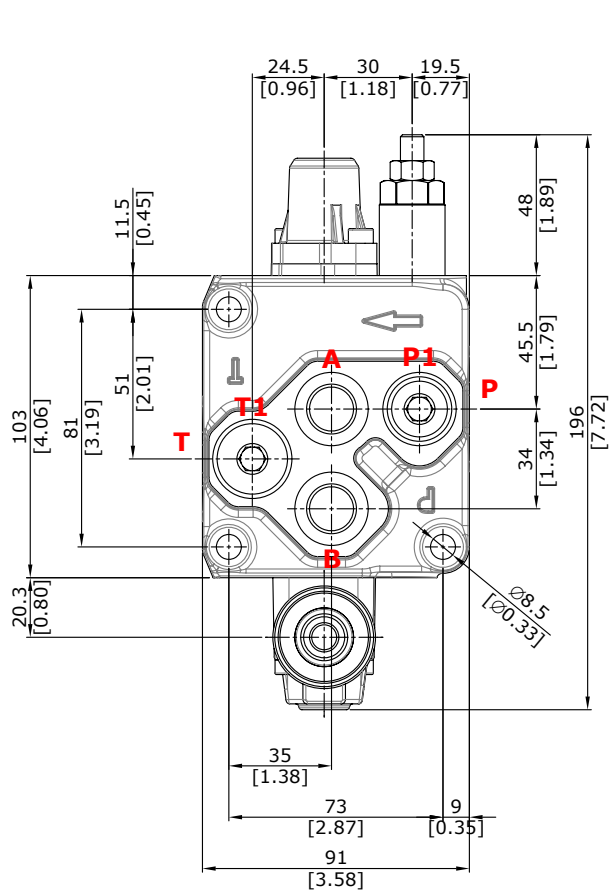
NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

