Working conditions

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

Nominal flow rating		70 l/min	
Operating pressure (maximum)	*parallel circuit*	315 bar	*4600 psi*
	series circuit	250 bar	*3600 psi*
Max. back pressure	*on outlet **T***	25 bar	*360 psi*
Internal leakage A(B)→T	*Δp=100 bar - 1450 psi, fluid and valve at 40°C*	3 cm^3/min	*0.18 in^3/min*
Fluid		Mineral base oil	
Fluid temperature	*with NBR seals*	from -20°C to 80°C	
	with FPM (VITON) seals	from -20°C to 100°C	
Viscosity	*campo di lavoro*	from 15 to 75 mm^2/s	*from 15 to 75 cSt*
	minima	12 mm^2/s	*12 mm^2/s*
	massima	400 mm^2/s	*400 mm^2/s*
Max level of contamination		19/16 - ISO 4406	*19/16 - ISO 4406*
Ambient temperature for working conditions	*with mechanical control*	from -40°C to 60°C	
	with hydraulic, pneumatic controls	from -30°C to 60°C	
	with electric controls	from -20°C to 50°C	

NOTE - *For different conditions please contact Sales Dept.*

Standard threads

REFERENCE STANDARDS

		BSP	UN-UNF	METRIC	NPTF
THREAD ACCORDING TO		ISO 228/1	ISO 263	ISO 262	ANSI B1.20.3
		BS 2779	ANSI B1.1 unified		
CAVITY ACCORDING TO	ISO	1179	11926	9974-1	
	SAE		J1926		J476a
	DIN	3852-2 shape X or Y		3852-1 shape X or Y	

PORTS THREAD

MAIN PORTS	BSP	UN-UNF	METRIC
IInlet **P** and carry-over **C**	G 1/2	7/8-14 (SAE 10)	M18x1.5
Ports **A** and **B**	G 1/2	3/4-16 (SAE 8)	M18x1.5
Outlet **T**	G 3/4	7/8-14 (SAE 10)	M22x1.5
CONTROL PILOT PORTS			
Pneumatic	NPTF 1/8-27	NPTF 1/8-27	NPTF 1/8-27
Hydraulic	G 1/4	9/16-18 (SAE 6)	G 1/4

Ordering codes

Description example:

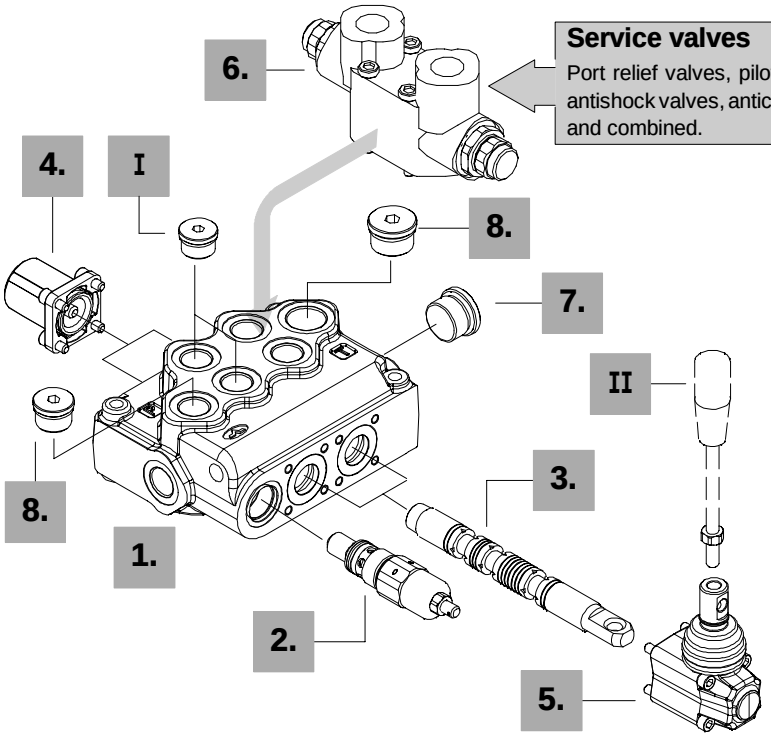
1st section — following section

SD11 / 2 - P (KG3-120) / 1 8 L / 18L . P3(G3-120) / AET - PSL *

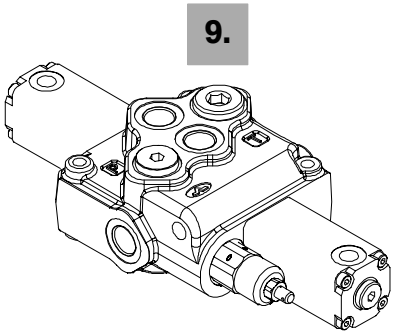
1. 2. 3. 4. 5. 6. 7. 8.

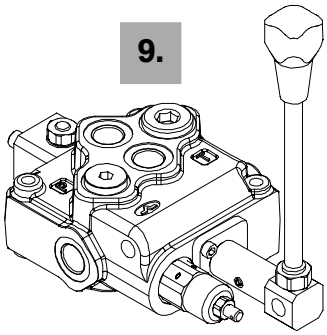
2. Main relief valve setting (bar)

6. Port valve setting (bar)



Service valves *page 48*
Port relief valves, pilot check valves, antishock valves, anticavitation valves and combined.





