



SD4

MONOBLOCK  
DIRECTIONAL CONTROL VALVES



# SD4

## Features

Simple, compact designed, this valve is only one section for open center and closed center hydraulic systems.

H Fitted with a main pressure relief valve.

H Diameter 16 mm - 0.63 in interchangeable spools.

H Available manual and remote with flexible cables spool control kits.

## Working conditions

This catalog shows technical specifications and diagrams measured with mineral oil of 46 mm<sup>2</sup>/s - 46 cSt viscosity at 40°C - 104°F temperature.

Nominal flow rating		45 l/min	12 US gpm
Operating pressure (maximum)		250 bar	3600 psi
Back pressure (maximum)	on outlet port T	25 bar	360 psi
Internal leakage A(B)→T	$\Delta p = 100 \text{ bar} - 1450 \text{ psi}$ fluid and valve at 40°C - 104°F	3 cm <sup>3</sup> /min	0.18 in <sup>3</sup> /min
Fluid		Mineral base oil	
Fluid temperature range	with NBR (BUNA-N) seals	from -20° to 80°C	from -4° to 176°F
	with FPM (VITON) seals	from -20° to 100°C	from -4° to 212°F
Viscosity	operating range	from 15 to 75 mm <sup>2</sup> /s	from 15 to 75 cSt
	min.	12 mm <sup>2</sup> /s	12 cSt
	max.	400 mm <sup>2</sup> /s	400 cSt
Max level of contamination		19/16 - ISO 4406	NAS 1638 - class10
Ambient temperature range		from -40° to 60°C	from -40° to 140°F

NOTE - For different conditions please contact Customer Service.

### Additional information

This catalog shows the product in the most standard configurations.

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

### WARNING!

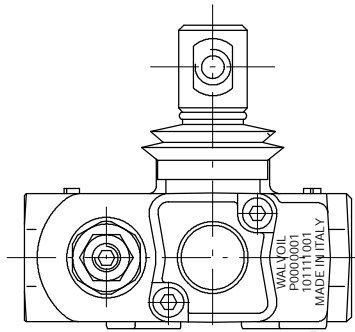
All specifications of this catalog refer to the standard product at this date.

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.

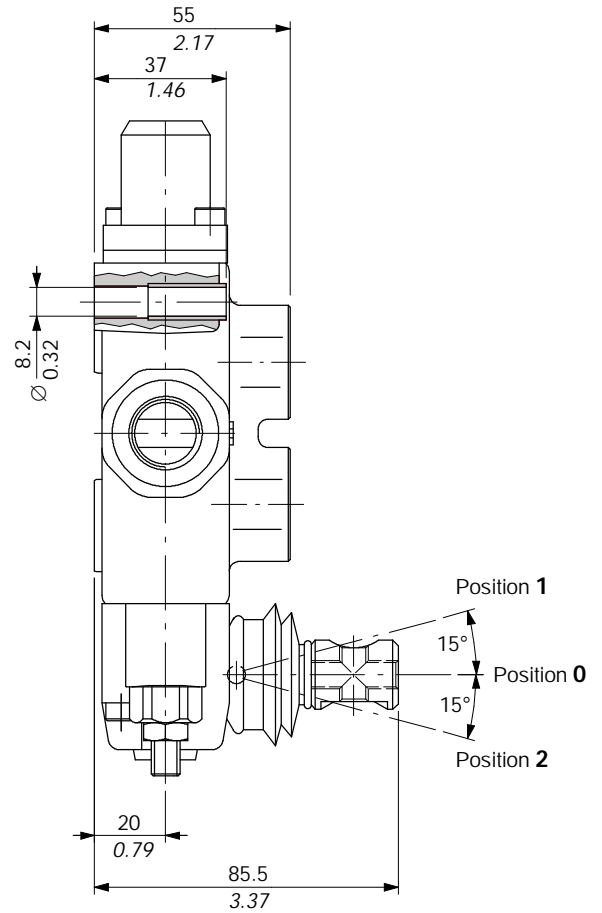
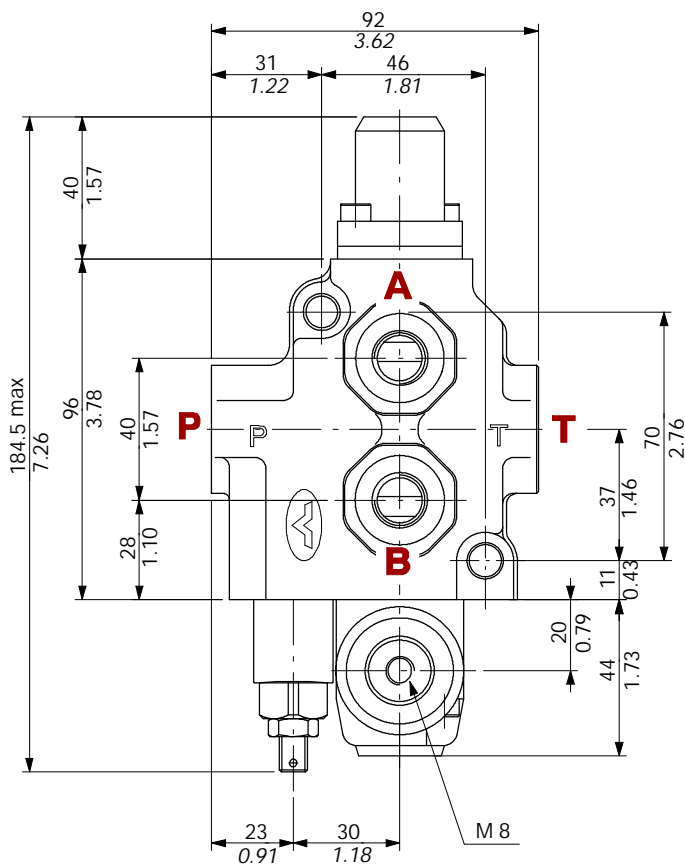
5<sup>th</sup> edition December 2000:

**This edition supercedes all prior documents.**



**WALVOIL**  
**P0000001**  
**101111001**  
**MADE IN ITALY**

Production batch :  
 P00 = production year (2000)  
 00001 = progressive number  
 Valve code



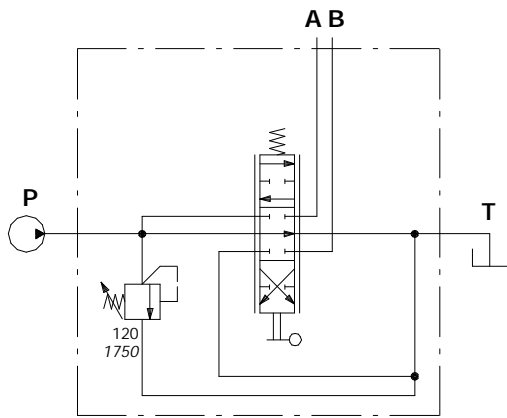
Standard threads

PORT	BSP (ISO 228/1)	UN-UNF (ISO 11926-1)	METRIC (ISO 262)
Inlet <b>P</b>		3/4-16 UNF-2B (SAE 8)	
<b>A</b> and <b>B</b> ports	G 3/8	9/16-18 UNF-2B (SAE 6)	M18x1.5
Outlet <b>T</b>		3/4-16 UNF-2B (SAE 8)	

# SD4

## Hydraulic circuit

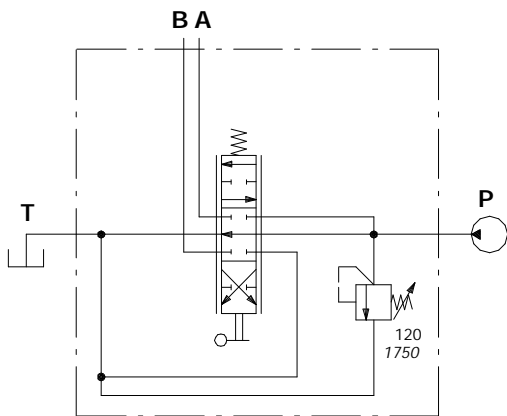
Standard valve is supplied with positive overlap spool (1CP).



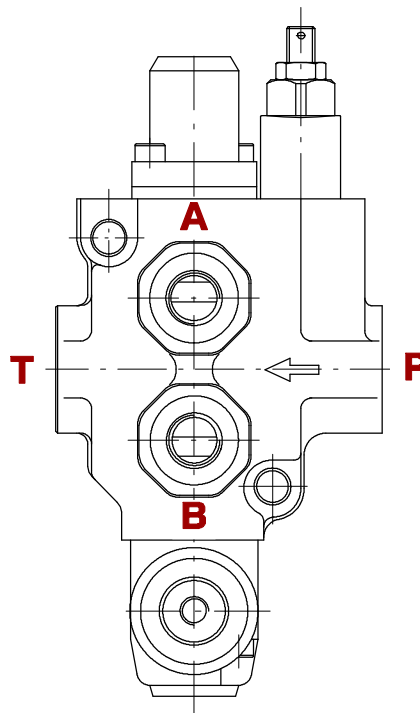
Ex.: SD4/1(KG3-120)/1CP8L

## Right inlet

A symmetrical body allows the reverse assembly of spool and relative control kit and lever (ED configuration).