45L GM

45L GMT

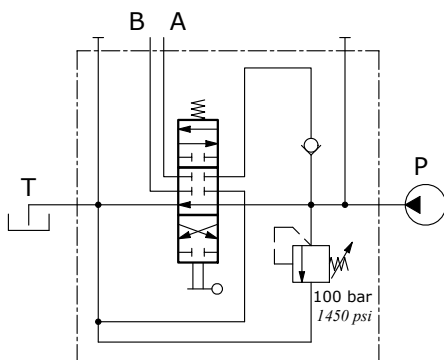
Dimensional data

directional valve with right inlet

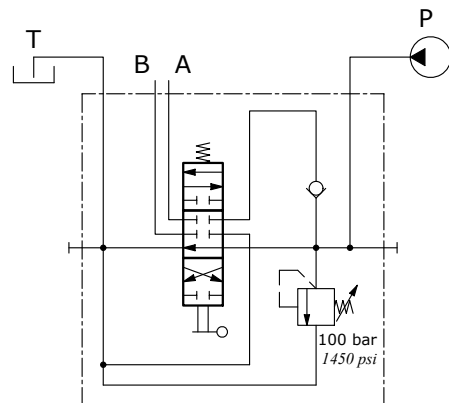


Standard configuration

Upper inlet and outlet ports configuration



Description example
45L GMT08/1-N(X-100)/ED-18L-PSL2



Description example
45L GMT08/1-N(X-100)/ED-18L-PSA2

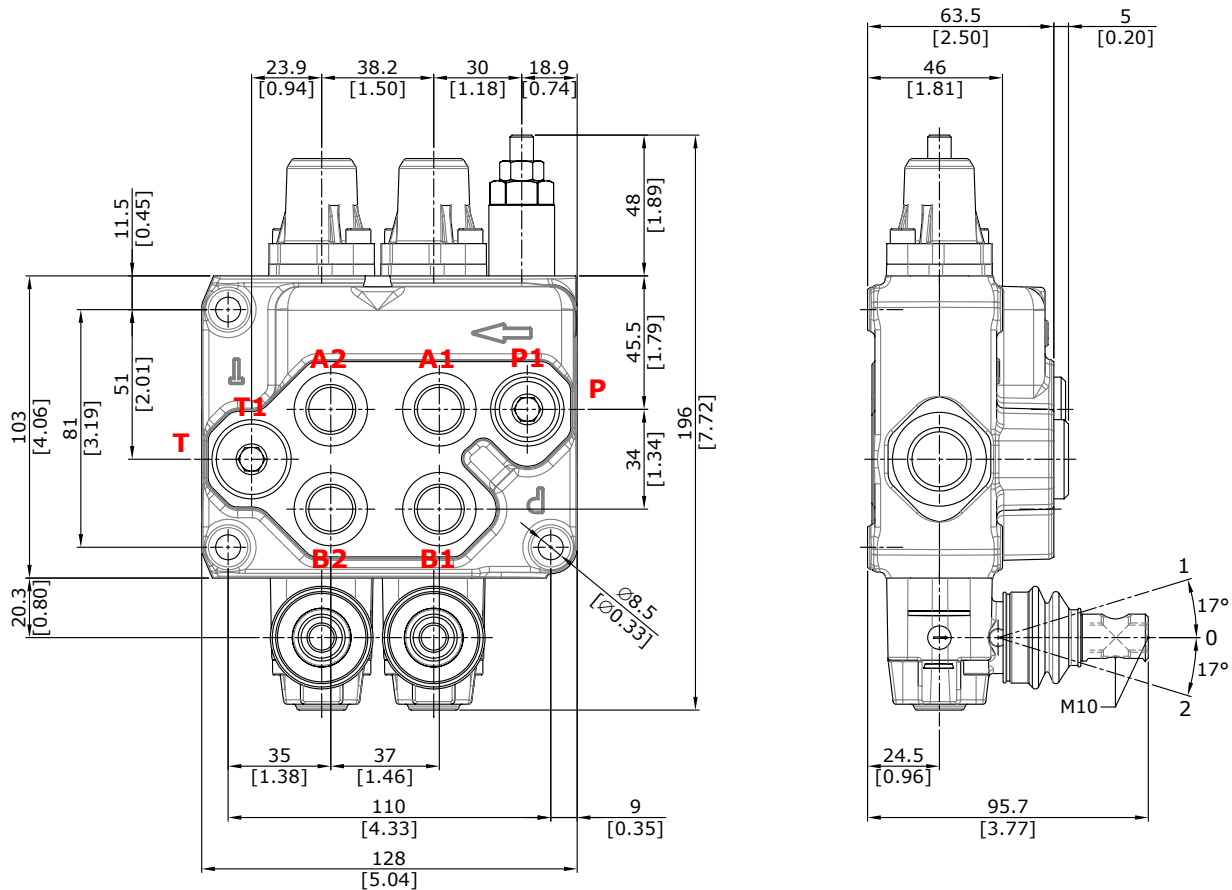
NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

directional valve with right inlet

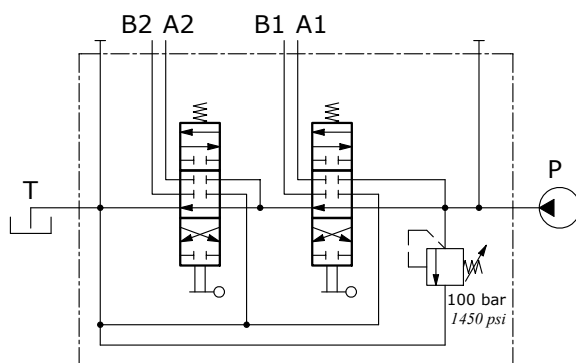
45L GMT

Dimensional data (with tandem circuit)

The description of **45L GMT** valve with tandem circuit is marked with letters "**SP**" and one figure which indicate the downstream sections from tandem connection.