1. Body kit *

TYPE	CODE	DESCRIPTION
1-P	5KC1413000	Parallel, 1 section
2-P	5KC1423000	Parallel, 2 sections
3-P	5KC1443000	Parallel, 3 sections
4-P	5KC1473000	Parallel, 4 sections
5-P	5KC1513000	Parallel, 5 sections
6-P	5KC1543000	Parallel, 6 sections

Include body, seals, rings and load check valves.

2. Inlet reliaf options *page 10*

Standard setting is referred to 10 l/min flow.

TYPE	CODE	DESCRIPTION
SV	XTAP526340	Valve blanking plug
VMD10/1: direct differential pressure relief valve type K (standard)		
(KG2-80)	5KIT110112	Range 20 to 63 bar **/** *290 to 900 psi* standard setting 40 bar **/** *580 psi*
(KG3-120)	5KIT110113	Range 63 to 200 bar / *900 to 2900 psi* taratura standard 120 bar / *1750 psi*
(KG4-220)	5KIT110114	Range 180 to 315 bar / *2600 to 4600 psi* standard setting 220 bar / *3200 psi*
VMD10/1: direct pressure relief valve type Y		
(YG1-80)	3XCAR110211	Range 63 to 125 bar / *900 to 1800 psi* standard setting 80 bar **/** *1150 psi*
(YG2-125)	3XCAR110212	Range100 to 160 bar **/** *1450 to 2300 psi* tandard setting 125 bar / *1800 psi*
(YG3-175)	3XCAR110213	Range 125 to 250 / *1800 to 3600 psi* standard setting 175 bar / *2500 psi*
(YG4-220)	3XCAR110214	Range 200 to 315 / *2900 to 4600 psi* standard setting 220 bar / *3200 psi*
VMP10/1: pilot pressure relief valve type X		
(XG-125)	X006211120	Range 25 to 315 bar / *360 to 4600 psi* standard setting 120 bar / *1750 psi*

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

Ordering codes

3. Spool options *page 13*

TYPE	CODE	DESCRIPTION
1	3CU1410130	Double acting, 3 positions, with A and B closed in neutral position
1A	3CU1421130	Double acting, 3 positions, with A open to tank in neutral position
1B	3CU1422130	Double acting, 3 positions, with B open to tank in neutral position
2	3CU1425130	Double acting, 3 positions, with A and B open to tank in neutral position
3	3CU1431130	Single acting on A, 3 positions, B plugged requires G3/8 plug (see part **I**)
4	3CU1435130	Single acting on B, 3 positions, A plugged requires G3/8 plug (see part **I**)
Special spools for particular positioner kits ..... *page 16*		
5	3CU1442100	Double acting, 4 positions, floating circuit in 4th position with spool in
5VR	3CU1443610	Double acting, 4 positions, floating circuit in 4th position with spool out, with check valve
8	3CU1462110	Doppio effetto, 4 pos., rigenerativo in 4a posizione con cursore a entrare
8F	3CU1461100	Double acting, 4 positions, regenerative circuit in 4th position with spool in
Special spools for standard positioner kits ..... *page 33*		
1(9A)	3CU1410300	Double acting, 3 positions, with A and B closed in neutral pos: **for 9A positioner**
1(11A)	3CU1410320	Double acting, 3 positions, with A and B closed in neutral pos: **for 11A positioner**

5. "B" side options *page 36*

TYPE	CODE	DESCRIPTION
L	5LEV110000	Standard lever box
LF1	5LEV110101	Lever box with adjustable flow limiter
LS	5LEV110020	Waterproof lever box
LB	5LEV310000	Steel lever
LEB	5LEV610000	Safety lever box
SLP	5COP110000	Without lever box, with dust-proof plate
TQ	5TEL110110	CD flexible cable connection
LCB	5CLO211100	Joystick lever for 2 sections operation

7. Outlet port options *page 45*

TYPE	CODE	DESCRIPTION
AET	3XTAP732201	Open center plug
AEK	3XTAP532450	Closed center plug
AE	XGIU532470*	G 1/2 carry-over sleeve
AET-EL	5CAR411312	With 12VDC electric control unloader valve; normally open circuit
	5CAR411314	As previous 24VDC

8. Inlet and outlet selection * *page 6*

TYPE	CODE	DESCRIPTION
PSL	3XTAP727180	G1/2 plug for upper inlet (nr.1 request)
	3XTAP732200	G3/4 plug for upper outlet (nr.1 request)
PSA	3XTAP727180	G1/2 plug for side inlet (nr.1 request)
	3XTAP732200	G3/4 plug for side outlet (nr.1 request)

9. Complete controls *page 41*

Proportional hydraulic control type **8IM** and rotative control type **R**.