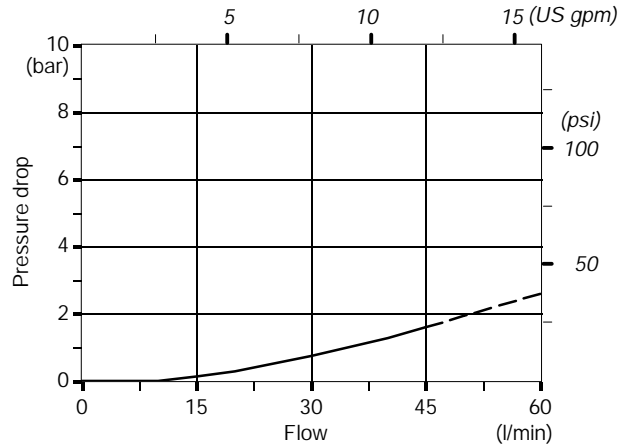
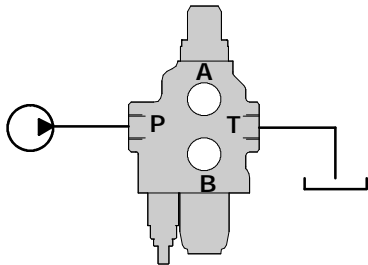
Ex.: SD4/1(KG3-120)/ED-1CP8L



Performance data (pressure drop vs. flow)

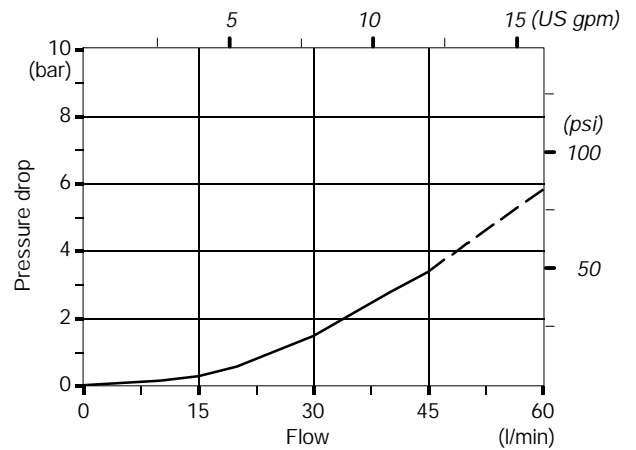
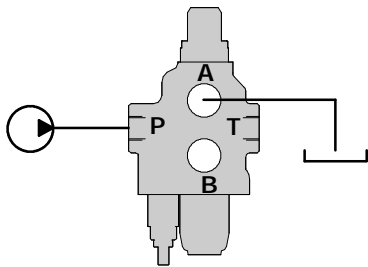
Open center

From inlet to outlet.



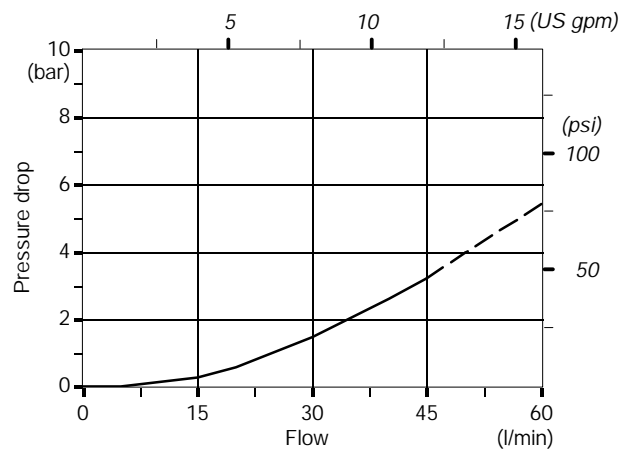
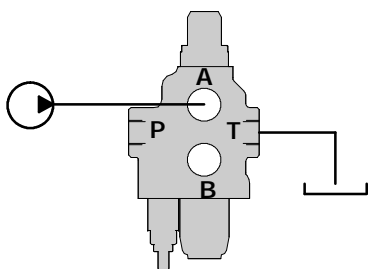
Inlet to work port

From 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 outlet.



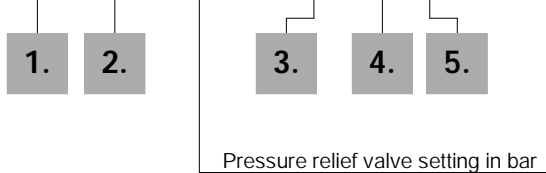
NOTE - Measured with spool type 1CP.

