

SECTIONAL DIRECTIONAL
CONTROL VALVES

SD6

 **walvoil**
HYDRAULIC CONTROL SYSTEMS

valvoilgroup

SD6

Simple, compact and heavy duty designed sectional valve from 1 to 12 sections for open and closed centre hydraulic systems.

- Fitted with a main pressure relief valve and a load check valve on every working section
- Available with parallel, tandem or series circuit.
- Optional carry-over port.
- A wide variety of port and circuit valves.
- Available manual, pneumatic, hydraulic, electro-hydraulic, and remote with flexible cables spool control kits.
- Diameter 16 mm (*0.63 in*) interchangeable spools.

Additional information

This catalogue shows the product in the most standard configurations.
Please contact Sales 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.

2nd edition December 2006:

This edition supercedes all prior documents.

Working conditions

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

SD6

| | | | |
|----------------------------------------|------------------------------------------------------|----------------------------------|-----------------------------|
| Nominal flow rating | | 45 l/min | |
| Operating pressure (max.) | <i>parallel or tandem circuit</i> | 315 bar | 4600 psi |
| | <i>series circuit</i> | 210 bar | 3050 psi |
| Back pressure (max.) | <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 * |
| <hr/> | | | |
| Fluid | | Mineral based 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 | <i>with mechanical devices</i> | from -40° to 60°C | |
| | <i>with pneumatic and hydraulic devices</i> | from -30° to 60°C | |
| | <i>with electric devices</i> | from -20° to 50°C | |
| Tie rods tightening torque (wrench 13) | | 30 Nm | 22 lbft |

NOTE (*) - Except differently specified inside the catalogue.

NOTE - For different conditions please contact Sales Dept.

Standard threads
REFERENCE STANDARD

| | | BSP | UN-UNF | METRICA | NPTF |
|-------------------------------------|-----|------------------------|-------------------|------------------------|--------------|
| THREAD ACCORDING TO | | ISO 228/1 | ISO 263 | ISO 262 | ANSI B1.20.3 |
| | | BS 2779 | ANSI B1.1 unified | | |
| CAVITY DIMENSION ACCORDING TO | ISO | 1179 | 11926 | 9974-1 | |
| | SAE | | J1926 | J2244 | J476a |
| | DIN | 3852-2 shape X or Y | | 3852-1 shape X or Y | |

PORTS THREADING
SD6

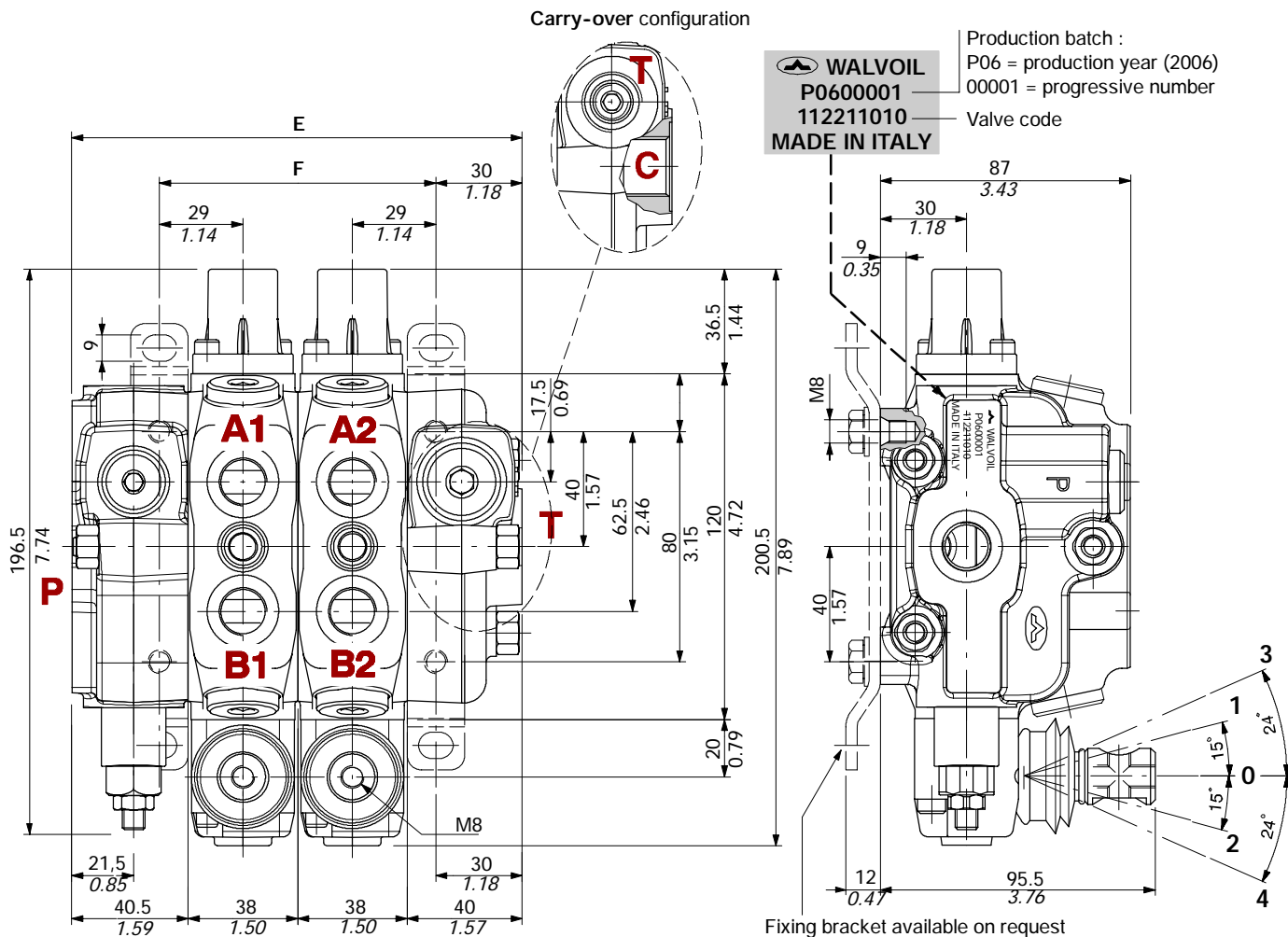
| PORTS | BSP | UN-UNF | METRICA |
|-----------------------------------------|-------------|-----------------|-------------|
| Inlet P | G 3/8 | 3/4-16 (SAE 8) | M18x1.5 |
| Working ports A and B | G 3/8 | 9/16-18 (SAE 6) | M18x1.5 |
| Outlet T and carry-over C | G 1/2 | 3/4-16 (SAE 8) | M22x1.5 |
| PILOT PORTS | | | |
| Hydraulic ports | G 1/4 | 9/16-18 (SAE 6) | G 1/4 |
| Pneumatic ports | NPTF 1/8-27 | NPTF 1/8-27 | NPTF 1/8-27 |



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Dimensional data (series or tandem circuit)

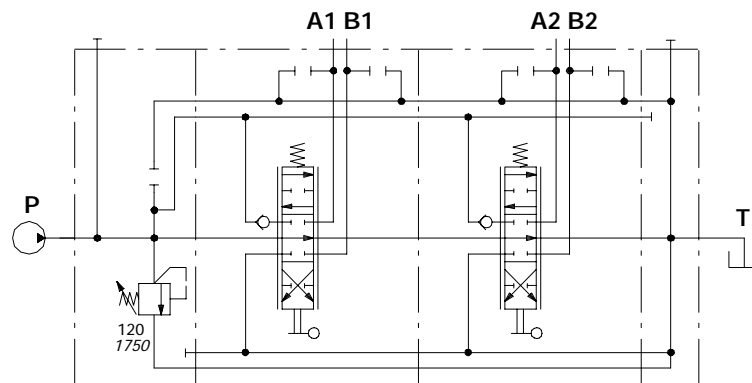
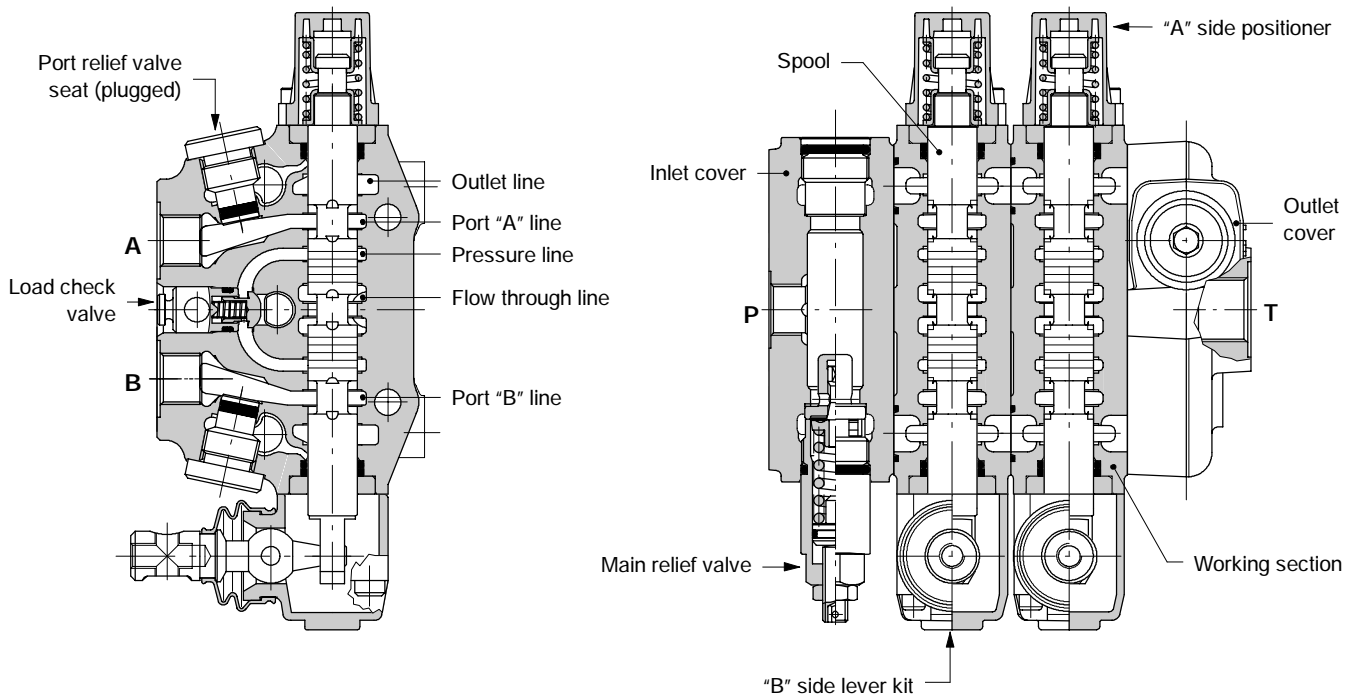


| TYPE | E | | F | | Weight | |
|-------|-------|-------|-----|------|--------|------|
| | mm | in | mm | in | kg | lb |
| SD6/1 | 118.5 | 4.66 | 58 | 2.28 | 5.3 | 11.7 |
| SD6/2 | 156.5 | 6.16 | 96 | 3.78 | 7.6 | 16.6 |
| SD6/3 | 194.5 | 7.66 | 134 | 5.28 | 9.9 | 21.8 |
| SD6/4 | 232.5 | 9.15 | 172 | 6.77 | 12.2 | 26.9 |
| SD6/5 | 270.5 | 10.65 | 210 | 8.27 | 14.8 | 32.6 |
| SD6/6 | 308.5 | 12.15 | 248 | 9.76 | 17.1 | 37.7 |

| TYPE | E | | F | | Weight | |
|--------|-------|-------|-----|-------|--------|------|
| | mm | in | mm | in | kg | lb |
| SD6/7 | 346.5 | 13.65 | 286 | 11.26 | 19.4 | 42.8 |
| SD6/8 | 384.5 | 15.15 | 324 | 12.76 | 21.7 | 47.9 |
| SD6/9 | 422.5 | 16.65 | 362 | 14.26 | 24 | 53 |
| SD6/10 | 460.5 | 18.15 | 400 | 15.76 | 26.3 | 58.1 |
| SD6/11 | 498.5 | 19.65 | 438 | 17.26 | 28.6 | 63.2 |
| SD6/12 | 536.5 | 21.15 | 476 | 18.76 | 30.9 | 68.3 |

Parallel circuit

Standard configuration with open centre and side inlet and outlet.

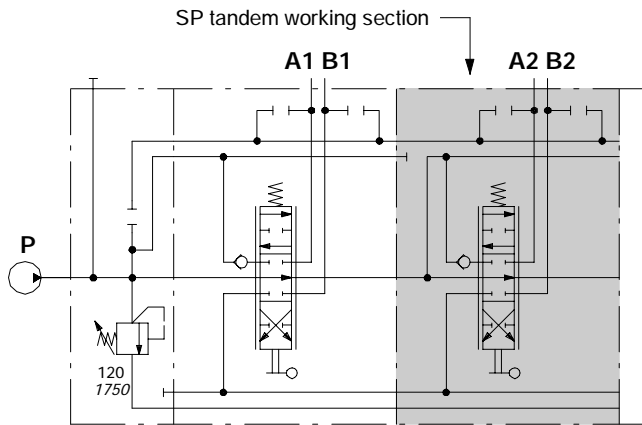


Description example: SD6/2/AC(YG3-120)/18L/18L/RC

Hydraulic circuit

Series-parallel (tandem) circuit

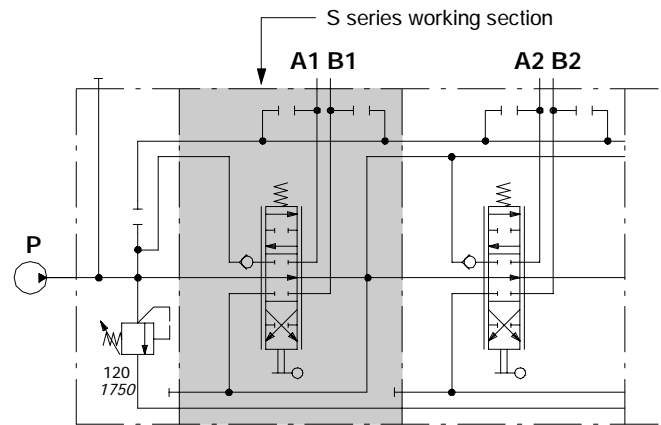
It needs a special working section kit (see page 22)
 Tandem section is fed from thr free flow pressure line; it's excluded when an up strem section is operated.



Description example:
 SD6/2/AC(YG3-120)/18L/SP-18L/....

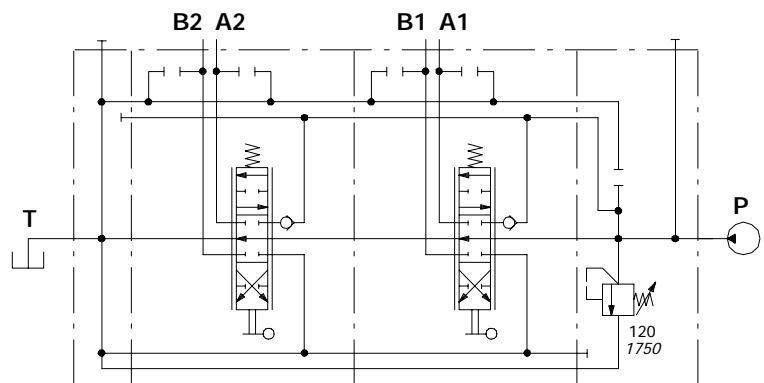
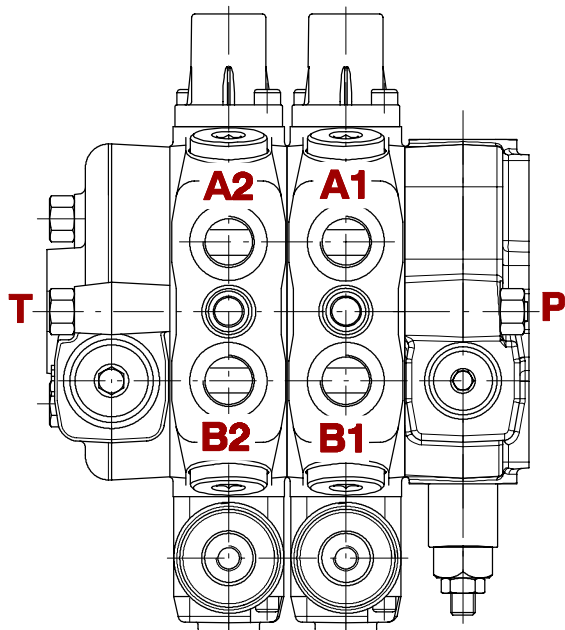
Series circuit

It needs a special working section kit (see page 22).
 The return oil from service ports feed the remaining down stream sections.



Description example:
 :SD6/2/AC(YG3-120)/S-18L/P-18L/....

Right inlet directional valve

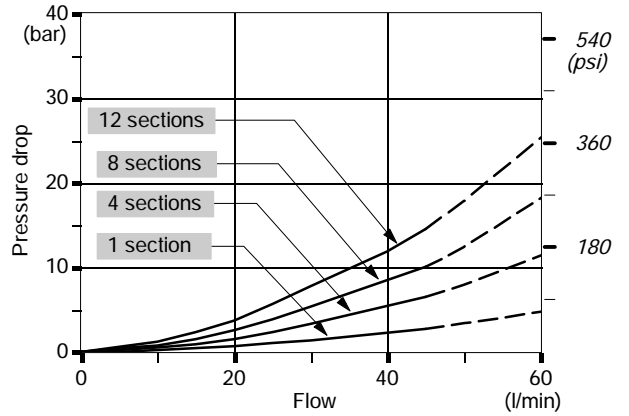
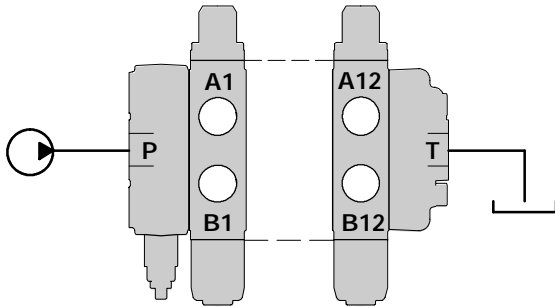


Description example:
 SD6/2/BC(YG3-120)/18L/18L/RC

Performance data (pressure drop vs. flow)

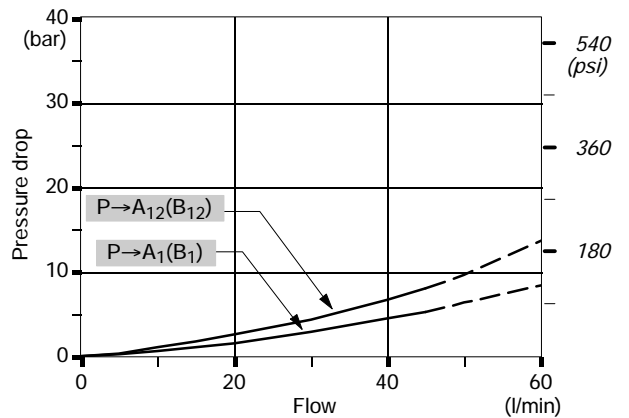
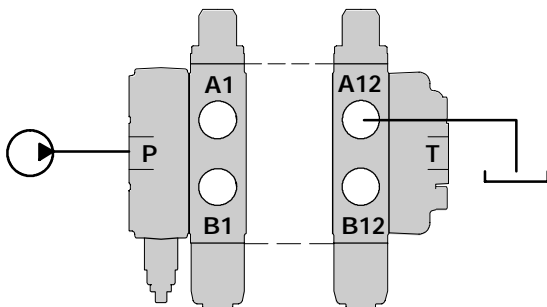
Open centre

From side inlet to side outlet.



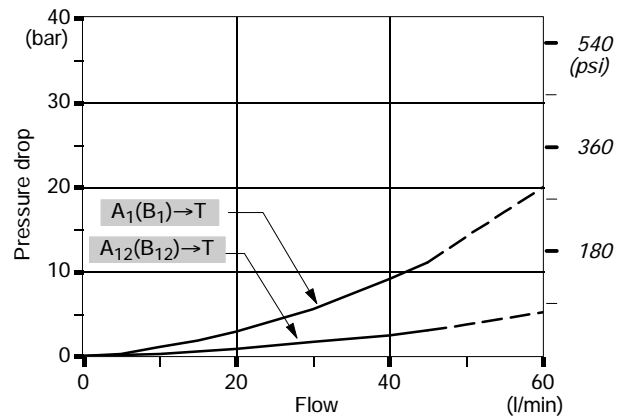
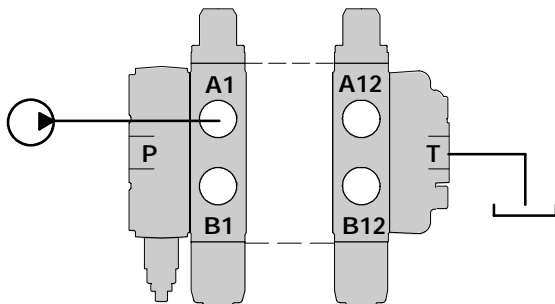
Inlet to work port

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.

Ordering codes

Description example: standard configuration with side inlet and outlet

SD6 / 2 / AC(YG3-120) / **P** - 18L / DFG / **P** - 18L / RC - STAF

No. of working section

1.

2.

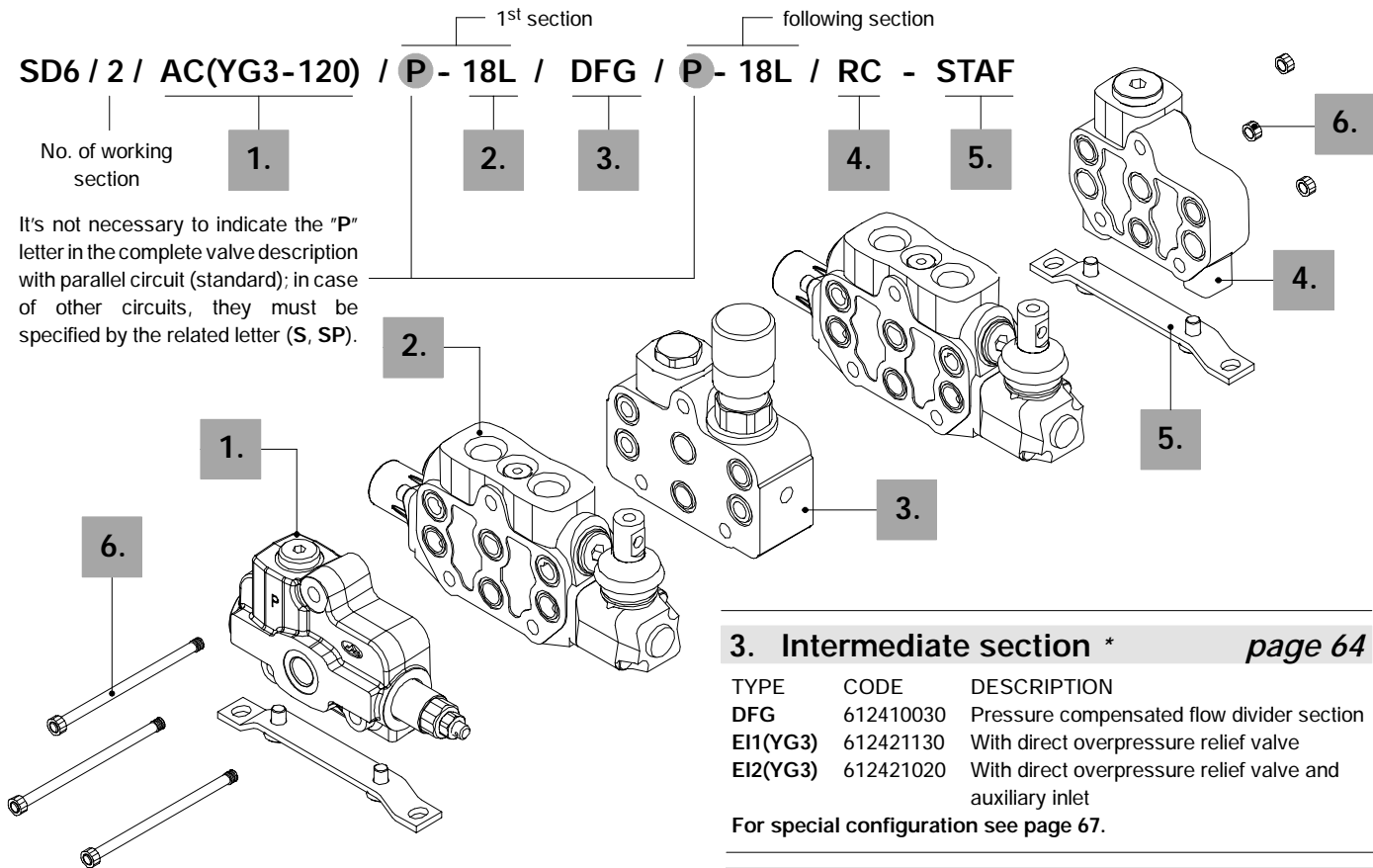
3.

4.

5.

6.

It's not necessary to indicate the "P" letter in the complete valve description with parallel circuit (standard); in case of other circuits, they must be specified by the related letter (S, SP).



1. Complete inlet cover * page 14

| TYPE | CODE | DESCRIPTION |
|-------------|-----------|----------------------------------------------------|
| AC(JG3-120) | 612201171 | Side inlet with VMDJ direct pressure relief valve |
| AC(YG3-120) | 612201110 | Side inlet with VMDY direct pressure relief valve |
| AD(YG3-120) | 612201120 | Upper inlet with VMDY direct pressure relief valve |

For special configuration see page 19.

2. Complete working section* page 22

| TYPE | CODE | DESCRIPTION |
|--------|-----------|------------------------------------------------------------------------------------------------------|
| P-18L | 612101001 | Parallel circuit, prearranged for port valves, double acting spool with spring return, lever control |
| S-18L | 612111001 | As previous with series circuit |
| SP-18L | 612121001 | As previous with series-parallel (tandem) circuit |

NOTE - For covers and sections description composition see related pages.

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

3. Intermediate section * page 64

| TYPE | CODE | DESCRIPTION |
|----------|-----------|-----------------------------------------------------------|
| DFG | 612410030 | Pressure compensated flow divider section |
| EI1(YG3) | 612421130 | With direct overpressure relief valve |
| EI2(YG3) | 612421020 | With direct overpressure relief valve and auxiliary inlet |

For special configuration see page 67.