4. "A" side spool positioners *page 20*

TYPE	CODE	DESCRIPTION
7FC	5V07310000	With friction and neutral position sensor
8	5V08110000	With spring return in neutral position
8D	5V08110200	With spring return in neutral position and pin with M6 female thread for dual control
8D1	5V08110210	With spring return in neutral position and pin with ∅ 8mm (*0.32in*) radial hole
8D2	5V08110220	With spring return in neutral position and pin with M8 male thread for dual control
8TL	5V08110310	Come tipo 8, per comando a cavo flessibile
8F2	5V08110101	Come tipo 8 con limitatore di corsa regolabile
8M3	5V08110400	Come tipo 8 con perno uscente per comando microinterruttore in posizione 1 e 2
19	5V19110000	2 positions, with spring return in neutral position from position 1
20	5V19110000	2 positions, with spring return in neutral position from position 2
11	5V11110000	Detent in positions neutral, 1 and 2
12	5V12110000	Detent in positions 1 and 2
15	5V15110000	2 positions, detent in positions 1 and neutral
16	5V16110000	2 positions, detent in positions 2 and neutral
21	5V21110000	Aggancio in pos. 2 e ritorno a molla in pos. 1
9B	5V09110000	With detent in position 1 and spring return in neutral position
10B	5V09110000	With detent in position 2 and spring return in neutral position
11B	5V11210000	Detent in positions 1 and 2 and spring return in neutral position
8MG3	5V08110050	As type 8 and microswitch in positions 1 and 2
8K	5V08710112	As type 8 and 12 VDC solenoid lock device
	5V08710124	As previous, 24 VDC
8P	5V08110701	ON/OFF pneumatic kit
8PG	5V08111706	Proportional pneumatic kit
8EPG3	5V08111825	12 VDC ON/OFF electropneumatic kit
	5V08111726	24 VDC ON/OFF electropneumatic kit
8ID3	5V08111800	Proportional hydraulic kit
8EI3	5V08110350	12 VDC ON/OFF electrohydraulic kit
	5V08110351	24 VDC ON/OFF electrohydraulic kit
Special positioners for particular spools ..... *page 27*		
9A	5V09511000	With detent in position 1, automatic release in neutral position
11A	5V11511000	With detent in position 1 and 2, automatic release in neutral position
Particular positioner kits for special spools ..... *pag. 33*		
13B	5V13111000	4 pos. with spring return in neutral pos. and detent in 4th pos.**: for spool 5**
13C	5V13211000	4 pos. with spring return in neutral pos. and detent in 4th pos.**: for spool 5VR**
8MCCR	5V08210021	Spring return in neutral position, with reduced spool stroke: **for spool 8F**
13FZ1	5V13611100	4 pos. with spring return in neutral pos. and detent in 2nd pos.**: for spool 8**

I "A" and "B" ports plugs *

TYPE	CODE	DESCRIPTION
G1/2	3XTAP727180	For single acting spools type 3 and 4

II Optional handlevers

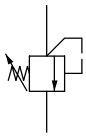
TYPE	CODE	DESCRIPTION
AL01/M10x200	170012020	For lever L: height 200 mm / *7.87 in*
AL08/M12x250	170013125	For joystick LCB: height 250 mm / *9.84 in*

Inlet relief options

Direct differential pressure relief vave

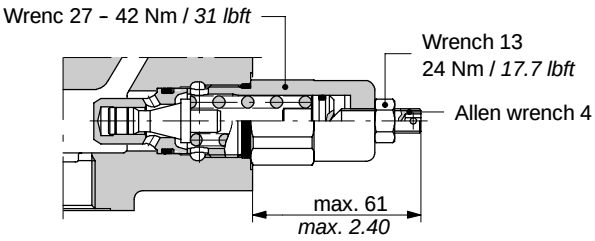
VMD10 (K G 3 - 120)

- 120 — Standard setting in bar (for value see page 8)
- 3 — Adjustable spring type **(2, 3, 4)**.
- G — Adjustment type **(G, H)**

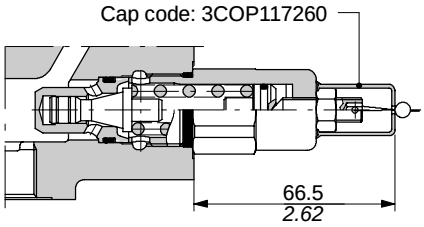


Adjustment type

G: *with screw*

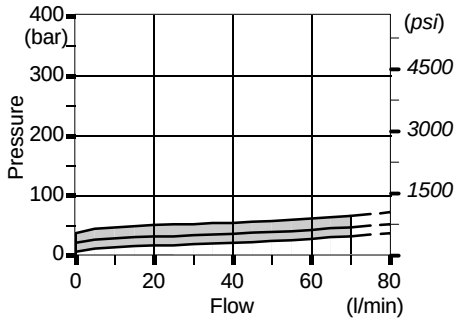


H: *valve set and locked*

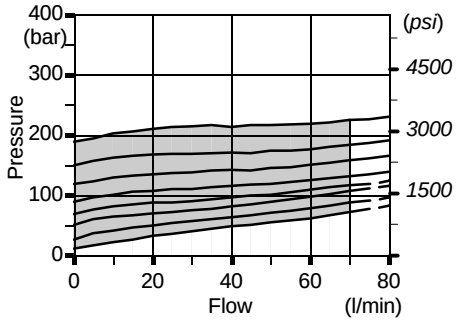


Performance data

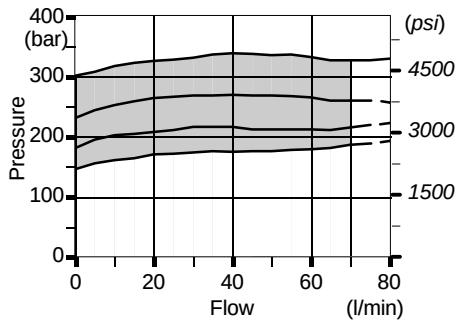
Spring nr. 2 (green band)