# SD4

## Ordering codes

Example:

SD4 / 1 (KG3-120) / 1CP 8 L - SAE \*



### 1. Body kits \*

TYPE	CODE	DESCRIPTION
1	5KIT1117000	1 section

Include body and seals.

### 2. Inlet relief options

TYPE	CODE	DESCRIPTION
<u>VMD5/1 direct pressure relief valve type K (standard)</u>		
(KG2-80)	5KIT105122	Range 40 to 80 bar / 580 to 1150 psi standard setting 80 bar / 1150 psi
(KG3-120)	5KIT105123	Range 63 to 200 bar / 900 to 2900 psi standard setting 120 bar / 1750 psi
(KG4-220)	5KIT105124	Range 160 to 250 bar / 2300 to 3600 psi standard setting 220 bar / 3200 psi

VMD5/1 direct pressure relief valve type Y

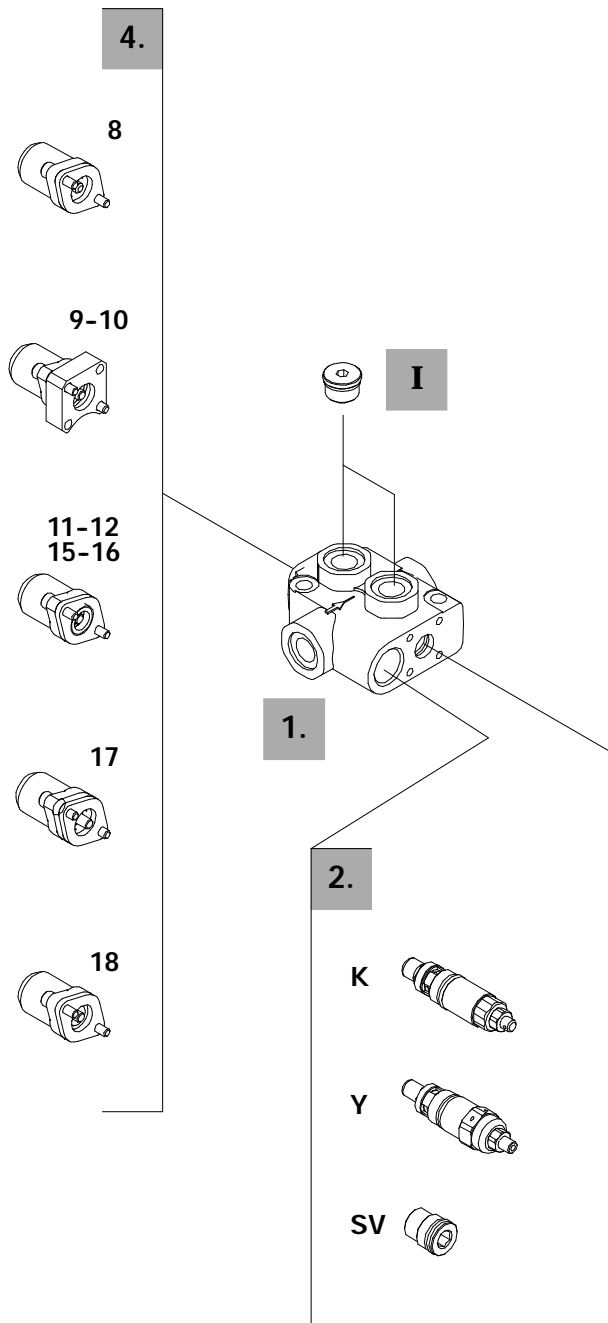
(YG2-80)	5KIT105212	Range 63 to 160 bar / 900 to 2300 psi standard setting 80 bar / 1150 psi
(YG3-175)	5KIT105213	Range 125 to 250 bar / 1800 to 3600 psi standard setting 175 bar / 2500 psi

Standard setting is referred to 10 l/min - 2.6 US gpm flow.

