HYDRA

160L GM PART

160L Monoblock Valve

Specifications

Spool: 1/ Double - Single - Closed Center- Motor Spool
Flow: 160L Nominal - 200L Max
Ports: 3/4 Standard- 1” Optional
Front Cap: Handle - Remote Cable Control - Lock Handle

Open Center I Carry over is notavailable I Parallel Circuit

Features

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

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

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

1st edition January 2023:

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Valve general informations

Valve general information

Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm^2/s *(46cSt)* viscosity at 40°C *(104°F)* temperature.

Nominal flow rating		160 l/min.	*42 US gpm*
Max. flow		200 l	*53 US gpm*
Operating pressure (max.)		250 bar	*3600 psi*
Back pressure (max.)	T outlet port	25 bar	*360 psi*
Internal leakage (standard) A(B) T	p=100 bar *(1450 psi)*	4cm^3/min.	*0.24 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*

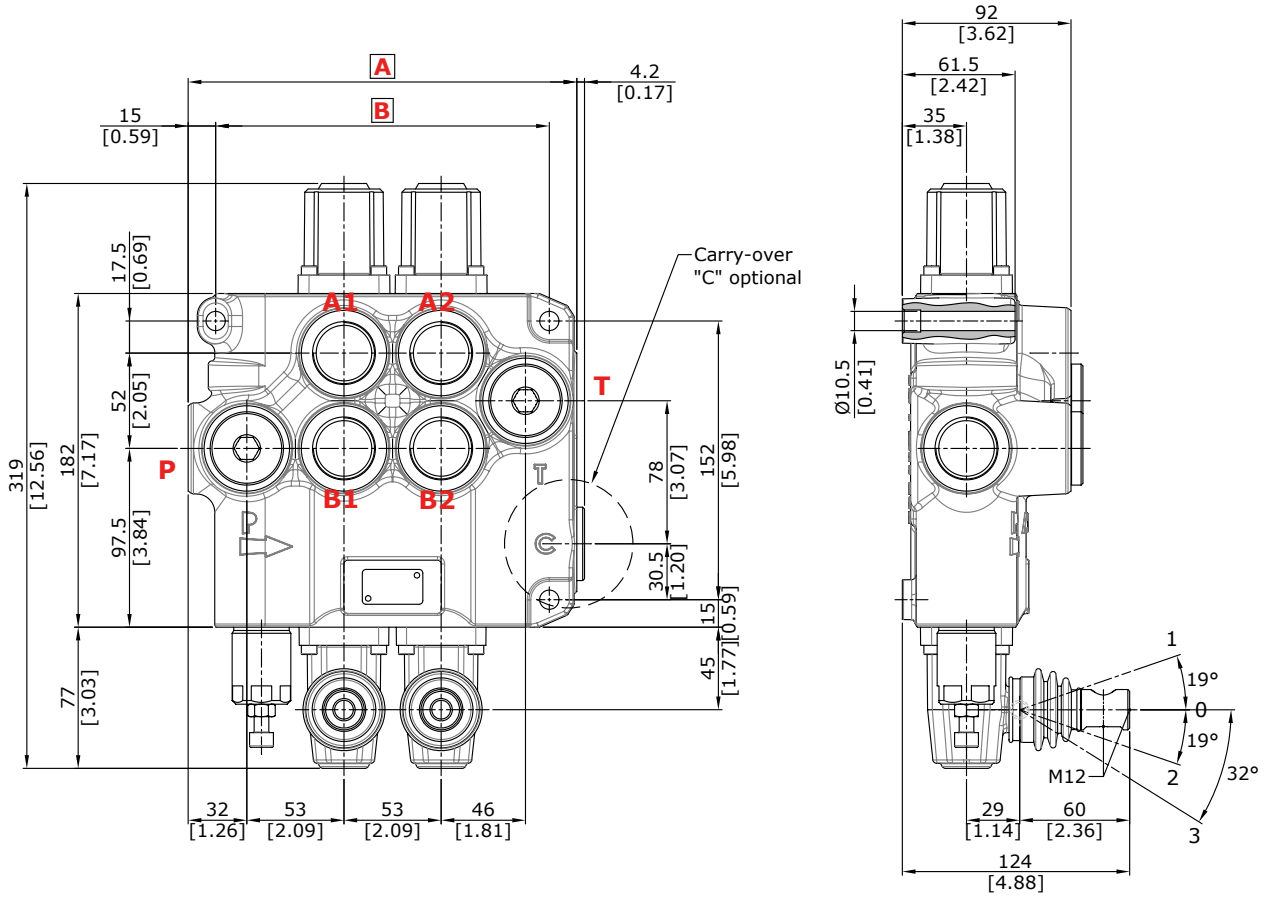
Standard threads

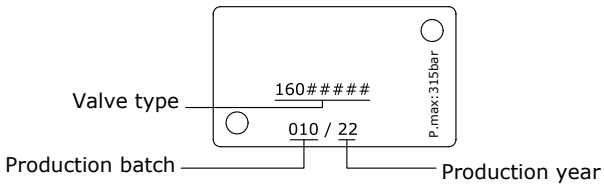
REFERENCE STANDARD				
		BSP	**UN-UNF**	**NPTF**
THREAD ACCORDING TO		ISO 228/1	ISO 263	ANSI B1.20.3
		BS 2779	ANSI B1.1 unified	
CAVITY DIMENSION ACCORDING TO	ISO	1179-1	11926-1	
	SAE		J1926-1	J476a
	DIN	3852-2 shape X or Y		

PORTS THREADING			
MAIN PORTS	**BSP**	**OPTIONAL**	**UN-UNF**
P inlet and **C** carry-over	G 1	G 3/4	1 5/16-12 (SAE 16)
A and **B** ports	G 1	G 3/4	1 1/16-12 (SAE 12)
T outlet	G 1	G 1	1 5/16-12 (SAE 16)
PILOT PORTS			
Hydraulic	G 1/4	-	-
Pneumatic	G 1/8	-	-

Valve general information

Dimensional data





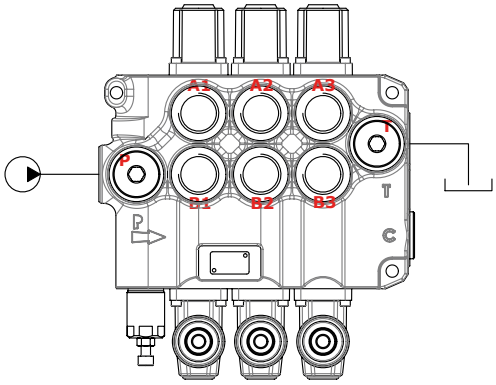
TYPE	A		B		Weight	
	mm	*in*	mm	*in*	Kg	*lb*
160L GM20/1-P	159	*6.26*	129	*5.08*	10.9	*24.03*
160L GM20/2-P	212	*8.35*	182	*7.17*	15.8	*34.83*
160L GM20/3-P	265	*10.43*	235	*9.25*	20.5	*45.19*

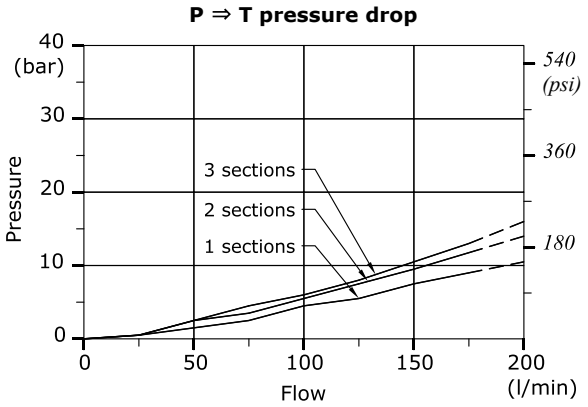
NOTE - Drawings and dimensions are referred to **BSP** thread configuration.

Performance data (pressure drop vs. flow)

Open centre

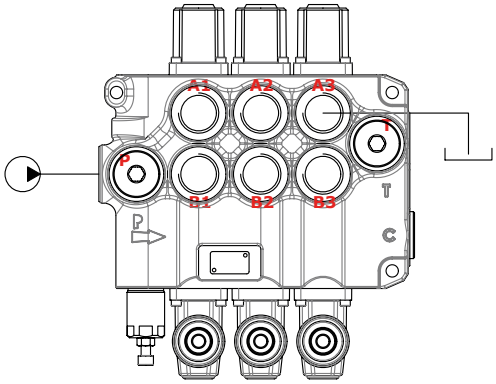
From side inlet to side outlet.

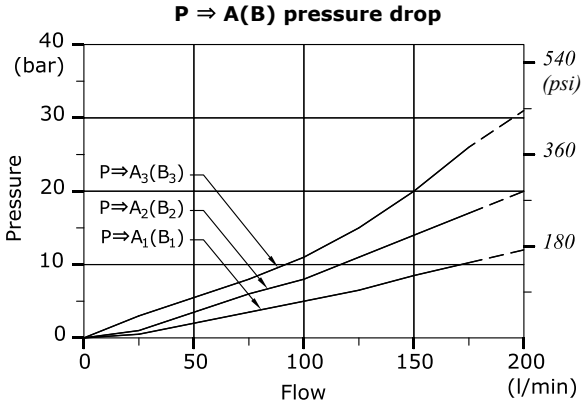




Inlet to work port

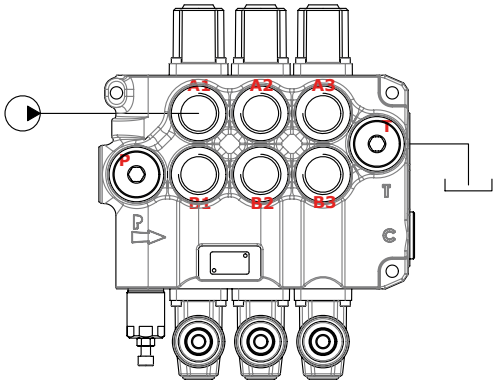
From side inlet to **A** port (spool in position **1**) or **B** port (spool in position **2**).