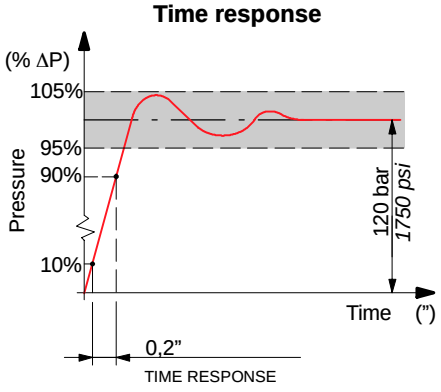
Spring nr. 3 (blue band)



Spring nr. 4 (red band)

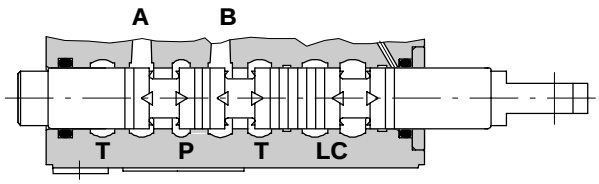


Time response



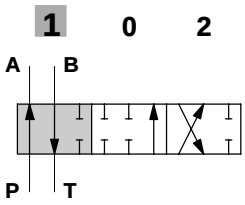
Spool options

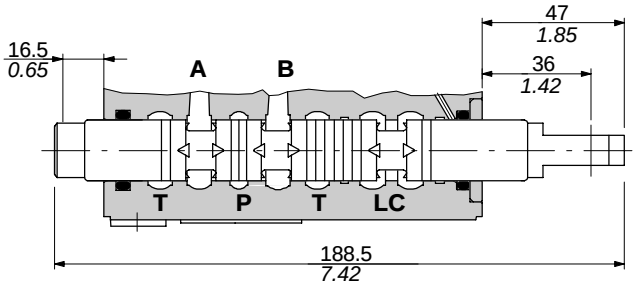
Type 1



P → A B → T

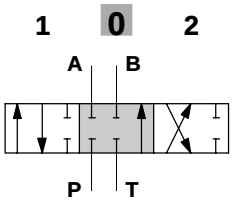
▶ stroke:
+ 7 mm / *0.28 in*

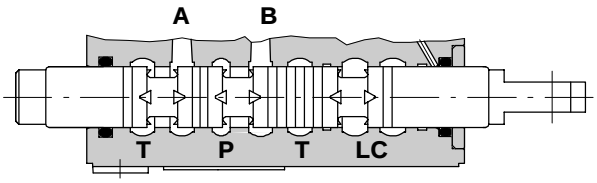




P-A-B-T closed, with flow through line (LC) open

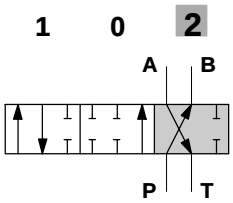
◀ ▶





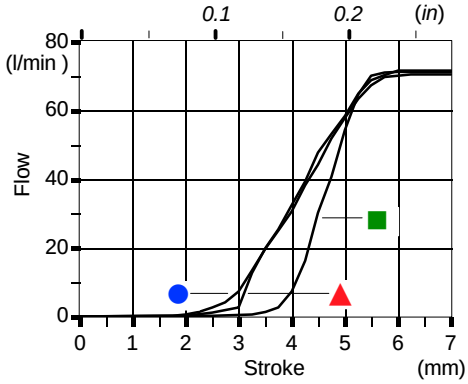
P→ B A → T

◀ stroke:
- 7 mm / *0.28 in*



Performance data

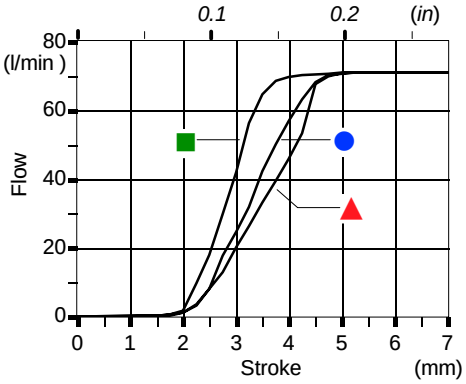
Spool metering P→A(B)



Qin = 70 l/min

- P(on ports) = 63bar/*900psi*
- P(on ports) = 100bar/*1450psi*
- P(on ports) = 250bar/*3600psi*