4. Complete outlet cover * page 70

| TYPE | CODE | DESCRIPTION |
|------|-----------|-----------------------------------|
| RC | 612300110 | Side outlet |
| RD | 612300120 | Upper outlet |
| RE | 612300114 | Upper outlet with side carry-over |
| RK | 612300117 | Upper outlet with closed centre |

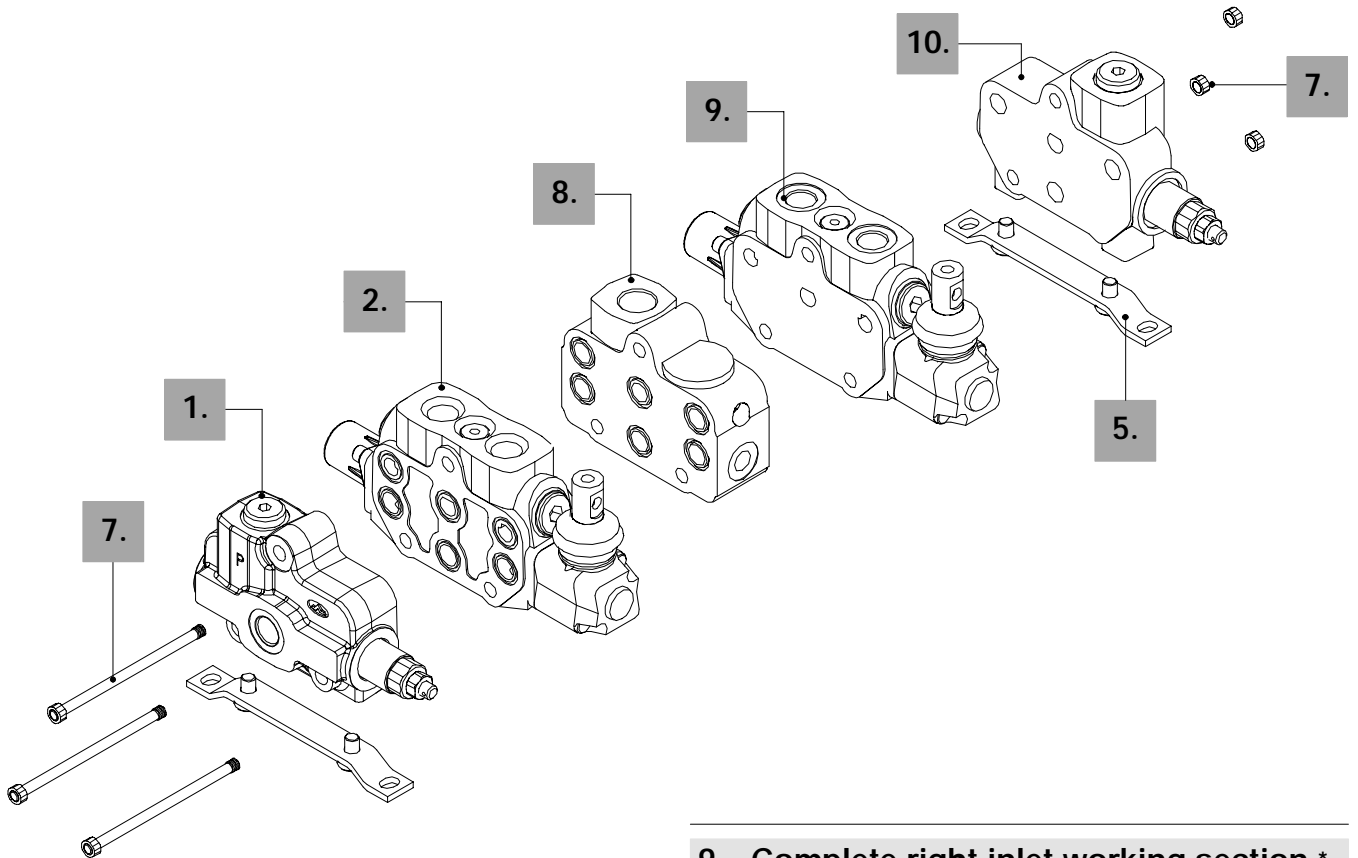
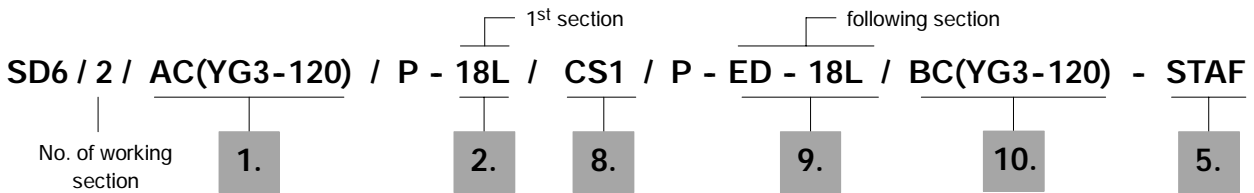
5. Fixing bracket page 99

| TYPE | CODE | DESCRIPTION |
|------|------------|-----------------------------|
| STAF | 5STA120160 | Brackets with fixing screws |

6. Assembling kit

| CODE | DIRECTIONAL VALVE |
|------------|-----------------------------------|
| 5TIR108117 | Tie rod kit for 1 section valve |
| 5TIR108155 | Tie rod kit for 2 sections valve |
| 5TIR108193 | Tie rod kit for 3 sections valve |
| 5TIR108231 | Tie rod kit for 4 sections valve |
| 5TIR108269 | Tie rod kit for 5 sections valve |
| 5TIR108307 | Tie rod kit for 6 sections valve |
| 5TIR108345 | Tie rod kit for 7 sections valve |
| 5TIR108383 | Tie rod kit for 8 sections valve |
| 5TIR108421 | Tie rod kit for 9 sections valve |
| 5TIR108459 | Tie rod kit for 10 sections valve |
| 5TIR108497 | Tie rod kit for 11 sections valve |
| 5TIR108535 | Tie rod kit for 12 sections valve |

Description example: configuration with 2 side inlets and mid return manifold:



7. Assembling kit for valve with CS1

| CODE | DIRECTIONAL VALVE (with CSMT) |
|------------|----------------------------------------------|
| 5TIR108193 | Tie rod kit for 2 sections valve (with CS1) |
| 5TIR108231 | Tie rod kit for 3 sections valve (with CS1) |
| 5TIR108269 | Tie rod kit for 4 sections valve (with CS1) |
| 5TIR108307 | Tie rod kit for 5 sections valve (with CS1) |
| 5TIR108345 | Tie rod kit for 6 sections valve (with CS1) |
| 5TIR108383 | Tie rod kit for 7 sections valve (with CS1) |
| 5TIR108421 | Tie rod kit for 8 sections valve (with CS1) |
| 5TIR108459 | Tie rod kit for 9 sections valve (with CS1) |
| 5TIR108497 | Tie rod kit for 10 sections valve (with CS1) |

8. Return manifold page 64

| TYPE | CODE | DESCRIPTION |
|------|-----------|-------------------------------------------|
| CS1 | 612400010 | Mid return manifold with G1/2 outlet port |

9. Complete right inlet working section *

| TYPE | CODE | DESCRIPTION |
|-----------|-----------|------------------------------------------------------------------------------------------------------|
| P-ED-18L | 612101048 | Parallel circuit, prearranged for port valves, double acting spool with spring return, lever control |
| S-ED-18L | 612111017 | As previous with series circuit |
| SP-ED-18L | 612121003 | As previous with series-parallel (tandem) circuit |

10. Complete right inlet cover *

| TYPE | CODE | DESCRIPTION |
|-------------|-----------|----------------------------------------------------|
| BC(JG3-120) | 612201117 | Side inlet with VMDJ direct pressure relief valve |
| BC(YG3-120) | 612201130 | Side inlet with VMDY direct pressure relief valve |
| BD(YG3-120) | 612201115 | Upper inlet with VMDY direct pressure relief valve |

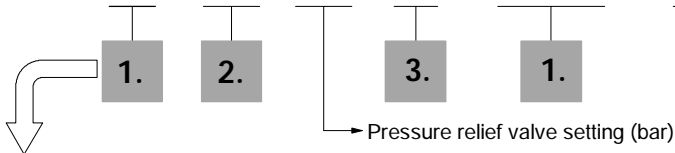
For special configuration see page 19.

NOTE (*) - Items are referred to **BSP** thread; sections and covers for right inlet are different from the standard (see ref. 1 e 2) because of different components assembling

Ordering codes

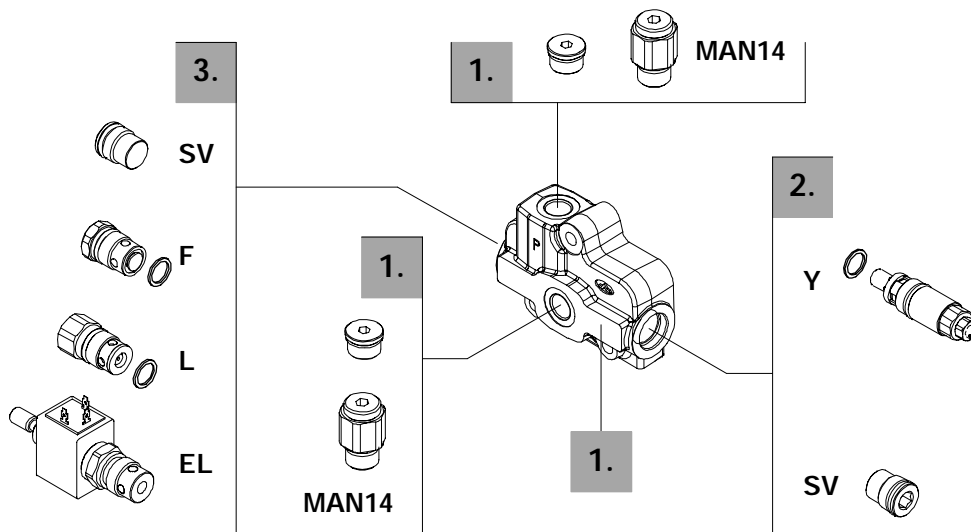
Description example:

FE SD6 / AC (YG3 - 120) ELT - MAN1/4 - 12VDC *



Available configurations

- AC: with side inlet, for left inlet (standard) directional valve
 AD: with upper inlet, for left inlet (standard) directional valve
 BC: with side inlet, for right inlet directional valve
 BD: with upper inlet, for right inlet directional valve
 See page 15.



1. Inlet cover body * page 15

| CODE | DESCRIPTION |
|------------------------|-----------------------------------------|
| 3FIA106302+3XTAP722160 | Standard |
| 3FIA106302+5MAN621200 | With G1/8 pressure gauge prearrangement |
| 3FIA106302+5MAN622320 | With G1/4 pressure gauge prearrangement |

3. Inlet valve options page 17

| TYPE | CODE | DESCRIPTION |
|------|-------------|--------------------------------------------------|
| F | 5KIT406200 | Inlet anti-cavitation valve |
| L | 5KIT406300* | Hydraulic pilot unloader valve |
| ELT | 5CAR406306 | 12 VDC electromagnetic controlled unloader valve |
| | 5CAR406311 | 24 VDC electromagnetic controlled unloader valve |
| SV | XTAP623282 | Relief valve blanking plug |

2. Inlet relief options page 16

| TYPE | CODE | DESCRIPTION |
|------------------------------------------------------------|------------|--------------------------------------------------------------------------------|
| <u>VMD5/1 balanced direct pressure relief valve type Y</u> | | |
| (YG2) | 5KIT105212 | Range 63 to 125 bar / 900 to 1800 psi standard setting 80 bar / 1150 psi |
| (YG3) | 5KIT105213 | Range 100 to 200 bar / 1450 to 2900 psi standard setting 120 bar / 1750 psi |
| (YG4) | 5KIT105214 | Range 160 to 315 bar / 2300 to 4600 psi standard setting 250 bar / 3600 psi |

Standard setting is referred to 10 l/min flow.

SV XTAP623282 Relief valve blanking plug

Direct pressure relief valve type J is available on request: contact Customer Service

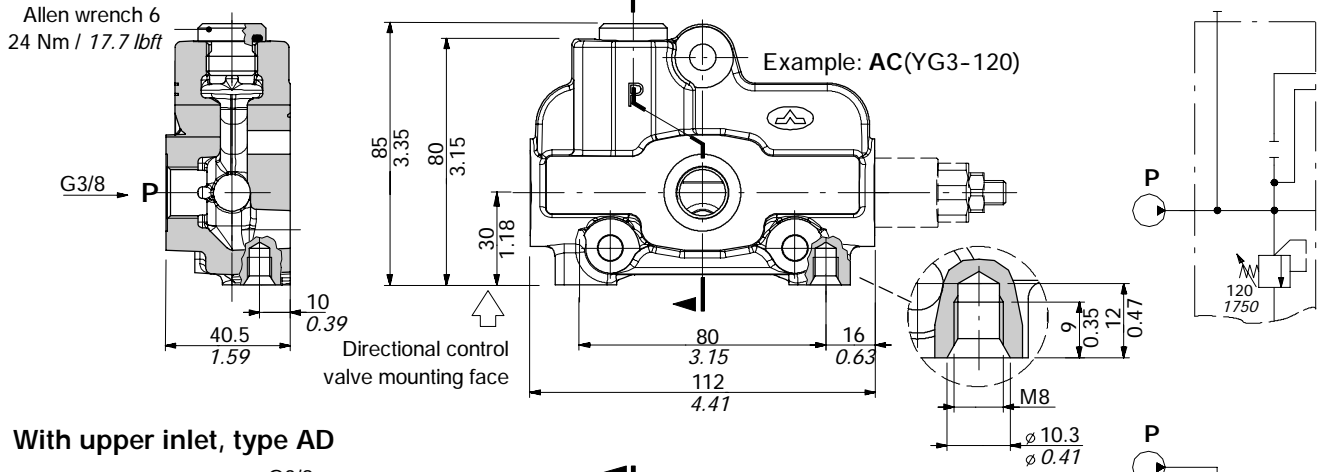
| | | |
|-------|------------|--------------------------------------------------------------------------------|
| (JG2) | 5KIT105412 | Range 40 to 80 bar / 580 to 1150 psi standard setting 80 bar / 1150 psi |
| (JG3) | 5KIT105413 | Range 63 to 200 bar / 900 to 2900 psi standard setting 120 bar / 1750 psi |
| (JG4) | 5KIT105414 | Range 160 to 315 bar / 2300 to 4600 psi standard setting 220 bar / 3200 psi |

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

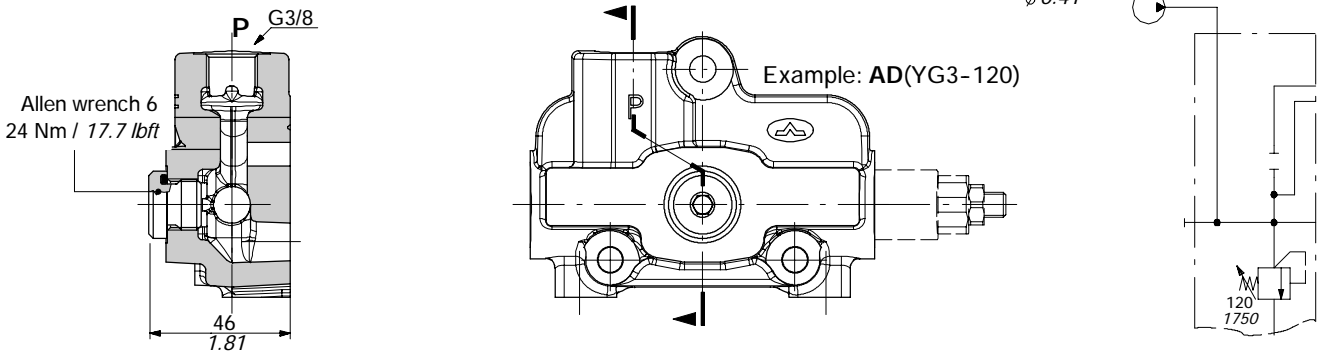
Dimensional data and hydraulic circuit

For left inlet directional valve (standard)

With side inlet, type AC

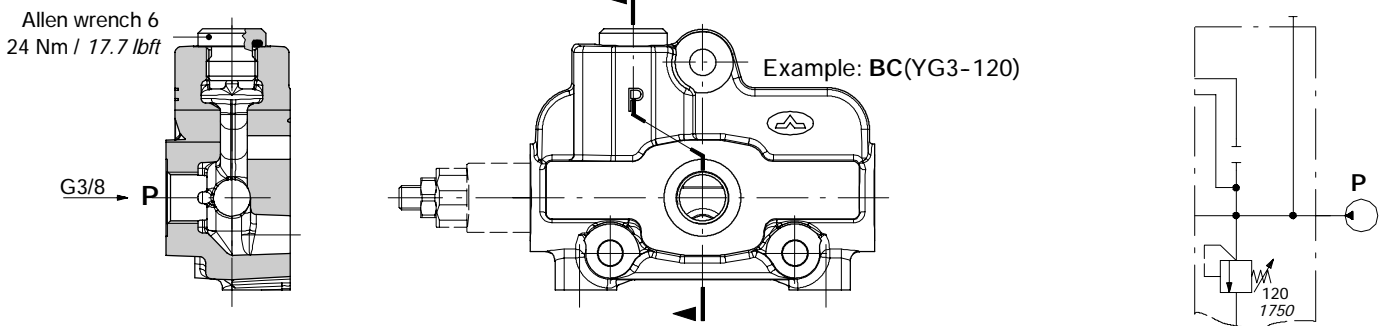


With upper inlet, type AD

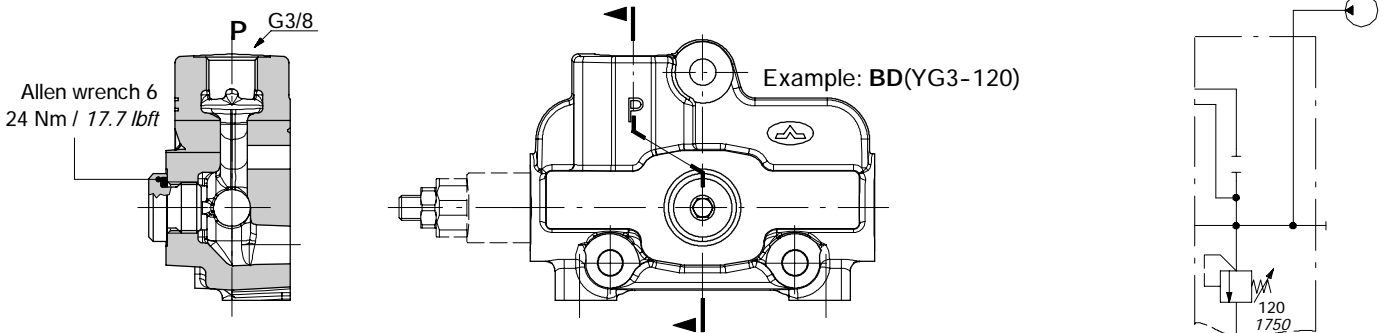


For right inlet directional valve

With side inlet, type BC



With upper inlet, type BD

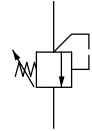


Inlet relief options

Direct overpressure relief valve

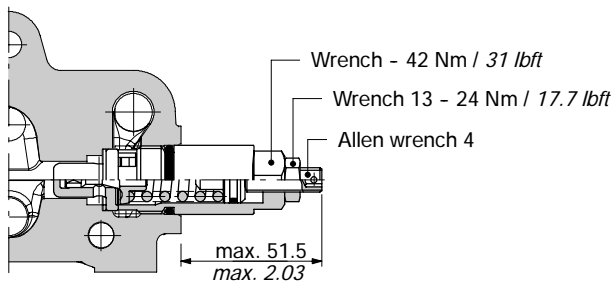
VMD5 (Y G 3 - 120)

- Pressure setting in bar (for standard value see page 14)
- Adjustable spring type (2, 3, 4).
- Adjustment type (G, H)

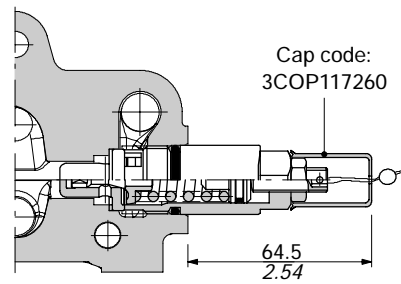


Adjustment type

G: with screw

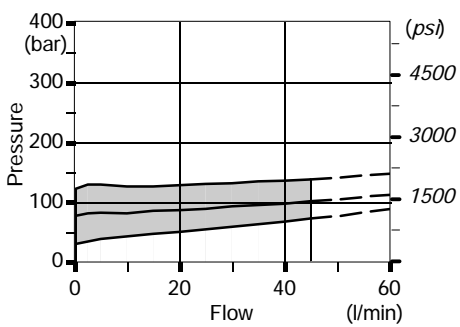


H: valve set and locked

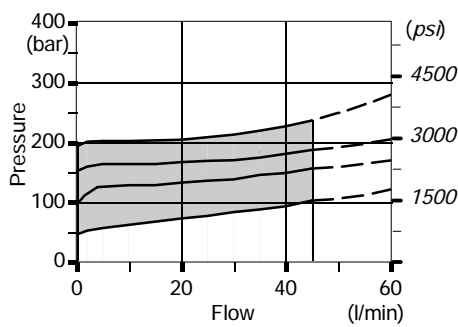


Performance data

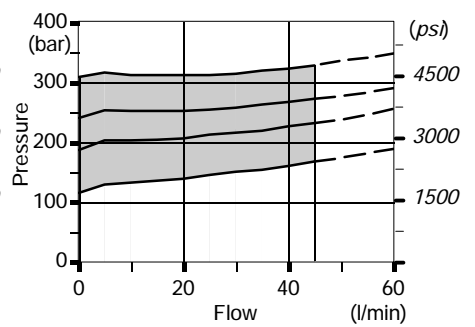
Spring nr. 2 (green band)



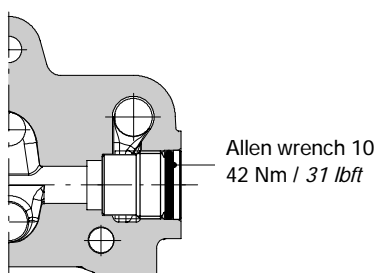
Spring nr. 3 (blue band)



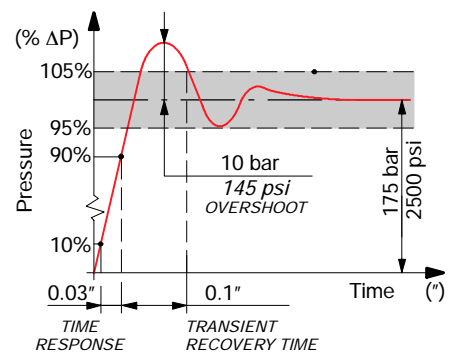
Spring nr. 4 (red band)



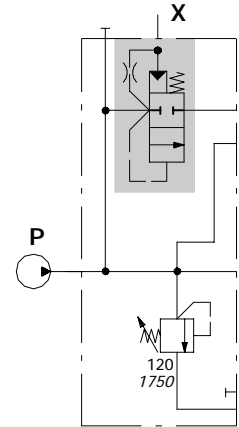
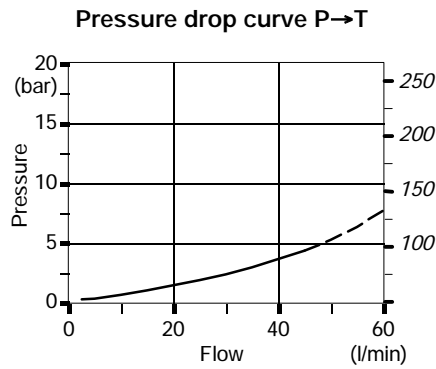
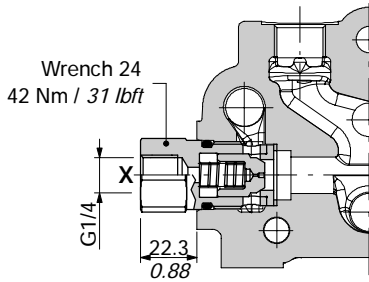
SV: relief valve blanking plug



Time response



Hydraulic pilot unloader valve, type L



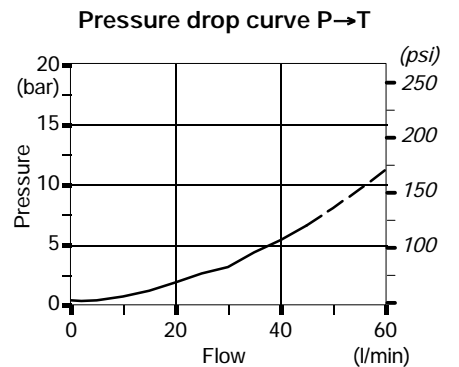
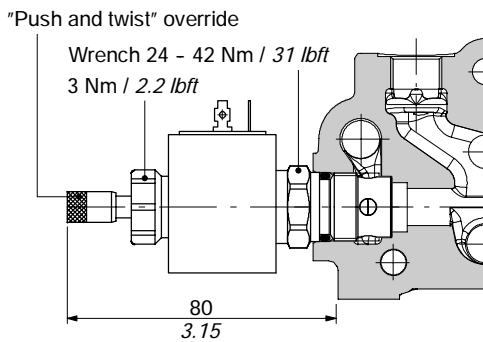
Operating features

Internal leakage : 10 cm³/min a 100 bar
0.61 in³/min at 1450 psi

Description example:
AC(YG3-120)L

Solenoid pilot unloader valve, type ELT

With "push and twist" manual override with detent.