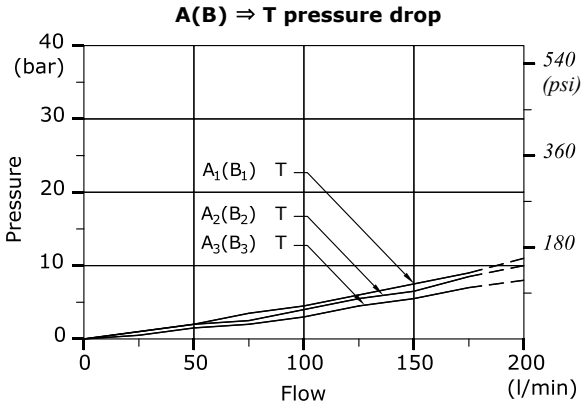




Work port to outlet

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

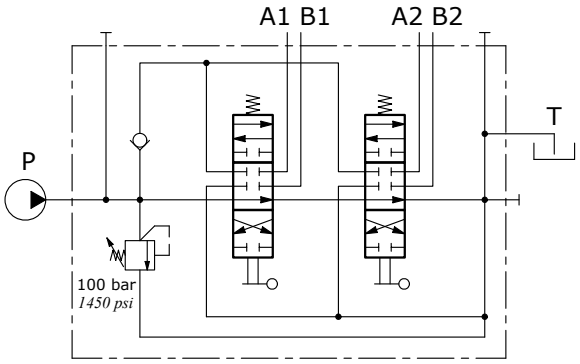




Valve general information

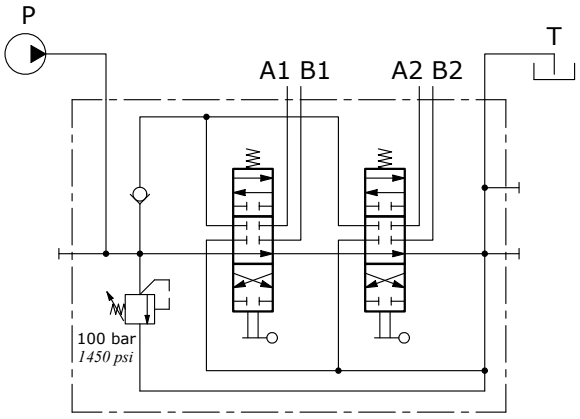
Hydraulic circuit

Standard configuration



Description example
160L GM20/2-P(YG-100)/18L/18L/AET-**PSL8**

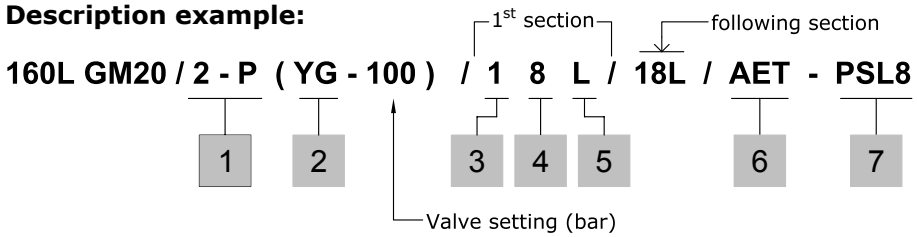
Upper inlet and outlet ports configuration

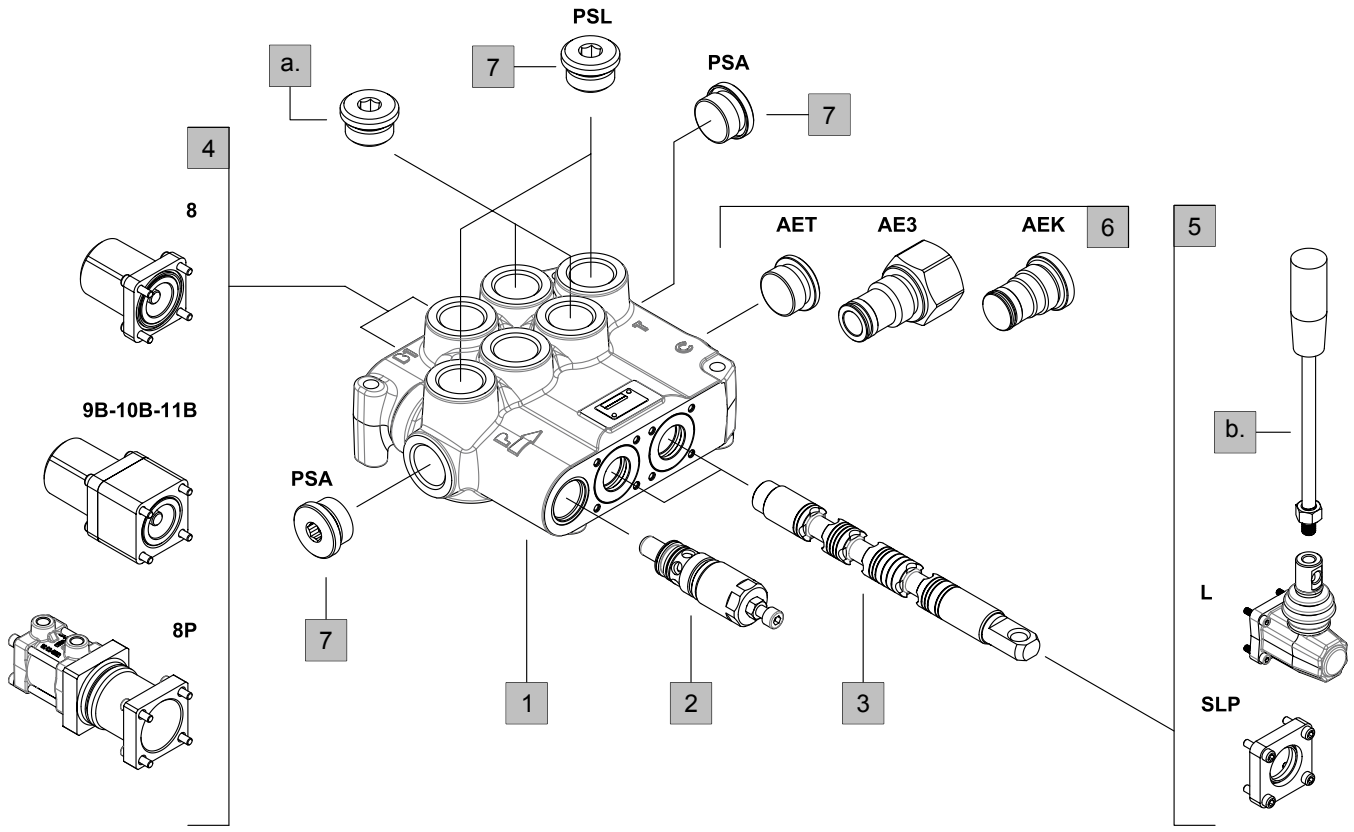


Description example
160L GM20/2-P(YG-100)/18L/18L/AET-**PSA8**

Ordering codes

Description example:





1. Body kits *

TYPE	CODE	DESCRIPTION
1-P	30 08 9063	Parallel, 1 section
2-P	30 08 9064	Parallel, 2 sections
3-P	30 08 9065	Parallel, 3 sections

Include body, seals, rings and load check valve.

2. Inlet relief options page 9

TYPE	CODE	DESCRIPTION
Direct pressure relief valve YG type (standard)		
(YG-100)	30 05 6257	Range 60-315 bar *(870-4570 psi)* standard setting 100 bar *(1450 psi)*
Pilot operated pressure relief valve XGN type		
(XGN-100)	30 05 6235	Range 60-315 bar *(870-4570 psi)* standard setting 100 bar *(1450 psi)*
Standard setting is referred to 6 l/min flow.		
(SV)	30 05 6236	Relief valve blanking plug

3. Spools page 11

TYPE	CODE	DESCRIPTION
1	30 01 3615	Double acting, 3 positions, with A and B closed in neutral position
2 open	30 01 3616	Double acting, 3 positions, with A and B to tank in neutral position
3	30 01 3618	Single acting on A, 3 positions, B plugged; requires G1 plug (see part a)
4	30 01 3619	Single acting on B, 3 positions, A plugged; requires G1 plug (see part a)
D4	30 01 3617	Double acting, 2 positions, without neutral position
Spools for 8IM hydraulic control		
1IM	30 01 3620	As type 1
2IM	30 01 3661	As type 2
Special spools: need special body kit		
5DY	30 01 3622	Double acting, 4 positions, float in position 3 with spool in, **13 type positioner kit is required**
8F	30 01 3621	Double acting, 3 positions, regenerative in position 1

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

Valve general information

Ordering codes

4. "A" side spool positioners — page 12

TYPE	CODE	DESCRIPTION
8	30 07 5424	With spring return in neutral position
8D	30 07 7545	As type 8, M8 female threaded pin extension for dual control
19	30 07 5591	With spring return in position 0 from 1
20	30 07 5592	With spring return in position 0 from 2
11	30 07 5425	With detent in positions 1, 0 and 2
12	30 07 5594	Detent in positions 1 and 2
15	30 07 5588	With detent in positions 1 and 0
16	30 07 5589	With detent in positions 2 and 0
17	30 07 7628	With spring return position 1
18	30 07 7629	With spring return position 2
17D	30 07 7630	With spring return position 1 and pin with M8 female thread for dual control
18D	30 07 5590	With spring return position 2 and pin with M8 female thread for dual control
9B	30 07 5593	With detent in position 1 and spring return in neutral position
10B	30 07 5586	With detent in position 2 and spring return in neutral position
11B	30 07 5587	Detent in positions 1 and 2 and spring return in neutral position
8MG3(NO)	30 07 7570	With spring return in neutral position and operation with microswitch in pos. 1 and 2
8MG3(NC)	30 07 7571	With spring return in neutral position and operation with microswitch in pos. 1 and 2
8MG1\MG2 (NO\NO)	30 07 7510	As type 8, operation with 2 microswitch (NO) in positions 1 and 2
8MG1\MG2 (NC\NC)	30 07 7511	As type 8, operation with 2 microswitch (NC) in positions 1 and 2
8P	30 07 7602	ON/OFF pneumatic kit
8PF	-	Proportional pneumatic kit
8EP3	30 07 7603	12 VDC ON/OFF electro-pneumatic kit
	30 07 7604	24 VDC ON/OFF electro-pneumatic kit
8EP4	30 07 7631	12 VDC ON/OFF electro-pneumatic kit with manifold
	30 07 7632	24 VDC ON/OFF electro-pneumatic kit with manifold

Particular positioner kits for special spools..... ***page 18***

13	30 07 5584	4 positions with spring return in neutral position and detent in pos.3: **for 5DY spool**

5. "B" side options — page 19

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

6. Outlet port options *

TYPE	CODE	DESCRIPTION
AET	30 05 4994	Open centre plug
AE3	30 05 6571	G1 carry-over sleeve
AEK	30 05 6570	Closed centre plug

7. Inlet and outlet selection *

TYPE	CODE	DESCRIPTION
PSL8	30 05 4993	G1 plug for upper inlet
	30 05 4993	G1 plug for upper outlet
PSA8	30 05 4993	G1 plug for side inlet
	30 05 4993	G1 plug for side outlet

8. Complete controls — page 21

TYPE	CODE	DESCRIPTION
ON/OFF Hydraulic control		
8IM	30 07 5422	-
Proportional hydraulic kit		
8IMSPSD	30 07 7560	With spool position sensor esecution. (ON/OFF)
8IMSPSL	30 07 7563	With spool position sensor esecution.
Rotative control type		
R	30 07 5362	-

a. "A" and "B" ports plugs

TYPE	CODE	DESCRIPTION
G1	30 05 4993	For single acting spools type 3 and 4

b. Optional handlevers

TYPE	CODE	DESCRIPTION
M12x265	30 05 6012	Lenght L = 265mm / *10.43in*

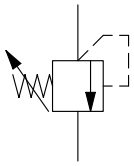
NOTE (*) – Codes are referred to **BSP** thread.