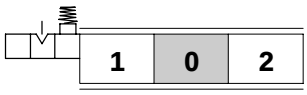
Spool metering A(B)→T

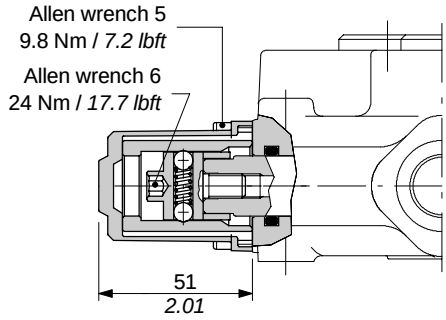


"A" side spool positioners

Tipo 7FC with friction

With sensor in neutral position

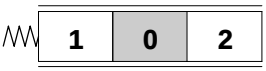


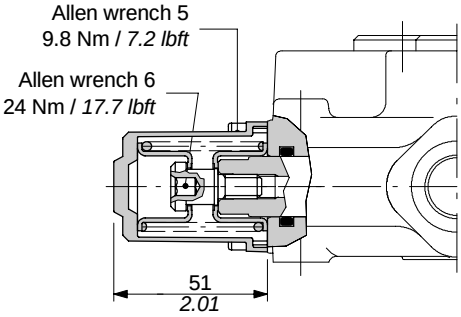


With spring return in neutral position

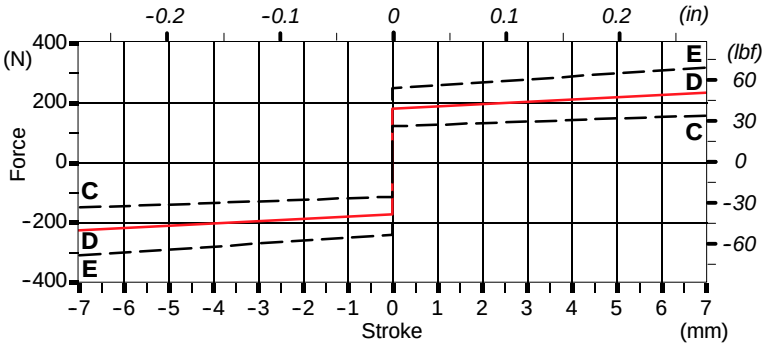
8 kit

It's supplied with standard spring type D (see force-stroke diagram) and available with lighter spring type C (**8MC** code: **5V08210000**) or heavier type E (**8ME** code: **5V08410000**).



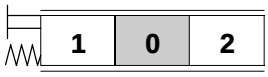


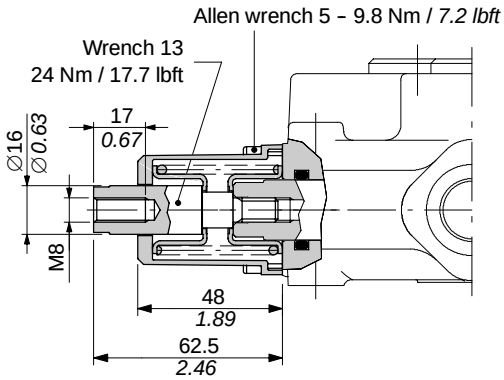
Force-stroke diagram



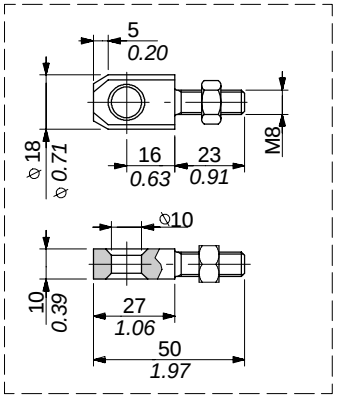
8D kit

Spool end joint code **XPER318500**, is available on request in order to screw onto pin.