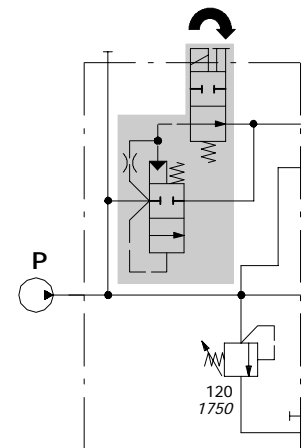
Operating features

VALVE

Internal leakage (in excited position): null

COIL

Depending on model: see features on next page



Description example:
AC(YG3-120)ELT-12VDC

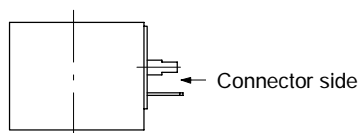
Inlet valve options

Solenoid pilot unloader valve, type ELT

COILS CODES

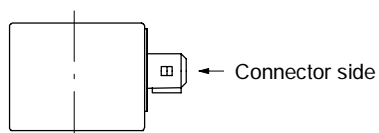
| Voltage | CONNECTION TYPE | | | |
|-----------------------------------|-----------------|------------|---------------|------------|
| | ISO4400 | AMP JPT | | Deutsch DT |
| | | with diode | without diode | |
| 12 VDC | 2X4311012 | 2X4311015 | 2X4311212 | 2X4311412 |
| 24 VDC | 2X4311024 | - | - | 2X4311424 |
| Need connector type (sse page 98) | C02 | C08 | C08 | C19 |

Coil with ISO4400 connector



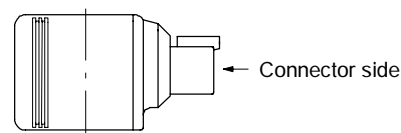
Nominal voltage tolerance: $\pm 10\%$
 Power rating : 17 W
 Nominal current : 1.58 A - 12 VDC
 : 0.81 A - 24VDC
 Coil insulation : Classe F
 Weather protection : IP65
 Duty cycle : 100%

Coil with AMP JPT connector



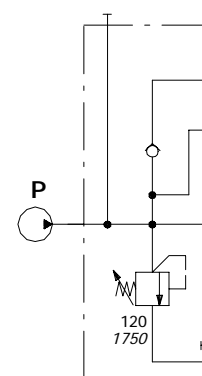
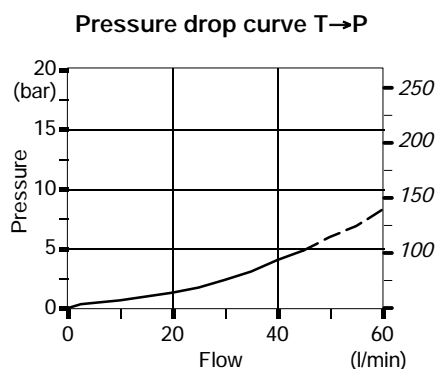
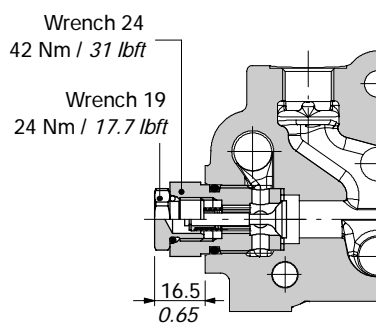
Nominal voltage tolerance: $\pm 10\%$
 Power rating : 17 W
 Nominal current : 1.3 A - 12 VDC
 : 0.74 A - 24VDC
 Coil insulation : Classe F
 Weather protection : IP65
 Duty cycle : 100%
 NOTE: circuit with and without bidirectional diode

Coil with Deutsch DT connector



Nominal voltage tolerance: $\pm 10\%$
 Power rating : 22 W
 Nominal current : 1.76 A - 12 VDC
 : 0.9 A - 24VDC
 Coil insulation : Classe H
 Weather protection : IP67
 Duty cycle : 100%
 NOTE: circuit with bidirectional diode

Anticavitation valve type F



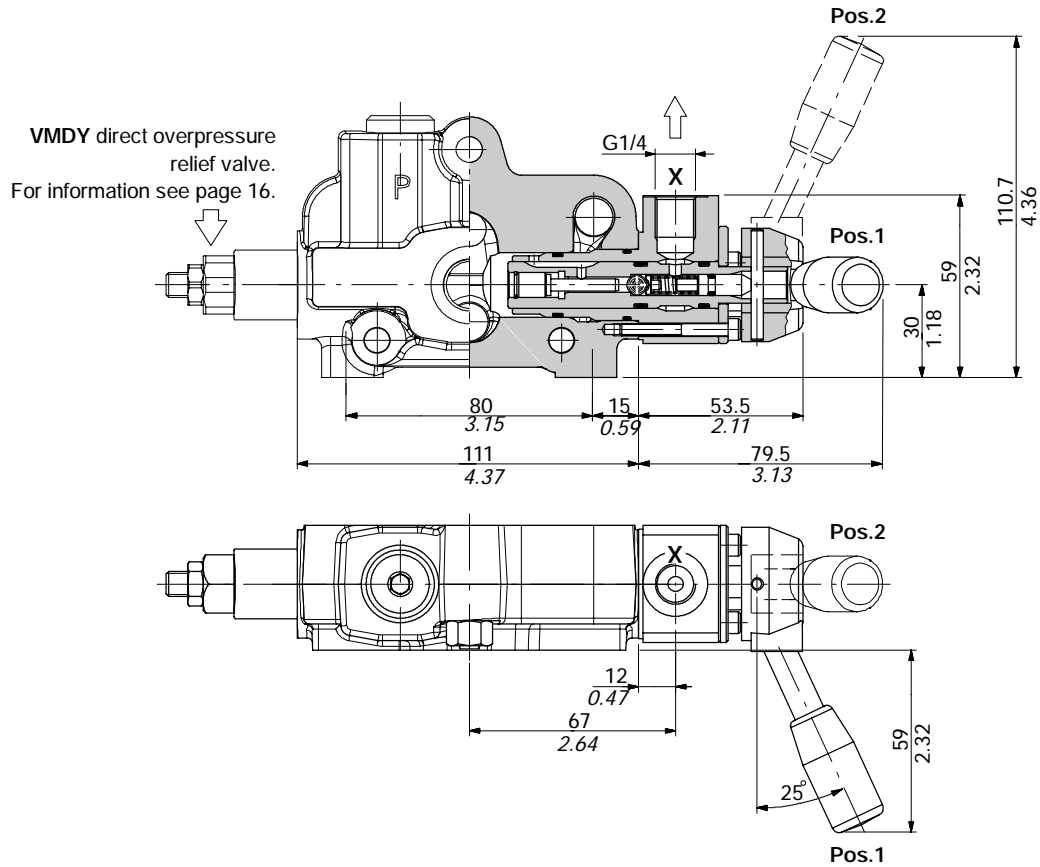
Description example:
 AC(YG3-120)F

R2 commutator configuration

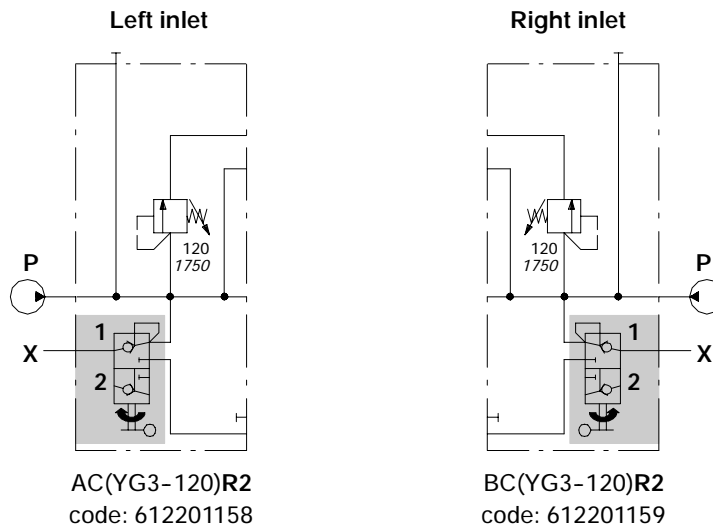
Manual rotary Backhoe clamp device.

Normally mounted on the lever side, into the main relief valve cavity, properly modified. Main relief valve available in the opposite side.

Available for left inlet (standard) and right inlet valve.



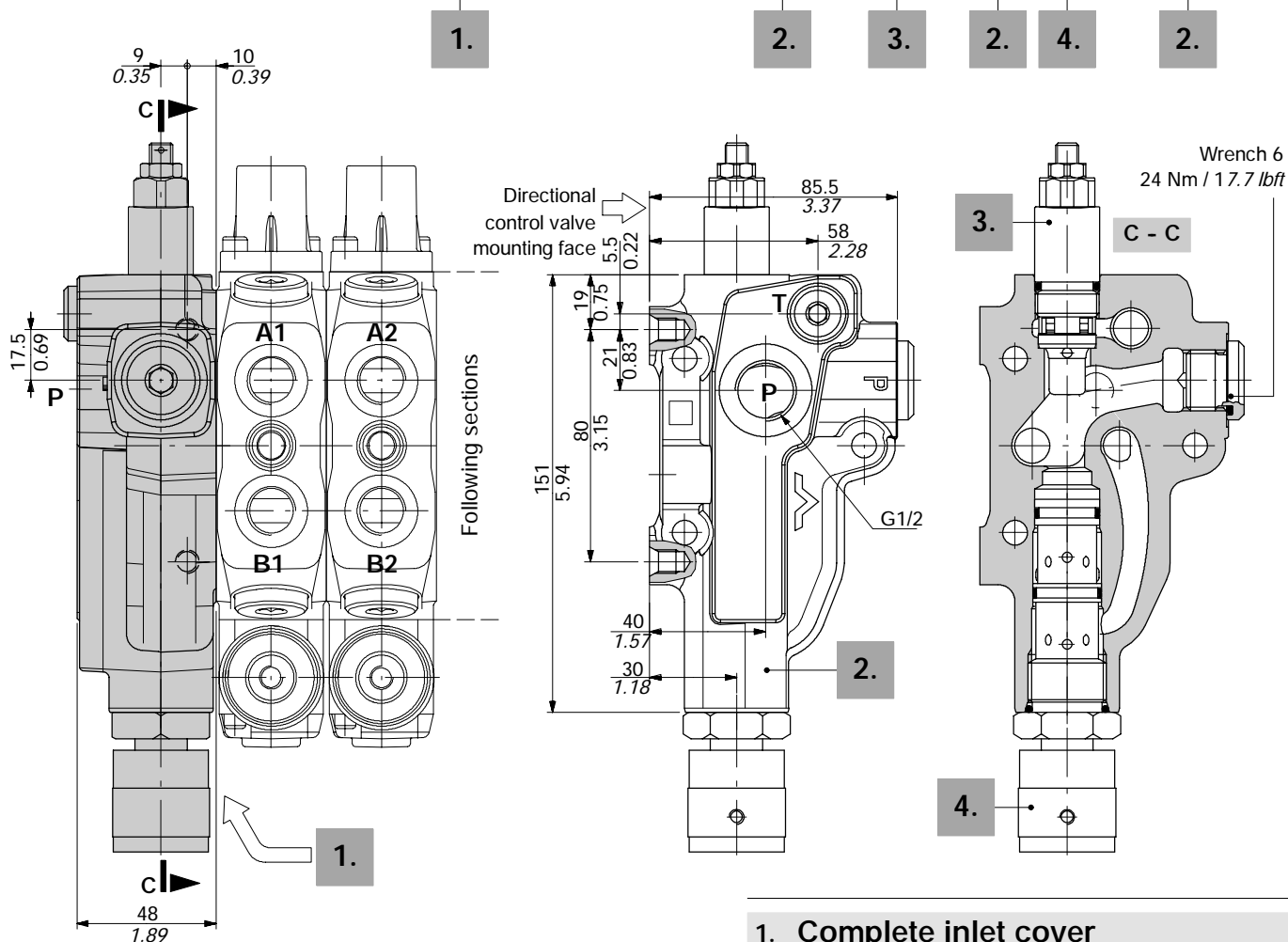
Hydraulic circuit and ordering codes



S flow regulator configuration

Inlet cover with flow regulator on lever side: priority flow to working sections and exceeding flow to tank line.

Description example: **complete Inlet cover FE SD6 / AC (YG3-120) S N - BSP1/2**



1. Complete inlet cover

TYPE: AC(YG3-120)SN-BSP1/2

CODE: 612202015

DESCRIPTION: Side inlet, VMDY overpressure relief valve and N handwheel flow control valve

NOTE: For other configurations please contact Sales Dept.

2. Inlet cover body

CODE: 3FIA106475+3XTAP719150+3XTAP727180

DESCRIPTION: Type AC-AD-BC-BD, port P = G1/2, prearranged for flow control

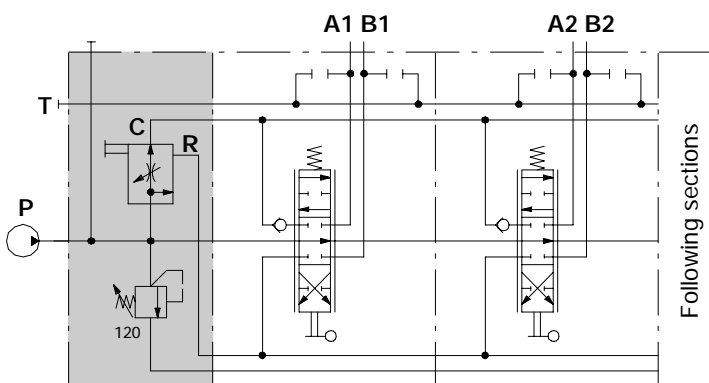
3. Inlet relief options

Direct overpressure relief valves type Y and J: see page 14

4. Flow control valve

| TYPE | CODE | DESCRIPTION |
|------|---------------|-----------------------------------|
| M | 2S0PP12002000 | Handwheel control |
| N | 2S1636030210 | Handwheel control with detent |
| W2 | 2S0PP12002015 | 12VDC proportional solenoid valve |

Hydraulic circuit



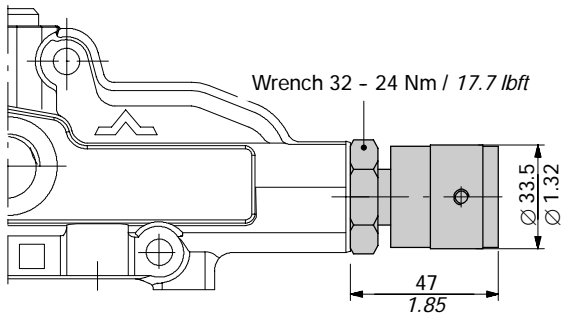
Description example:

SD6/4/AC(YG3-120)SN/18L/18L/...-BSP12(PT)38(AB)

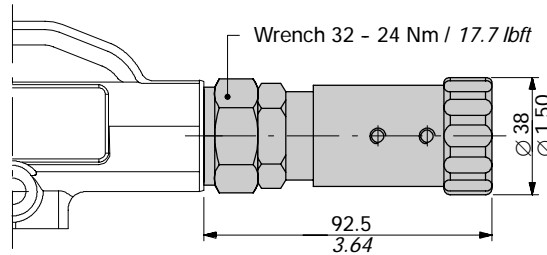
S flow regulator configuration

Handwheel operated

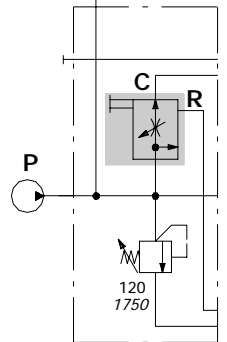
Continuous fine regulation



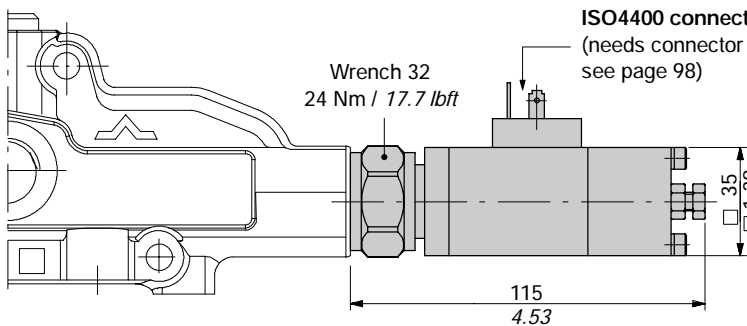
One turn with detent



Valve circuit



With proportional solenoid control

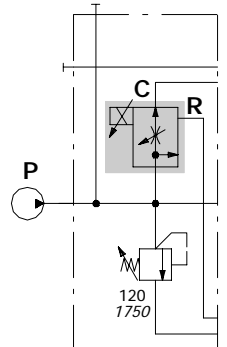


ISO4400 connection
(needs connector type C02, see page 98)

Solenoid operating features

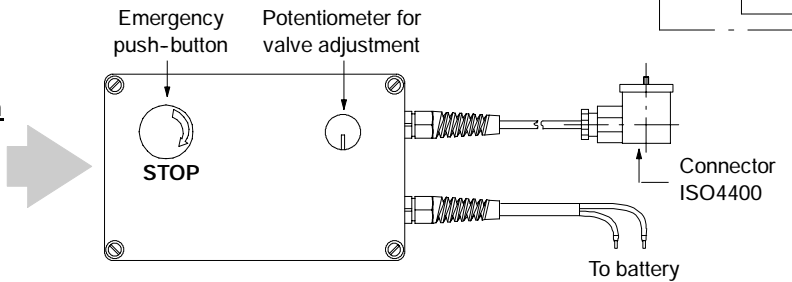
- Nominal voltage . . . : 12 VDC
- Power rating : 17,4 W
- Duty cycle : 100%

Valve circuit



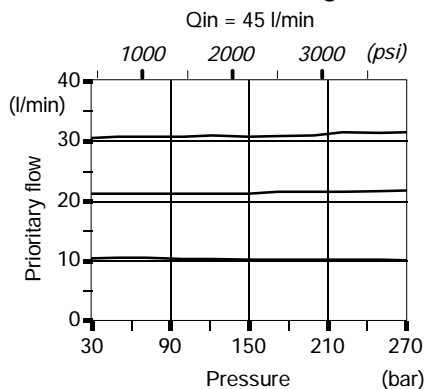
Example of solenoid flow control valve connection

It's show a configuration with push-button panel type UPA model UPA12/100/SC01B22: for information contact Sales Dept.

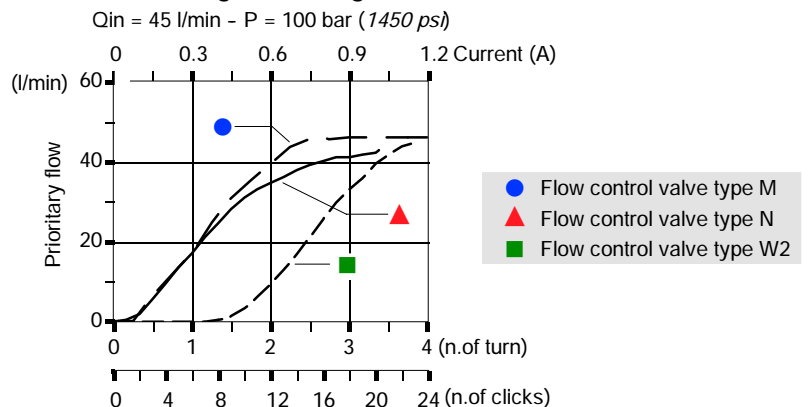


Performance data

Pressure-flow diagram



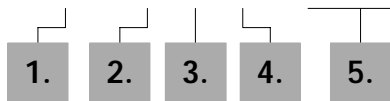
Flow regulation diagram



Ordering codes

Description example:

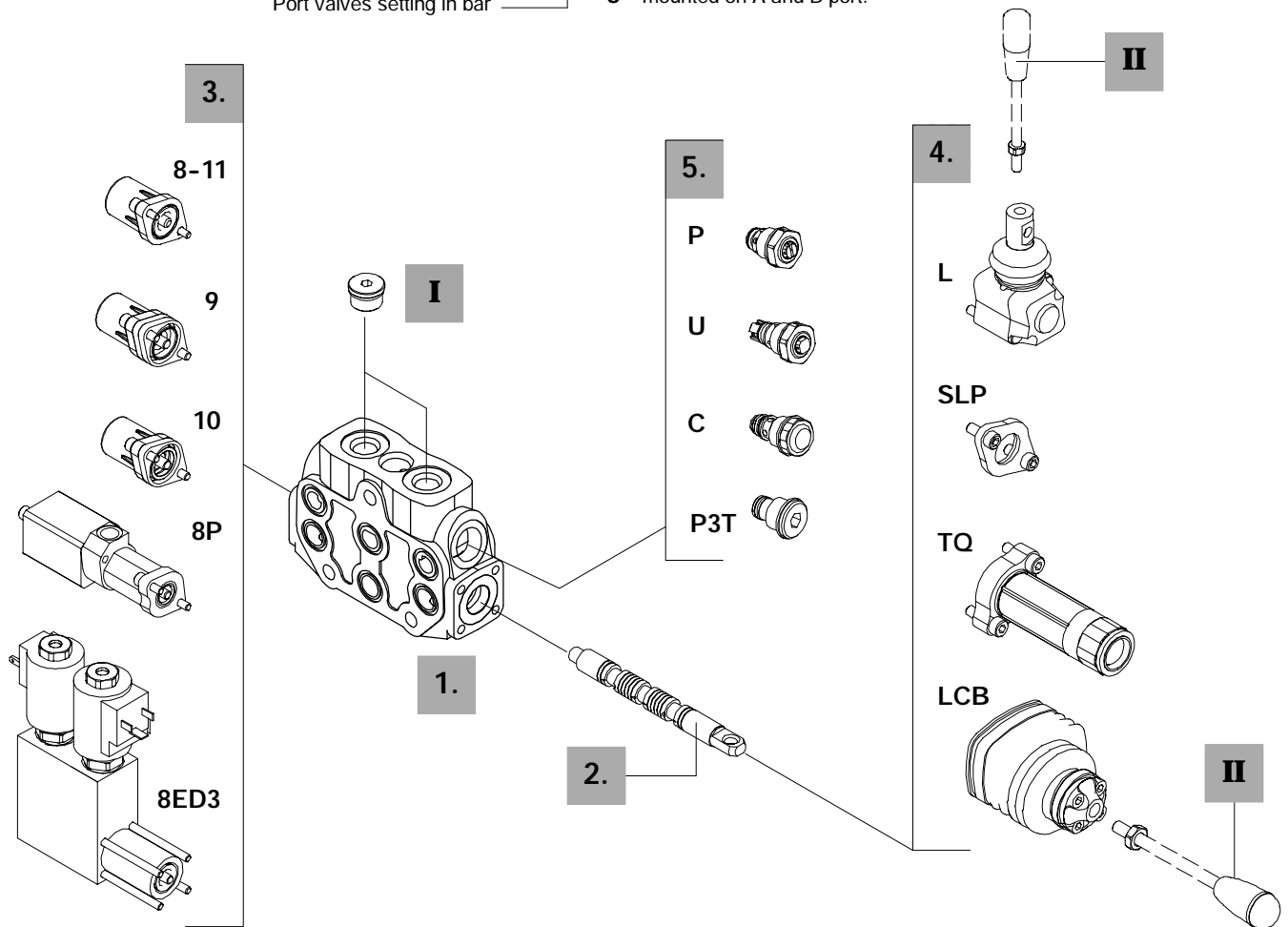
EL SD6 / P - 1 8 L . P 1 (G3 - 125) *



- 1 mounted on A port.
- 2 mounted on B port.
- 3 mounted on A and B port.

Port valves setting in bar

EL SD6 / P - 1M 8IM



1. Working section kit * page 24

| TYPE | CODE | DESCRIPTION |
|------|------------|--------------------------------------|
| P | 5EL1063001 | With paralle circuit |
| S | 5EL2063001 | With serie circuit |
| SP | 5EL3063001 | With serie-parallel (tandem) circuit |

Include body, seals, rings and load check valve.

2. Spools page 25

| TYPE | CODE | DESCRIPTION |
|------|------------|-------------------------------------------------------------------------------------|
| 1 | 3CU2210130 | Double acting, 3 positions, with A and B closed in neutral position |
| 1CS | 3CU2210210 | Double acting, 3 positions, with A and B closed in neutral position, sensitive type |
| 1A | 3CU2221130 | Double acting, 3 positions, with A open to tank in neutral position |

..... follow

2. Spools

| TYPE | CODE | DESCRIPTION |
|------|------------|-----------------------------------------------------------------------------|
| 1B | 3CU2222130 | Double acting, 3 positions, with B open to tank in neutral position |
| 2 | 3CU2225130 | Double acting, 3 positions, with A and B open to tank in neutral position |
| 3 | 3CU2231130 | Single acting on A, 3 positions, B plugged; requires G1/2 plug (see part I) |
| 4 | 3CU2235130 | Single acting on B, 3 positions, A plugged; requires G1/2 plug (see part I) |

Special spools for particular positioner kits page 29

| | | |
|-----|------------|----------------------------------------------------------------|
| 5Y | 3CU2242140 | Double acting, 4 positions, float in position 3 with spool in |
| 5BY | 3CU2243130 | Double acting, 4 positions, float in position 3 with spool out |
| 8 | 3CU2262100 | Double acting, 4 positions, regenerative in position 3 |

3. "A" side spool positioners *page 32*

| TYPE | CODE | DESCRIPTION |
|---------------------------------------------------------------------------|------------|----------------------------------------------------------------------------------------------|
| 7FT | 5V07405000 | With friction and neutral position sensor |
| 8 | 5V08105000 | With spring return in neutral position |
| 8D | 5V08105200 | As type 8 and pin with M6 female thread for dual control |
| 8D2 | 5V08105220 | As type 8 and pin with $\varnothing 8$ mm / 0.31 in radial hole |
| 8D3 | 5V08105230 | As type 8 and pin with M8 female thread for dual control |
| 8F2 | 5V08105101 | As type 8 and adjustable flow limiter |
| 19 | 5V19105000 | 2 positions, with spring return in neutral position from position 1 |
| 20 | 5V19105000 | 2 positions, with spring return in neutral position from position 2 |
| 9BZ | 5V09202010 | With detent in position 1 and spring return in neutral position |
| 10BZ | 5V10202010 | With detent in position 2 and spring return in neutral position |
| 11BZ | 5V11202010 | With detent in position 1 and 2, spring return in neutral position |
| 8MG3(NO) | 5V08105660 | As type 8 and operation with microswitch in positions 1 and 2, contact normally open |
| 8MG3(NC) | 5V08105662 | As previous, with contact normally closed |
| 8RM2 | 5V08106590 | As type 8 and 12VDC electromagnetic detent in position 2 |
| | 5V08106595 | As previous, 24VDC |
| 8MHE3(NC) | 5V08106541 | As type 8 and spool positioning ON/OFF electric signal circuit normally closed |
| 8MHE3(NO) | 5V08106540 | As previous, with circuit normally open |
| 8K | 5V08705112 | As type 8 and 12VDC solenoid lock device |
| | 5V08705124 | As previous 24 VDC |
| 8P | 5V08105701 | ON/OFF pneumatic kit |
| 8EPG3 | 5V08105738 | ON/OFF 12 VDC electro-pneumatic kit |
| | 5V08105743 | ON/OFF 24 VDC electro-pneumatic kit |
| 8ED3 | 5V08105350 | ON/OFF 12 VDC electro-hydraulic kit |
| | 5V08105351 | ON/OFF 24 VDC electro-hydraulic kit |
| <u>Particular positioner kits for special spools</u> <i>page 45</i> | | |
| 13NZ | 5V13305010 | 4 positions with spring return in neutral position and detent in pos.3: for spool 5Y |
| 13QN | 5V13405020 | 4 positions with spring return in neutral position and detent in pos.3: for spool 5BY |
| 13F | 5V13506100 | 4 positions with spring return in neutral position: for spool 8 |
| 13QNMG3(NO) | 5V13405660 | As type 13QN with microswitch operation in positions 1 and 2: for spool 5BY |

4. "B" side options *page 49*

| TYPE | CODE | DESCRIPTION |
|--------------|------------|-----------------------------------------------------------------------|
| L | 5LEV105000 | Standard lever box |
| LM10 | 5LEV205000 | Lever box with M10 thread |
| LF1 | 5LEV105102 | Lever box with adjustable flow limiter in pos.1 |
| LFG5 | 5LEV105800 | Cast iron lever box with adjustable flow limiter in positions 1 and 2 |
| LB1 | 5LEV305100 | Steel lever box with pivot placed down |
| LB3 | 5LEV305000 | Steel lever box with pivot placed above |
| SL | - | Without lever box |
| SLP | 5COP105000 | Without lever box, with dust-proof plate |
| SLCZ | 5COP205030 | Without lever box, with endcap |
| follow | | |

4. "B" side options

| TYPE | CODE | DESCRIPTION |
|------|------------|------------------------------------------|
| LEB | 5LEV605000 | Safety lever box |
| LUP | 5LEV805005 | Safety lever box, horizontal type |
| TQ | 5TEL105110 | Flexible cable connection; for CD cables |
| LCB | 5CLO206100 | Joystick lever for 2 sections operation |

5. Port valves *page 59*

| TYPE | CODE | DESCRIPTION |
|-------------------------------------------------------|------------|----------------------------------------------------------------------------|
| Assembled on section | | |
| P3T | XTAP524280 | A and B ports valve blanking plugs |
| C | 5KIT406100 | Anti-cavitation |
| <u>Anti-shock valve</u> | | |
| P(G2) | 5KIT206112 | From 50 to 125 bar / 725 to 1800 psi standard setting 63 bar / 900 psi |
| P(G3) | 5KIT206113 | From 100 to 200 bar / 1450 to 2900 psi standard setting 100 bar / 1450 psi |
| P(G4) | 5KIT206114 | From 160 to 315 bar / 2300 to 4600 psi standard setting 200 bar / 2900 psi |
| <u>Anti-shock and anti-cavitation valve</u> | | |
| U(G2) | 5KIT306112 | From 50 to 125 bar / 725 to 1800 psi standard setting 63 bar / 900 psi |
| U(G3) | 5KIT306113 | From 100 to 250 bar / 1450 to 3600 psi standard setting 100 bar / 1800 psi |
| U(G4) | 5KIT306114 | From 160 to 315 bar / 2300 to 4600 psi standard setting 200 bar / 2900 psi |
| <i>Standard setting is referred to 10 l/min flow.</i> | | |

Flange mounted type

| | | |
|-------------------------|------------|------------------------------------|
| BPT | XTAP627300 | BP and BPS valves blanking plug |
| <u>Direct type</u> | | |
| BP1 | 612002000* | Block with valve on port A |
| BP2 | 612002000* | Block with valve on port B |
| BP3 | 612002100* | Block with valves on ports A and B |
| BP | XCAR605110 | Single valve |
| <u>With Pre-opening</u> | | |
| BPS1 | 612003000* | Block with valve on port A |
| BPS2 | 612003000* | Block with valve on port B |
| BPS3 | 612003100* | Block with valves on ports A and B |
| BPS | XCAR605210 | Single valve |

6. Complete controls *page 54*

8IM* proportional hydraulic and 8ES - 8ESN ON/OFF electric control kits.