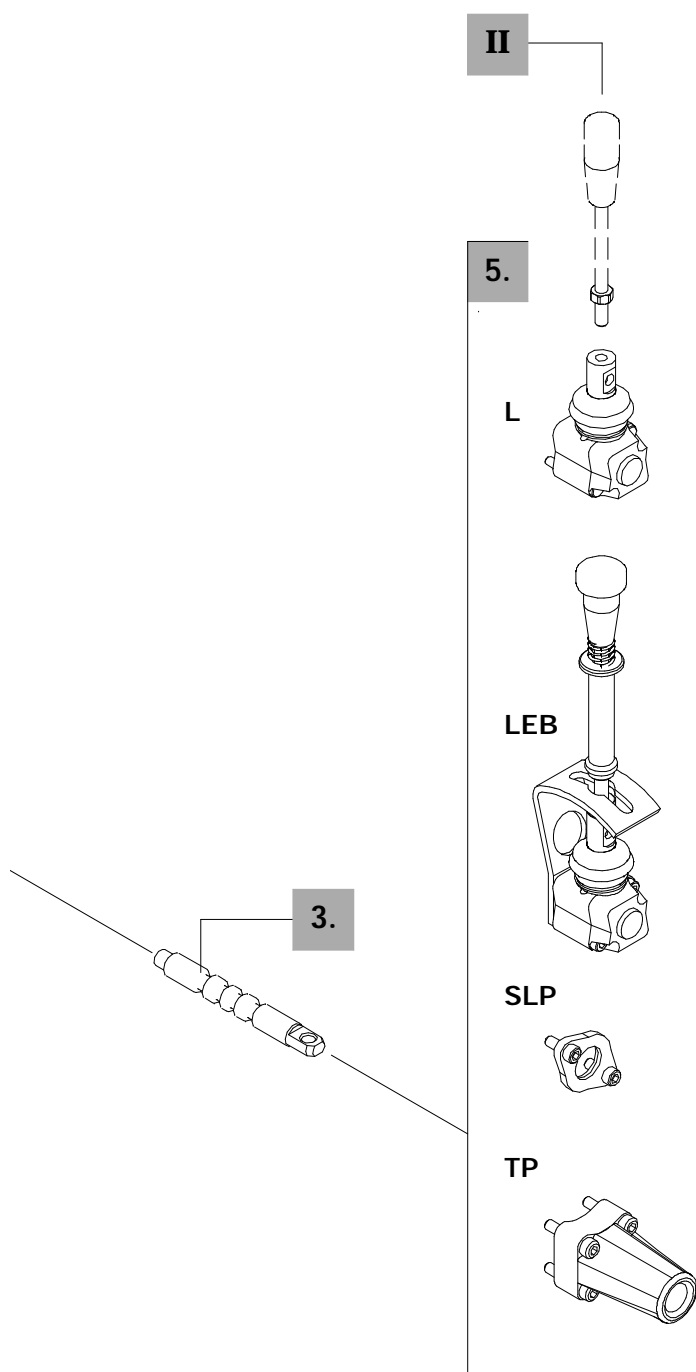
SV	XTAP623282	Relief blanking plug
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### 3. Spool options

TYPE	CODE	CIRCUIT DESCRIPTION
1CP	3CU1110110	Double acting with positive overlap, 3 positions, A and B closed in neutral position
1N	3CU1110120	Double acting, 3 positions, A and B closed in neutral position, negative overlap
2	3CU1125130	Double acting, 3 positions, with A open to tank in neutral position
3	3CU1131130	Single acting on A, 3 positions, B plugged; requires SAE 6 plug (see part I)
4	3CU1135140	Single acting on B, 3 positions, A plugged requires SAE 6 plug (see part I)
6	3CU1150130	Double acting, 3 positions, closed center
7	3CU1155130	Double acting, 3 positions, closed center with A and B to tank in neutral position



NOTE (\*) - Items are referred to **UN-UNF** thread.



#### 4. "A" side spool positioners

TYPE	CODE	DESCRIPTION
8	5V08104000	With spring return in neutral position
9	5V09104010	With detent in position 1
10	5V10104010	With detent in position 2
11	5V11104000	With detent in position 1, neutral and 2
12	5V12104000	With detent in position 1 and 2
15	5V15104000	With detent in position 1 and neutral
16	5V16104000	With detent in position 2 and neutral
17	5V17104000	With spring return position 1
18	5V18104000	With spring return position 2

#### 5. "B" side options

TYPE	CODE	DESCRIPTION
L	5LEV105000	Standard lever box
LEB	5LEV605000	Safety lever with handlever, detent in 3 positions
SLP	5COP105000	Without lever, with dust proof plate
TP	5TEL105005	Cable connection

