



SD 11

MONOBLOCK
DIRECTIONAL CONTROL VALVES



Features

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

H Fitted with a main pressure relief valve and a load check valve.

H Available with parallel or series circuit.

H Optional carry-over port (only for parallel circuit).

H Diameter 20 mm - 0.79 in interchangeable spools.

H A wide variety of service ports and circuit valves.

H Available manual, pneumatic, hydraulic, electro-hydraulic and remote with flexible cables spool control kits.

Working conditions

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

Nominal flow rating		70 l/min	
Operating pressure (maximum)	<i>parallel circuit</i>	315 bar	4600 psi
	<i>series circuit</i>	250 bar	3600 psi
Back pressure (maximum)	<i>on outlet port T</i>	25 bar	360 psi
Internal leakage A(B)→T	<i>Δp=100 bar - 1450 psi fluid and valve at 40°C</i>	3 cm ³ /min	0.18 in ³ /min
Fluid		Mineral base oil	
Fluid temperature	<i>with NBR (BUNA-N) seals</i>	from -20° to 80°C	
	<i>with FPM (VITON) seals</i>	from -20° to 100°C	
Viscosity	<i>operating range</i>	from 15 to 75 mm ² /s	<i>from 15 to 75 cSt</i>
	<i>min</i>	12 mm ² /s	12 cSt
	<i>max</i>	400 mm ² /s	400 cSt
Max level of contamination		19/16 - ISO 4406	
Ambient temperature		from -40° to 60°C	

NOTE - For different conditions please contact Customer Service.

Additional information

This catalogue shows the product in the most standard configurations.

Please contact Customer Service Dpt. for more detailed information or special request.

WARNING!

All specifications of this catalogue refer to the standard product at this date.

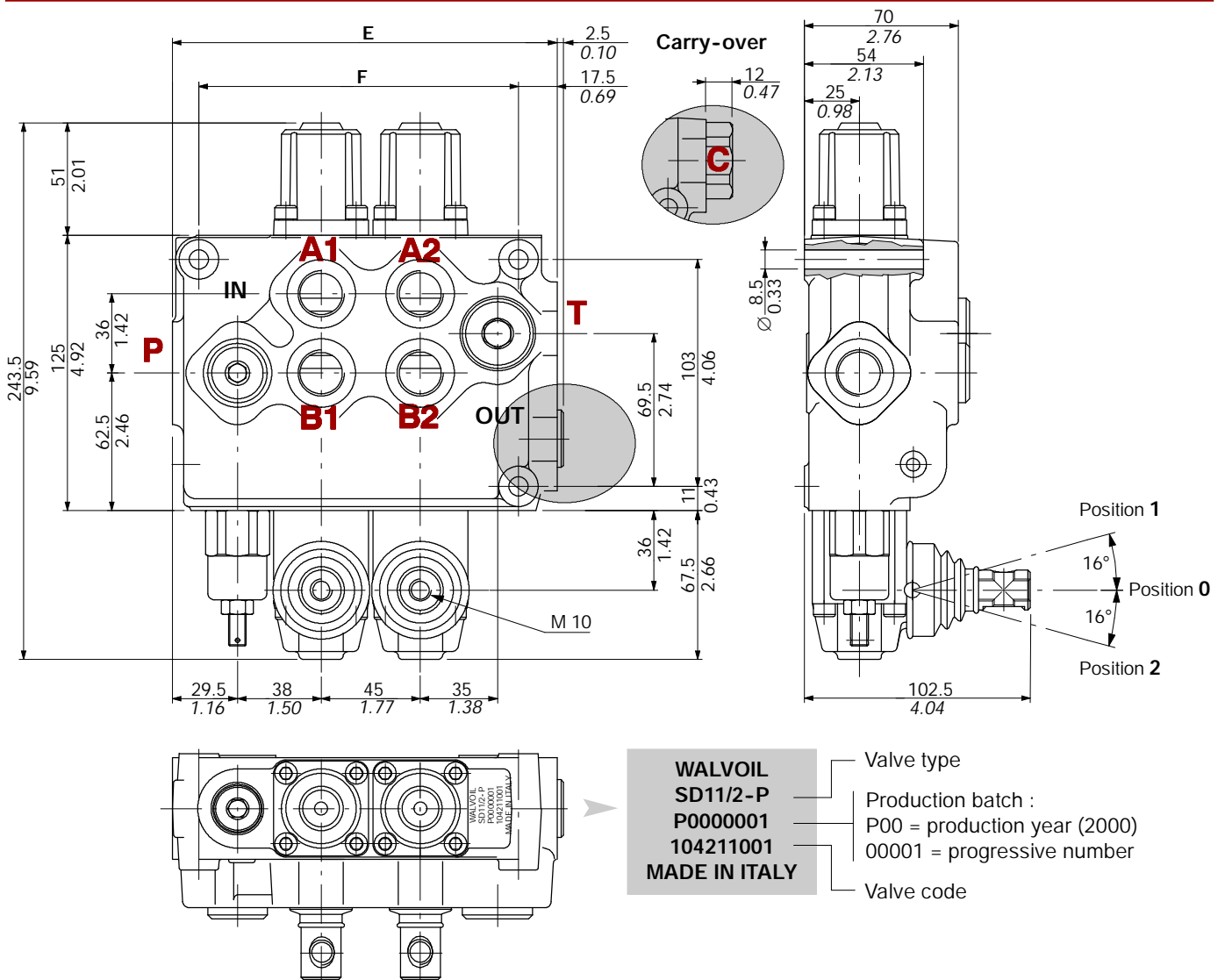
Walvoil, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.