Inlet relief options

Direct pressure relief valve

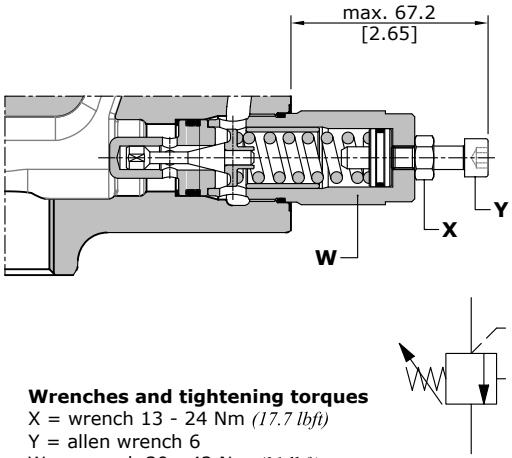
30 05 6257 **(Y G - 100)**

Configuration — Valve setting (bar)



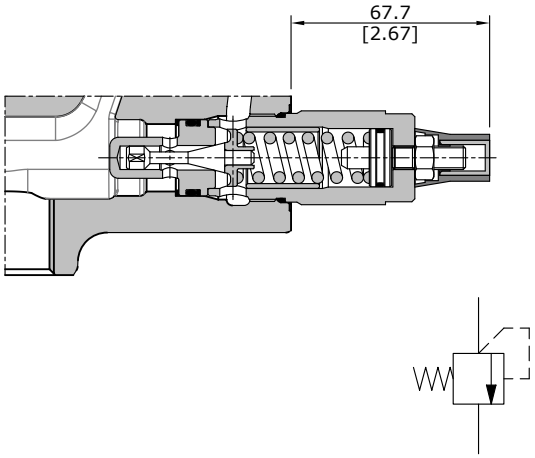
Adjustment type

Configuration **G** type: adjustable with screw

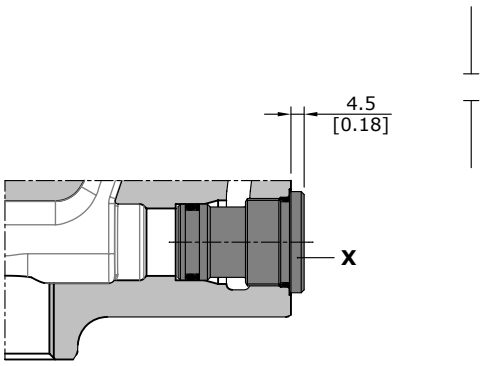


Wrenches and tightening torques
X = wrench 13 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6
W = wrench 30 - 42 Nm *(31 lbft)*

Configuration **H** type: valve set and locked

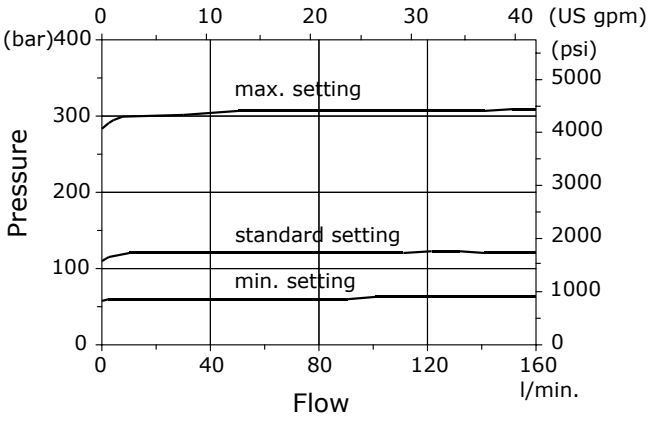


SV: relief valve blanking plug



Wrenches and tightening torques
X = allen wrench 10 - 42 Nm *(31 lbft)*

Performance data

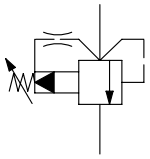


Inlet relief options

Pilot pressure relief valve

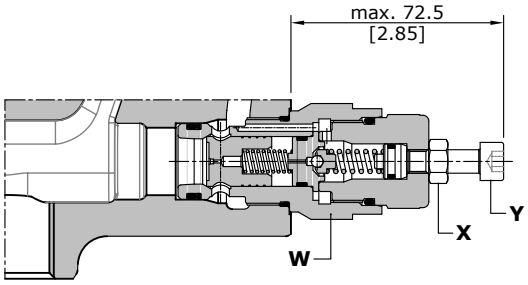
30 05 6235 **(X G N - 100)**

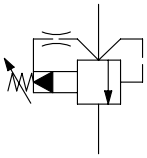
- Configuration
- Without filter
- Valve setting (bar)



Adjustment type

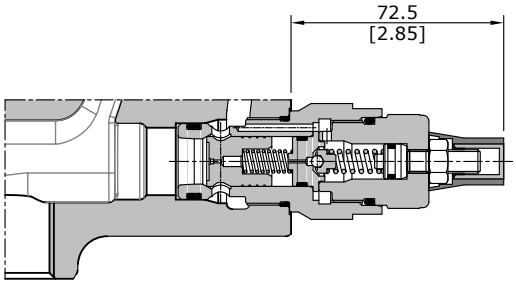
Configuration **G** type: adjustable with screw

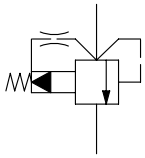




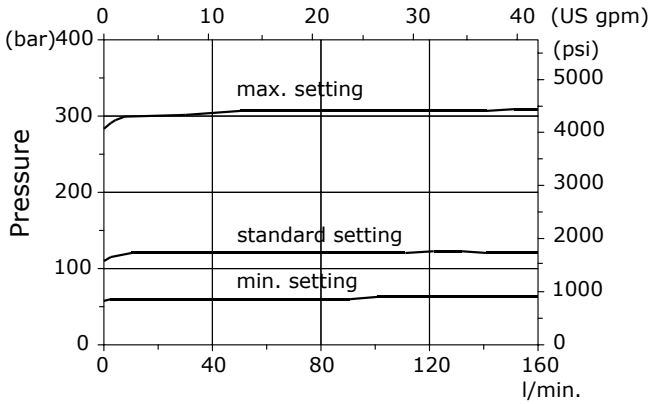
Wrenches and tightening torques
X = wrench 13 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6
W = wrench 36 - 42 Nm *(31 lbft)*

Configuration **H** type: valve set and locked



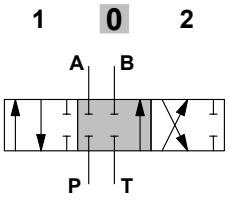


Performance data



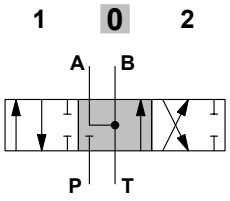
Spools options

1 (30 01 3615), 1IM (30 01 3620) spool type
Double acting, 3 positions, with A and B closed in neutral position



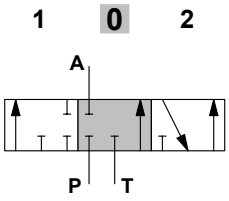
Spool stroke
position 1: + 10 mm *(+ 0.39 in)*
position 2: - 10 mm *(- 0.39 in)*

2 (30 01 3616), 2IM (30 01 3661) spool type
Double acting, 3 positions, with A and B open to tank in neutral position



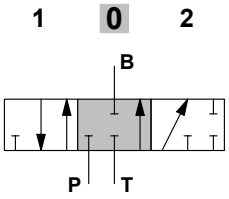
Spool stroke
position 1: + 10 mm *(+ 0.39 in)*
position 2: - 10 mm *(- 0.39 in)*

3 (30 01 3618) spool type
Single acting on A, 3 positions, B plugged; requires G1 plug



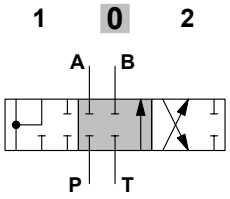
Spool stroke
position 1: + 10 mm *(+ 0.39 in)*
position 2: - 10 mm *(- 0.39 in)*

4 (30 01 3619) spool type
Single acting on B, 3 positions, A plugged; requires G1 plug



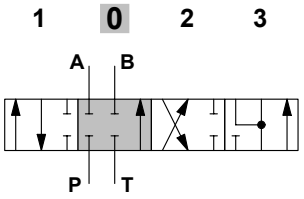
Spool stroke
position 1: + 10 mm *(+ 0.39 in)*
position 2: - 10 mm *(- 0.39 in)*

8F (30 01 3621) spool type
Double acting, 3 positions, regenerative circuit in 2nd position (pos.1) with spool out



Spool stroke
position 1: + 10 mm *(+ 0.39 in)*
position 2: - 10 mm *(- 0.39 in)*

5DY (30 01 3622) 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: + 7 mm *(+ 0.28 in)*
position 2: - 8 mm *(- 0.32 in)*
position 3: - 16 mm *(- 0.63 in)*

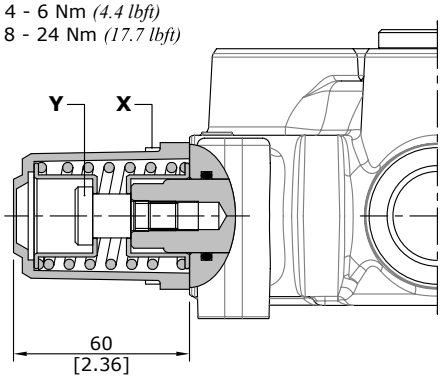
With spring return in neutral position

8 type (30 07 5424)

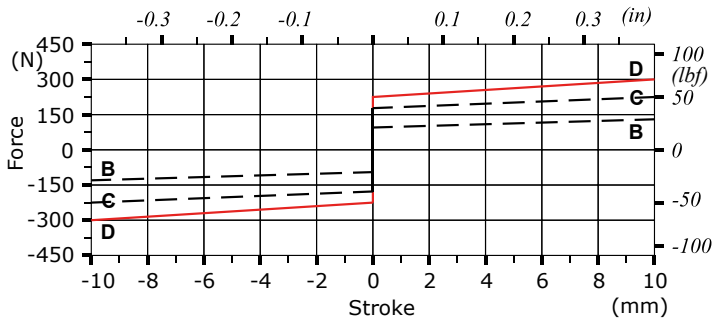
Supplied with standard spring type D (see force-stroke diagram); available with lighter spring type B (**8MB**) or type C (**8MC**).