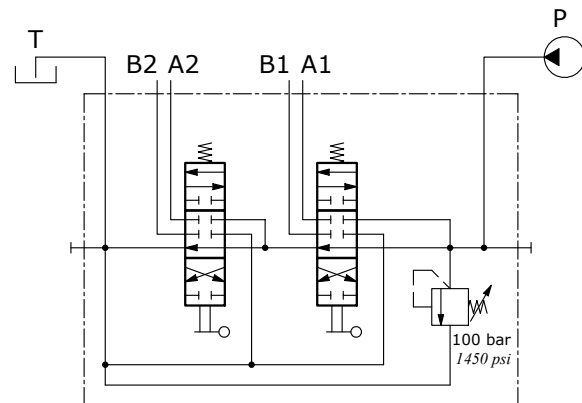
Standard configuration



Description example

45L GMT08/2-SP1(X-100)/ED-18L/ED-18L-PSL2

Upper inlet and outlet ports configuration



Description example

45L GMT08/2-SP1(X-100)/ED-18L/ED-18L-PSA2

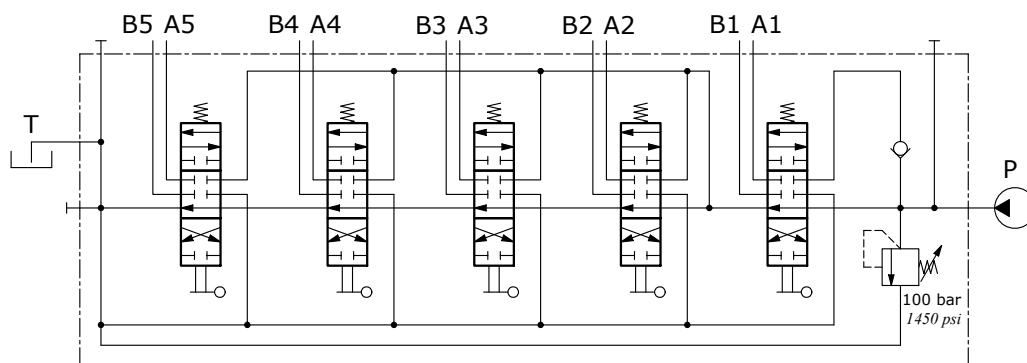
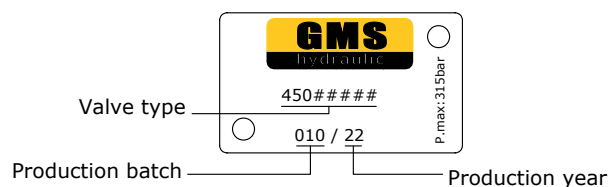
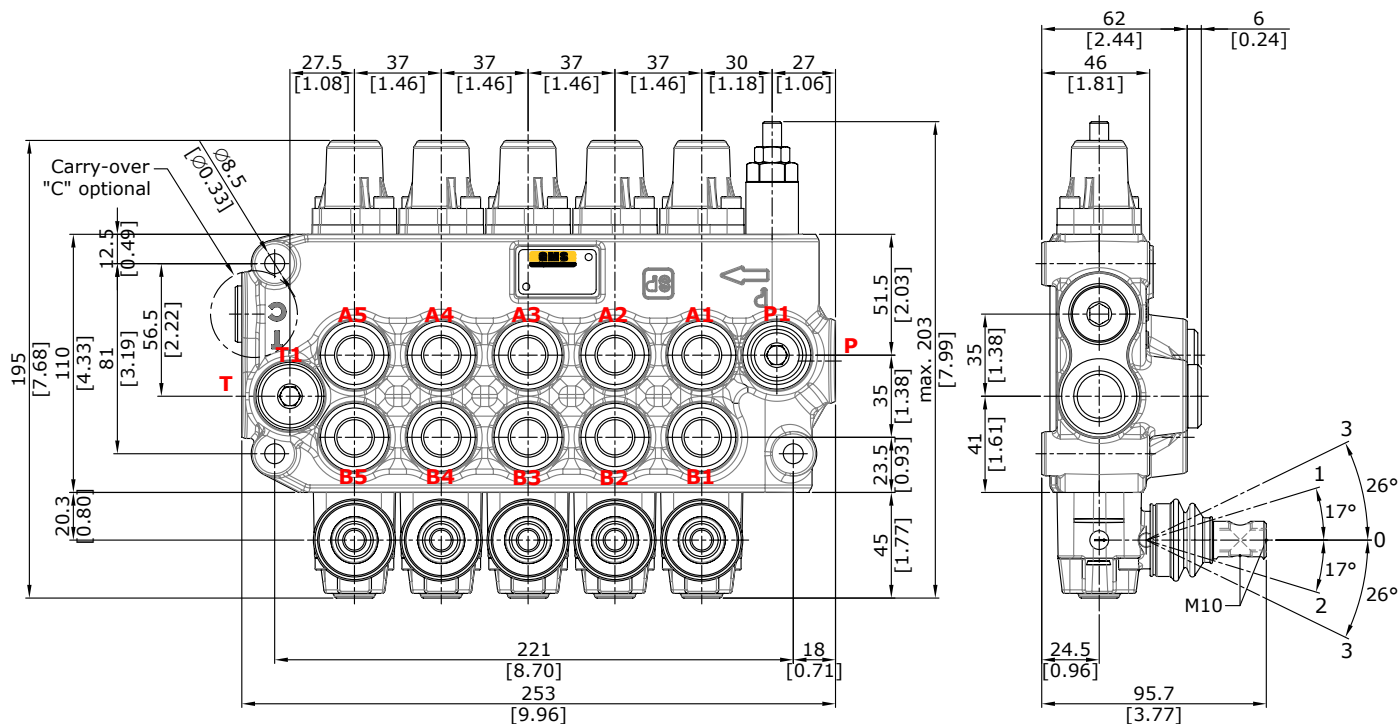
NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