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

7th edition October 2000:

This edition supercedes all prior documents.

Dimensional data (parallel circuit)



TYPE	E		F		Weight	
	mm	in	mm	in	kg	lb
SD11/1-P	130	5.12	100	3.94	6.1	13.4
SD11/2-P	174.5	6.87	145	5.71	8.8	19.4
SD11/3-P	219.5	8.64	190	7.48	11.4	25.1

TYPE	E		F		Weight	
	mm	in	mm	in	kg	lb
SD11/4-P	264.5	10.41	235	9.25	14.2	31.3
SD11/5-P	309.5	12.19	280	11.02	16.7	36.8
SD11/6-P	354.5	13.96	325	12.79	19.4	42.8

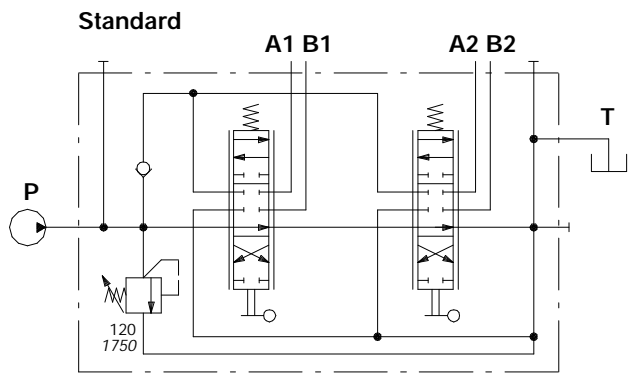
Standard threads

PORT	BSP (ISO 228/1)	UN-UNF (ISO 11926-1)	METRIC (ISO 262)
Inlet P and carry-over C	G 1/2	7/8-14 UNF-2B (SAE 10)	M18x1.5
A and B ports	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
PILOT PORTS			
Pneumatic	NPTF 1/8-27	NPTF 1/8-27	NPTF 1/8-27
Hydraulic	G 1/4	9/16-18 UNF-2B (SAE 6)	G 1/4

SD11

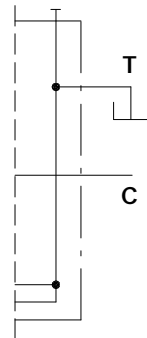
Hydraulic circuit

Parallel



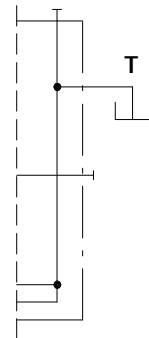
Ex.: SD11/2-P(KG3-120)/18L/18L/AET

With carry-over



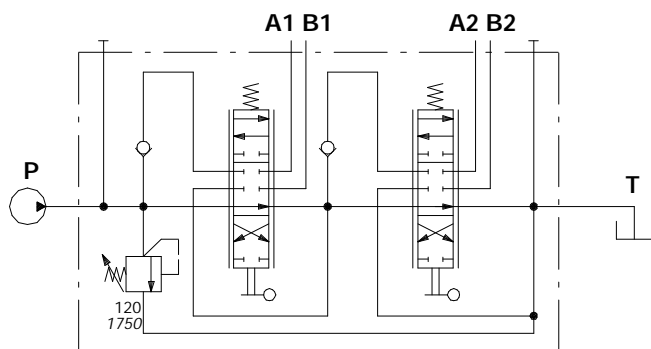
SD11/2-P(KG3-120)/18L/18L/AE

With closed centre



SD11/2-P(KG3-120)/18L/18L/AEK

Series

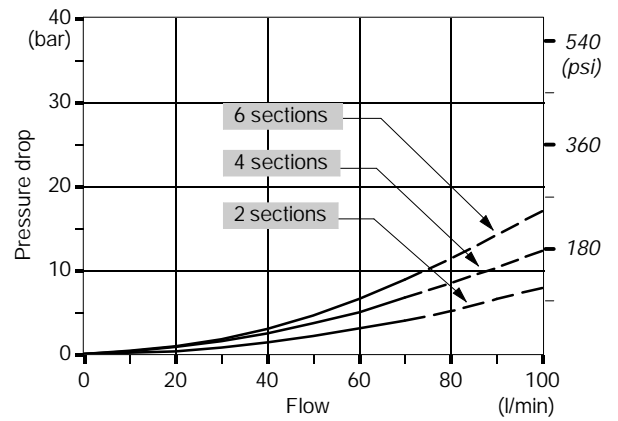
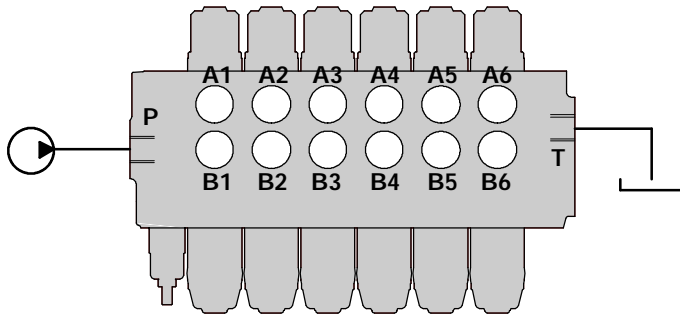