Spool end joint dimensions

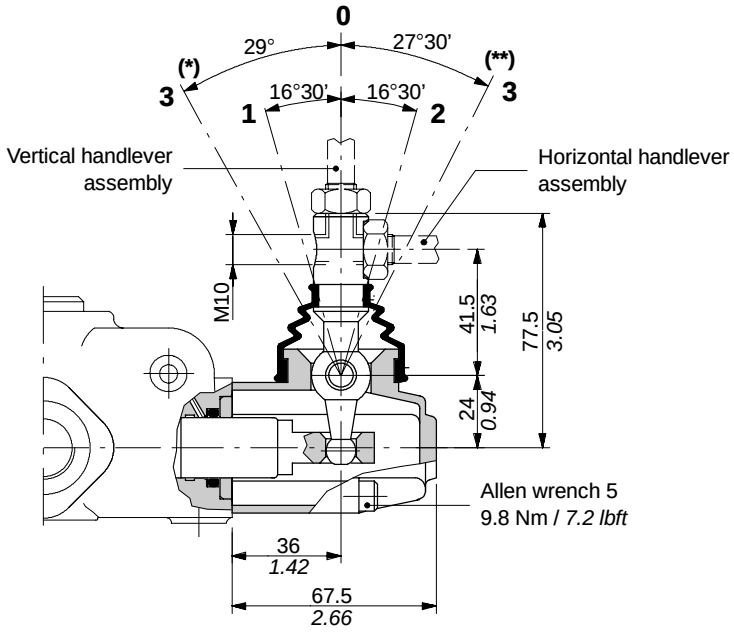


”B” side options

Lever control

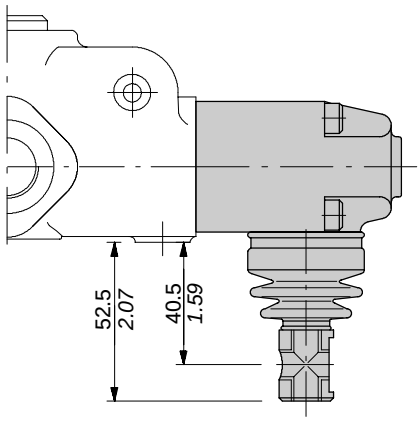
Type L

Alluminium box with protection boot lever pivot box; it can be rotated 180° (configuration **L180**).



1	0	2

Configuration **L180**

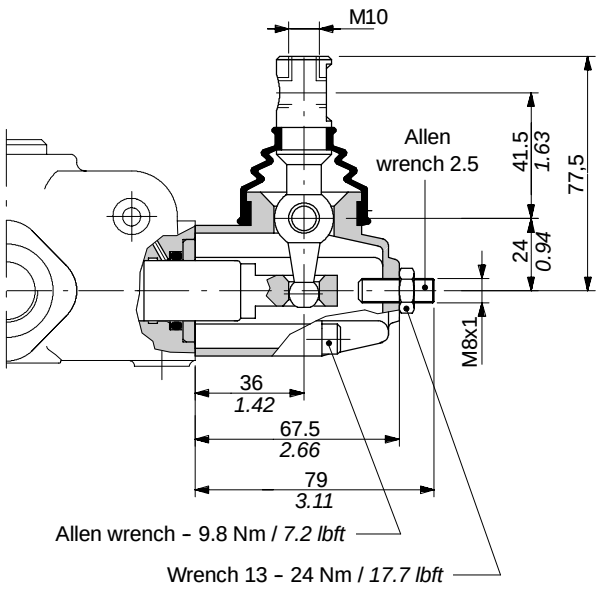


NOTE (*) - *With spool type 5VR (see page 17)*
(**) -*With spool type 5 (see page 16)*

Type LF1

With spool stroke adjusting in position 1.

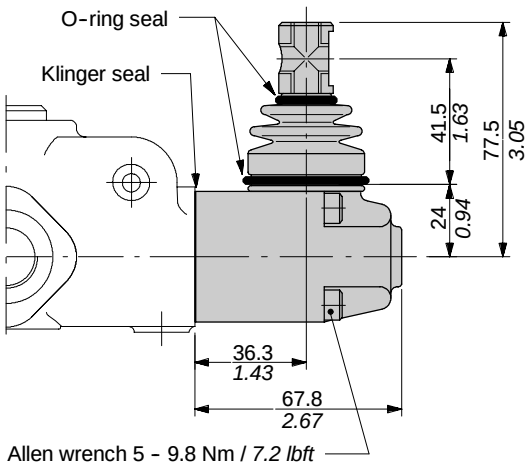
1	0	2



Type LS

Waterproof execution.

1	0	2



Other executions



SD11/1-N page 60

It's available only with one working section and it can be used in hydraulic circuits where carry-over doesn't required.

- For controls, spool positioning and valves, refer to directional valve with parallel circuit.