#### I Port plug \*

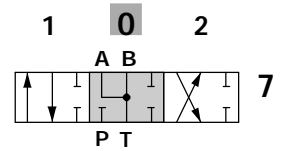
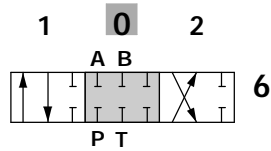
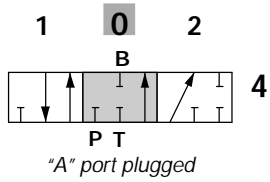
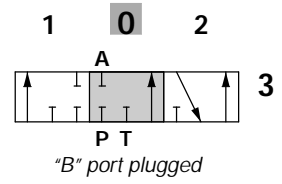
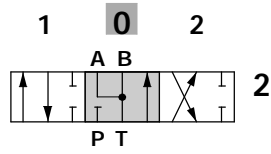
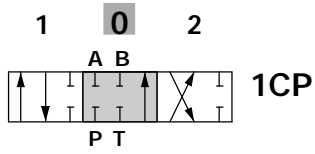
TYPE	CODE	DESCRIPTION
SAE 6	3XTAP817130	Plug for single acting spool

#### II Optional handlever

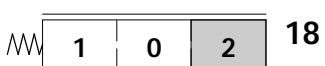
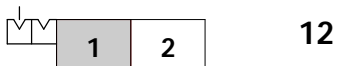
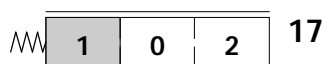
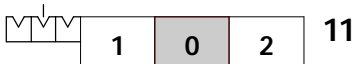
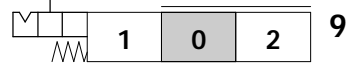
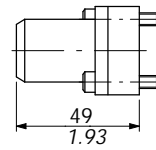
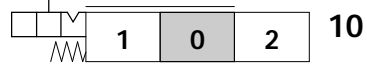
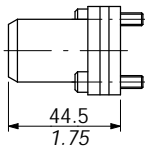
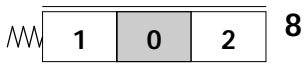
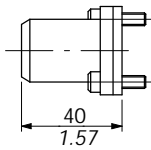
TYPE	CODE	DESCRIPTION
AL01/M8x120	170011012	Standard handlever L= 120mm/4.72in

For special configurations see pages 9 and 10

## Spools options

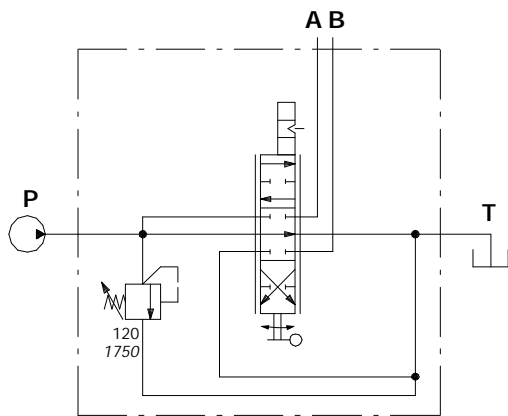
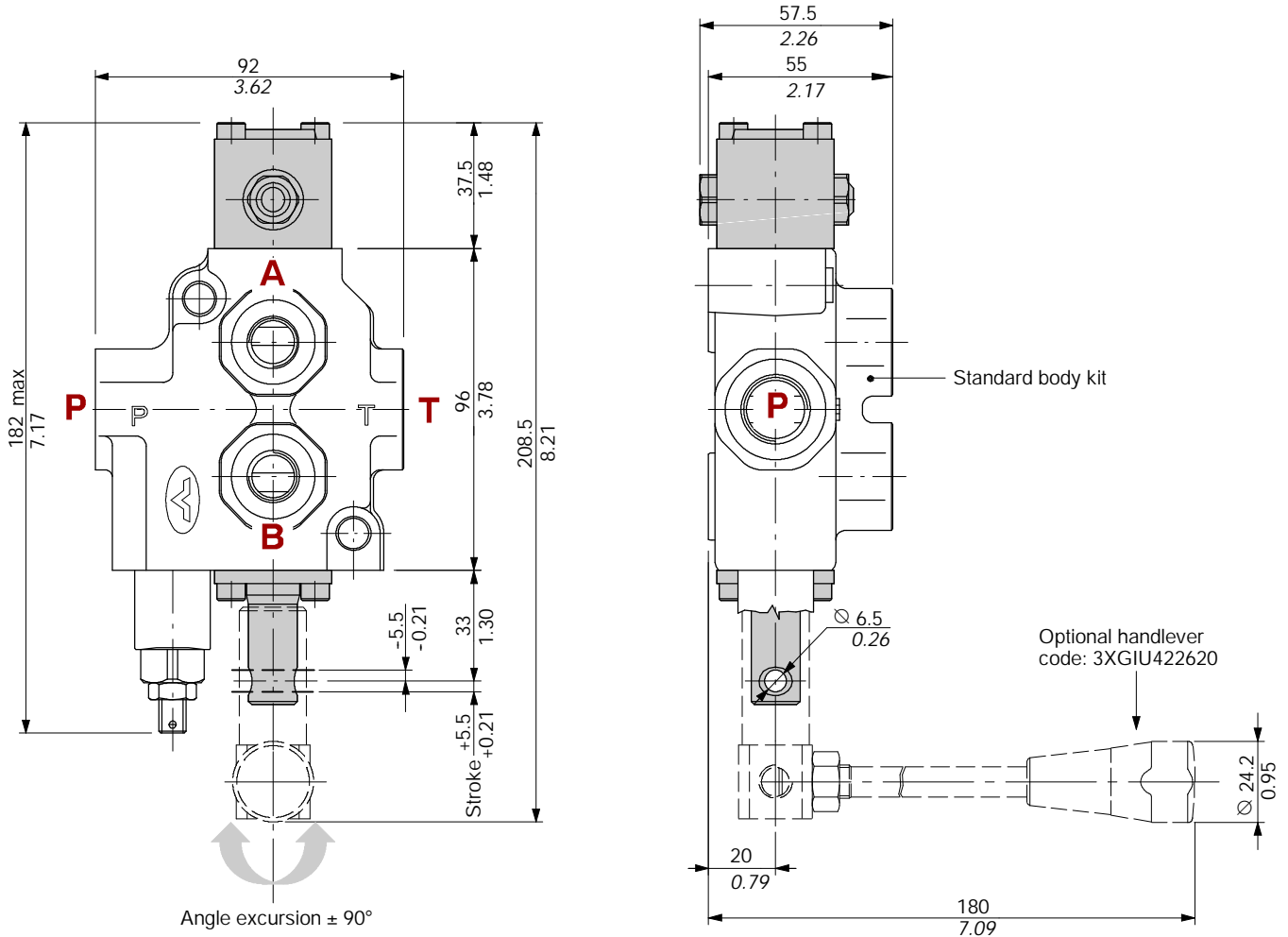