Ex.: SD11/2-S1(KG3-120)/18L/18L

Performance data (pressure drop vs. flow)

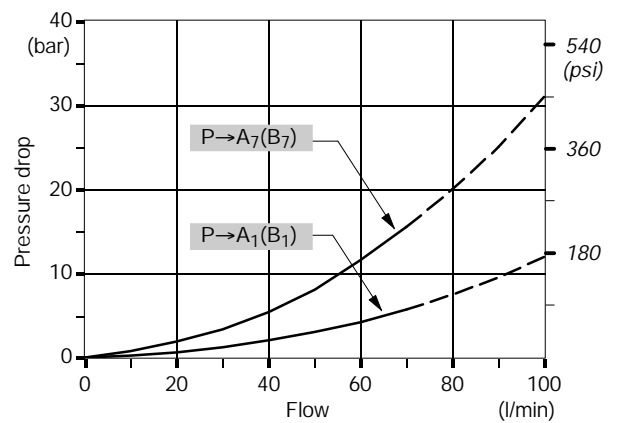
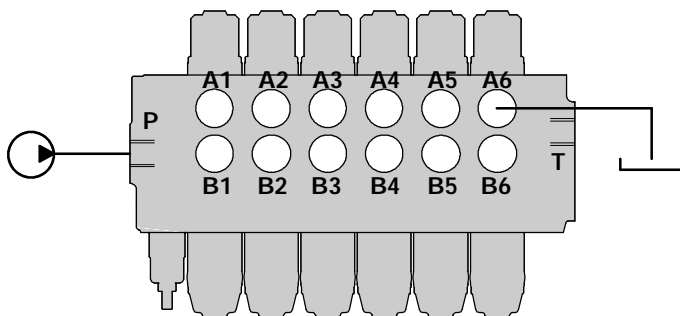
Open centre

From side inlet to side outlet.



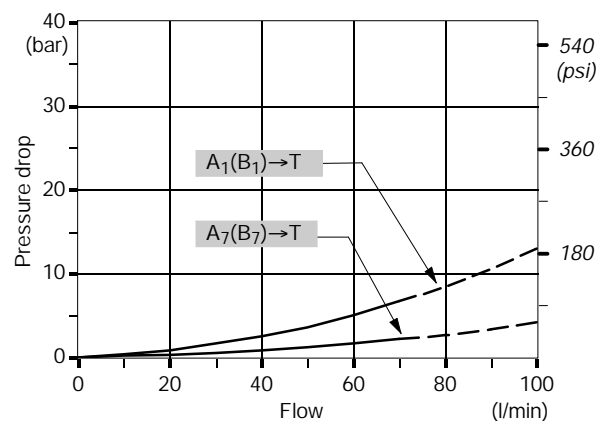
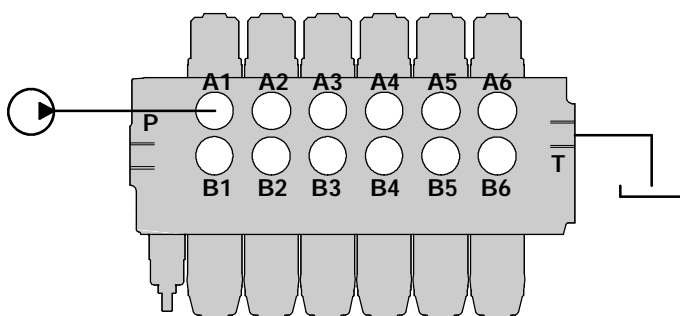
Inlet to work port

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.

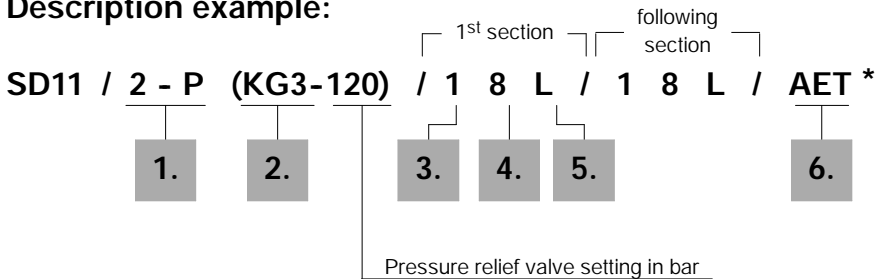


NOTE - Measured with spool type 1.

SD11

Ordering codes

Description example:



1. Body kits *

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 and load check valve.