1	0	2

Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 8 - 24 Nm *(17.7 lbft)*

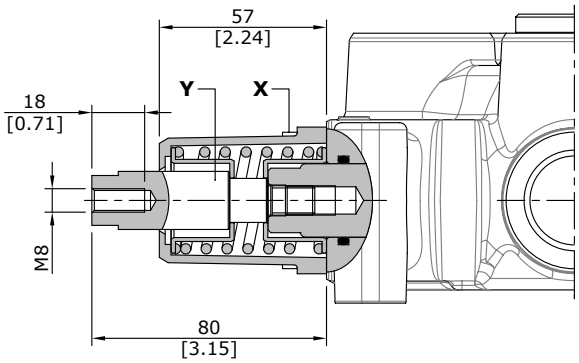


Force-stroke diagram

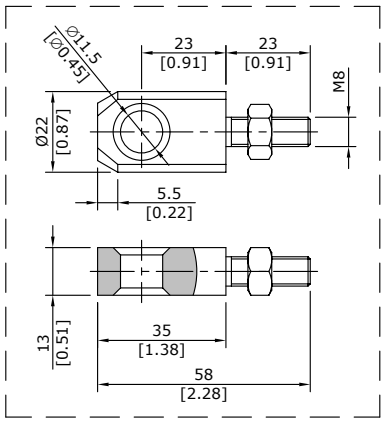


8D type (30 07 7545)

With M8 female threaded pin extension for dual control.



Spool end joint dimensions (optional)



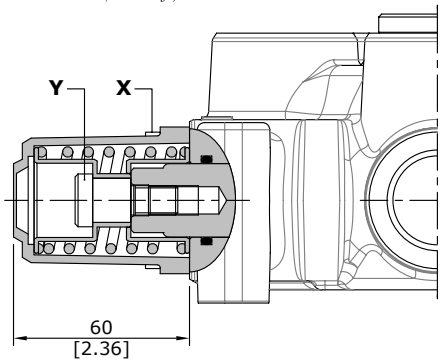
1	0	2

Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = wrench 17 - 24 Nm *(17.7 lbft)*

19 type (30 07 5591)

1	0

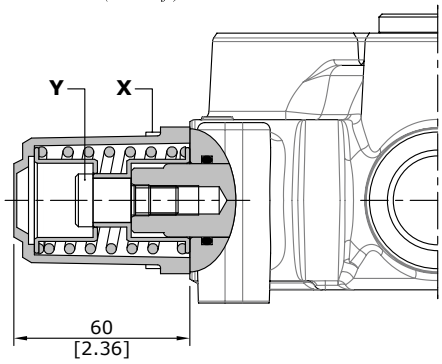
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 8 - 24 Nm *(17.7 lbft)*



20 type (30 07 5592)

0	2

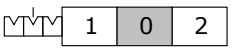
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 8 - 24 Nm *(17.7 lbft)*

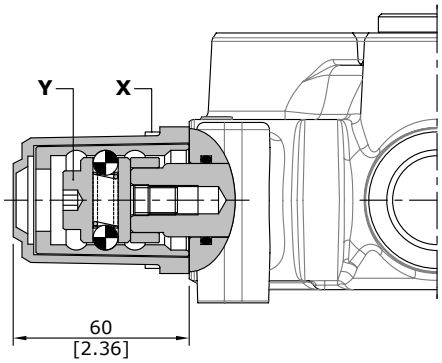


"A" side spool positioners

With detent

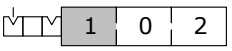
11 type (30 07 5425)

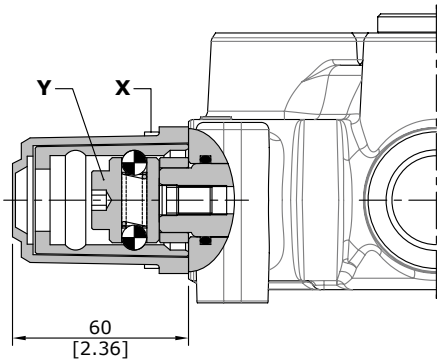




Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*

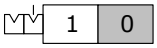
12 type (30 07 5594)

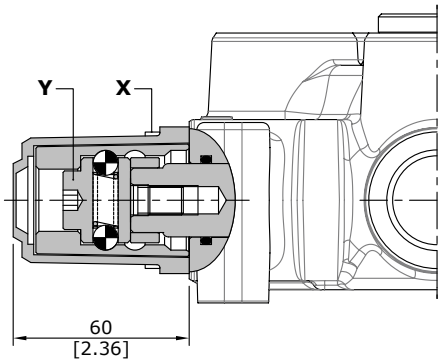




Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*

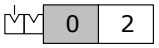
15 type (30 07 5588)

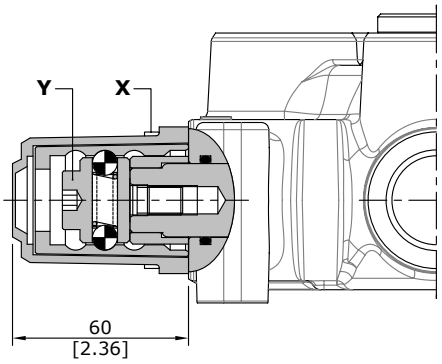




Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*

16 type (30 07 5589)

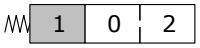


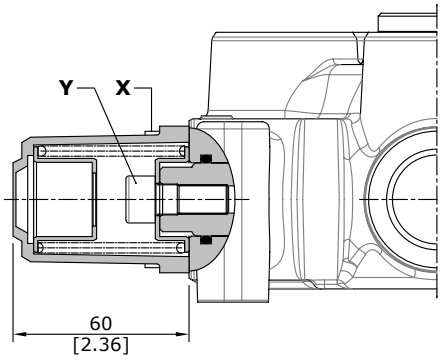


Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*

With spring return

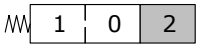
17 type (30 07 7628)

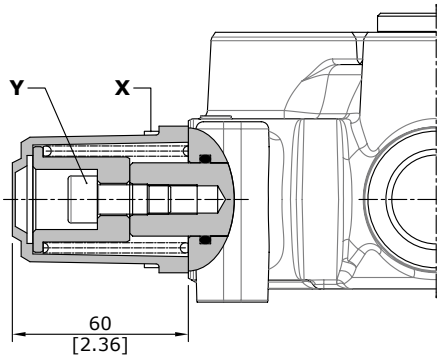




Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 8 - 24 Nm *(17.7 lbft)*

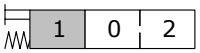
18 type (30 07 7629)

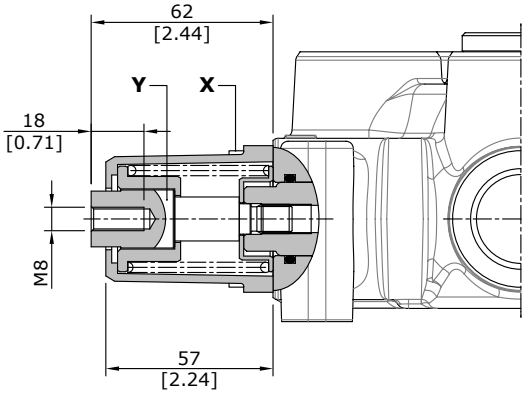




Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 8 - 24 Nm *(17.7 lbft)*

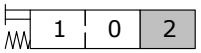
17D type (30 07 7630)

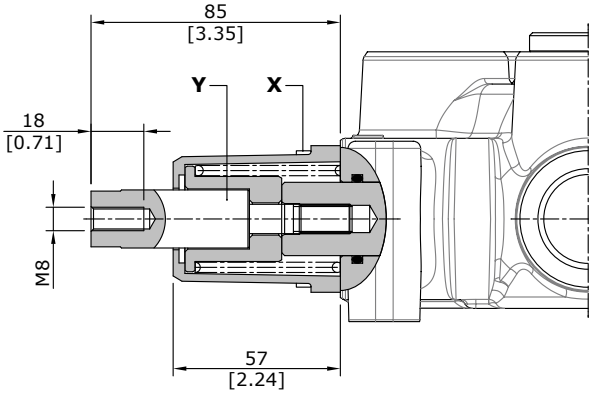




Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = wrench 17 - 24 Nm *(17.7 lbft)*

18D type (30 07 5590)



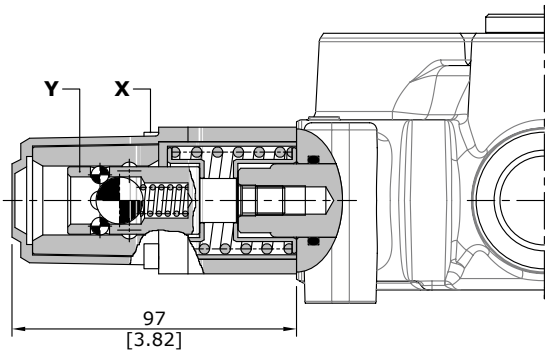


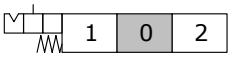
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = wrench 17 - 24 Nm *(17.7 lbft)*