I "A" and "B" ports plug *

| TYPE | CODE | DESCRIPTION |
|------|-------------|------------------------------|
| G3/8 | 3XTAP722160 | Plug for single acting spool |

II Optional hand levers

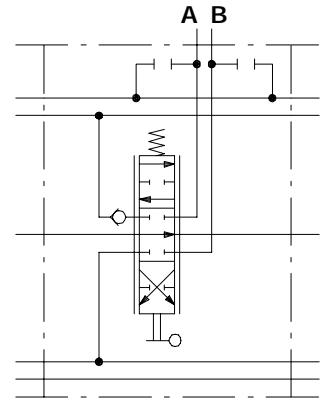
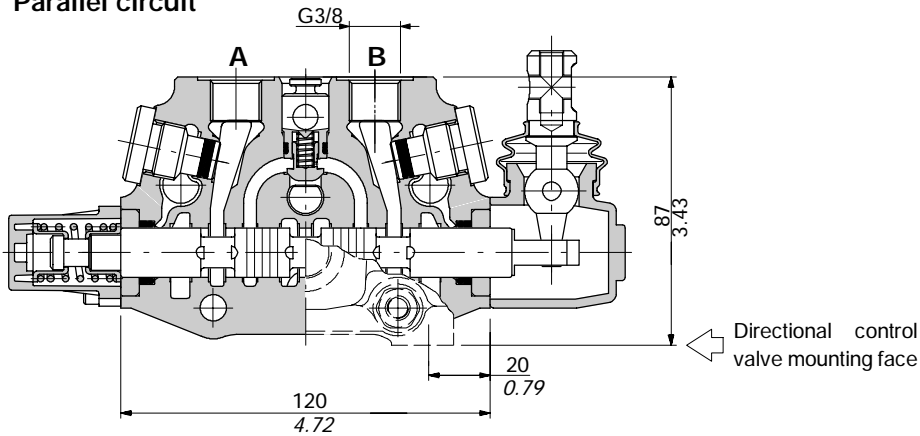
| TYPE | CODE | DESCRIPTION |
|--------------|-----------|-----------------------------------------------------|
| AL01/M8x150 | 170011215 | For L lever box, L = 150 mm / 5.91 in |
| AL01/M10x150 | 170012015 | For LM10 and LFG5 lever boxes, L = 150 mm / 5.91 in |
| AL08/M12x200 | 170013120 | For LCB joystick, L = 200 mm / 7.87 in |

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

Dimensional data and hydraulic circuit

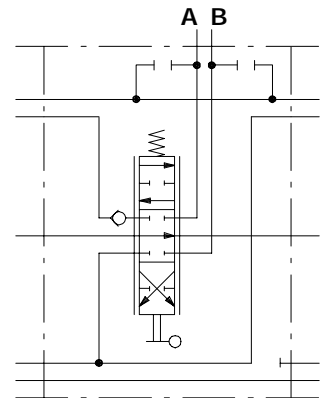
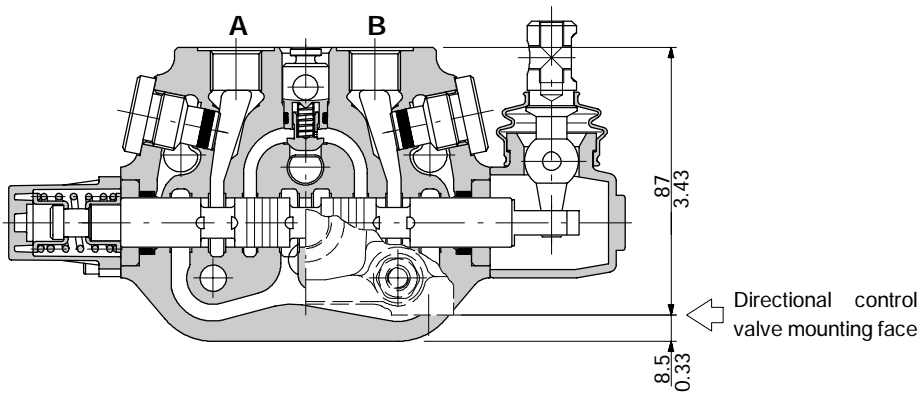
They are available with parallel or tandem circuit, with or without ports relief valves prearrangement.

Parallel circuit



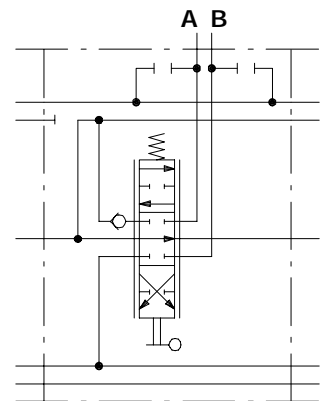
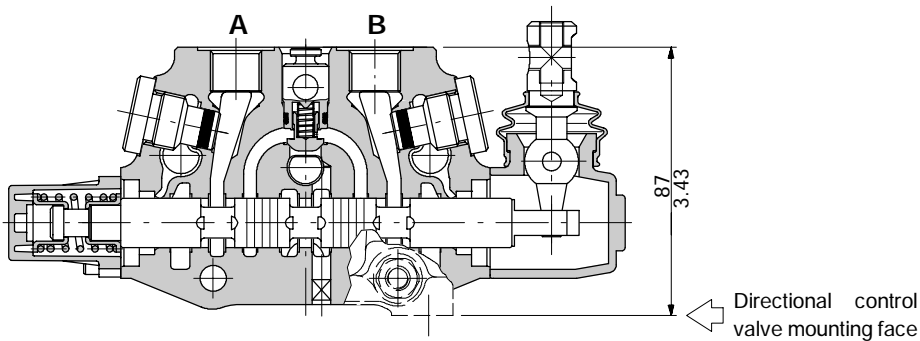
Description example:
P-18L

Series circuit



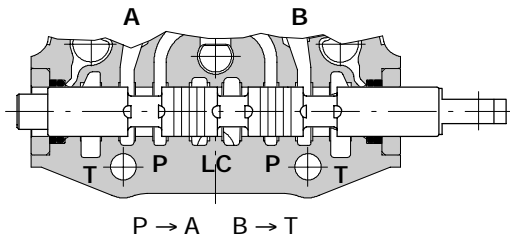
Description example
S-18L

Series-parallel (tandem) circuit

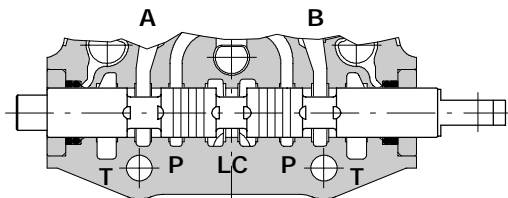
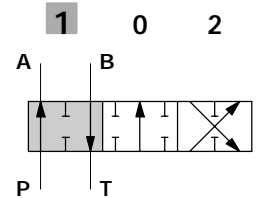


Description example
SP-18L

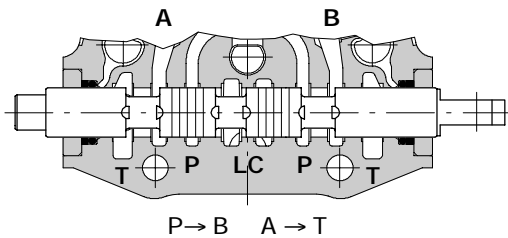
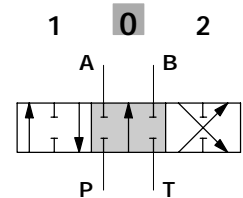
Type 1



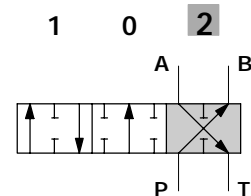
▶ stroke + 5.5 mm
+ 0.22 in



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

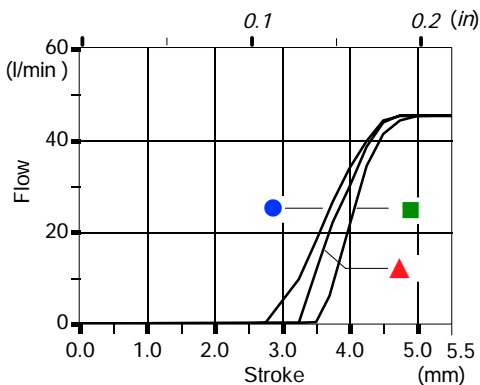


◀ stroke - 5.5 mm
- 0.22 in



Performance data

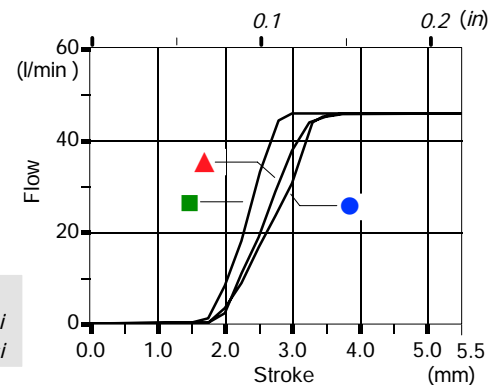
Spool metering P → A(B)



Q_{in} = 45 l/min

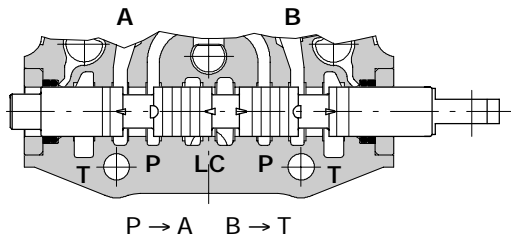
- P_(on ports) = 63bar / 900 psi
- ▲ P_(on ports) = 100bar / 1450 psi
- P_(on ports) = 250bar / 3600 psi

Spool metering A(B) → T

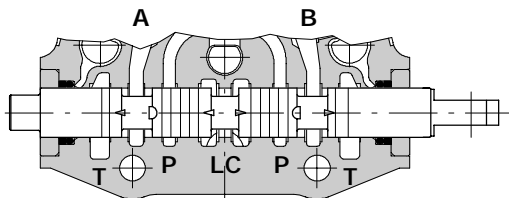
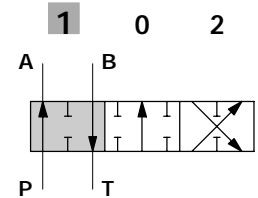


Spools

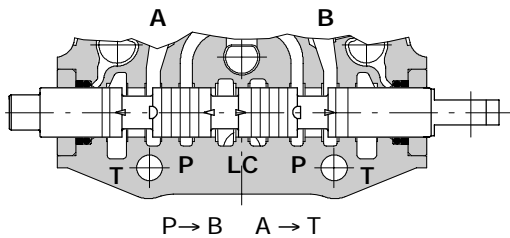
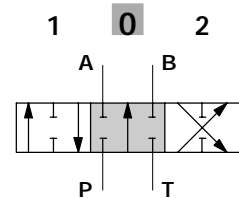
Type 1CS



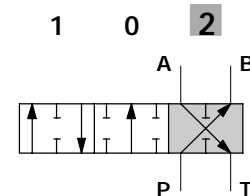
▶ stroke + 5.5 mm
+ 0.22 in



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

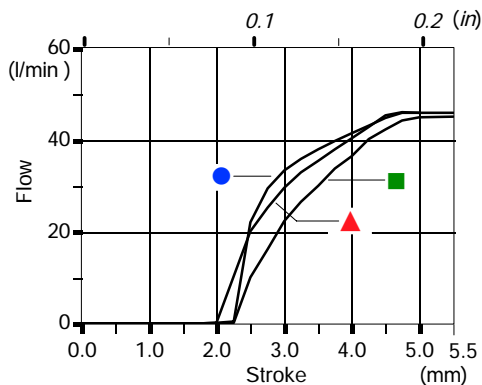


◀ stroke - 5.5 mm
- 0.22 in



Performance data

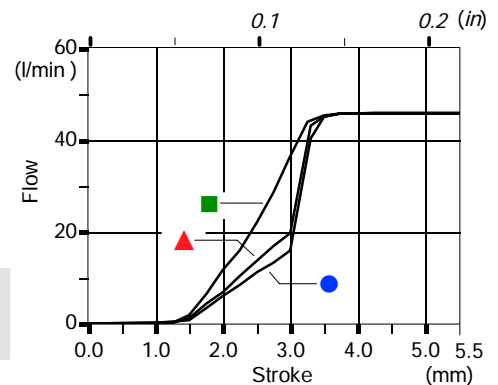
Spool metering P→A(B)



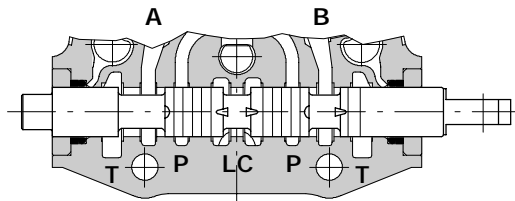
Q_{in} = 45 l/min

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

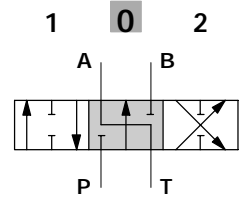
Spool metering A(B)→T



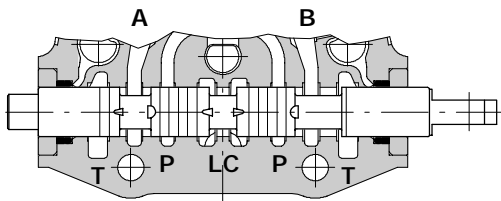
Type 1A



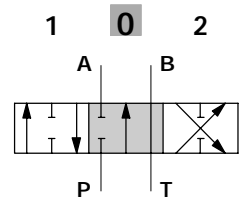
P-B closed, A→T, with flow through line (LC) open



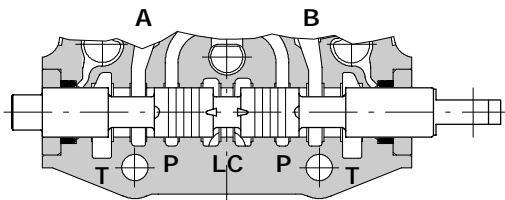
Type 1B



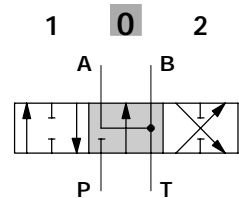
P-A closed, B→T, with flow through line (LC) open



Type 2

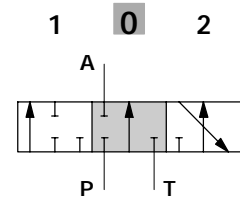
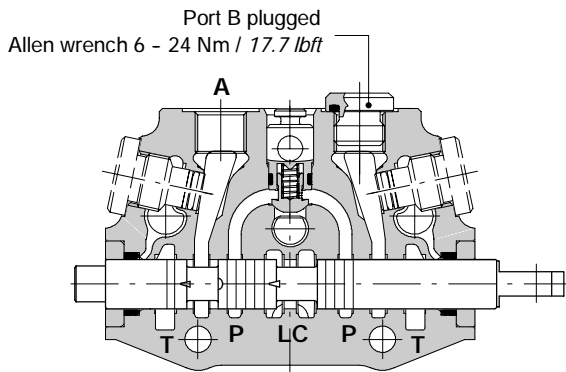


P closed, A-B→T, with flow through line (LC) open



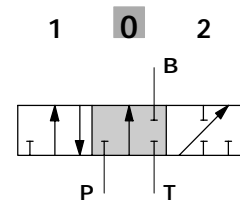
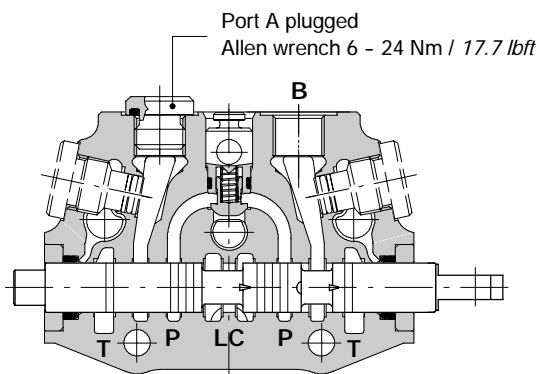
Spools

Type 3



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

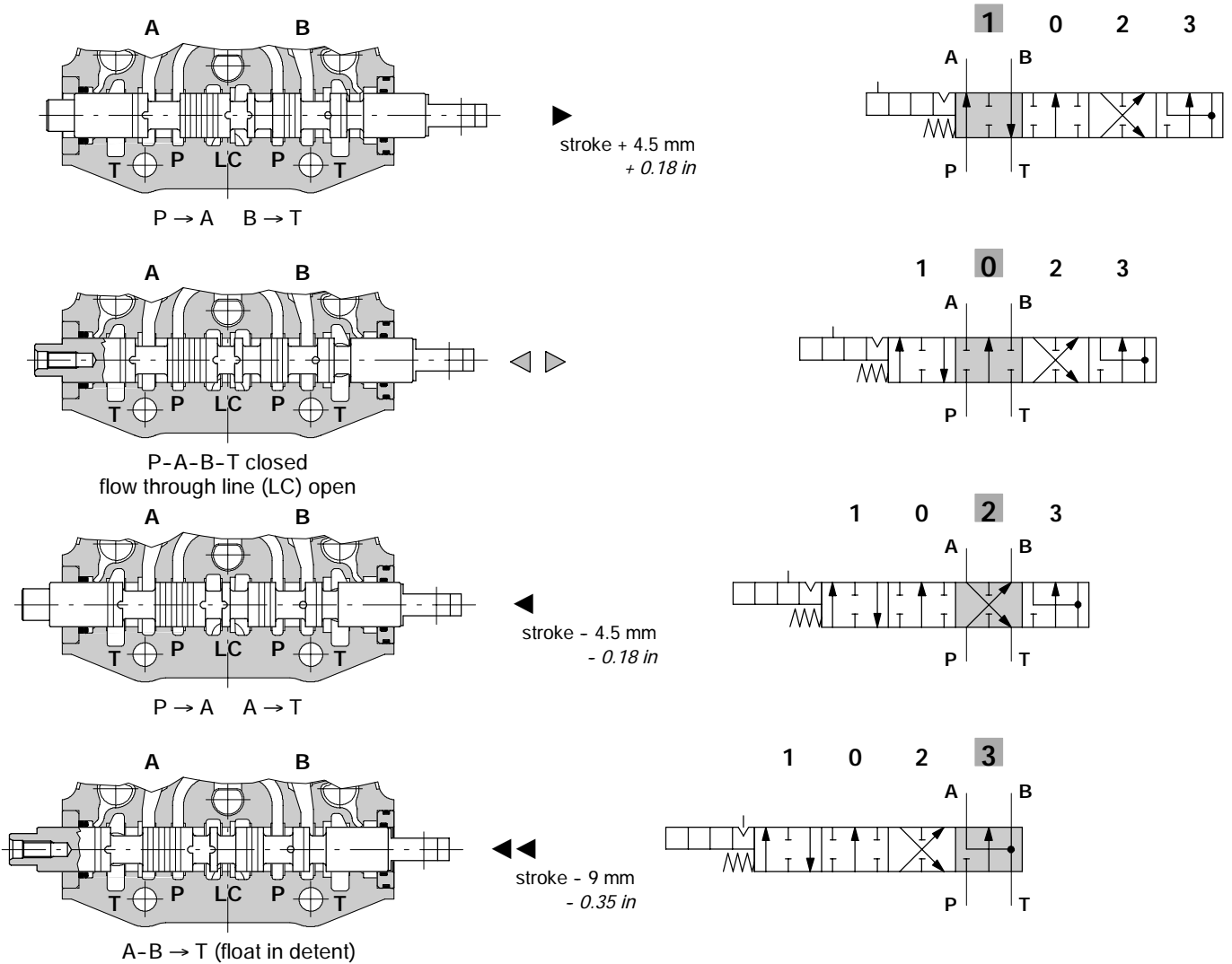
Type 4



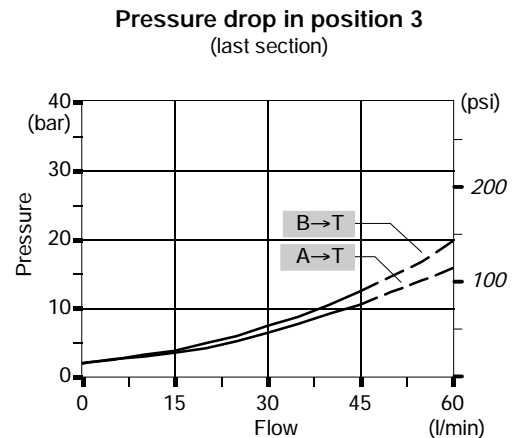
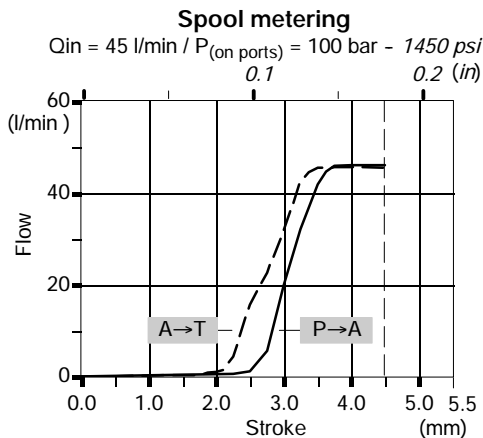
P-B-T closed, with flow through line (LC) open

Type 5Y

It needs special body with extra machining type **P-5Y** code **5EL1063203A**. It must be coupled only with spool positioner **13NZ** (see page 45).



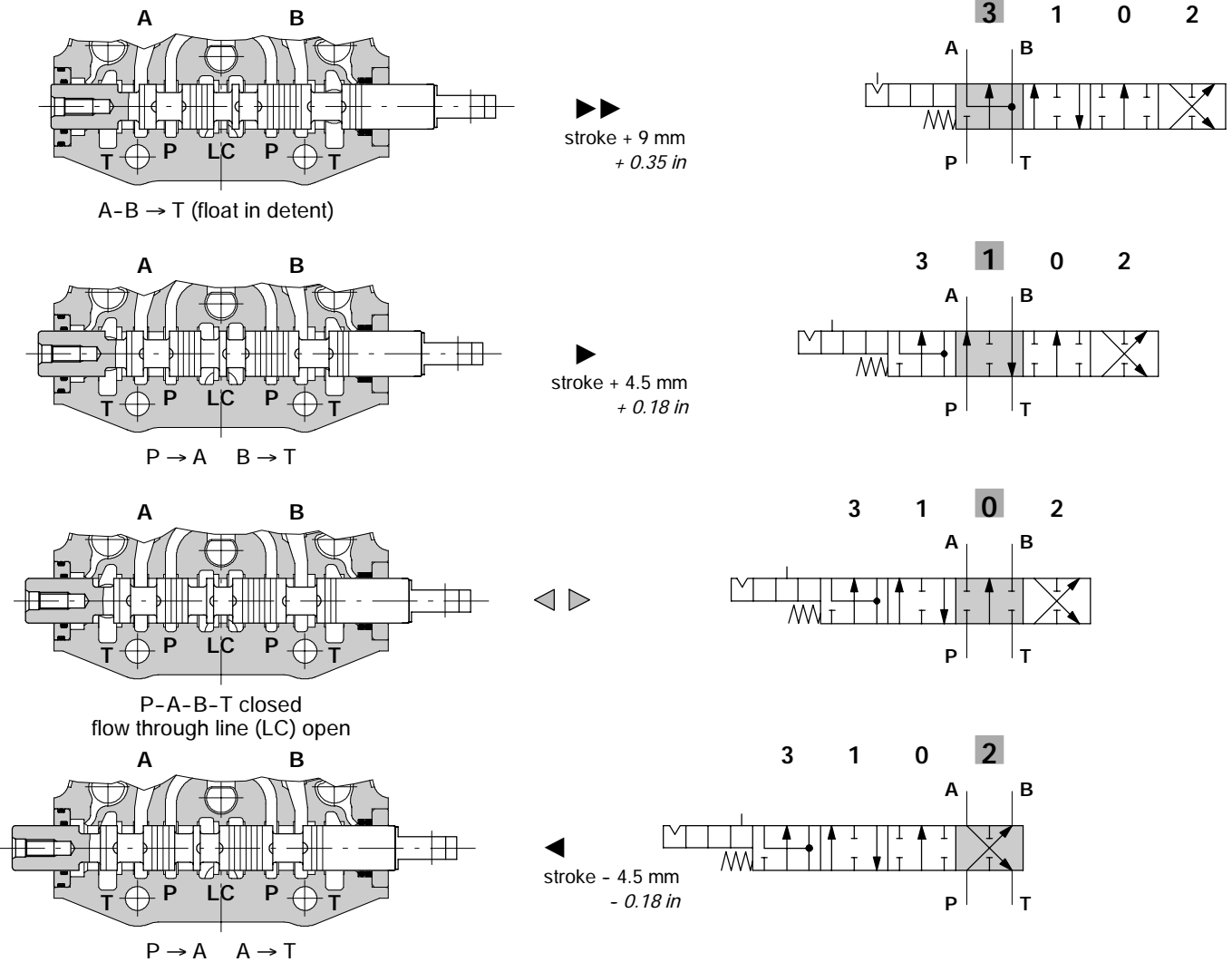
Performance data



Spools

Type 5BY

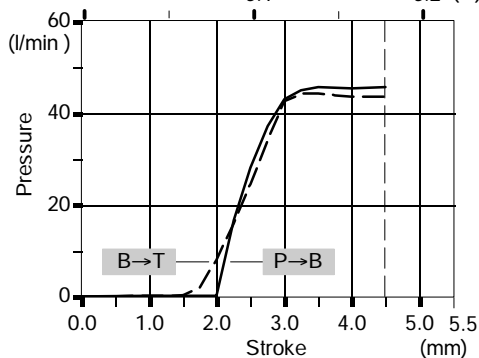
It needs special body with extra machining type **P-5B** code **5EL1063205A**. It must be coupled only with spool positioner **13QN** (see page 45).