2. Inlet relief options

TYPE	CODE	DESCRIPTION
<u>VMD10/1 direct pressure relief valve type K (standard)</u>		
(KG2-80)	5KIT110112	Range 25 to 100 bar / 360 to 1450 psi standard setting 80 bar / 1150 psi
(KG3-120)	5KIT110113	Range 80 to 200 bar / 1150 to 2900 psi standard setting 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

(YG2-125)	3XCAR110212	Range 80 to 160 bar / 1150 to 2300 psi standard setting 125 bar / 1800 psi
(YG3-175)	3XCAR110213	Range 125 to 250 bar / 1800 to 3600 psi standard setting 175 bar / 2540 psi
(YG4-220)	3XCAR110214	Range 200 to 315 bar / 2900 to 4600 psi standard setting 220 bar / 3200 psi

VMP10/1 pilot operated pressure relief valve type X

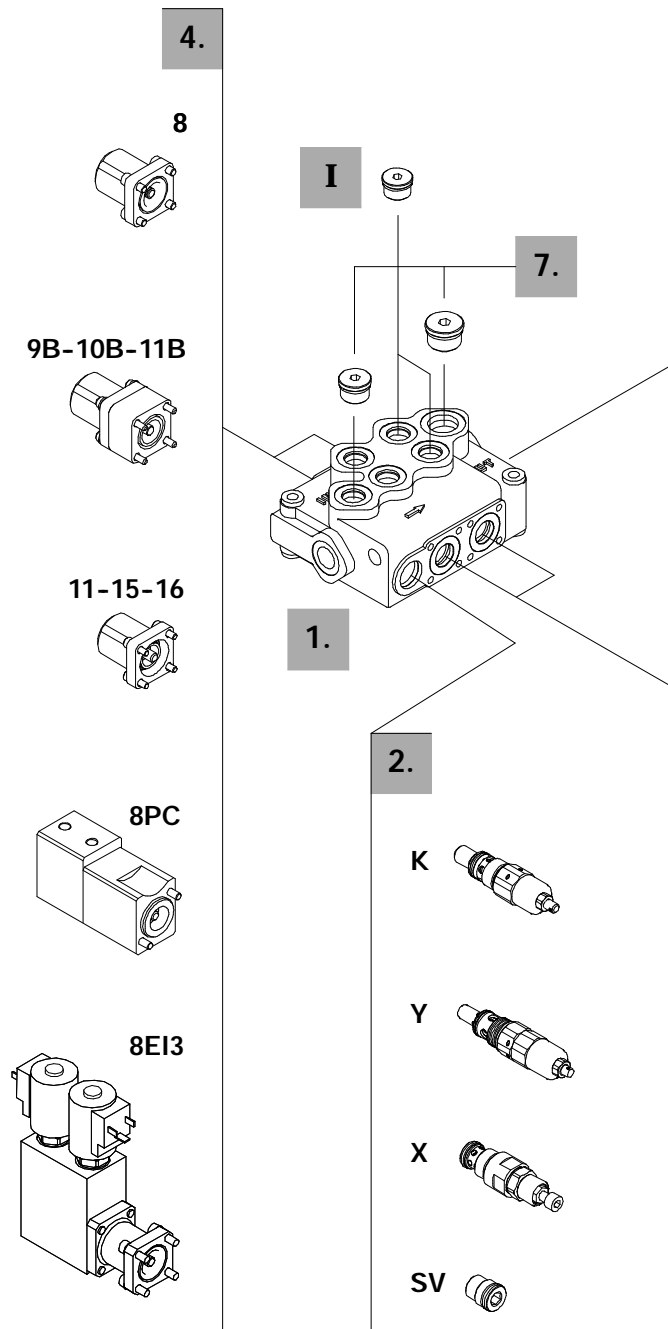
(XG-125)	X006211120	Range 25 to 315 bar / 360 to 4600 psi standard setting 125 bar / 1800 psi
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Standard setting is referred to 10 l/min flow.