"A" side spool positioners

With detent and spring return to neutral position from either directions

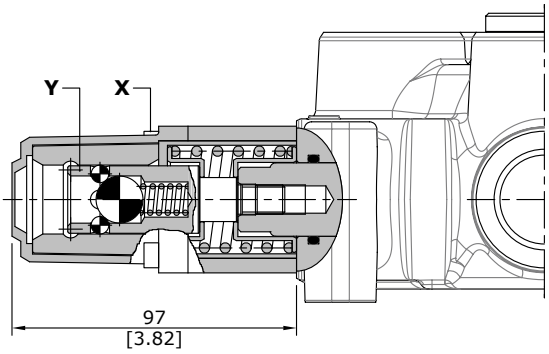
9B type (30 07 5593)

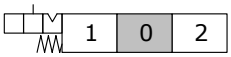




Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = wrench 19 - 24 Nm *(17.7 lbft)*

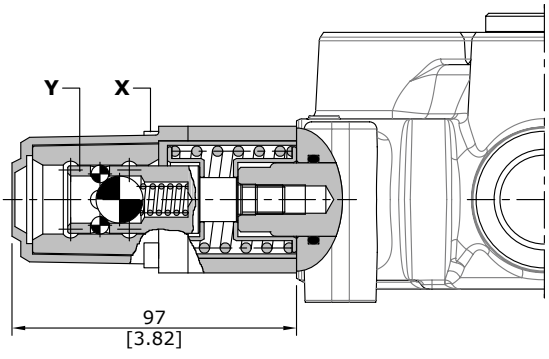
10B type (30 07 5586)

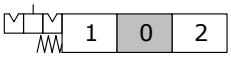




Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = wrench 19 - 24 Nm *(17.7 lbft)*

11B type (30 07 5587)



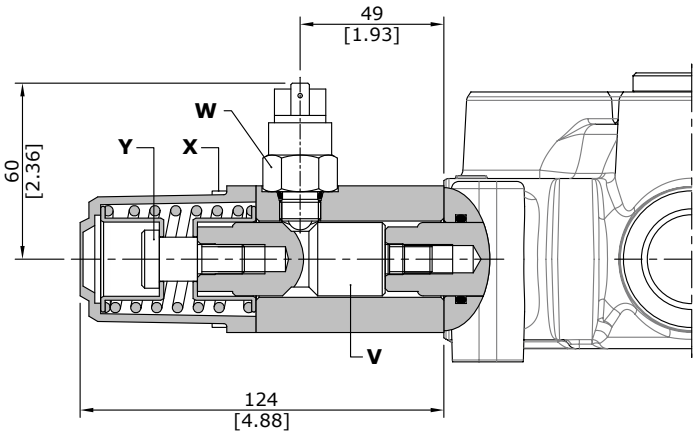


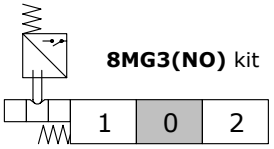
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = wrench 19 - 24 Nm *(17.7 lbft)*

With microswitch

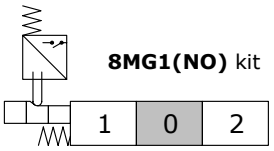
8MG3(NO) type (30 07 7570)

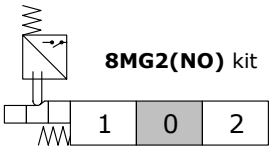
With spring return in neutral position and microswitch operated in both directions.
Also available **8MG1(NO)** (microswitch operated in position 1) and **8MG2(NO)** (microswitch operated in position 2) configurations; dimension are the same of **8MG3(NO)** configuration.
Same configurations are available with normally closed (NC) contact.
For more information contact Sales Department.





Other configurations



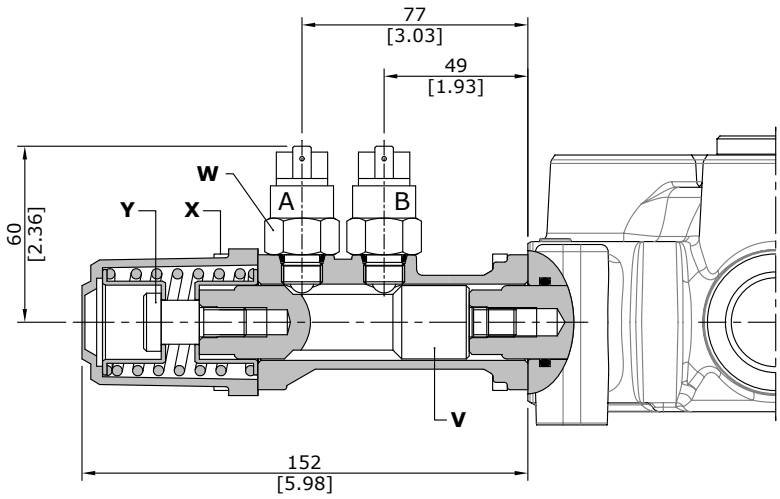


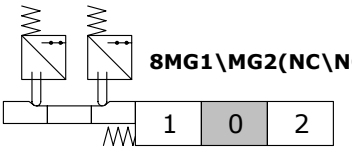
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 8 - 24 Nm *(17.7 lbft)*
W= wrench 22 - 42 Nm *(31 lbft)*
V = wrench 19 - 9.8 Nm *(7.2 lbft)*

Operating features
MICROSWITCH
Mechanical life : $5x10^5$ operations
Electrical life (resistive load) : $5x10^4$ operations 10A / 12VDC
: $5x10^4$ operations 3A / 24VDC

8MG1\MG2(NC\NC) type (30 07 7511)

With double microswitch in position 1 and 2.





Positions	A	B
1	⟋	—
0	—	—
2	—	⟍

Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = allen wrench 8 - 24 Nm *(17.7 lbft)*
W= wrench 22 - 42 Nm *(31 lbft)*
V = wrench 19 - 9.8 Nm *(7.2 lbft)*

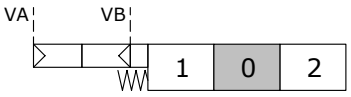
Operating features
MICROSWITCH
Mechanical life : $5x10^5$ operations
Electrical life (resistive load) : $5x10^4$ operations 10A / 12VDC
: $5x10^4$ operations 3A / 24VDC

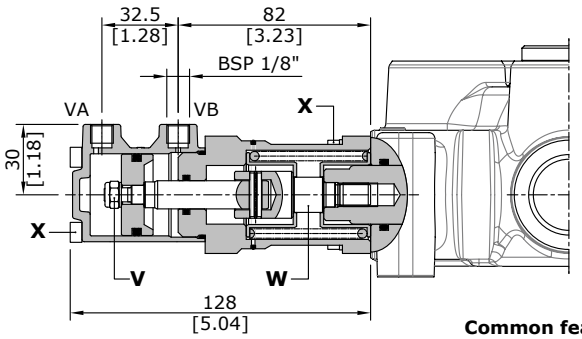
"A" side spool positioners

ON/OFF pneumatic kit and proportional pneumatic kit

ON/OFF pneumatic: 8P type (30 07 7602)

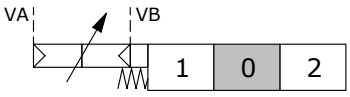
With spring return to neutral position.

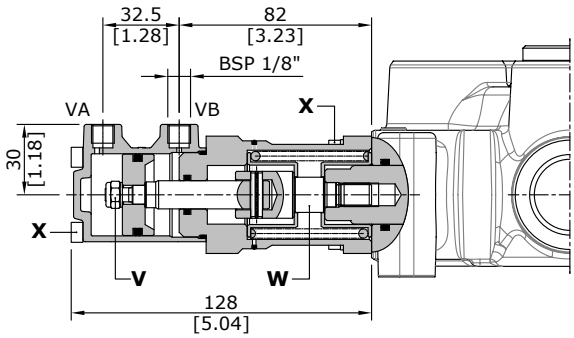




Proportional pneumatic: 8PF type

With spring return to neutral position.





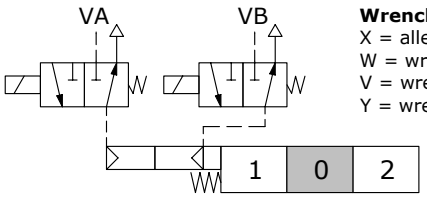
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
W = wrench 17 - 24 Nm *(17.7 lbft)*
V = wrench 13 - 9 Nm *(6.6 lbft)*

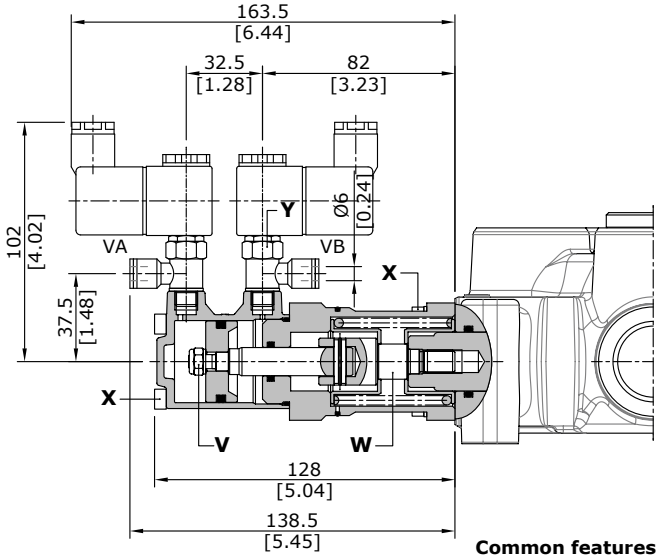
Common features
Pilot pressure.....: min. 5.5 bar *(min. 80 psi)*
: max. 10 bar *(min. 145 psi)*

ON/OFF electro-pneumatic kit

Electro-pneumatic: 8EP3 type

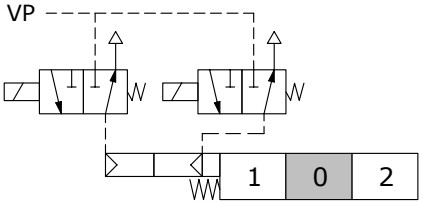
With spring return to neutral position.