## "A" side spool positioners





Directional valve with rotary control kit



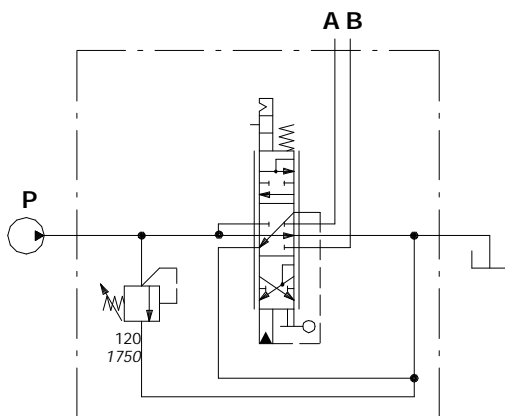
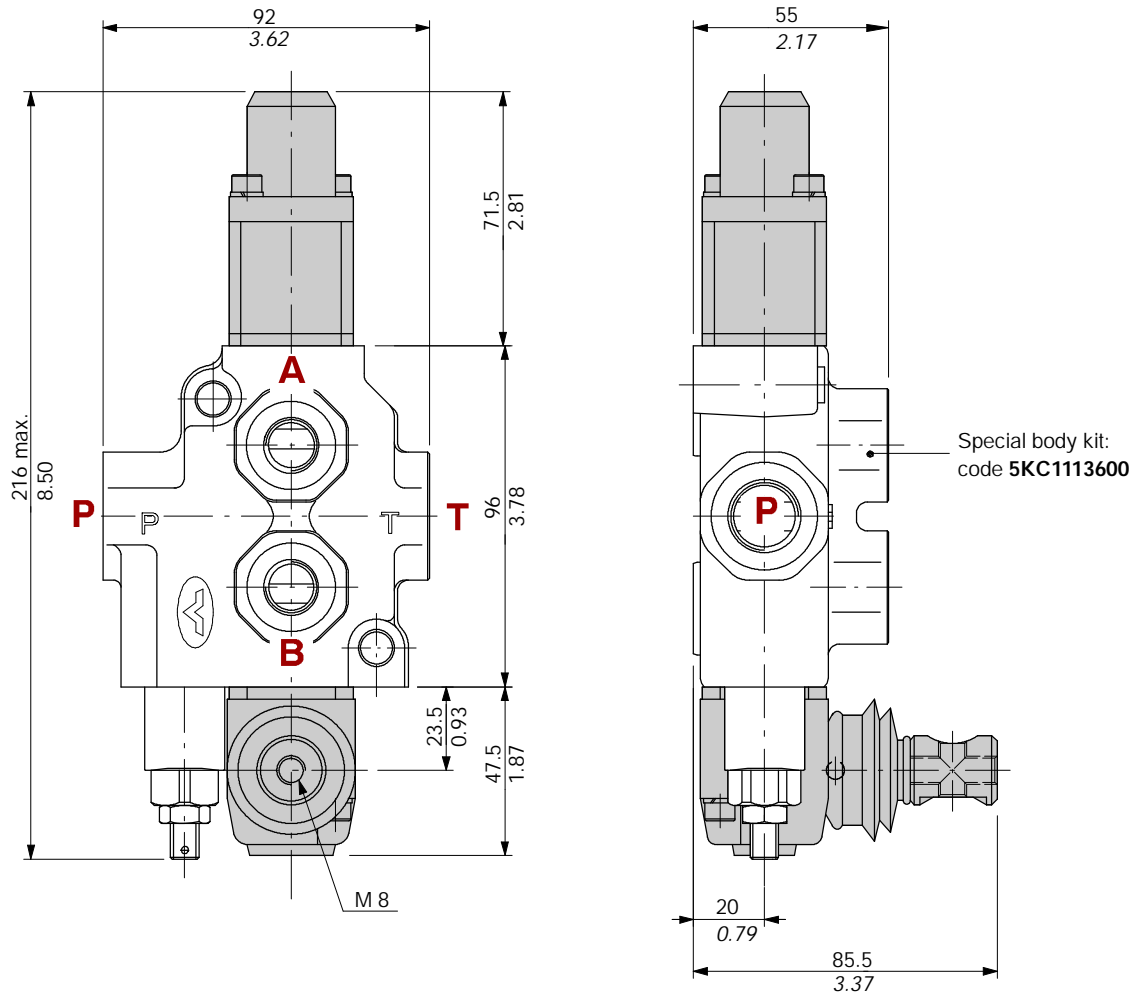
Ex.: SD4/1 (KG3-120)/ 1N R SLP