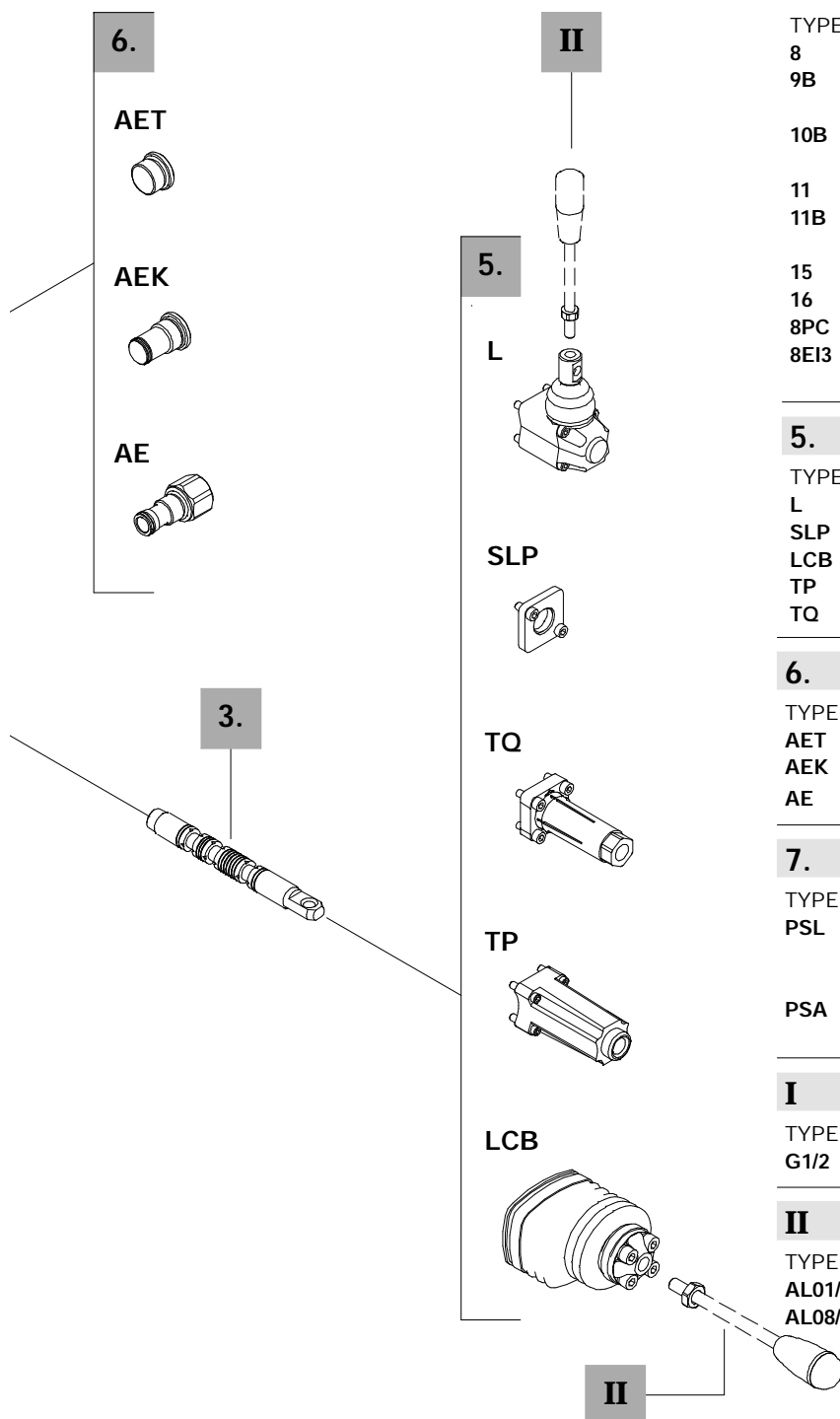
SV	XTAP526340	Relief valve blanking plug
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3. Spool options

TYPE	CODE	CIRCUIT 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



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



3. Spool options

TYPE	CODE	CIRCUIT DESCRIPTION
3	3CU1431130	Single acting on A, 3 positions, B plugged requires G1/2 plug (see part I)
4	3CU1435130	Single acting on B, 3 positions, A plugged requires G1/2 plug (see part I)

4. "A" side spool positioners

TYPE	CODE	DESCRIPTION
8	5V08110000	With spring return in neutral position
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
11	5V11110000	With detent in position 1, neutral and 2
11B	5V11210000	With detent in position 1 and 2, spring return in neutral position
15	5V15110000	With detent in position 1 and neutral
16	5V16110000	With detent in position 2 and neutral
8PC	5V08111709	Proportional pneumatic kit
8E13	5V08110350	12 VDC ON/OFF electro-hydraulic kit
	5V08110351	24 VDC ON/OFF electro-hydraulic kit

5. "B" side options

TYPE	CODE	DESCRIPTION
L	5LEV110000	Standard lever box
SLP	5COP110000	Without lever, with dust proof plate
LCB	5CLO211100	Mechanical joystick
TP	5TEL110005	CG cable connection
TQ	5TEL110110	CD cable connection

6. Outlet conversion port options

TYPE	CODE	DESCRIPTION
AET	3XTAP732201	Open centre plug
AEK	3XTAP532450	Closed centre plug
AE	XGIU532470	G 1/2 carry-over sleeve *

7. Inlet and outlet selection *

TYPE	CODE	DESCRIPTION
PSL	3XTAP727180	G1/2 plug for side inlet (nr.1 plug required)
	3XTAP732200	G3/4 plug for side outlet (nr.1 plug required) standard configuration; must be omitted
PSA	3XTAP727180	G1/2 plug for upper inlet (nr.1 plug required)
	3XTAP732200	G3/4 plug for upper outlet (nr.1 plug required)

I Port plug *

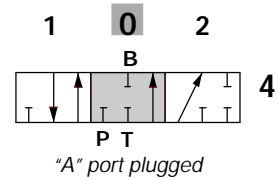
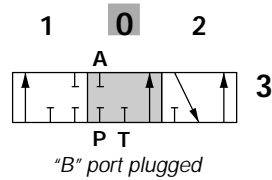
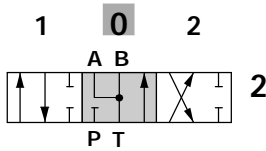
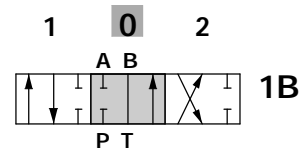
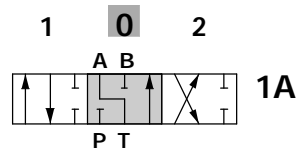
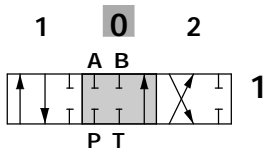
TYPE	CODE	DESCRIPTION
G1/2	3XTAP727180	Plug for single acting spool