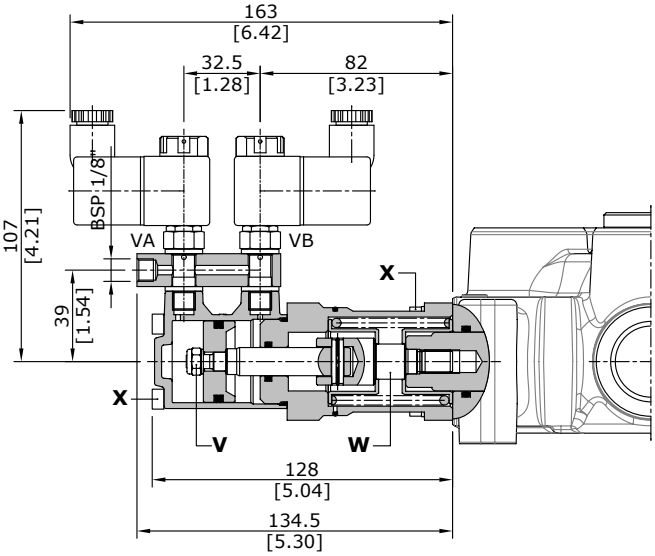




Electro-pneumatic: 8EP4 type

With spring return to neutral position.





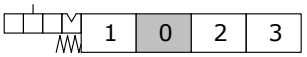
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
W = wrench 17 - 24 Nm *(17.7 lbft)*
V = wrench 13 - 9 Nm *(6.6 lbft)*
Y = wrench 15 - 6 Nm *(4.4 lbft)*

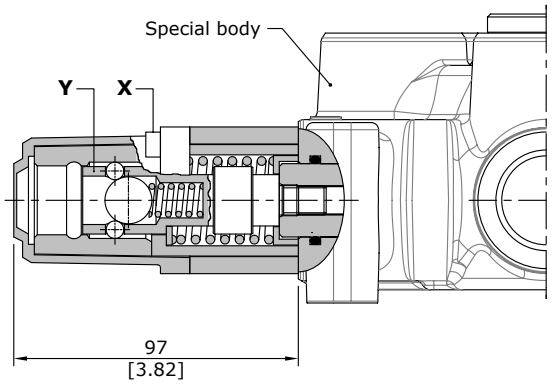
Common features
Pilot pressure.....: min. 5.5 bar *(min. 80 psi)*
: max. 10 bar *(min. 145 psi)*

Particular positioner kits for special spools

13 type (30 07 5584)

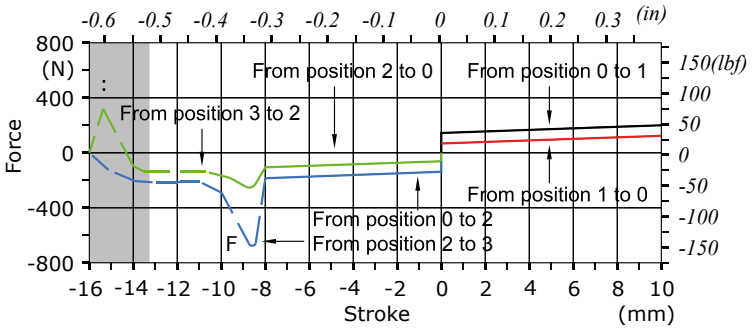
4 positions with spring return in neutral and detent in position 3: **for 5DY spool**.





Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = wrench 19 - 24 Nm *(17.7 lbft)*

Force-stroke diagram



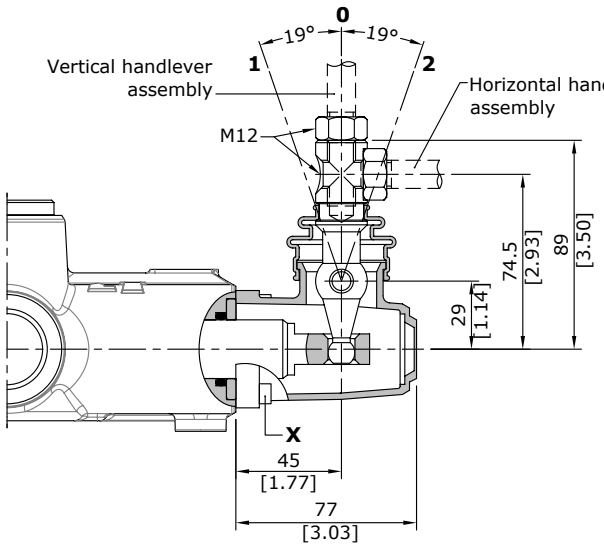
Locking-unlocking area
: Unlocking force:330 N / *74.2 lbf* ±10%
F Locking force:710 N / *160 lbf* ±10%

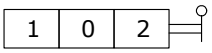
"B" side options

Lever control

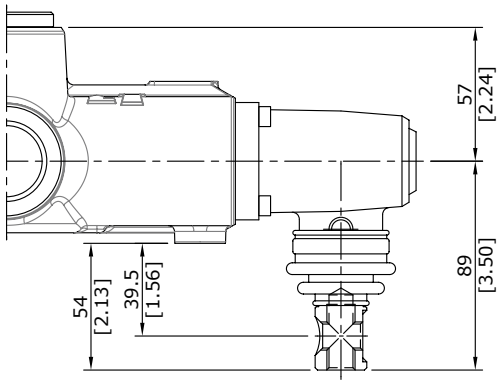
L type (30 07 5423)

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





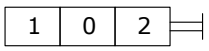
configuration L180

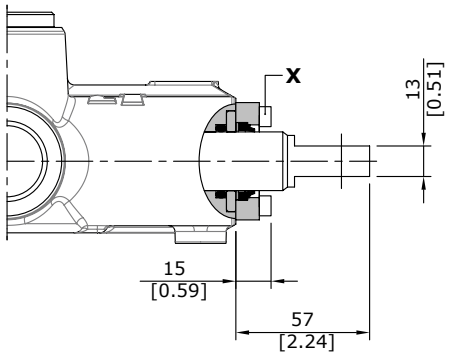


Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*

SLP type (30 07 5358)

Mechanical control with dust-proof plate kit.





Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*

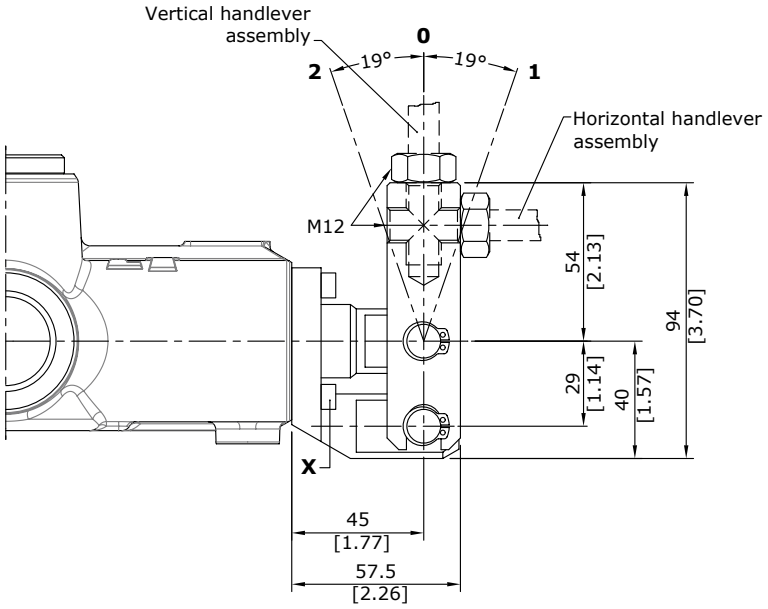
Lever control

LB type (30 07 5357)

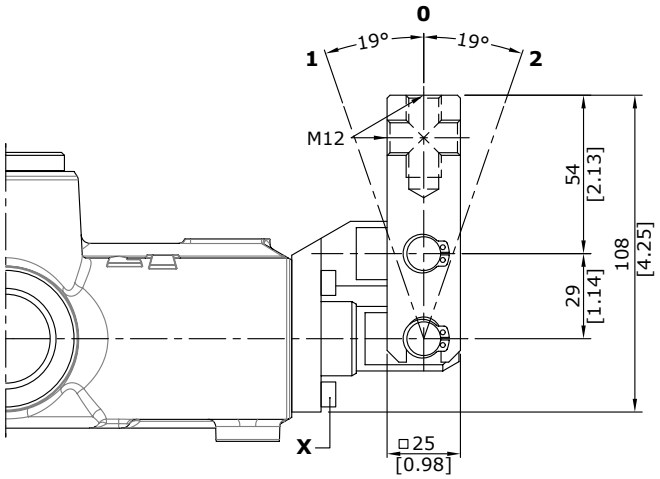
Steel construction, **LB1** with pivot placed down and **LB3** with pivot placed over.

1	0	2

Configuration LB1



Configuration LB3

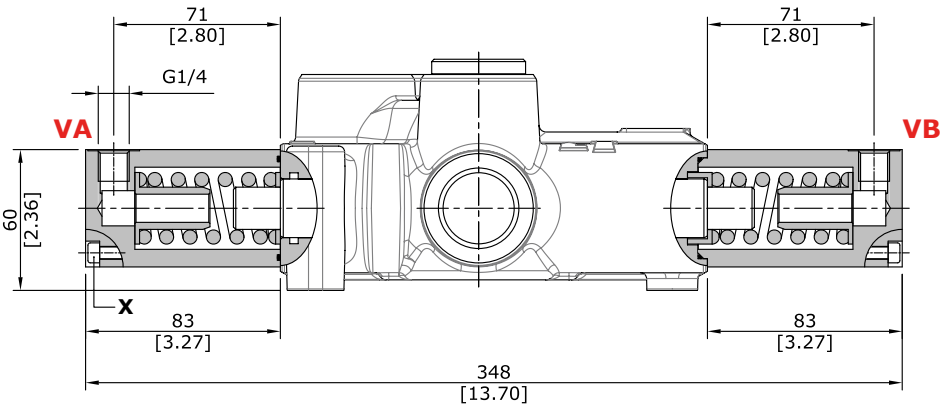


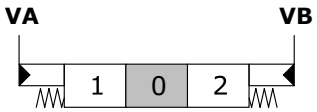
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*