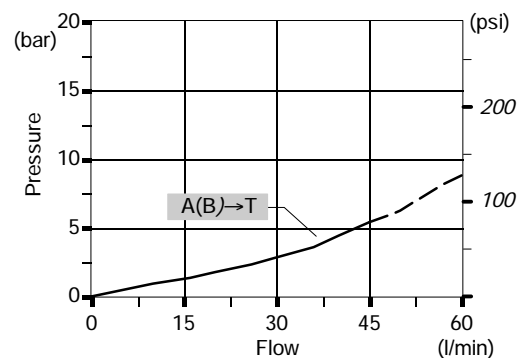
Performance data

Spool metering

$Q_{in} = 45 \text{ l/min} / P_{(on ports)} = 100 \text{ bar} - 1450 \text{ psi}$
 0.1 0.2 (in)



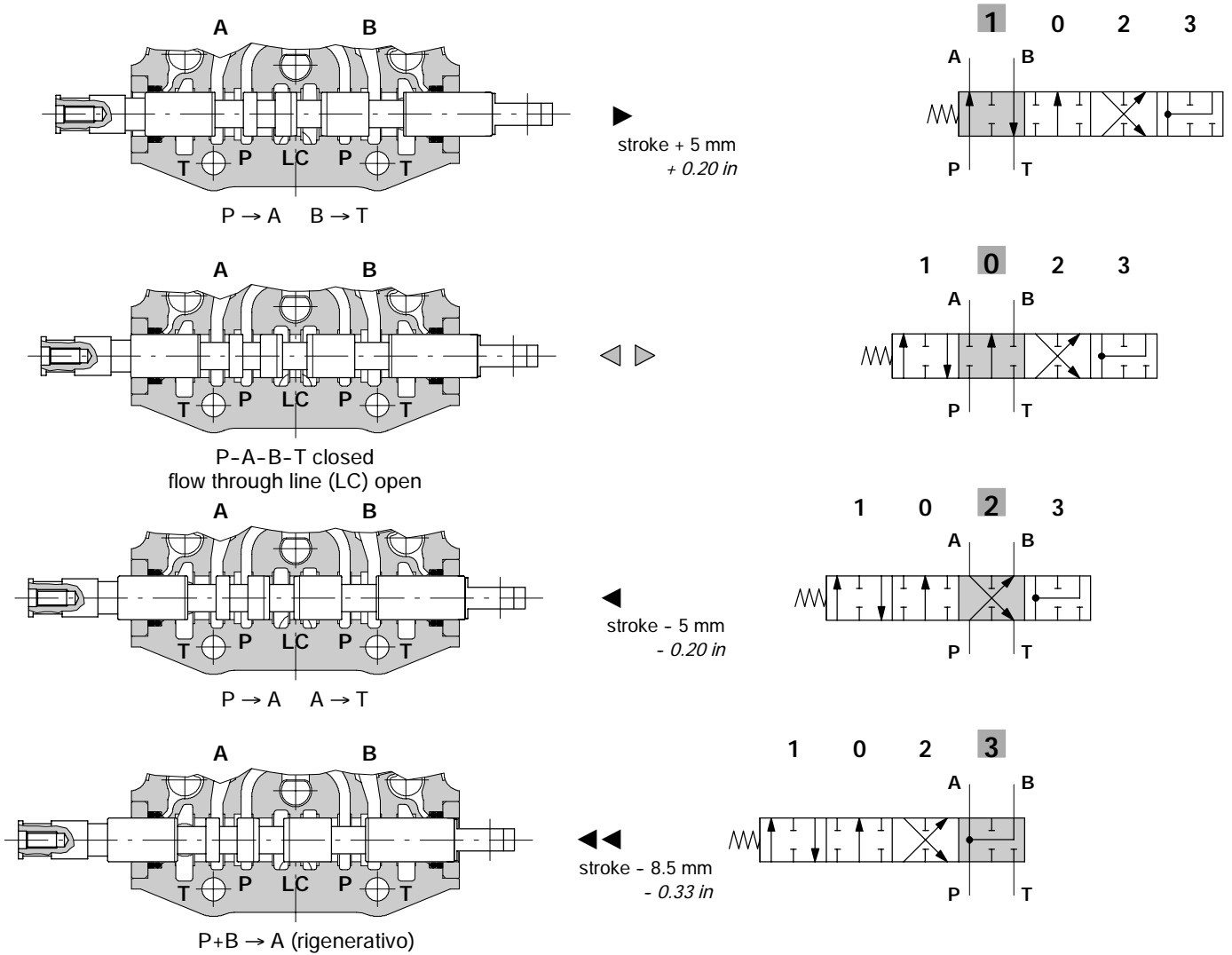
Pressure drop in position 3 (last section)



Type 8

It needs special body with extra machining type P-8 code 5EL1063500.

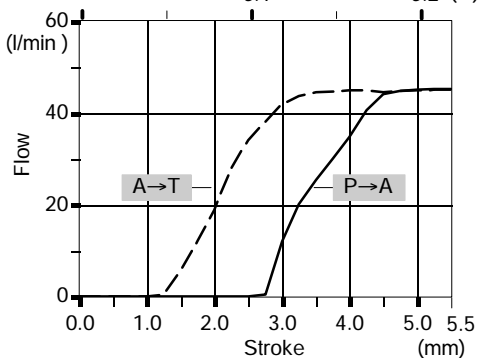
It must be coupled only with spool positioner 13F (see page 46).



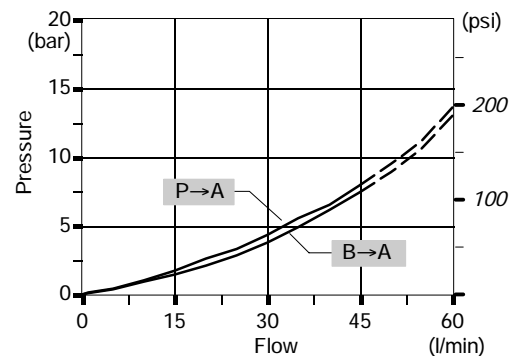
Performance data

Spool metering

$Q_{in} = 45 \text{ l/min} / P_{(on ports)} = 100 \text{ bar} - 1450 \text{ psi}$
0.1 0.2 (in)



Pressure drop in position 3 (last section)



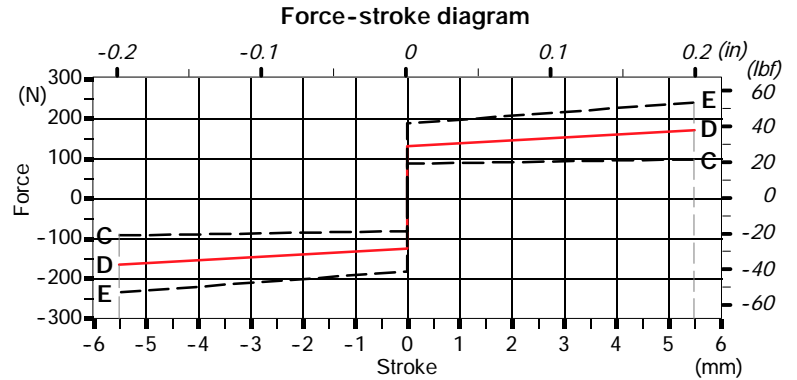
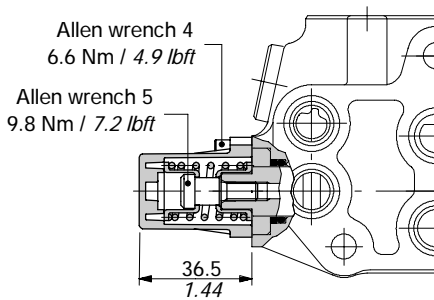
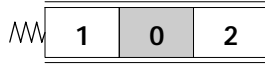
"A" side spool positioners

With spring return

8 kit

It's supplied with standard spring type D (see force-stroke diagram).

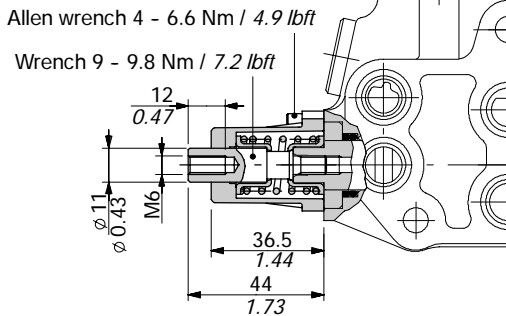
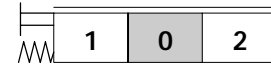
It's available with lighter spring type C (8MC code: 5V08205000) or heavier type E (8ME code: 5V08405000).



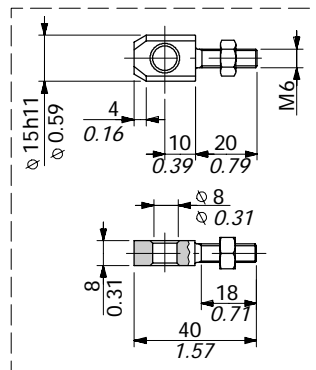
8D kit

It's available with lighter spring type C (8DMC code: 5V08205200); see previous diagram.

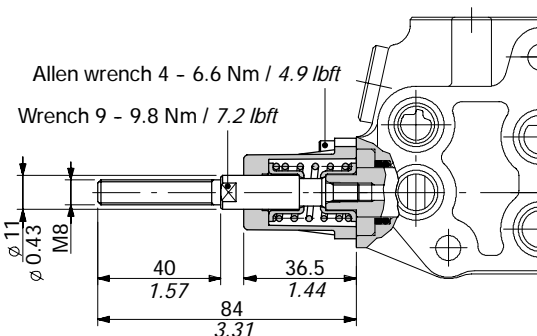
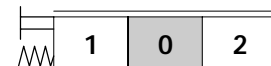
Spool end joint code XPER315400 is available on request in order to screw onto pin.



Spool end joint dimension

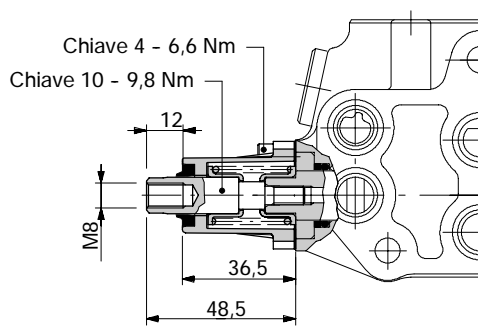
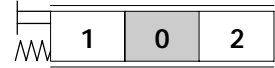


8D2 kit



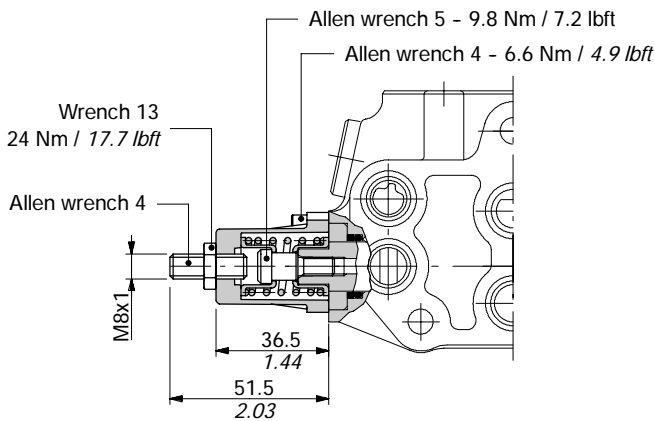
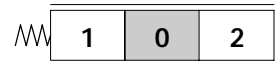
With spring return

8D3 kit

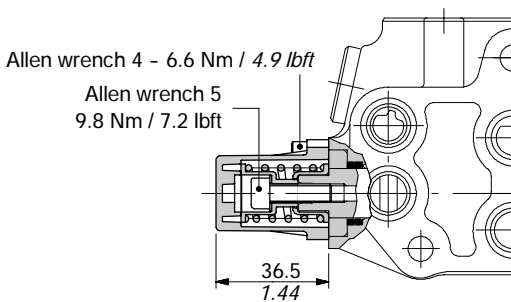
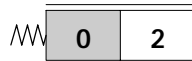


8F2 kit

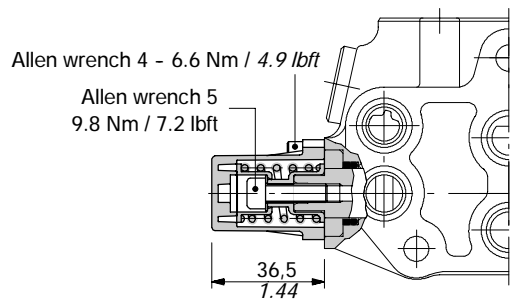
With spool stroke adjustment in position 2 (P→B).



19 kit



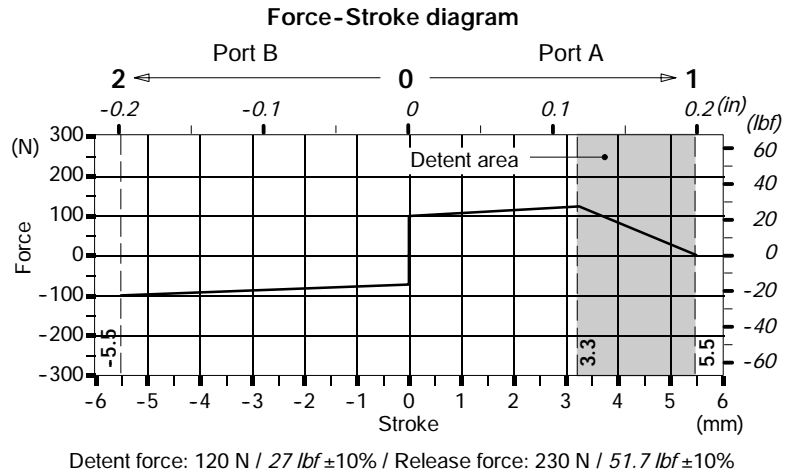
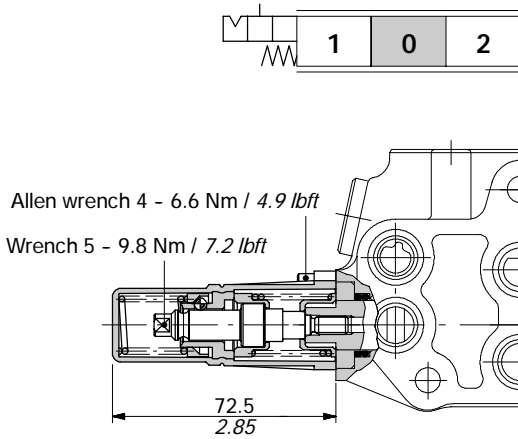
20 kit



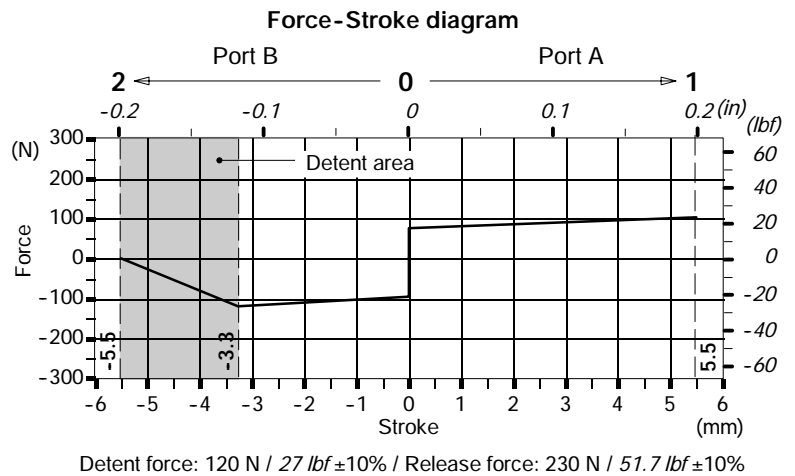
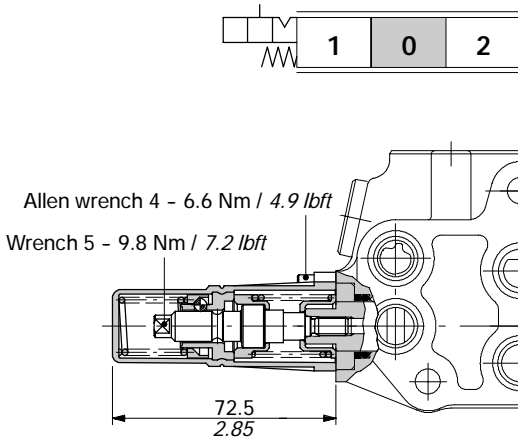
"A" side spool positioners

With detent and spring return to neutral from either directions

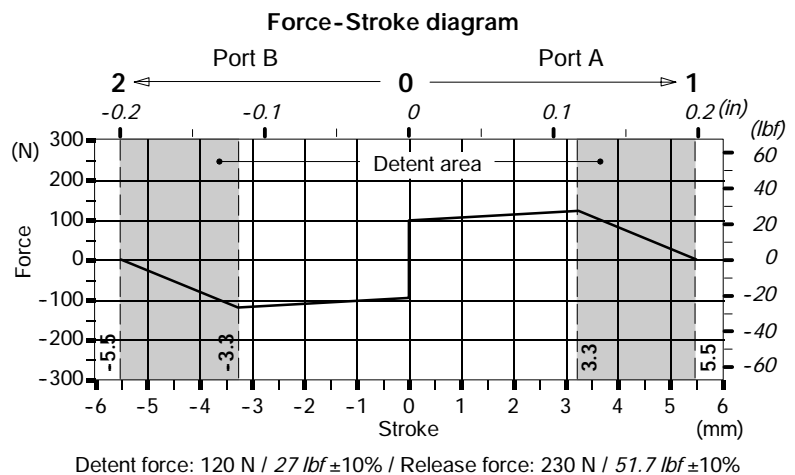
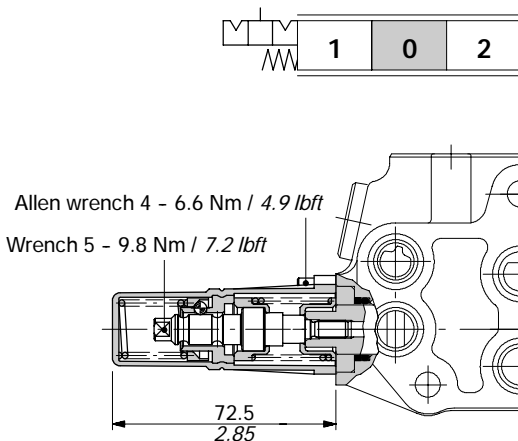
9BZ kit



10BZ kit



11BZ kit



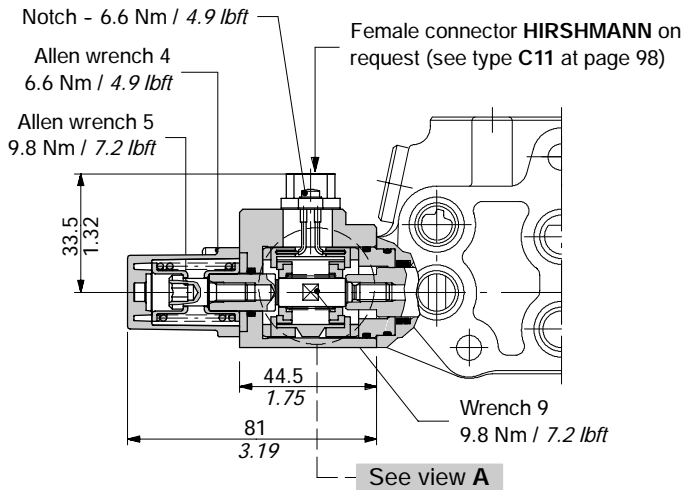
"A" side spool positioners

8MHE3 kit: with spring return in neutral position and spool positioning ON/OFF signal

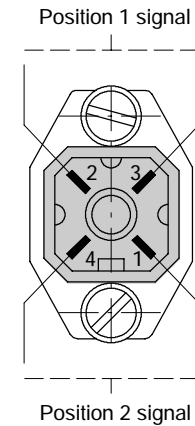
This module supplies two different ON/OFF signals, related to the direction of the spool.

It has two separate contacts which can be normally open or normally closed.

It can be used with standard spools and working section (working section kit without ring on side "A")



Connector wiring

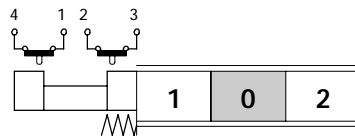


Operating features

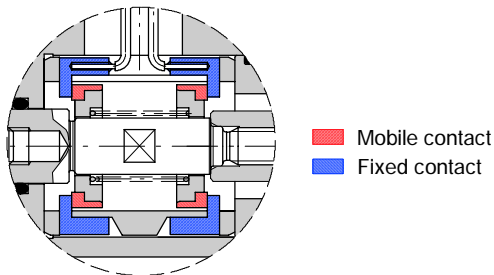
- Power supply range : 12 / 24 VDC
- Max. output current : 500 mA
- Weather protection : IP65

8MHE3(NC) kit

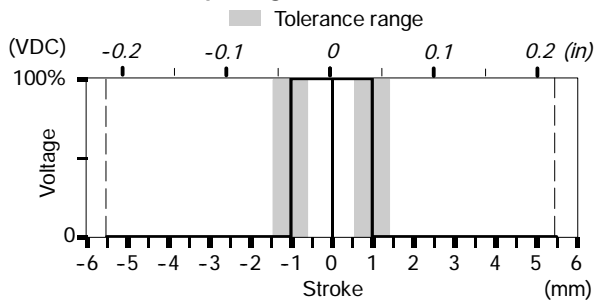
Configuration with normally closed circuit



View A

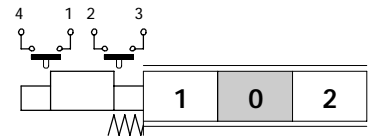


Output signal with NC circuit

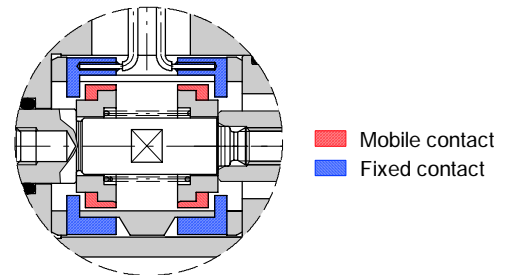


8MHE3(NO) kit

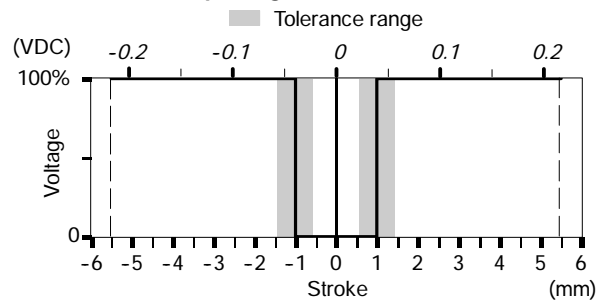
Configuration with normally open circuit



View A



Output signal with NO circuit



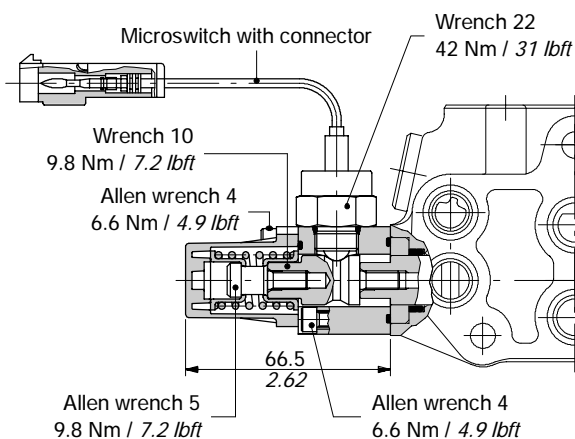
"A" side spool positioners

With microswitch type 8MG3

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

Also available **8MG1(NO)** configuration, code **5V08105670** (microswitch operated in position 1) and **8MG2(NO)** configuration, code **5V08105680** (microswitch operated in position 2); dimensions are the same of 8MG3 configuration.

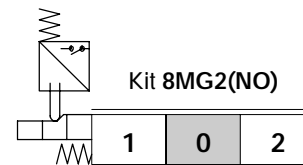
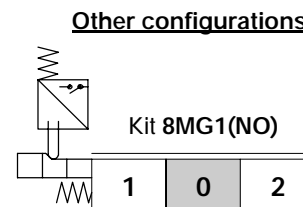
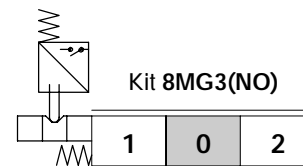
These configurations are available also with normally closed (NC) contact.



Operating features

MICROSWITCH

- Mechanical life : 5x10⁵ operations
- Electric life (resistive load) : 10⁵ oper. - 7A / 13.5VDC
- : 5x10⁴ oper. - 10A / 12VDC
- : 5x10⁴ oper. - 3A / 28VDC



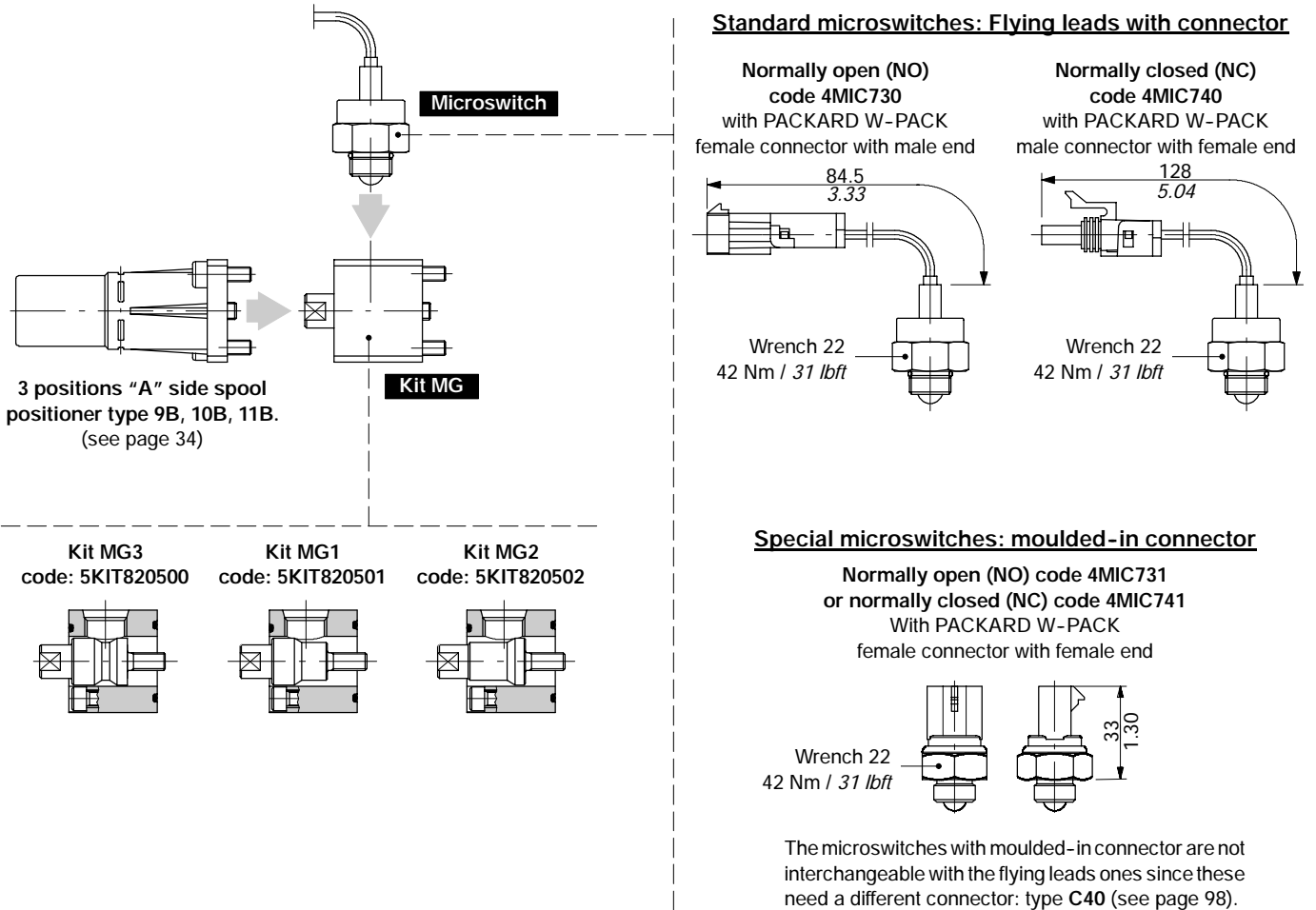
COMPLETE CONTROLS CODES

| Contact | CONTROL TYPE | | | Need connector type |
|---------|--------------|------------|------------|---------------------|
| | 8MG3 | 8MG2 | 8MG1 | |
| NO | 5V08105660 | 5V08105680 | 5V08105670 | C07 see page 98 |
| NC | 5V08105662 | 5V08105682 | 5V08105672 | C17 |

With microswitch type 8MG3

More configurations and spare parts

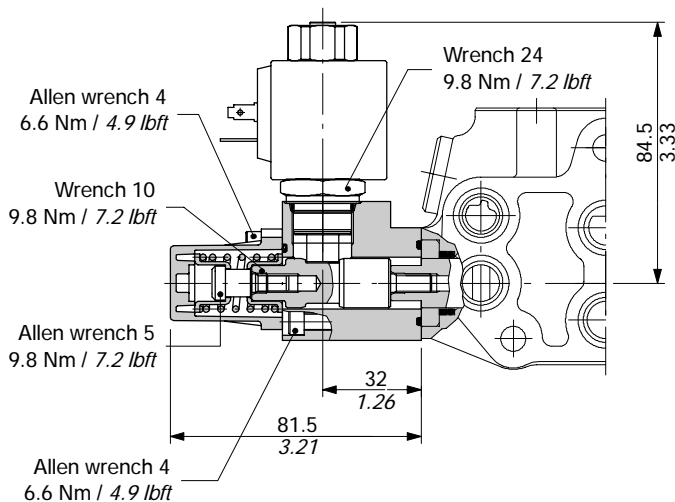
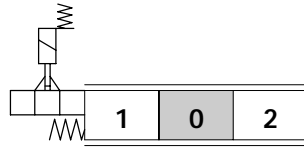
It's possible to obtain further configurations of complete control, using the MG kit, microswitches and 3 positions "A" side spool positioner, as following draw.