II Optional handlevers

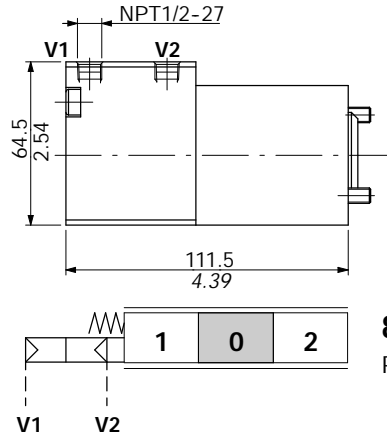
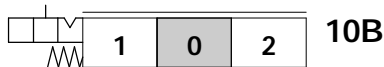
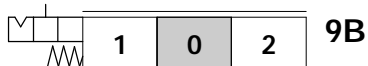
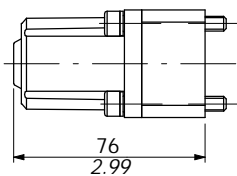
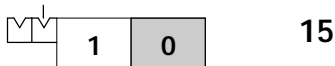
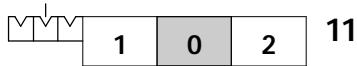
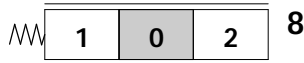
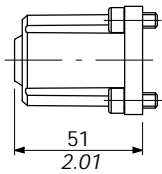
TYPE	CODE	DESCRIPTION
AL01/M10x200	170012020	Standard L = 200mm / 7.87in
AL08/M12x250	170013125	For joystick L = 250mm / 9.84in

For special configurations see pages 9 and 10

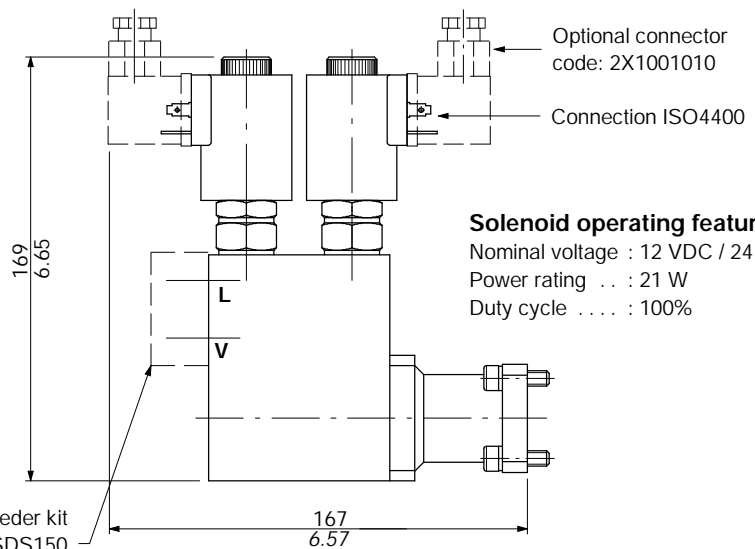
Spools options



"A" side spool positioners

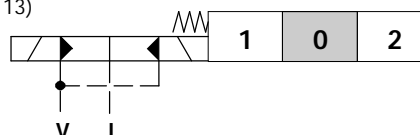


8PC
Proportional pneumatic kit



Solenoid operating features
Nominal voltage : 12 VDC / 24 VDC
Power rating . . . : 21 W
Duty cycle : 100%

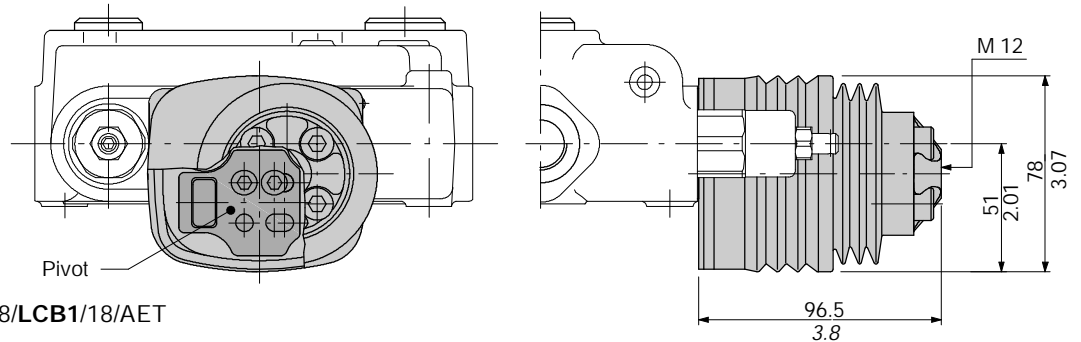
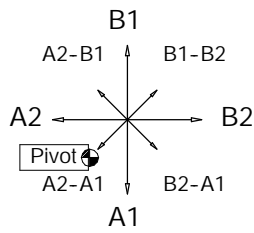
Feeder kit
(see catalogue SDS150
at page 13)



8EI3
ON/OFF electro-hydraulic kit.