45L GM

directional valve with right inlet

Dimensional data (with tandem circuit)

The description of **45L GM** valve with tandem circuit is marked with letters "**SP**" and one figure which indicate the downstream sections from tandem connection.



Description example

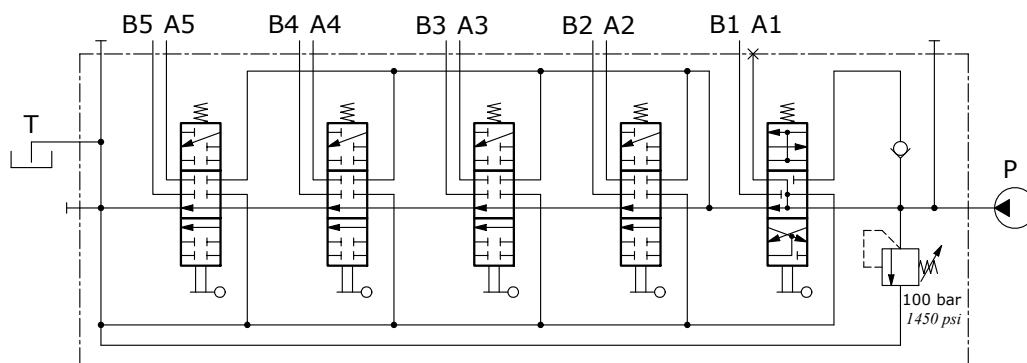
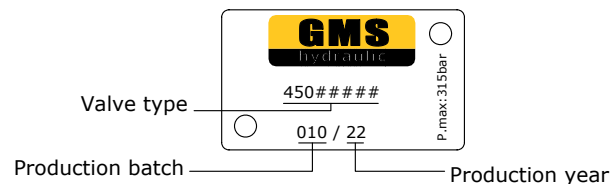
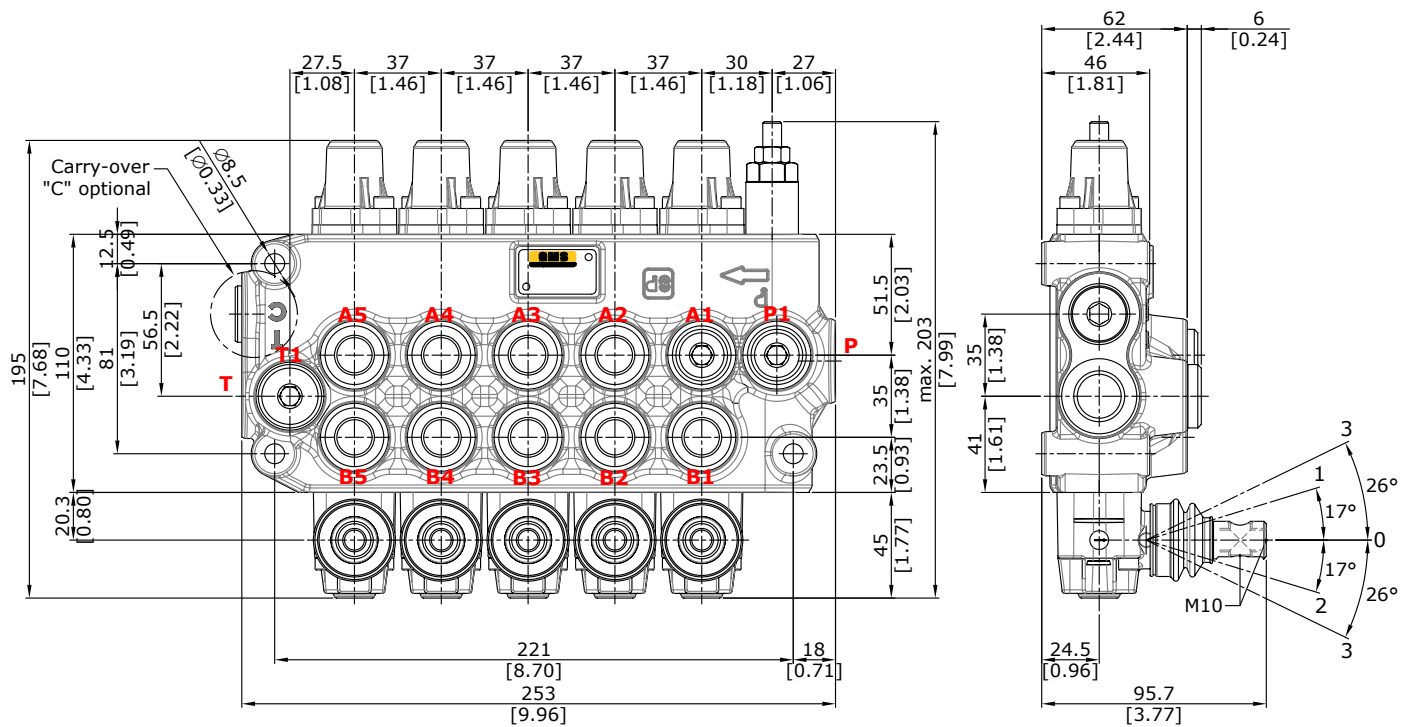
45L GM08/5-**SP4**(X-100)/ED-18L/ED-18L/ED-18L/ED-18L/ED-18L/AET-PSL2

NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

directional valve with right inlet

Dimensional data (with tandem circuit)

The description of **45L GM** valve with tandem circuit is marked with letters "**SP**" and one figure which indicate the downstream sections from tandem connection.

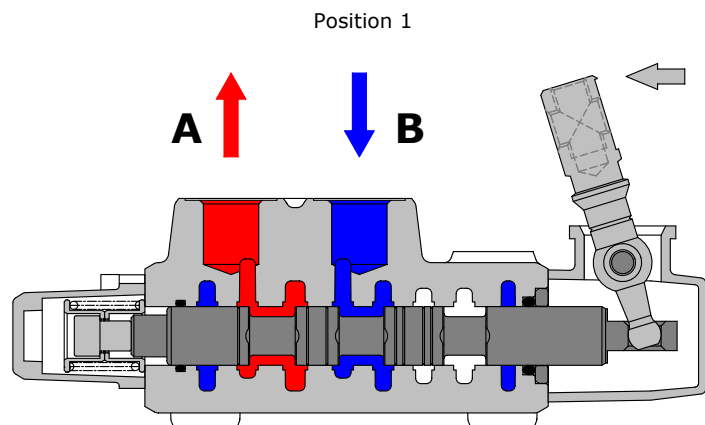


Description example
 45L GM08/5-**SP**4(X-100)/ED-4FAS8ORL/ED-1E8ORL/
 ED-1E8ORL/ED-1E8ORL/ED-1E8ORL/AET-PSL2

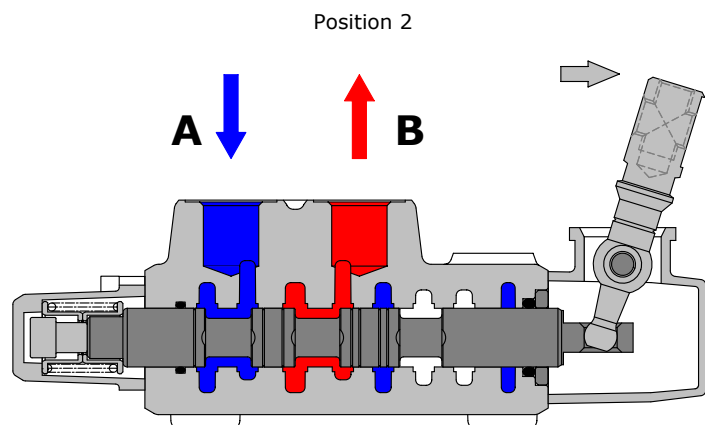
NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

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.