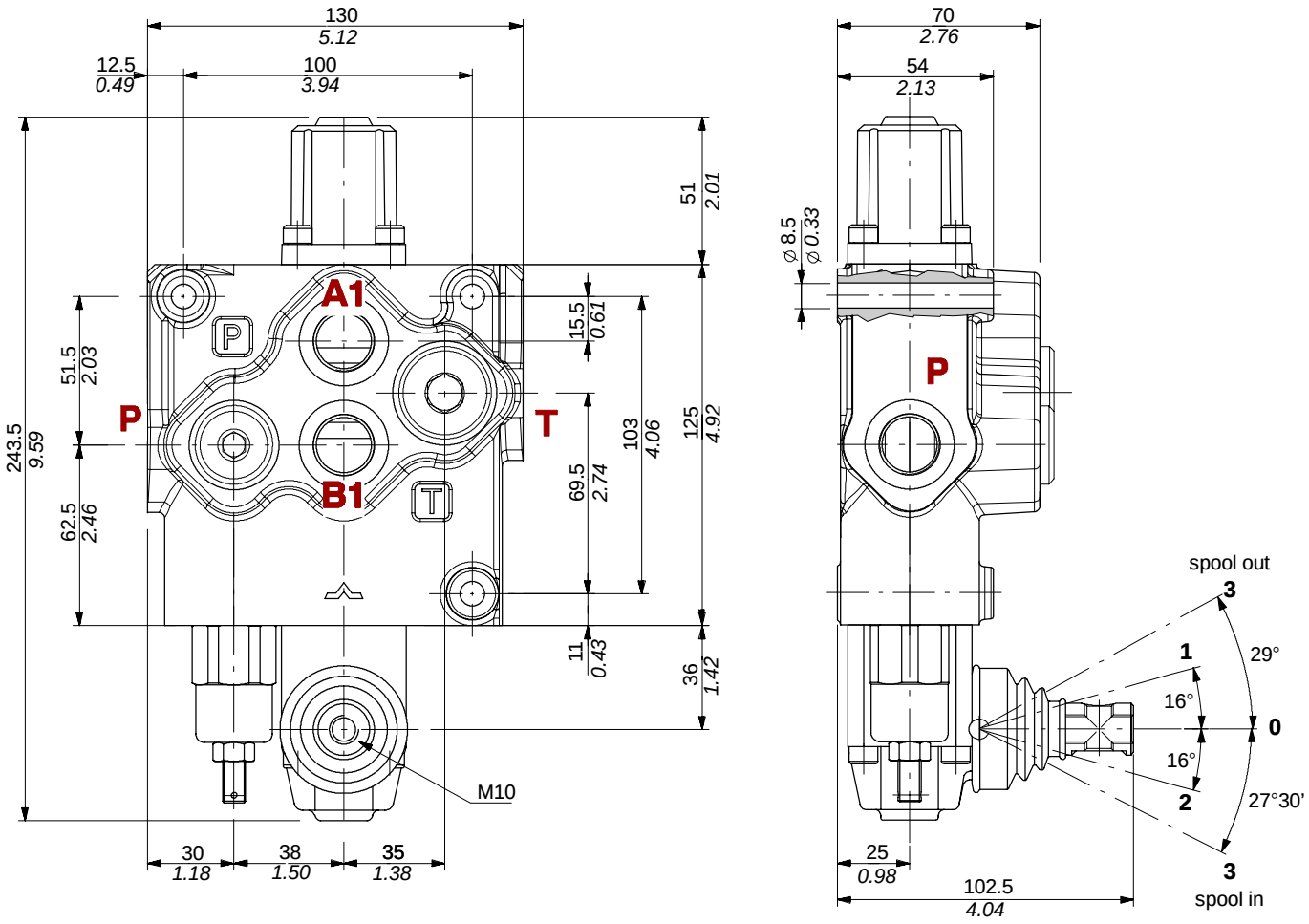


SD11-S: con circuito in serie page 61

Available from 2 to 6 sections, it can be used in systems wich one downstream section from series connection must work with upstream ones at the same time.

- Carry-over circuit is not available
- On the same body are possible more than one connection.
- For controls, spool positioning and valves, refer to directional valve with parallel circuit.

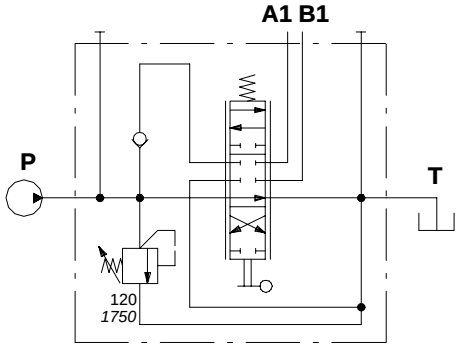
Dimensional data



Standard threads

PORTS	BSP (ISO228/1)	UN-UNF (ISO 11926-1)	METRIC (ISO 262)
Inlet **P**	G 1/2	7/8-14 UNF-2B (SAE 10)	M18x1.5
Ports **A** and **B**	G 1/2	3/4-16 UNF-2B (SAE 8)	M18x1.5
Outlet **T**	G 3/4	7/8-14 UNF-2B (SAE 10)	M22x1.5

Hydraulic circuit

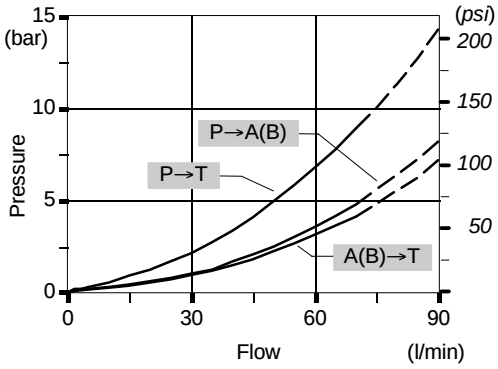


Description axample:

SD11/1-**N**(KG3-120)/18L - Code: 104111001

Performance data

Pressure drop



Part ordering codes

1 Inlet section body kit* page 12

TYPE: **SDS140/C-D** CODE: 5FIA113300
DESCRIPTION: With side and upper inlet ports, V pilot and L drain ports, arranged for pressure relief valve, unloading valve, pressure reducing valve
TYPE: **SDS140/DT** CODE: 5FIA113301
DESCRIPTION: As previous one, with upper inlet and side outlet ports
TYPE: **SDS140/P** CODE: 5FIA113302
DESCRIPTION: With upper inlet port, V pilot, L drain and LS ports, arranged for priority valve, pressure relief valve, unloading valve, pressure reducing valve
TYPE: **SDS140/M-N** CODE: 5FIA1133A0
DESCRIPTION: With upper inlet and outlet port, V pilot, L drain and LS ports, arranged for LS pressure relief valve, unloading valve, pressure reducing valve

2 Main pressure relief valve page 15

For C, D, DT inlet sections
Standard setting is referred to 10 l/min *(2.6 US gpm)*.