"A" side spool positioners

Solenoid lock device type 8K

With spring return and spool electromechanical lock in neutral position; when coil is fed the spool can be moved.



Operating features

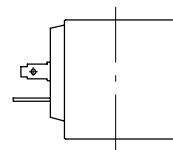
ACTUATOR

Lock stroke : 3.5 mm / 0.14 in

COIL

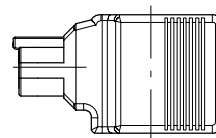
Depending on model: see following features

Coil with ISO4400 connector



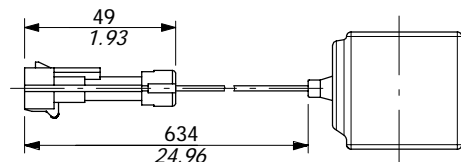
Nom. voltage tolerance : $\pm 10\%$
 Power rating : 18 W
 Nominal current : 1.58 A - 12 VDC
 : 0.81 A - 24VDC
 Coil insulation : Class F
 Weather protection : IP65
 Duty cycle : 100%

Coil with Deutsch DT connector



Nom. voltage tolerance : $\pm 10\%$
 Power rating : 22 W
 Nominal current : 1.9 A - 12 VDC
 : 0.95 A - 24VDC
 Coil insulation : Class H
 Weather protection : IP65
 Duty cycle : 100%

Coil with Packard M-Pack connector



Nom. voltage tolerance : $\pm 10\%$
 Power rating : 18 W
 Nominal current : 1.58 A - 12 VDC
 : 0.81 A - 24VDC
 Coil insulation : Class F
 Weather protection : IP65
 Duty cycle : 100%

COMPLETE CONTROL CODES

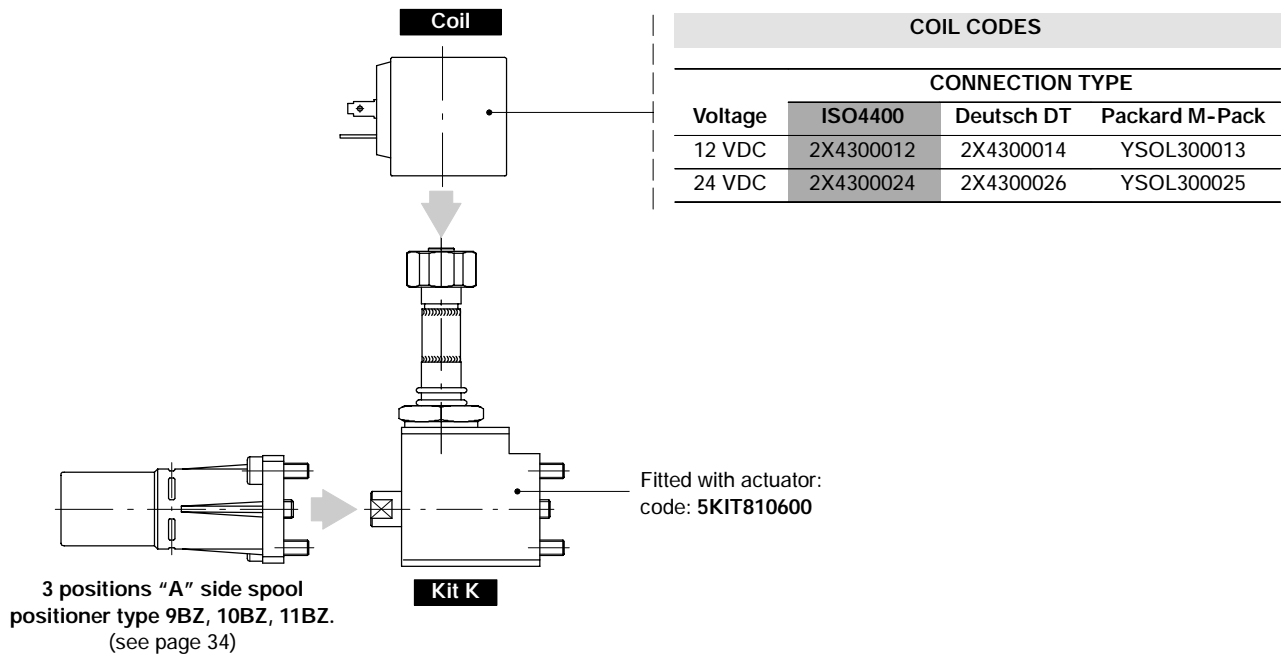
| | CONNECTION TYPE | | |
|-----------------------------------|-----------------|------------|----------------|
| | ISO4400 | Deutsch DT | Packard M-Pack |
| | CONTROL TYPE | | |
| Voltage | 8K | 8K4 | 8K6 |
| 12 VDC | 5V08706112 | 5V08706412 | 5V08706612 |
| 24 VDC | 5V08706124 | 5V08706424 | 5V08706624 |
| Need connector type (see page 98) | C02 | C19 | C20 |

"A" side spool positioners

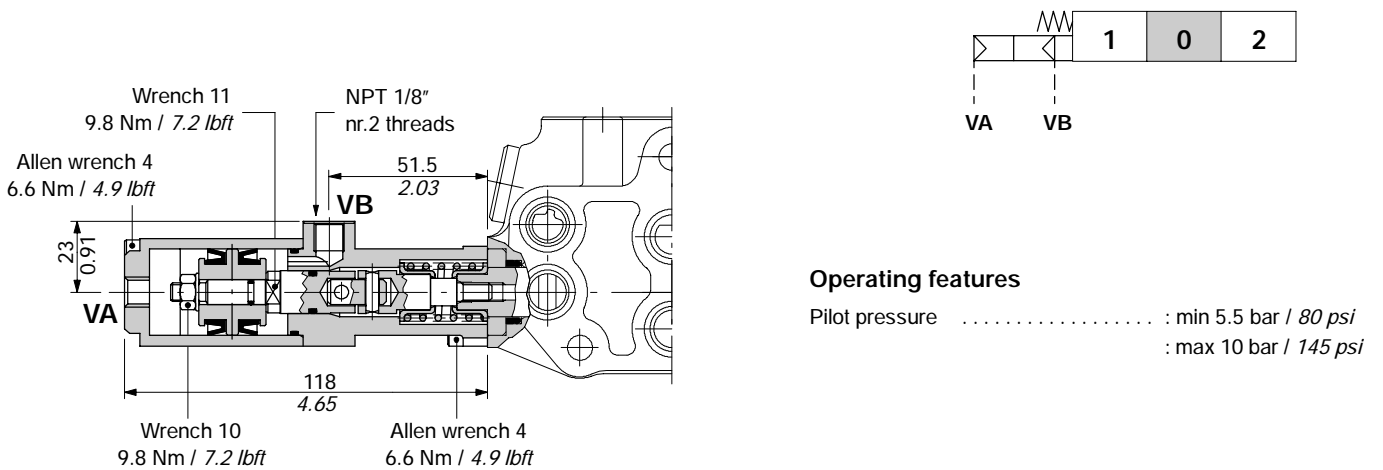
Solenoid lock device type 8K

More configurations and spare parts

It's possible to obtain further configurations of complete control, using the K kit, coils and 3 positions "A" side spool positioner, as following draw: for information contact Sales Department.



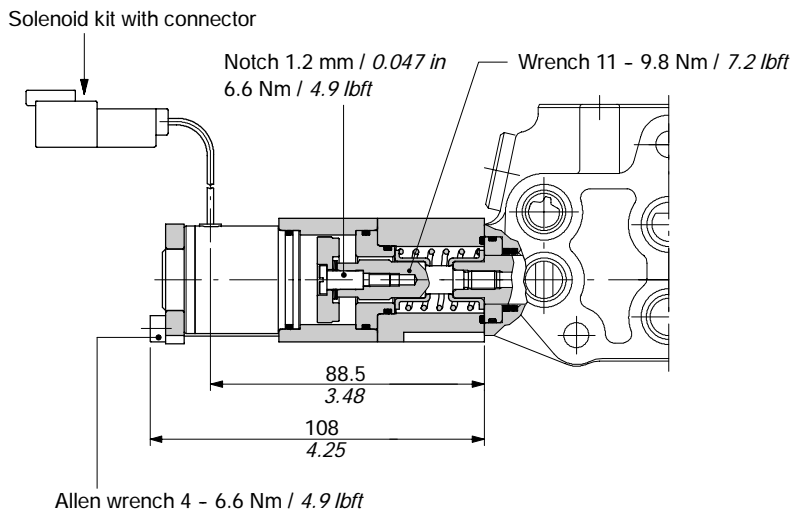
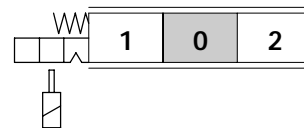
8P ON/OFF pneumatic control



"A" side spool positioners

Electromagnetic detent type 8RM2

With electromagnetic detent in position 2 and spring return to neutral position.
Needs special working section body kit without washer on positioner side.

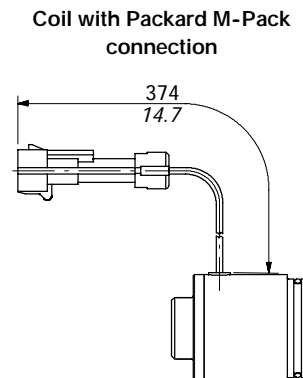
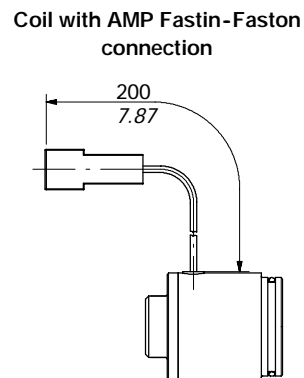
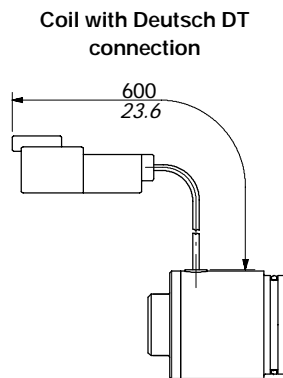


Operating features

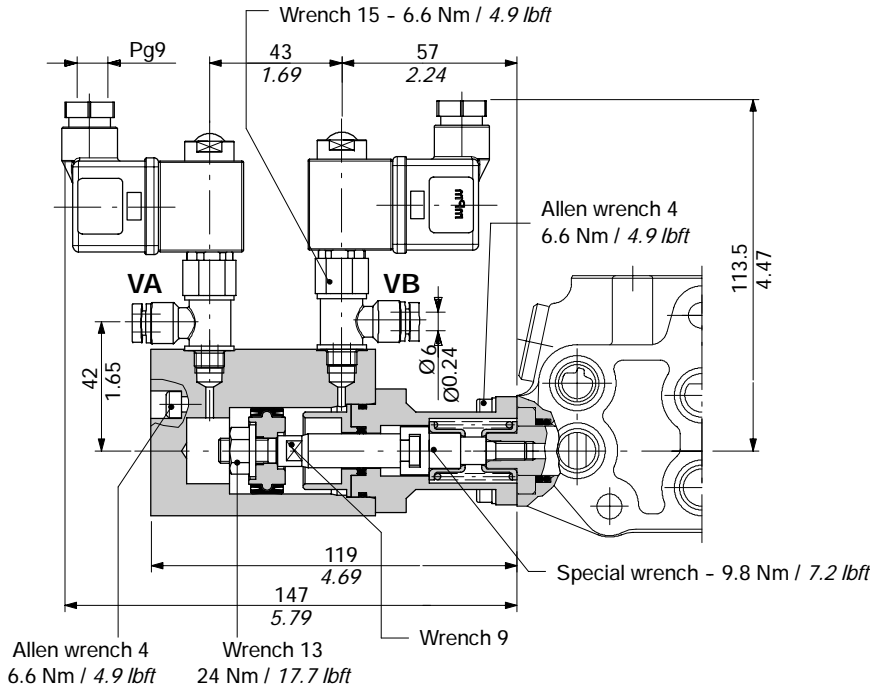
- COIL**
- Nominal voltage : 12 / 24 VDC ± 10%
 - Power rating : 5.5 W
 - Resistance (20 °C) : 26.2 / 105 Ohm
 - Min. release force : 100 N - 22.5 lbf
 - Duty cycle : 100%

| COMPLETE CONTROL CODES | | | |
|-----------------------------------|-----------------|------------|----------------|
| | CONNECTION TYPE | | |
| | Deutsch DT | AMP | Packard M-Pack |
| Voltage | CONTROL TYPE | | |
| | 8RM2 | 8RM2A(200) | 8RM2M(350) |
| 12 VDC | 5V08106590 | 5V08106591 | 5V08106593 |
| 24 VDC | 5V08106595 | 5V08106596 | 5V08106598 |
| Need connector type (see page 98) | C19 | C21 | C20 |

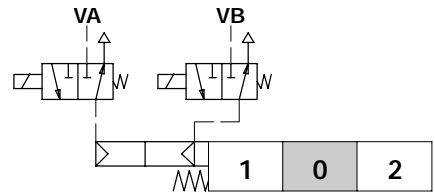
| COIL CODES | | | |
|------------|-----------------|------------|----------------|
| Voltage | CONNECTION TYPE | | |
| | Deutsch DT | AMP | Packard M-Pack |
| 12 VDC | YSOL532455 | YSOL532452 | YSOL532451 |
| 24 VDC | YSOL532456 | YSOL532458 | YSOL532457 |



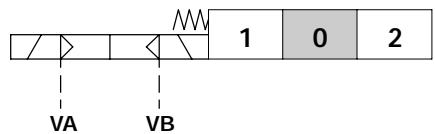
8EP3 ON/OFF electro-pneumatic control



Scheme



Scheme ISO 1219



COMPLETE CONTROL CODES

| | CONNECTION TYPE | |
|-----------------------------------|-----------------|--------------|
| | ISO6952 | Flying leads |
| Voltage | CONTROL TYPE | |
| | 8EPG3 | 8EPG35 |
| 12 VDC | 5V08105738 | 5V08105736 |
| 24 VDC | 5V08105743 | 5V08105741 |
| Need connector type (see page 98) | C01 (included) | / |

COIL CODES

| Voltage | CONNECTION TYPE | |
|---------|-----------------|----------------|
| | ISO6952 | Flying leads * |
| 12 VDC | 2XB1010121100 | 2XB1010120000 |
| 24 VDC | 2XB1010241100 | 2XB1010240000 |

* Several type of connectors can be wired on request: contact Sales Department.

Operating features

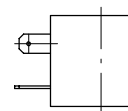
CONTROL

Pilot pressure : 6 bar / 87 psi
: (max.15 bar / 218 psi)

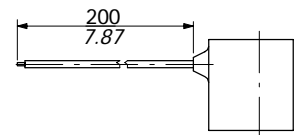
COIL

Nominal voltage tolerance : ±10%
Power rating : 8 W
Nominal current : 0.67 A - 12 VDC
: 0.33 A - 24VDC
Coil insulation : Class H
Weather protection : IP65
Duty cycle : 100%

Coil with ISO6952 connector



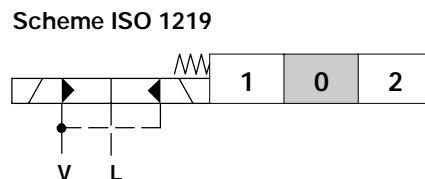
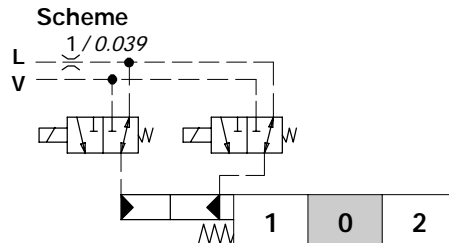
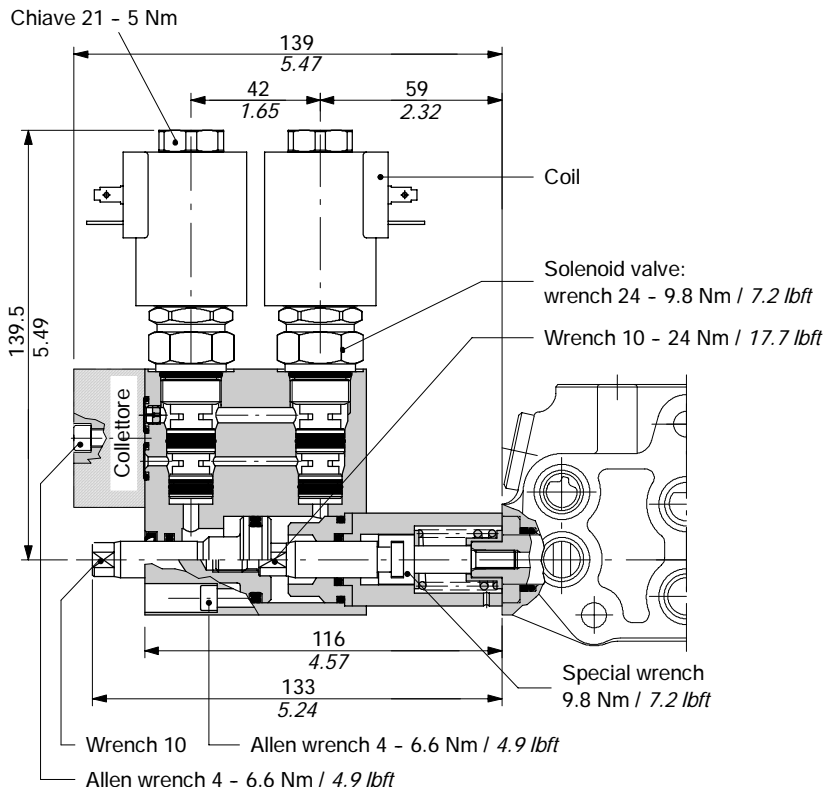
Coil with flying leads



"A" side spool positioner

8ED3 ON/OFF electro-hydraulic control

ON/OFF electro-hydraulic control with external pilot and drain.



Operating features

CONTROL

Pilot pressure : min. 10 bar / 145 psi

: max. 50 bar / 725 psi

Max backpressure on drain L : 25 bar / 360 psi

COIL

Nominal voltage tolerance : ±10%

Power rating : 21 W

Nominal current : 1.75 A - 12 VDC / 0.87 A - 24VDC

Coil insulation : Class F

Weather protection : depending on coil connector

Duty cycle : 100%

COMPLETE CONTROL CODES

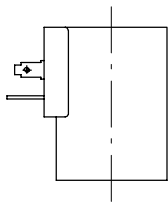
| | CONNECTION TYPE | | | |
|-----------------------------------|-----------------|---------------|------------|------------|
| | ISO4400 | AMP JPT | | Deutsch DT |
| | | without diode | with diode | |
| CONTROL TYPE | | | | |
| Voltage | 8ED3 | 8ED32 | 8ED32D | 8ED34 |
| 12 VDC | 5V08105350 | 5V08105250 | 5V08105280 | 5V08105450 |
| 24 VDC | 5V08105351 | 5V08105251 | 5V08105281 | 5V08105451 |
| Need connector type (see page 98) | C02 | C08 | C08 | C19 |

8ED3 ON/OFF electro-hydraulic control

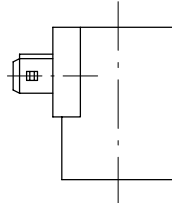
COIL CODES

| Voltage | CONNECTION TYPE | | | |
|---------|-----------------|---------------|---------------|---------------|
| | ISO4400 | AMP JPT | | Deutsch DT |
| | | without diode | with diode | |
| 12 VDC | 2XB1400121100 | 2XB1400121200 | 2XB1400121210 | 2XB1400120400 |
| 24 VDC | 2XB1400241100 | 2XB1400241200 | 2XB1400241210 | 2XB1400240400 |

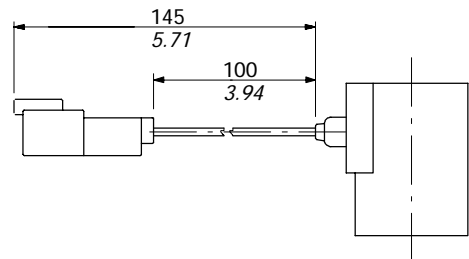
Coil with ISO4400 connection (weather protection: IP65)



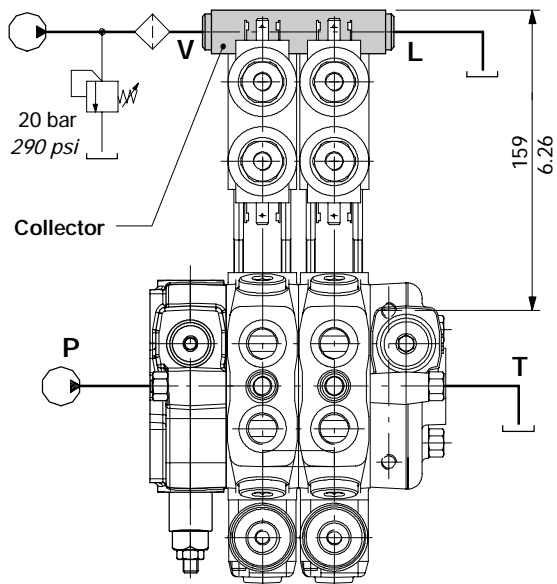
Coil with AMP JPT connection (weather protection: IP65)



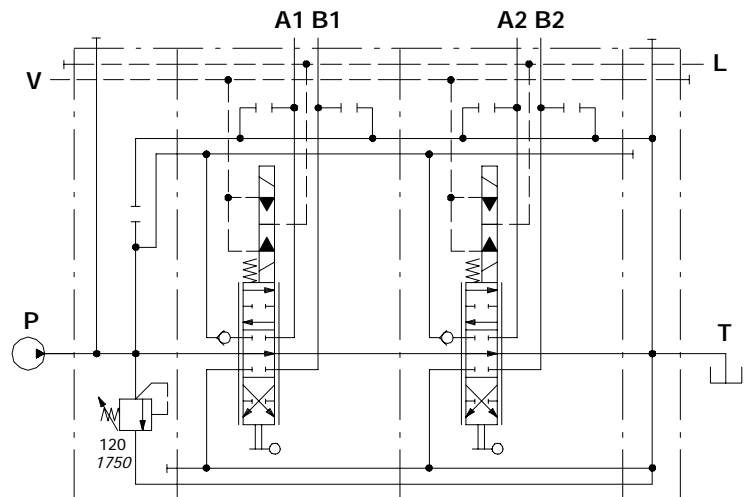
Coil with Deutsch DT connection (weather protection: IP67)



Collector kit for external pilot and drain



Description example:
SD6/2/AC(YG3-120)/18ED3L/18ED3L/RC-KE2S0-24VDC



COLLECTOR KIT CODES

| Type | Code * | Description |
|-------|------------|--------------------|
| KE1S0 | 5KE1S00030 | Kit one section |
| KE2S0 | 5KE2S01230 | Kit for 2 sections |
| KE3S0 | 5KE3S01230 | Kit for 3 sections |
| KE4S0 | 5KE4S01230 | Kit for 4 sections |
| KE5S0 | 5KE5S01230 | Kit for 5 sections |
| KE6S0 | 5KE6S01230 | Kit for 6 sections |
| KE7S0 | 5KE7S01230 | Kit for 7 sections |

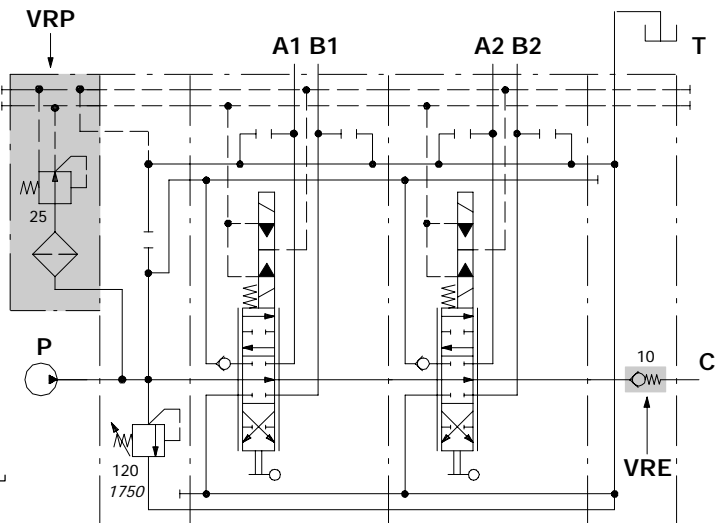
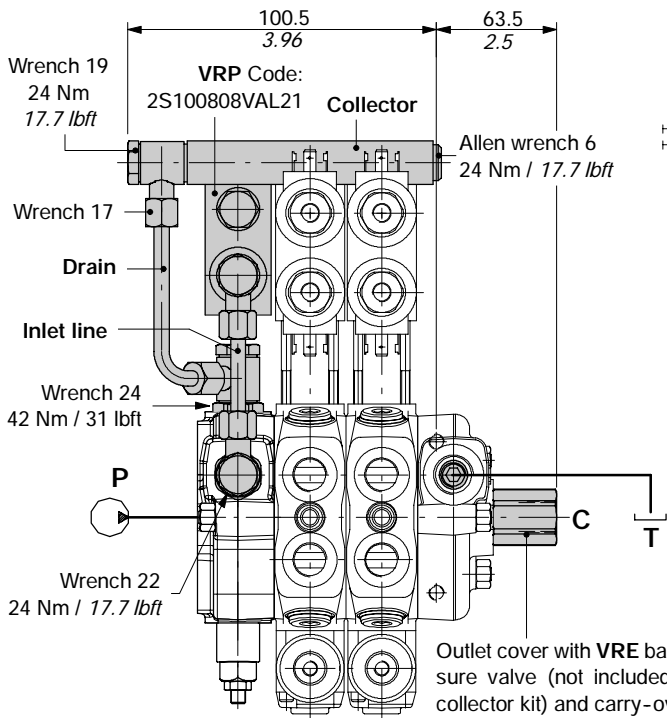
(*) codes are referred to BSP thread

"A" side spool positioners

8ED3 ON/OFF electro-hydraulic control

Kit collettore con linee di pilotaggio e drenaggio

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



Outlet cover with VRE backpressure valve (not included in the collector kit) and carry-over.