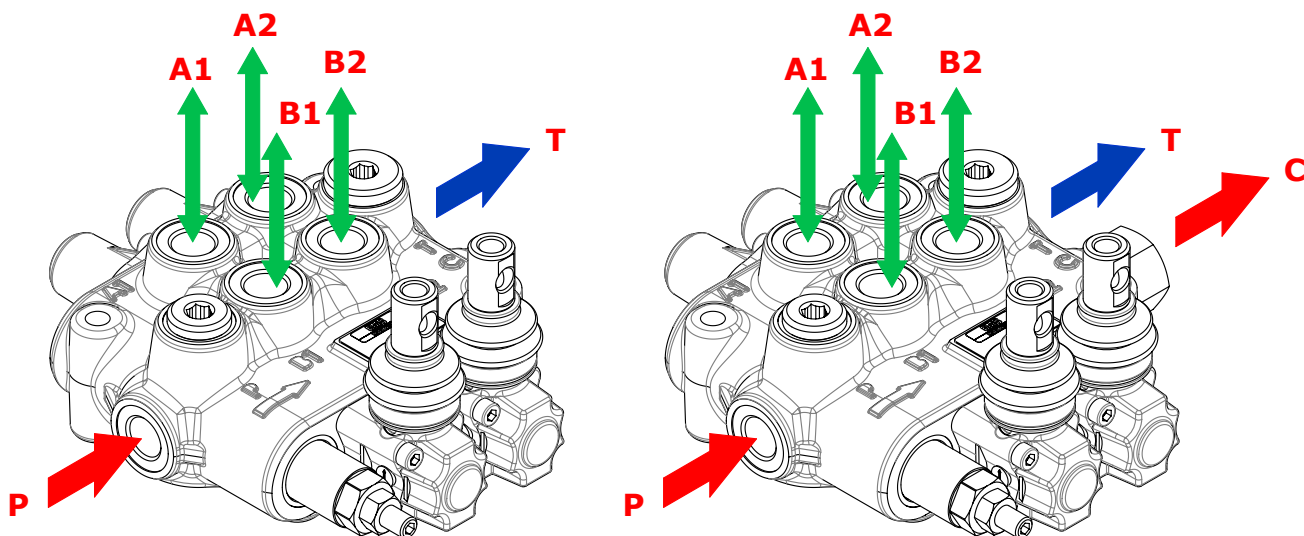


Installation and maintenance

The 45L GM valve is assembled and tested as per the technical specification of this catalogue.

Before the final installation on your equipment, follow the below recommendations:

- the valve can be assembled in any position; in order to prevent body deformation and spool sticking mount the product on a flat surface;
- In order to prevent the possibility of water entering the lever box and spool control kit, do not use high pressure wash down directly on the valve;
- prior to painting, ensure plastic port plugs are tightly in place.



Carry-over configuration

Fitting tightening torque - Nm (lbft)				
THREAD TYPE	P and C ports	A,B ports	T port	Hydraulic pilot
BSP (ISO 228/1)	G 3/8	G 3/8	G 1/2	G 1/4
With O-Ring seal	35 (25.8)	35 (25.8)	50 (36.9)	20 (14.7)
With copper washer	40 (29.5)	40 (29.5)	50 (36.9)	25 (18.4)
With steel and rubber washer	30 (22.1)	30 (22.1)	50 (36.9)	16 (11.8)
UN-UNF (ISO 11926-1)	3/4-16 (SAE 8)	9/16-18 (SAE 6)	3/4-16 (SAE 8)	9/16-18 (SAE 6)
With O-Ring seal	40 (29.5)	30 (22.1)	30 (22.1)	30 (22.1)
METRIC (ISO 262)	M18x1.5	M18x1.5	M22x1.5	-
With O-Ring seal	35 (25.8)	35 (25.8)	50 (36.9)	-
With copper washer	40 (29.5)	40 (29.5)	50 (36.9)	-
With steel and rubber washer	40 (29.5)	40 (29.5)	50 (36.9)	-

NOTE – These torque are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish. The manufacturer shall be consulted.