Complete controls

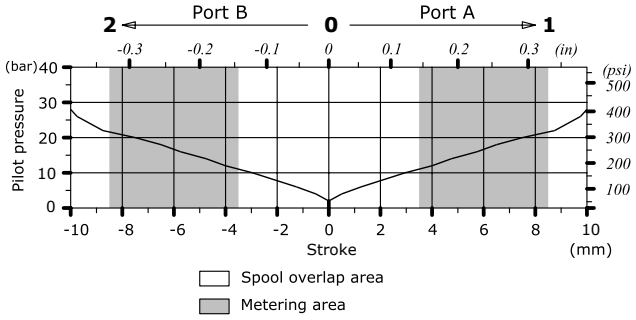
Proportional hydraulic control

8IM type (30 07 5422)





Pilot pressure - stroke diagram



Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*

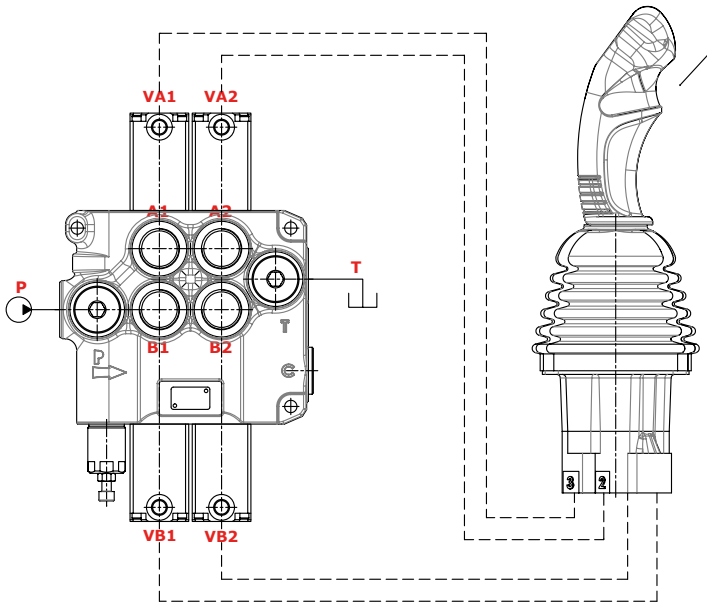
Operating features
Pilot pressure : max. 50 bar *(725 psi)*
Internal leakage A(B)→ T (Δp = 100 bar - *1450 psi* / T = 40°C)
..... : max. 6cm³/min - *0.37 in³/min*

Ex.: 160L GM20/2-P(YG-100)/**1IM** **8IM**

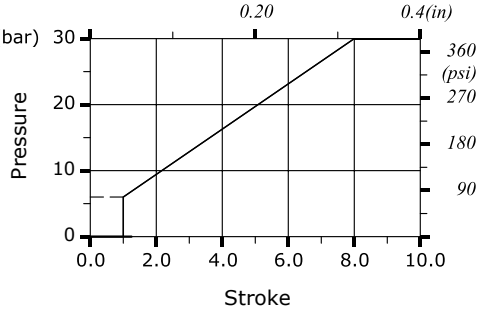
Spool code **30 01 3620**

Spool control kit code **30 07 5422**

Connection example



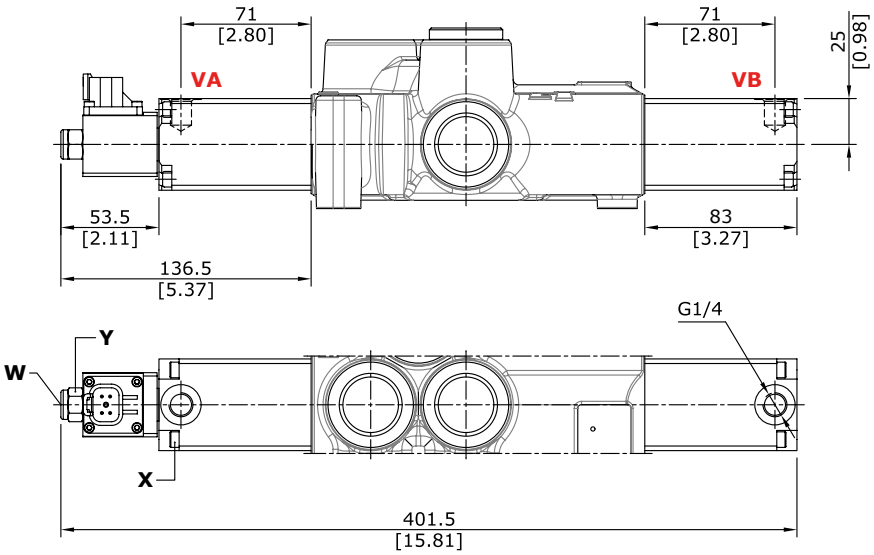
8IM control kit
curve 001 without step

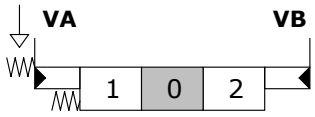


Proportional hydraulic control type

8IMSPSD (30 07 7560), 8IMSPSL (30 07 7563)

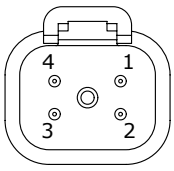
With spool position sensor.





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)*

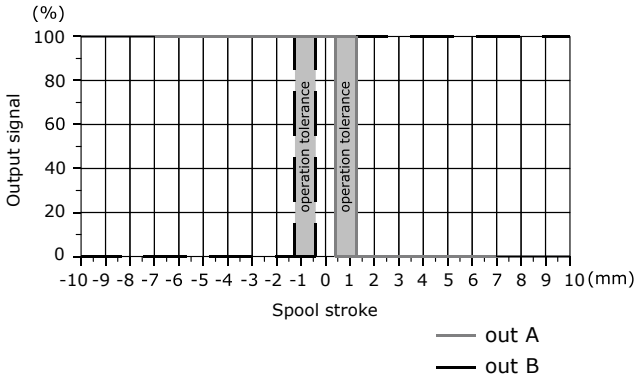
Control features
Pilot pressure..... : max. 100 bar *(1450 psi)*
Connector ..... : Deutsch DT04-4P



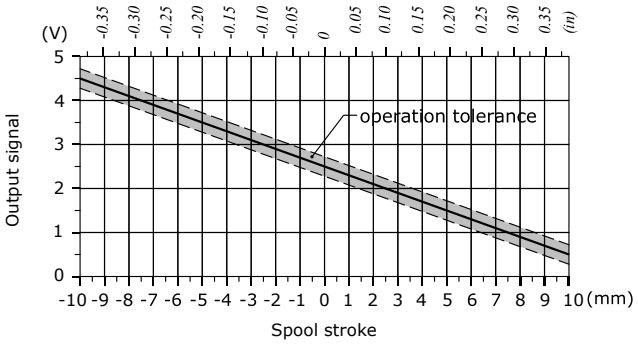
Connector PIN-OUT		
	Functions	
Pin	for 5V supply	for 8-32V supply
1	+5V	signal OUT
2	N.C.	GND
3	GND	Vb+
4	signal Out	not connected

Spool position sensor features
Voltage supply range..... : from 9 to 32 VDC or 5 VDC
Current absorption..... : <10 mA
Mechanical life..... : $3x10^6$
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

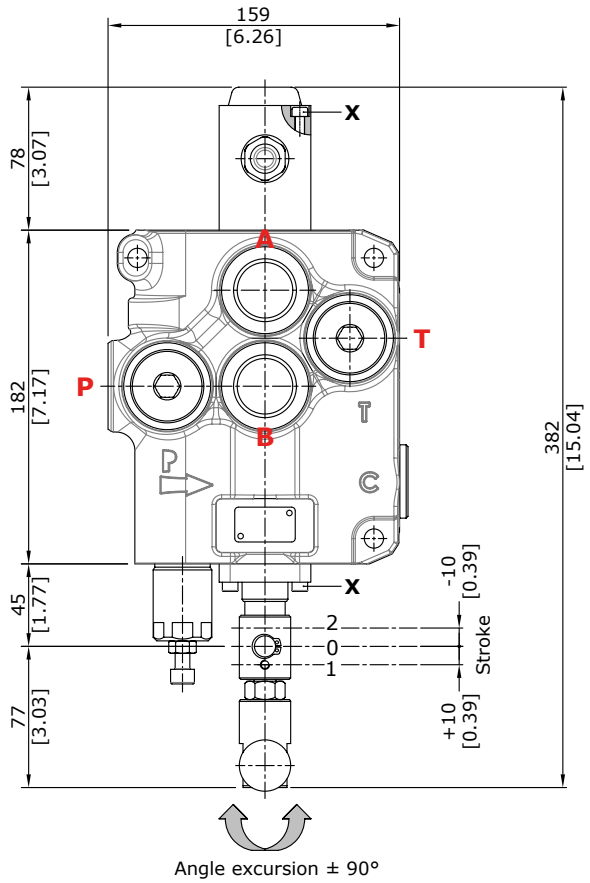


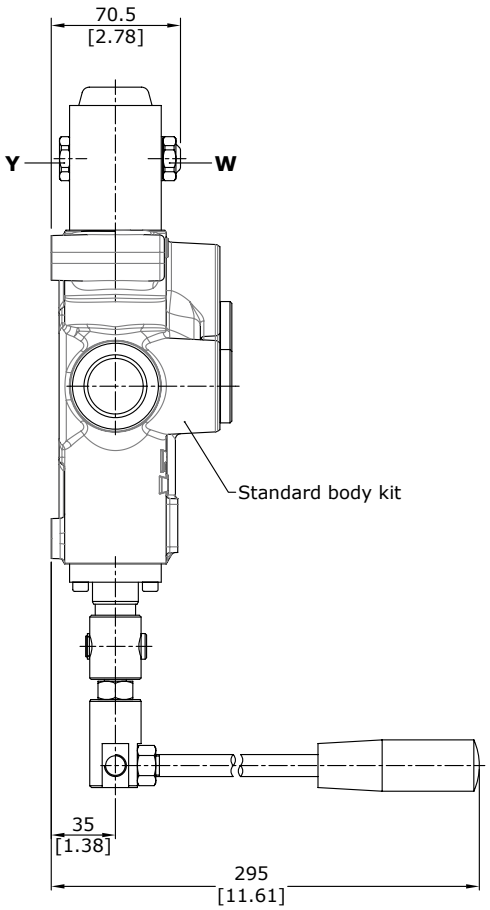
Output signal
Range.....: from 0.5 to 4.5 V
Linearity.....: ± 5%
Spool in neutral..... : 2.5 ± 0.2 V
Max current..... : 1 mA
Mechanical vibrations,
shock, bumps..... : IEC 68-2-6,27,29
EMC compatibility..... : ISO 13766 - ISO 15982