Description example:

SD6/2/AC(YG3-120)/18ED3L/18ED3L/RV-KE2R3-24VDC

Description type for outlet cover with VRE valve.

Operating features

VRP VALVE

Outlet pressure: 25 bar / 363 psi

Max. flow: 8 l/min

Filtering: 80 μ

COLLECTOR KIT CODES

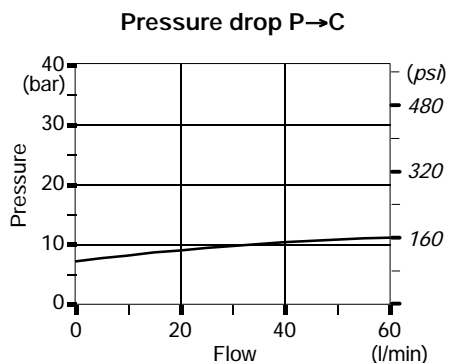
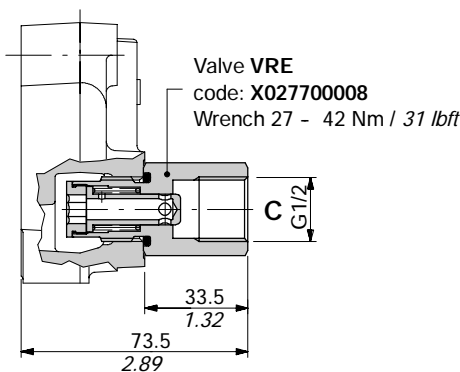
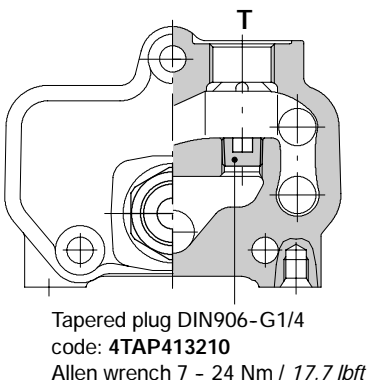
| Type | Code * | Description |
|-------|------------|--------------------|
| KE1R0 | 5KE1R31230 | Kit one section |
| KE2R0 | 5KE2R31230 | Kit for 2 sections |
| KE3R0 | 5KE3R31230 | Kit for 3 sections |
| KE4R0 | 5KE4R31230 | Kit for 4 sections |
| KE5R0 | 5KE5R31230 | Kit for 5 sections |
| KE6R0 | 5KE6R31230 | Kit for 6 sections |

(*) codes are referred to BSP thread

VRE backpressure valve

Valve is assembled on flow through passage of outlet cover; it's necessary to provides pilot pressure to the actuator.

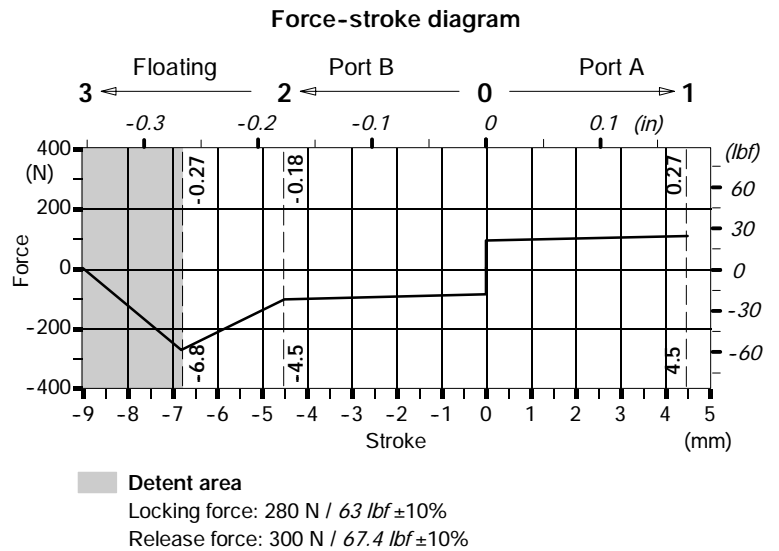
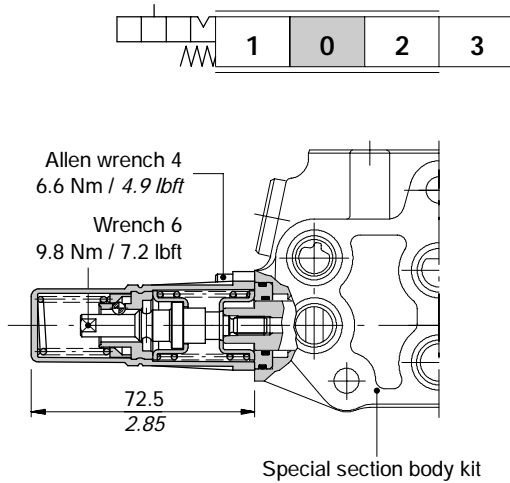
RV complete (with backpressure valve and tapered plug) outlet cover code: 612300122.



Particular positioner kits for special spools

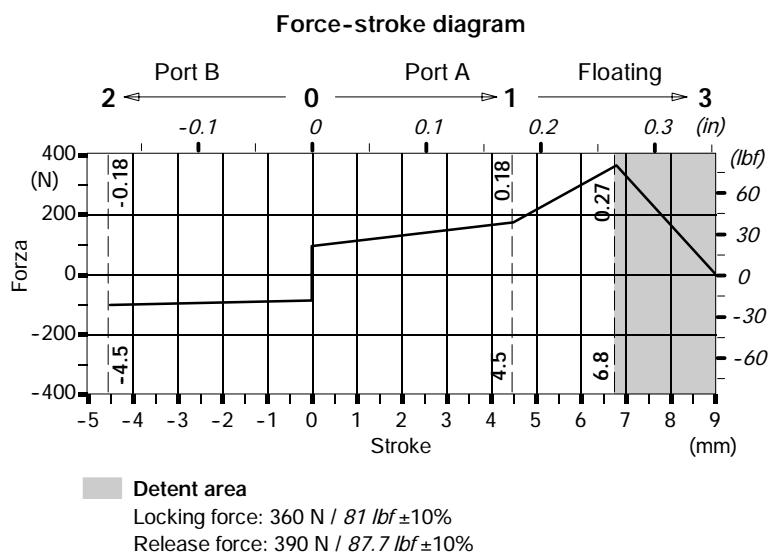
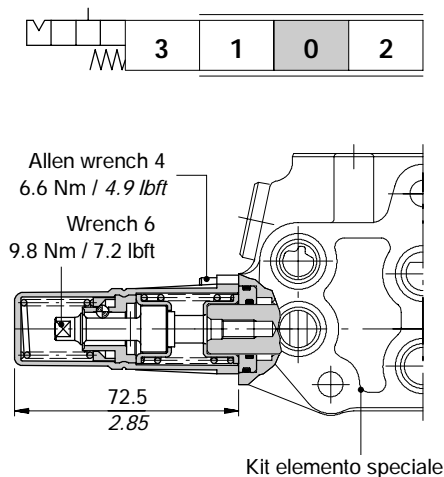
13NZ kit

Detent in 4th position with spool in: available only for spool type 5Y (see page 29).



13QN kit

Detent in 4th position with spool out: available only for spool type 5BY (see page 30).

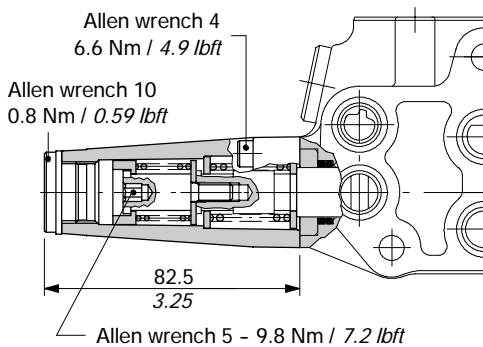
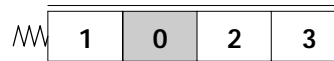


"A" side spool positioners

Particular positioner kits for special spools

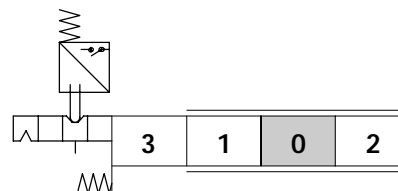
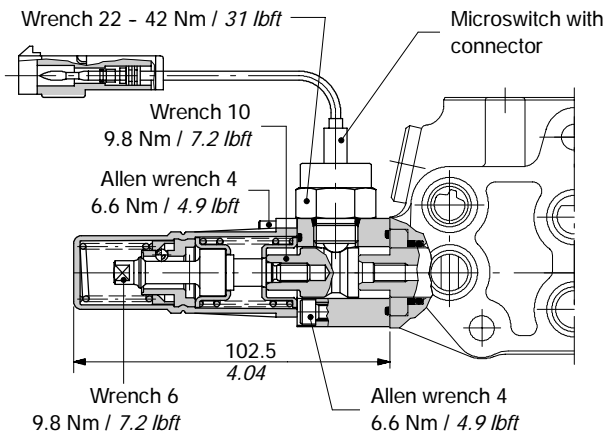
13F kit

4th position with spool in and spring return to neutral position.
Available only for spool type **8** (see page 31).



13QNMG3(NO) kit

Detent in 4th position with spool out, spring return to neutral position and microswitch operation in both directions.
The microswitch can be configured with **NO** (normally open) or **NC** (normally closed) contact
Available only for spool type **5BY** (see page 30).



COMPLETE CONTROL CODES

| Codes | Contact type | Need connector type | |
|------------|--------------|---------------------|-------------|
| 5V13405660 | NO | C07 | see page 98 |
| 5V13405661 | NC | C17 | |

Operating features

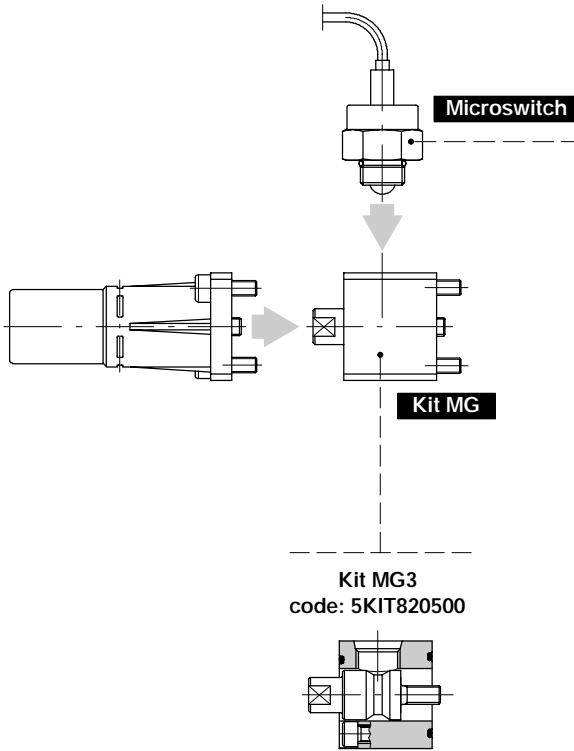
MICROSWITCH

Mechanical life : 5x10⁵ operations
Electric life (resistive load) . . : 10⁵ operations - 7A / 13.5VDC
: 5x10⁴ operations - 10A / 12VDC
: 5x10⁴ operations - 3A / 28VDC

Particular positioner kits for special spools

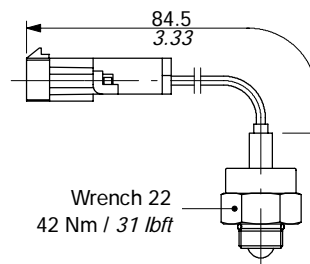
13QNMG3(NO) kit

Spare parts

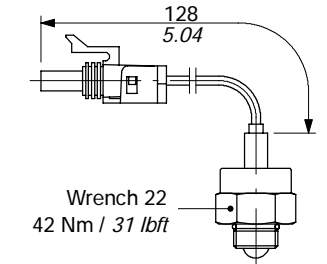


Standard microswitches: Flying leads with connector

Normally open (NO)
code 4MIC730
with PACKARD W-PACK
female connector with male end

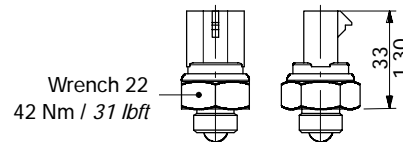


Normally closed (NC)
code 4MIC740
with PACKARD W-PACK
male connector with female end



Special microswitches: moulded-in connector

Normally open (NO) code 4MIC731
or normally closed (NC) code 4MIC741
With PACKARD W-PACK
female connector with female end



The microswitches with moulded-in connector are not interchangeable with the flying leads ones since these need a different connector: C40 (see page 98).

"A" side spool positioners

Particular positioner kits for special spools

With electromechanical lock

The positioners for special spools (13NZ, 13QN), are also available with spool electromechanical lock in neutral position; if coil is excited the spool can be operated.

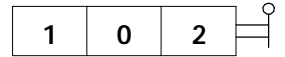
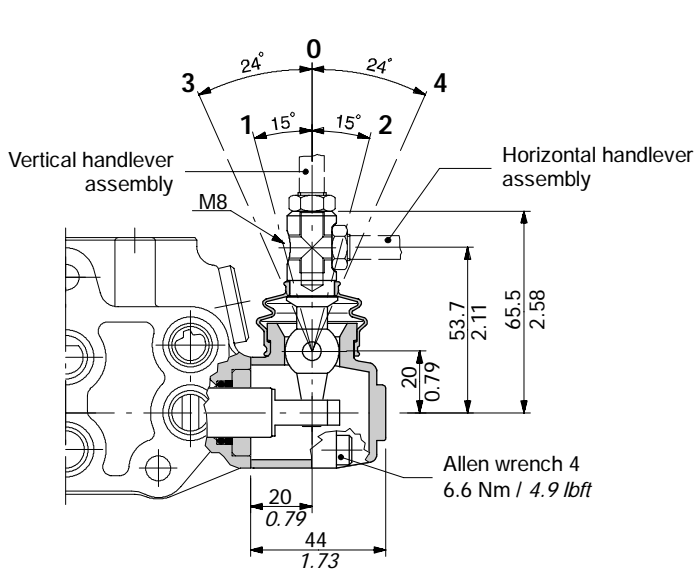
For kit K, coils features and dimensions, see page 38: for informations contact Sales Department.

| COIL CODES | | | |
|-----------------------------------|-----------------|------------|----------------|
| Voltage | CONNECTION TYPE | | |
| | ISO4400 | Deutsch DT | Packard M-Pack |
| 12 VDC | 2X4300012 | 2X4300014 | YSOL300013 |
| 24 VDC | 2X4300024 | 2X4300026 | YSOL300025 |
| Need connector type (see page 98) | C02 | C19 | C20 |

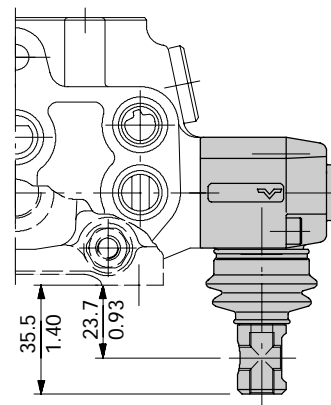
Lever controls

L type

Aluminium lever pivot box with protective rubber bellow; it can be rotated 180° (configuration L180).

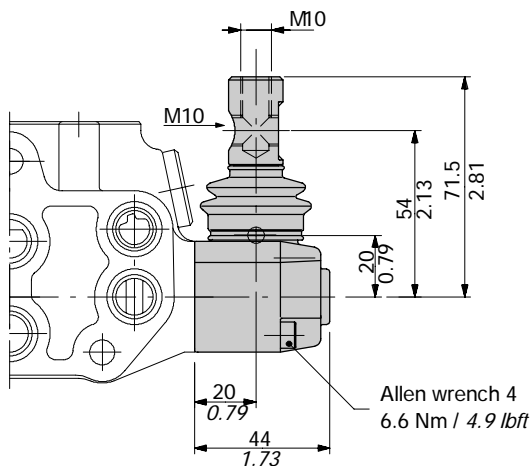
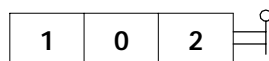


Configuration L180



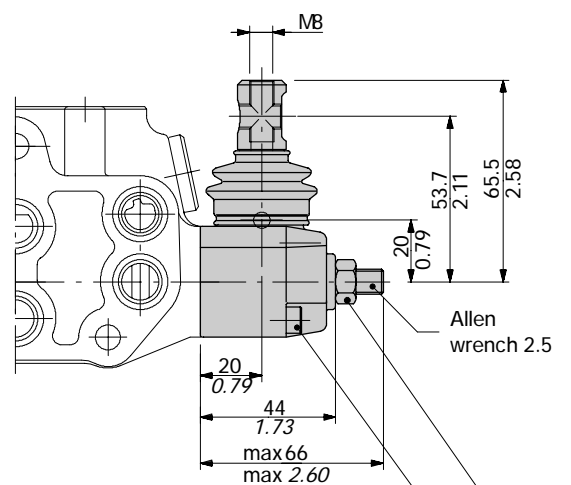
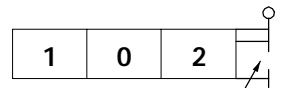
LM10 type

To be use with M10 handlever.
It can be rotated 180° (configuration LM10180).



LF1 type

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



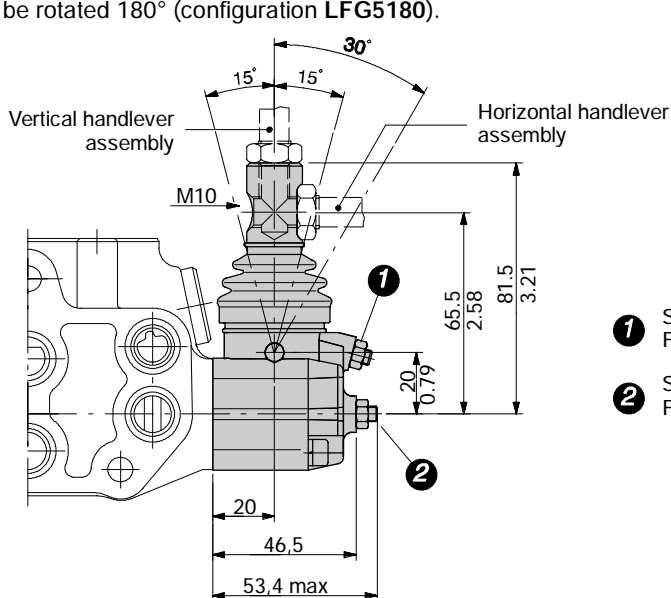
Allen wrench 4 - 6.6 Nm / 4.9 lbf
Wrench 13 - 24 Nm / 17.7 lbf

"B" side options

Lever control

LFG5 type

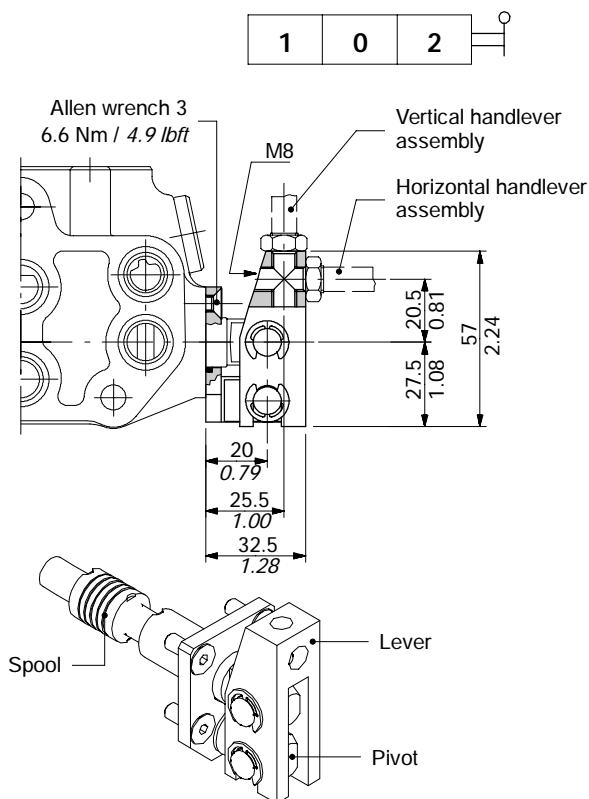
Cast iron lever pivot box with protective rubber bellow; it's complete of two screws for spool stroke adjusting in both directions. It can be rotated 180° (configuration LFG5180).



- 1** Stroke end screw for position 2 (P→B): allen wrench 2.5
Fixing nut: wrench 8 - 6.6 Nm / 4.9 lbft
- 2** Stroke end screw for position 1 (P→A): allen wrench 2.5
Fixing nut: wrench 8 - 6.6 Nm / 4.9 lbft

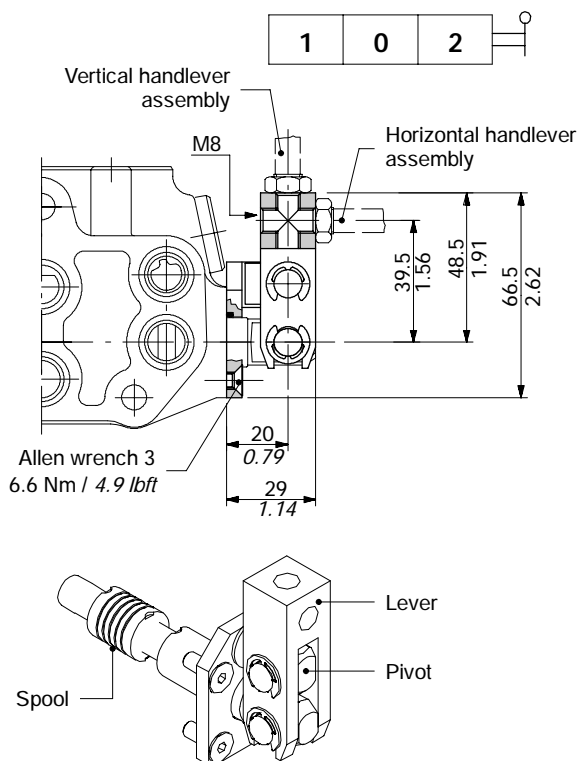
LB1 type

Steel construction, with pivot placed down.
Assembling with 5B and 5BY type spool is not possible.



LB3 type

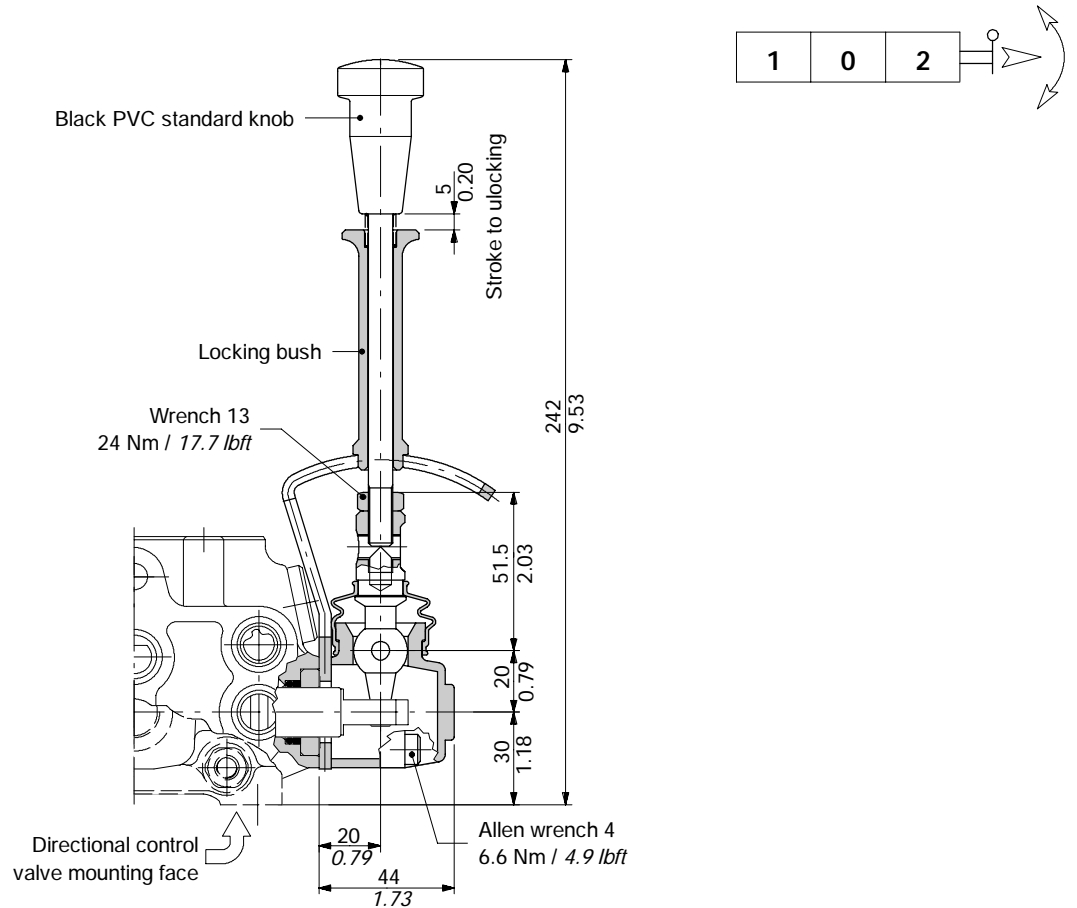
Steel construction, with pivot placed above.
Assembling with 5B, 5BY type spool and with port valves on port B, is not possible



Safety lever control

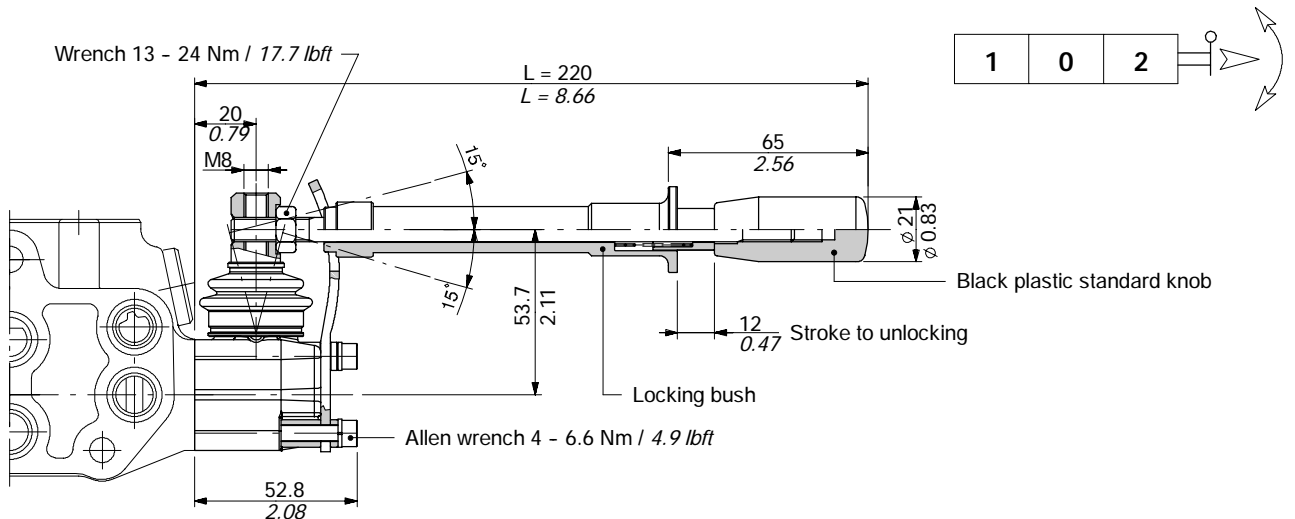
Safety levers with lock in neutral complete with handlever; lift handlever knob to operate.