TYPE	CODE	DESCRIPTION
SV	XTAP526340	Relief valve blanking plug
Y type direct operated		
(YG2-125)	3XCAR110212	Range 80-160 bar *(1160-2300 psi)* standard setting 125 bar *(1800 psi)*
(YG3-175)	3XCAR110213	Range 100-250 bar *(1450-3600 psi)* standard setting 175 bar *(2500)*
(YG4-250)	3XCAR110214	Range 200-315 bar *(2900-4600 psi)* standard setting 250 bar *(3600 psi)*
X type pilot operated		
(XGA-200)	X006211350	Range 20-315 bar *(290-4600 psi)* standard setting 200 bar *(2900 psi)*

For M, N inlet sections
Valves standard setting is referred to 5 l/min *(1.3 US gpm)* flow.

TYPE	CODE	DESCRIPTION
SV	XTAP526340	Relief valve blanking plug
Pilot operated type		
(TGW2-80)	0MC09002000	Range 10-120 bar *(145-1750 psi)* std setting 80 bar *(1160 psi)*
(TGW3-175)	0MC09002001	Range 40-220 bar *(580-3200 psi)* std setting 175 bar *(2550 psi)*
(TGW4-250)	0MC09002002	Range 200-350 bar *(2900-5100 psi)* std setting 250 bar *(3600 psi)*
(TGW5-300)	0MC09002003	Range 290-385 bar *(4200-5600 psi)* std setting 300 bar *(4350 psi)*

7 Plug*

CODE	DESCRIPTION
3XTAP732200	G3/4 plug for C, D and DT section

8 Plug*

CODE	DESCRIPTION
3XTAP719150	G1/4 plug for V, L and LS ports

For V pilot and L drain ports description are:

TYPE	DESCRIPTION
TAP(VL)	Plugs (2 pieces), standard: omitted in description
NOTAP(L)	Plug (1 piece)
NOTAP(V)	Plug (1 piece)
NOTAP(VL)	Without plugs

12 Circuit conversion kit

CODE	DESCRIPTION
5KIT530000	Circuit conversion from closed center to open center
5KIT530001	Circuit conversion from open center to closed center

3 Inlet valve options page 18

For C, D, DT inlet sections

TYPE	CODE	DESCRIPTION
LT	XTAP526340	Valve blanking plug
F	3XCAR410200	Inlet anti-cavitation valve
L	XCAR410311	Hydraulic operated unloader valve
Solenoid operated unloading valve		
ELNW	0EFW0062001	Without emergency
ELTW	0EFW0062000	Push & twist type with detent emergency
ELPW	0EFW0062002	Push-button emergency

For P inlet section

TYPE	CODE	DESCRIPTION
Solenoid operated unloading valve		
ELNW	0EFW0062001	Without emergency
ELTW	0EFW0062000	Push & twist type with detent emergency
ELPW	0EFW0062002	With push-button emergency

For N and M inlet section

TYPE	CODE	DESCRIPTION
LT	3XTAP826160	Valve blanking plug for M type with external pilot source or N type
Solenoid operated unloading valve (NC)		
ESFNW(NC)	0EF10002011	Without emergency
ESFTW(NC)	0EF10002013	Pull & twist with detent emergency
ESFVW(NC)	0EF10002012	With screw emergency
ESFPW(NC)	0EF10002010	With pull-button emergency

4 Pressure reducing valve page 17

TYPE	CODE	DESCRIPTION
R(32)	4AC9539900A	Valve with standard setting @ 32 bar *(464 psi)*. Type omitted in description; specify only if it different from standard
(RT)	XTAP324541	Valve blanking plug (SAE 8/3)

5 Priority valve kit

TYPE: **D(0.7)-SB8-Q40** CODE: 5KIT440370
DESCRIPTION: Stand-by 8 bar *(116 psi)*, regulated flow = 40 l/min *(10.5 US gpm)*

6 Compensator kit

TYPE	CODE	DESCRIPTION
SB4	5CAS318083	Standard 4 bar *(58 psi)* for M inlet section
SB25	5CAS318084	Standard 25 bar *(362 psi)*. for N inlet section

Specify in description when it is different from standard.

9 Section threading

Specify threading always when it is different from BSP standard (see page 4).

10 Coils page 40

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200A	**BER type,** 12 VDC, ISO4400 connector

For complete available coil list please see page 33.

11 Metering hole

TYPE	CODE	DESCRIPTION
FC3.9	3VT2710108	Standard for N inlet section
FC5	3VT2710106	Standard for M inlet section

Specify in description when it is different from standard.

13 LS restrictor

TYPE	CODE	DESCRIPTION
NFC	-	Without restrictor (omitted in description)
LS(1)	3VT2700065	Restrictor 1 mm diameter on LS port

Specify in description when it is different from standard. Different diameter are available, please contact our Sales Dpt.
NOTE (*) – Codes are referred to **BSP** thread.