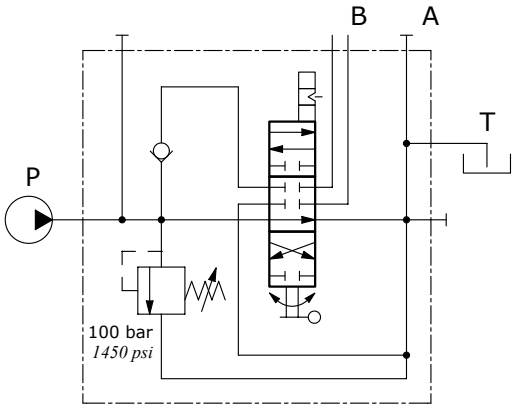
Special configurations

Directional valve with rotary control kit

R type (30 07 5362)







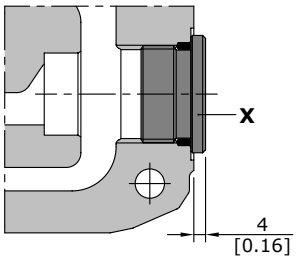
Description example
160L GM20/1(YG-100)/1 **R SLP**/AET-PSL8

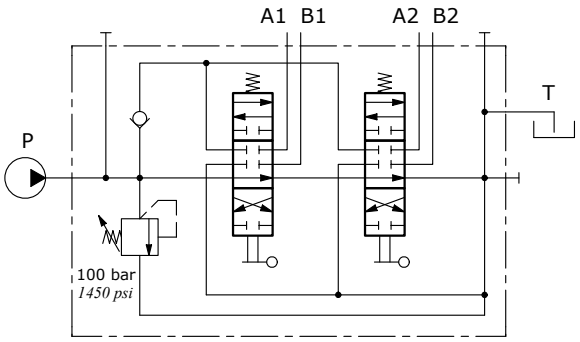
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm *(4.4 lbft)*
Y = wrench 22 - 9.8 Nm *(7.23 lbft)*
W = wrench 22 - 9.8 Nm *(7.23 lbft)*

Outlet port options

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

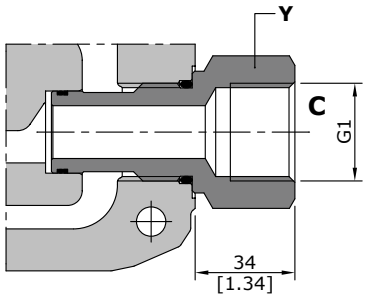
AET: open centre (standard)

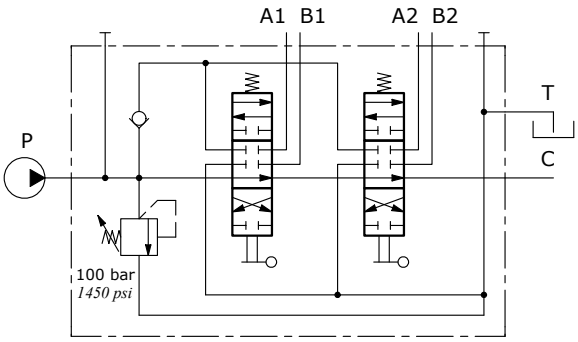




Description example
160L GM20/2-P(YG-100)/18L/18L/**AET**-PSL8

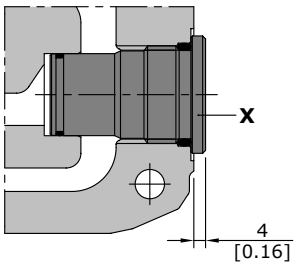
AE3: with carry-over

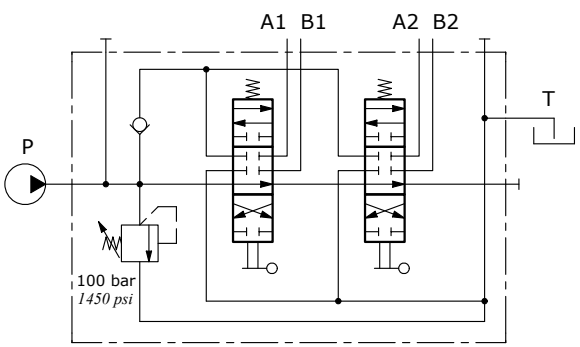




Description example
160L GM20/2-P(YG-100)/18L/18L/**AE3**-PSL8

AEK: closed centre





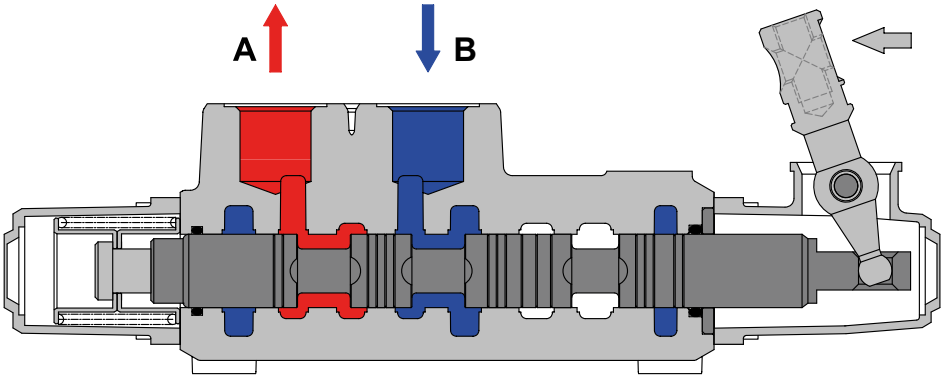
Description example
160L GM20/2-P(YG-100)/18L/18L/**AEK**-PSL8

Wrenches and tightening torques
X = allen wrench 12 - 42 Nm *(31 lbft)*
Y = wrench 46 - 42 Nm *(31 lbft)*

Sectional drawing

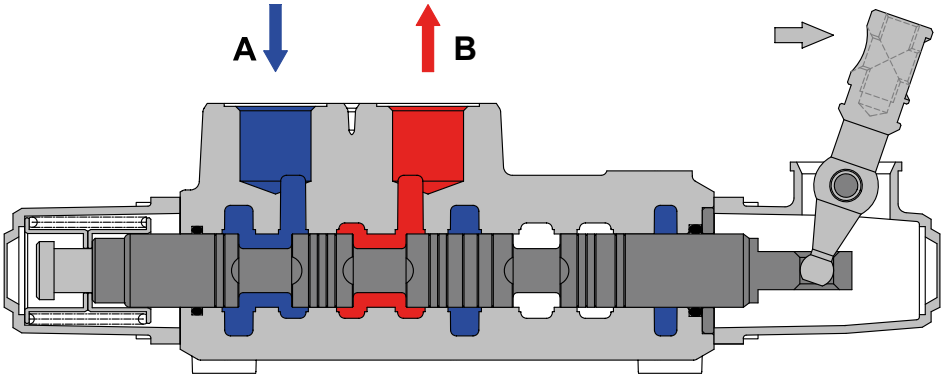
When hand lever pushed (spool out position) P to A port. B to T port.

Position 1



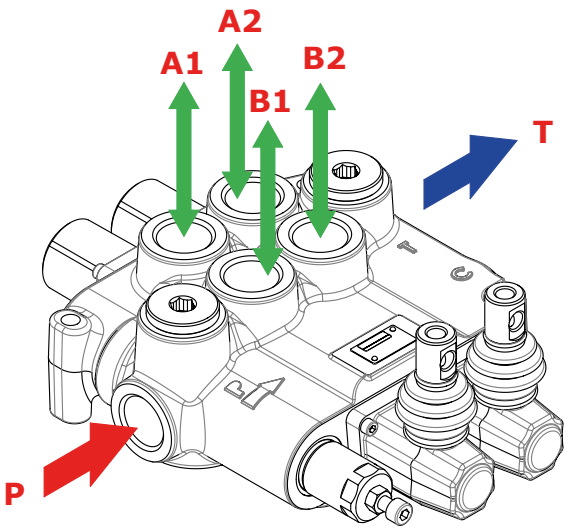
When hand lever pulled (spool in position) P to B port. A to T port.

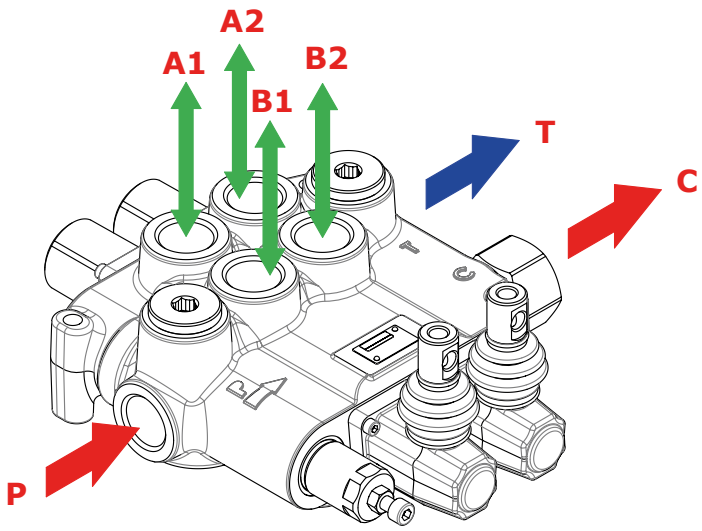
Position 2



Installation and maintenance

The 160L 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 1	G 1	G 1	G 1/4
With O-Ring seal	100 *(73.7)*	100 *(73.7)*	100 *(73.7)*	25 *(18.4)*
With copper washer	90 *(66.3)*	90 *(66.3)*	90 *(66.3)*	30 *(22.1)*
With steel and rubber washer	100 *(73.7)*	100 *(73.7)*	100 *(73.7)*	16 *(11.8)*
UN-UNF (ISO 11926-1)	1 5/16-12 (SAE 16)	1 1/16-12 (SAE 12)	1 5/16-12 (SAE 16)	9/16-18 (SAE 6)
With O-Ring seal	150 *(110.6)*	95 *(70.1)*	150 *(110.6)*	30 *(22.1)*

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