Mechanical joystick

LCB1
movement scheme

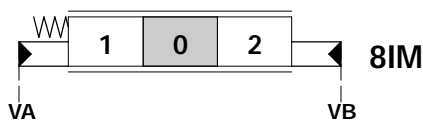


Ex.: SD11/2-P(KG3-120)/18/LCB1/18/AET

It is possible to have the fulcrum in the following other positions: **LCB2** bottom right, **LCB3** top left; **LCB4** top right.

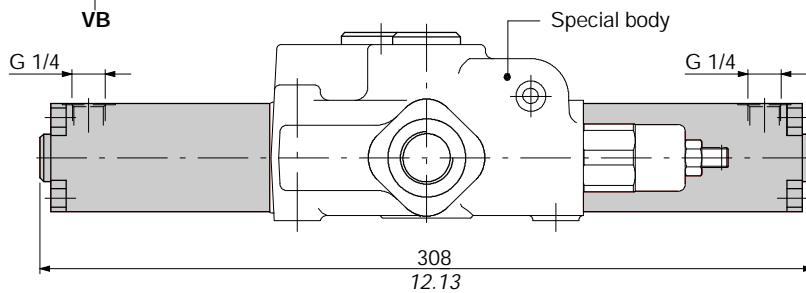
Special configurations

Hydraulic spool control



Operating features

Adjustment range from 5.8 to 22.4 bar (84 to 325 psi) - diagram 070
Max. pilot pressure : 50 bar / 720 psi



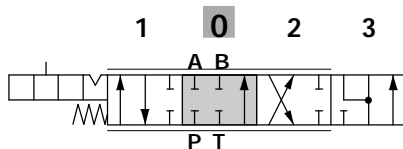
Ex.: SD11/2-P(KG3-120)/ **1C 8IM** / ...

Spool type 1C: code **3CU1410400**

Spool type 2C: code **3CU1425400**

Hydraulic control kit : code **5IDR210000**

Floating circuit

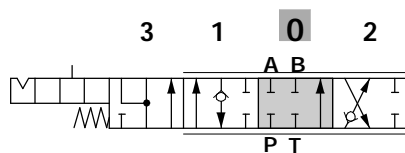
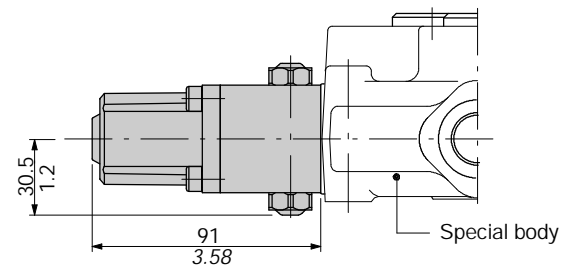


513B
4th position
spool *in* floating

Ex.: SD11/2-P(KG3-120)/ **5 13B L** / ...

Spool: code **3CU1442100**

Positioner kit: code **5V13111000**

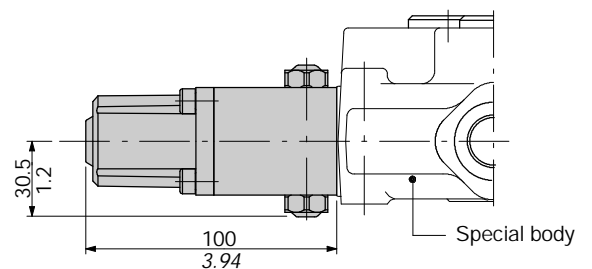


5VR13C
4th position
spool *out* floating

Ex.: SD11/2-P(KG3-120)/ **5VR 13C L** / ...