- Dust proof plate kit: code 5COP105000
- Rotary positioner kit: code 5ROT104000
- Spool: code 3CU1110561 (negative overlap)

## Special configurations

### Detent with kick-out from position 1 to neutral position

Spool control kit with fix setting, available with kick-out pressure of 63 and 80 bar (900 and 1150 psi).



Ex.: SD4/1 (KG3-120)/ **1N 9A(80) LA**

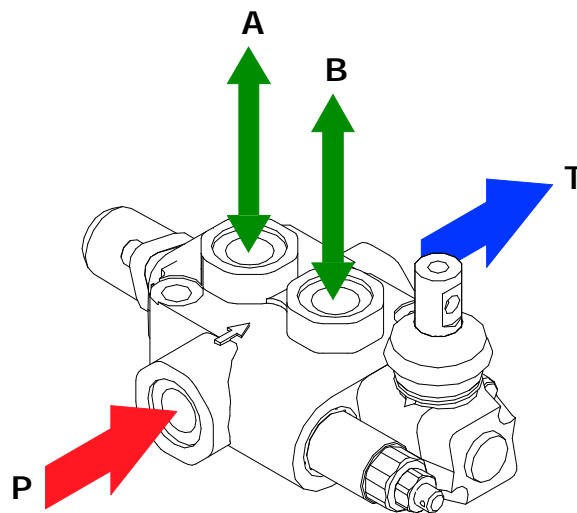
- Special lever box: code **5LEV104000**
- Positioner kit with 63 bar / 900 psi setting code **5V09504000**
- Positioner kit with 80 bar / 1150 psi setting code **5V09504080**
- Spool: code **3CU1110300** (negative overlap)

## Installation and maintenance

The SD4 valve is assembled and tested as per the technical specification of this catalog.

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

- 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.



### Fitting tightening torque - Nm / lbft

THREADS TYPE	P port	A and B ports	T port
BSP (ISO 228/1)	G 3/8	G 3/8	G 3/8
With O-Ring seal	35 / 25.8	35 / 25.8	35 / 25.8
With copper washer	40 / 29.5	40 / 29.5	40 / 29.5
With steel and rubber washer	30 / 22.1	30 / 22.1	30 / 22.1
UN-UNF (ISO 11926-1)	3/4-16 UNF-2B (SAE 8)	9/16-18 UNF-2B (SAE 6)	3/4-16 UNF-2B (SAE 8)
With O-Ring seal	50 / 36.9	30 / 22.1	50 / 36.9
METRIC (ISO 262)	M18 x 1.5	M18 x 1.5	M18 x 1.5
With O-Ring seal	35 / 25.8	35 / 25.8	35 / 25.8
With copper washer	40 / 29.5	40 / 29.5	40 / 29.5
with steel and rubber washer	40 / 29.5	40 / 29.5	40 / 29.5

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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