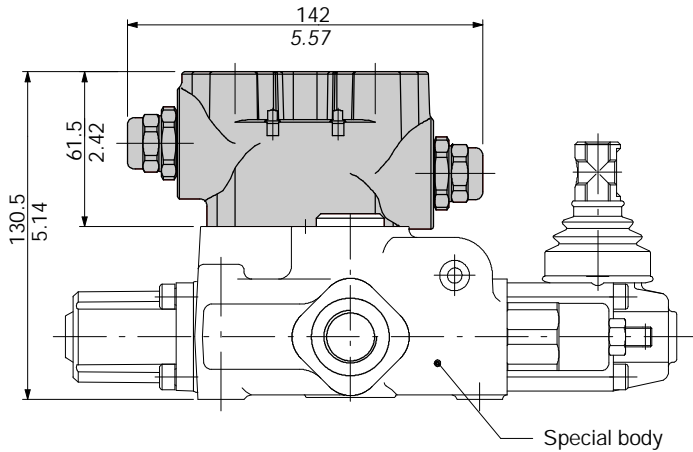
Spool: code **3CU1443600**

Positioner kit: code **5V13211000**

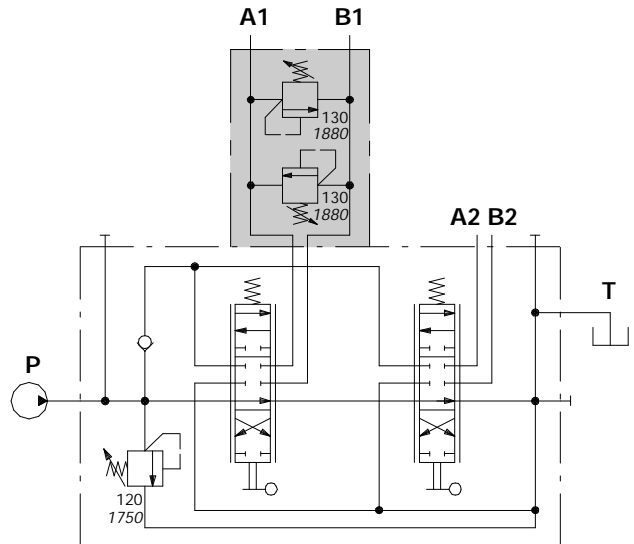


Port valves

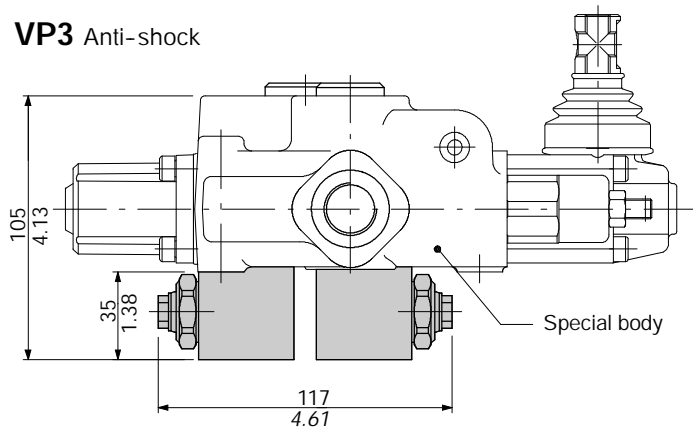
P3 Cross return



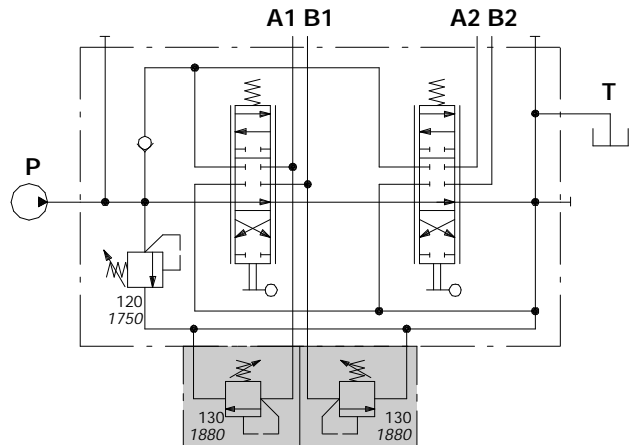
Ex.: SD11/2-P(KG3-120)/18L.P3(G3-130)/18L/AET



VP3 Anti-shock



Ex.: SD11/2-P(KG3-120)/18L.VP3(G3-130)/18L/AET

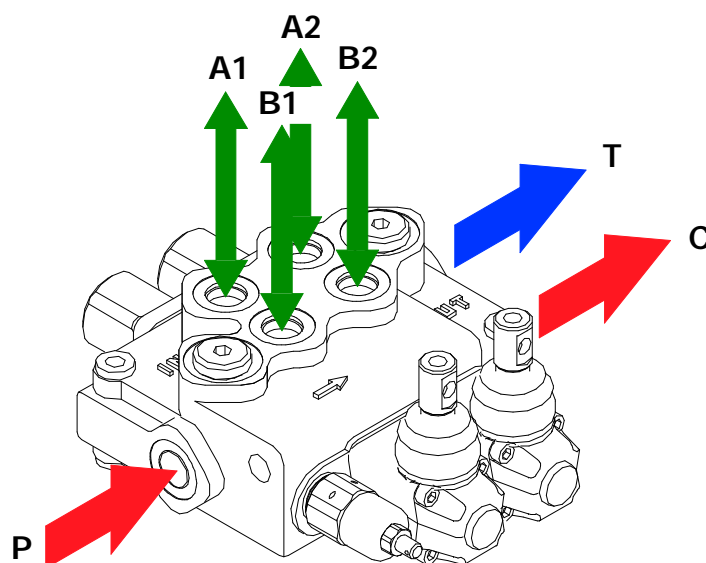


Installation and maintenance

The SD11 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

THREADS TYPE	P and C ports	A and B ports	T port
BSP (ISO 228/1)	G 1/2	G 1/2	G 3/4
With O-Ring seal	50 / 36.9	50 / 36.9	70 / 51.6
With copper washer	60 / 44.3	60 / 44.3	70 / 51.6
With steel and rubber washer	60 / 44.3	60 / 44.3	70 / 51.6
UN-UNF (ISO 11926-1)	7/8-14 UNF-2B (SAE 10)	3/4-16 UNF-2B (SAE 8)	7/8-14 UNF-2B (SAE 10)
With O-Ring seal	60 / 44.3	50 / 36.9	60 / 44.3
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	60 / 44.3
With steel and rubber washer	40 / 29.5	40 / 29.5	60 / 44.3

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



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