LEB type



LUP type

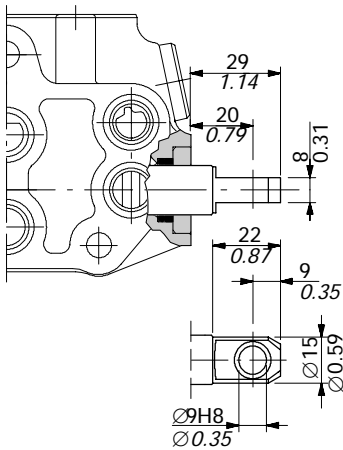
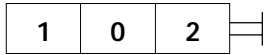
Available as LUP(R150) configuration, with length L = 150 mm / 5.91 in and red knob: code 5LEV805010.



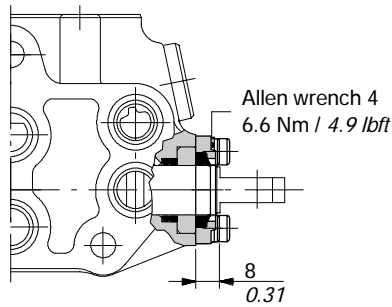
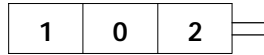
"B" side options

Controls prearrangement

SL type

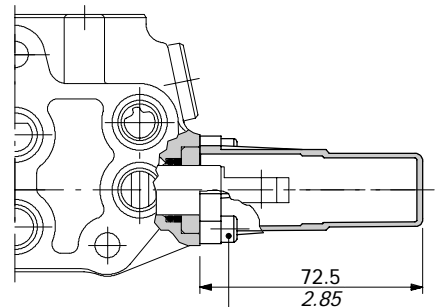
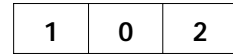


SLP type



Mechanical control with dust-proof plate kit.

SLCZ type

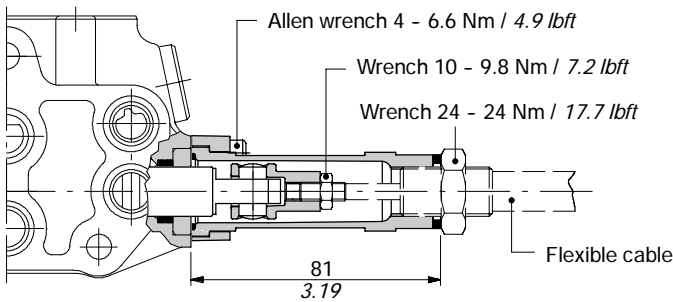
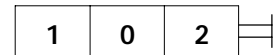


Allen wrench 4 - 6.6 Nm / 4.9 lbf

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

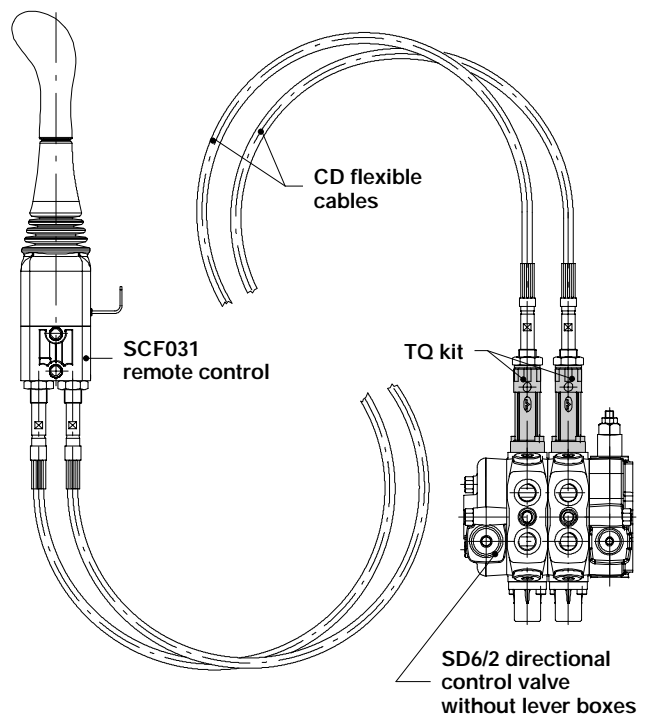
TQ cable remote control kit

Waterproof cap prearranged for remote control with flexible cable.

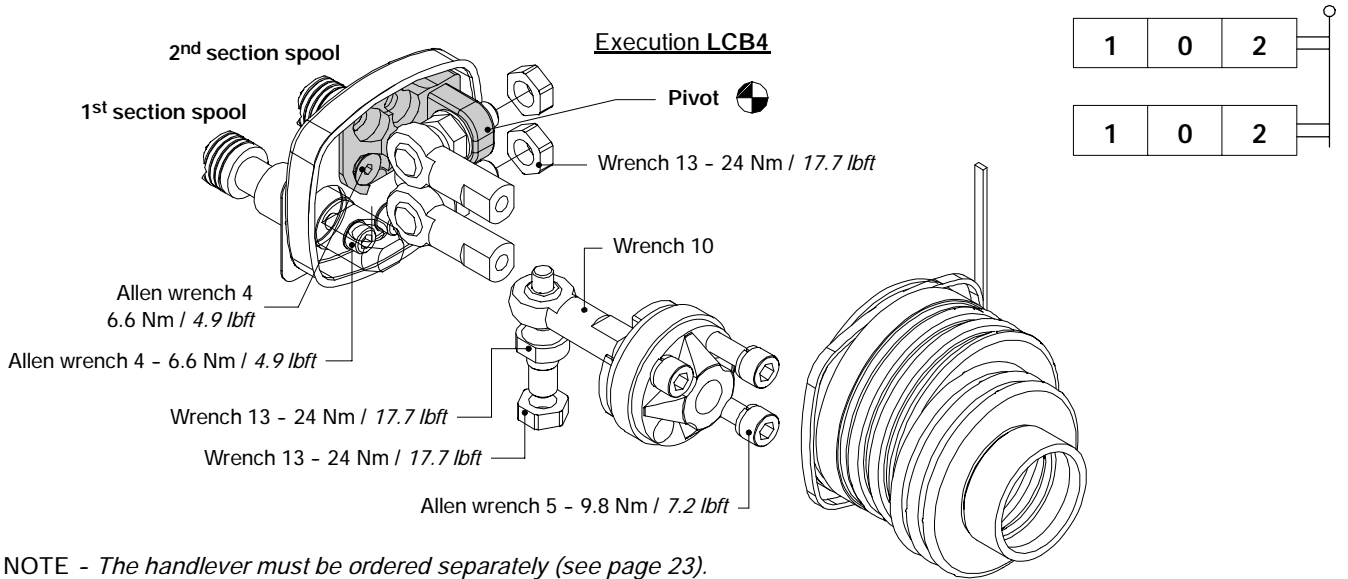


NOTE - For further information about remote cable control, require related documentation.

Example of cable control

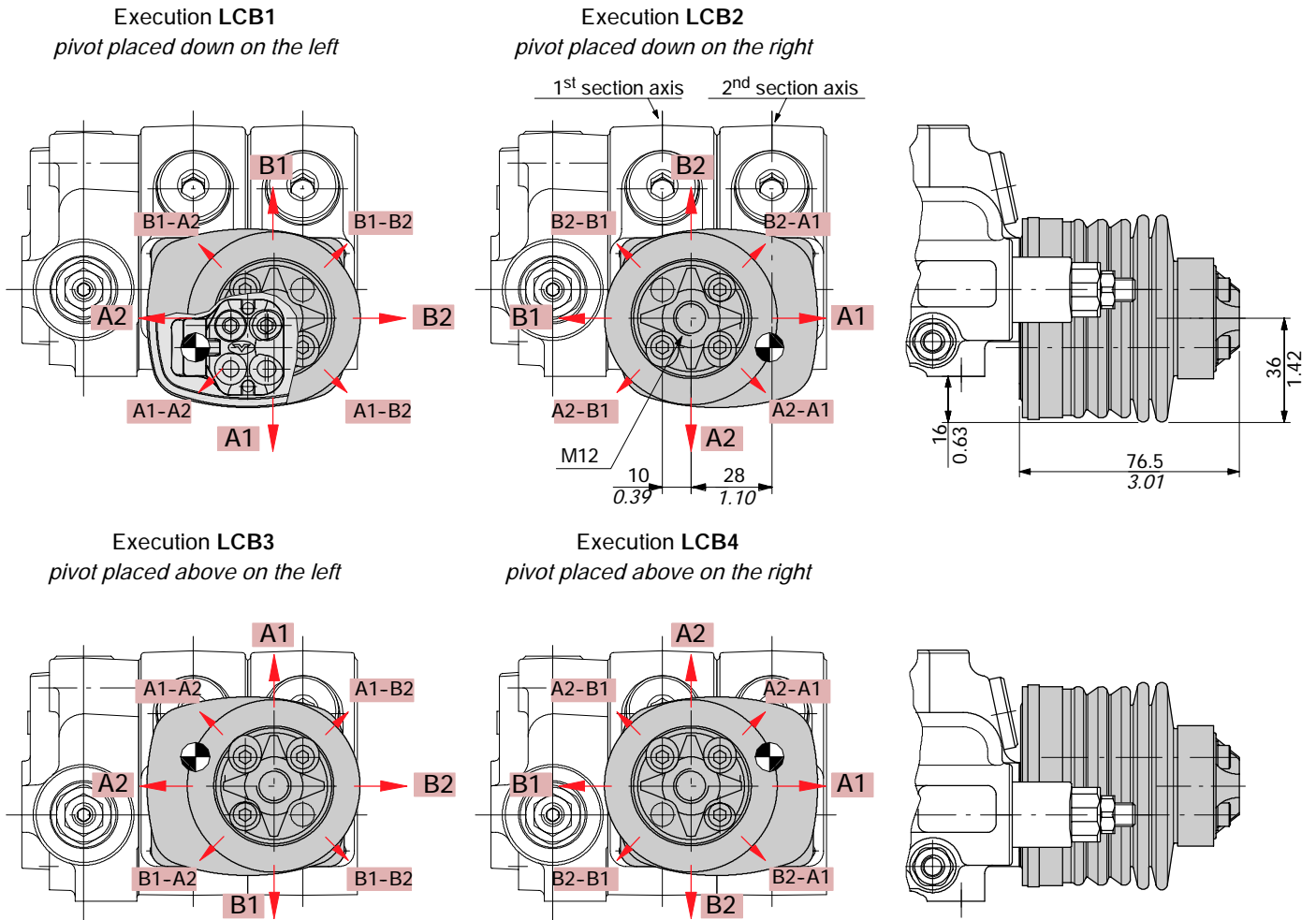


LCB joystick



NOTE - The handlever must be ordered separately (see page 23).

Dimensions and movement scheme



NOTE - Due to limited space in case of LCB3 or LCB4 configuration the assembly of ports service relief valves is not possible.

Complete controls

8ESN solenoid control

Direct control by double solenoid with spring return to neutral position, available with emergency manual override. It's necessary special spool and standard body (body kit without spool seals).

Description example:

EL SD6 / P - 1 8ESN LES P1(G3 - 125) - 24VDC

2.

3.

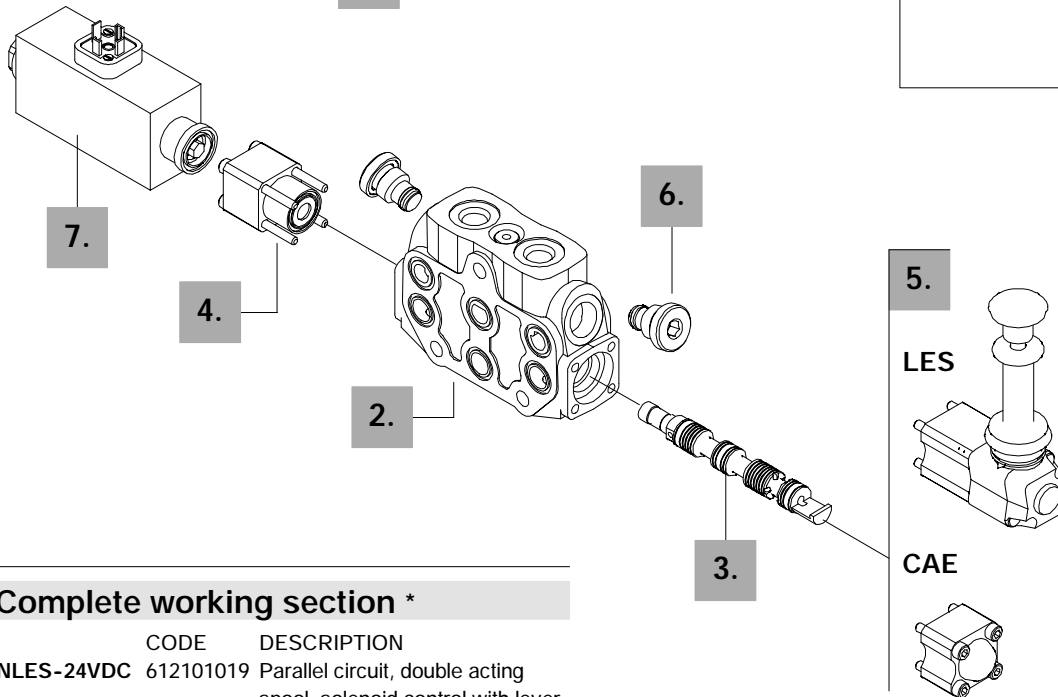
4.

5.

6.

7.

1.



1. Complete working section *

| TYPE | CODE | DESCRIPTION |
|------------------|-----------|--------------------------------------------------------------------|
| P-18ESNLES-24VDC | 612101019 | Parallel circuit, double acting spool, solenoid control with lever |

2. Working section kit *

| TYPE | CODE | DESCRIPTION |
|---------|------------|------------------|
| P/IM-ES | 5EL106300A | Parallel circuit |

3. Spools

| TYPE | CODE | DESCRIPTION |
|--------|------------|---------------------------------------------------------------------------|
| 1(ESN) | 3CU2210050 | Double acting, 3 positions, with A and B closed in neutral position |
| 2(ESN) | 3CU2225050 | Double acting, 3 positions, with A and B open to tank in neutral position |

4. Connection kit

| TYPE | CODE | DESCRIPTION |
|------|---------|------------------------------------------------------------|
| 8ESN | 5V08012 | For solenoid joint, with spring return in neutral position |

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

5. "B" side options

| TYPE | CODE | DESCRIPTION |
|------|------------|---------------------------------------------|
| LES | 5LEV106410 | Safety lever pivot box for manual operation |
| CAE | 5COP206100 | Endcap |

6. Port relief valves

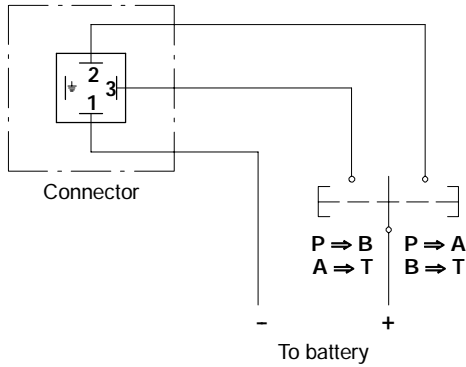
For codes please refer to page 23.

7. Solenoid

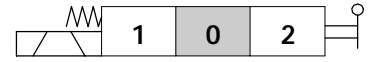
| TYPE | CODE | DESCRIPTION |
|---------|------------|----------------------------------------------|
| 10.5VDC | XSOL314310 | Nominal voltage 10.5VDC |
| 12VDC | XSOL314312 | Nominal voltage 12VDC |
| 24VDC | XSOL314324 | Nominal voltage 24VDC |
| 192VDC | XSOL314192 | Nominal voltage 192VDC; (for 220 VAC supply) |

8ESN solenoid control

Electric wiring example



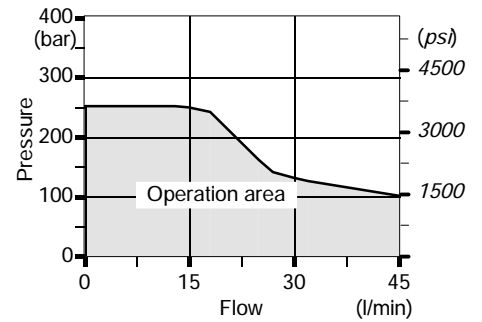
8ESNLES kit
with safety lever pivot box



8ESNCAE kit
with encadp



Operating condition diagram



Operating features

CONTROL

Internal leakage A(B)→T

($\Delta p = 100 \text{ bar} - 1450 \text{ psi} / T = 40^\circ\text{C}$) : $10 \text{ cm}^3/\text{min} - 0.61 \text{ in}^3/\text{min}$

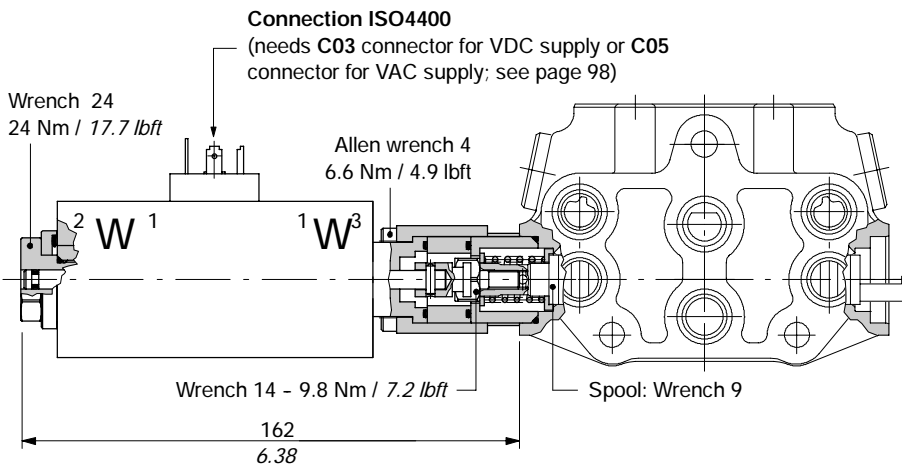
COIL

Nominal voltage tolerance : +10%

Power rating : 65 W

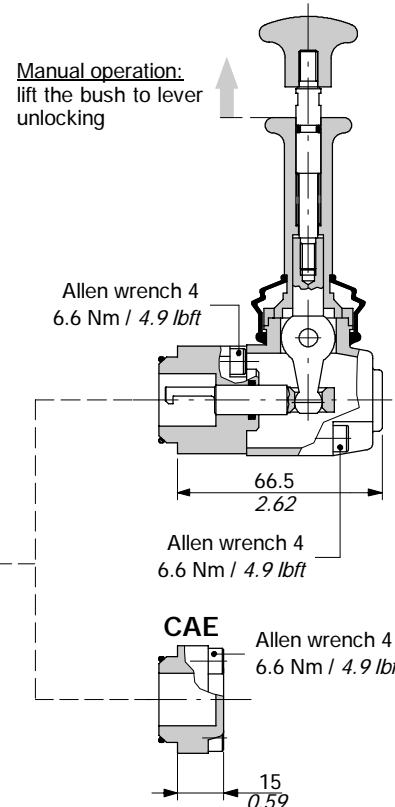
Coil insulation : class H

Duty cycle : 100%



Connection ISO4400
(needs C03 connector for VDC supply or C05 connector for VAC supply; see page 98)

LES



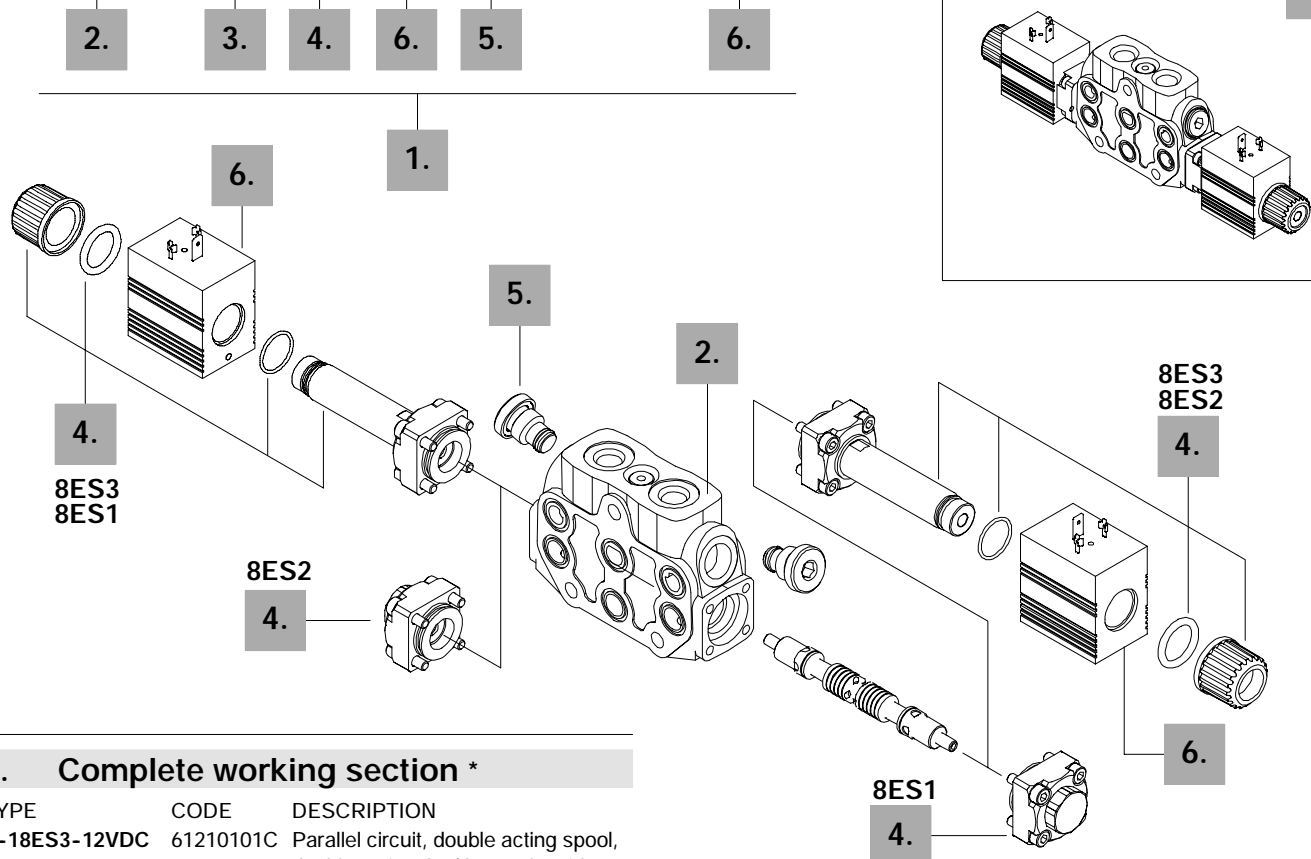
Complete controls

8ES solenoid control

Solenoid direct control with spring return to neutral position; it needs special spools and standard working section body (body kit without seals on spool).

Description example:

EL SD6 / P - 1 8ES3 4 P1(G3 - 100) - 12VDC



1. Complete working section *

| TYPE | CODE | DESCRIPTION |
|---------------|-----------|------------------------------------------------------------------------------|
| P-18ES3-12VDC | 61210101C | Parallel circuit, double acting spool, double acting ON/OFF solenoid control |

2. Working section kit *

| TYPE | CODE | DESCRIPTION |
|---------|------------|----------------------------|
| P/IM-ES | 5EL106300A | Distribuzione in parallelo |

3. Spools

| TYPE | CODE | DESCRIPTION |
|-------|------------|---------------------------------------------------------------------------|
| 1(ES) | 3CU2210015 | Double acting, 3 positions, with A and B closed in neutral position |
| 2(ES) | 3CU2225015 | Double acting, 3 positions, with A and B open to tank in neutral position |

4. Control kit

| TYPE | CODE | DESCRIPTION |
|------|-----------|------------------------------------------------------|
| 8ES1 | 5CAN08026 | P→A, with spring return to neutral position |
| 8ES2 | 5CAN08026 | P→B, with spring return to neutral position |
| 8ES3 | 5CAN08027 | Double acting with spring return to neutral position |

5. Port valves

For codes please refer to page 23.

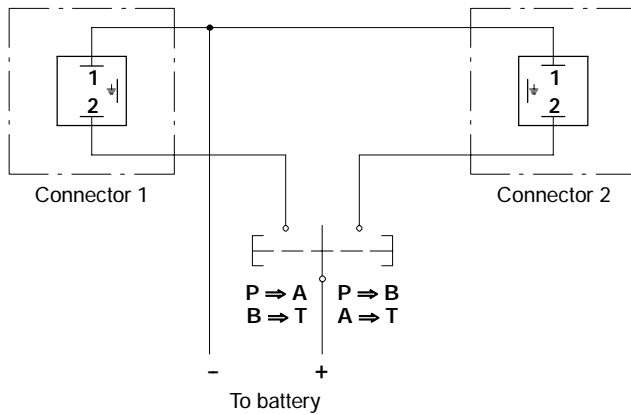
6. Coils

| TYPE | CODE | DESCRIPTION |
|-----------------------------------------|------------|-------------------------|
| <u>With ISO4400 connector</u> | | |
| 10.5VDC | 4SOL412011 | Nominal voltage 10.5VDC |
| 12VDC | 4SOL412012 | Nominal voltage 12VDC |
| 24VDC | 4SOL412024 | Nominal voltage 24VDC |
| <u>With Deutsch series DT connector</u> | | |
| 4-10.5VDC | 4SOL412111 | Nominal voltage 10.5VDC |
| 4-12VDC | 4SOL412112 | Nominal voltage 12VDC |

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

8ES solenoid control

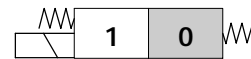
Electric wiring example



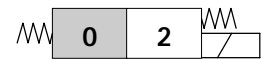
8ES3 kit
double acting



8ES1 kit
single acting on A



8ES2 kit
single acting on B



Operating features

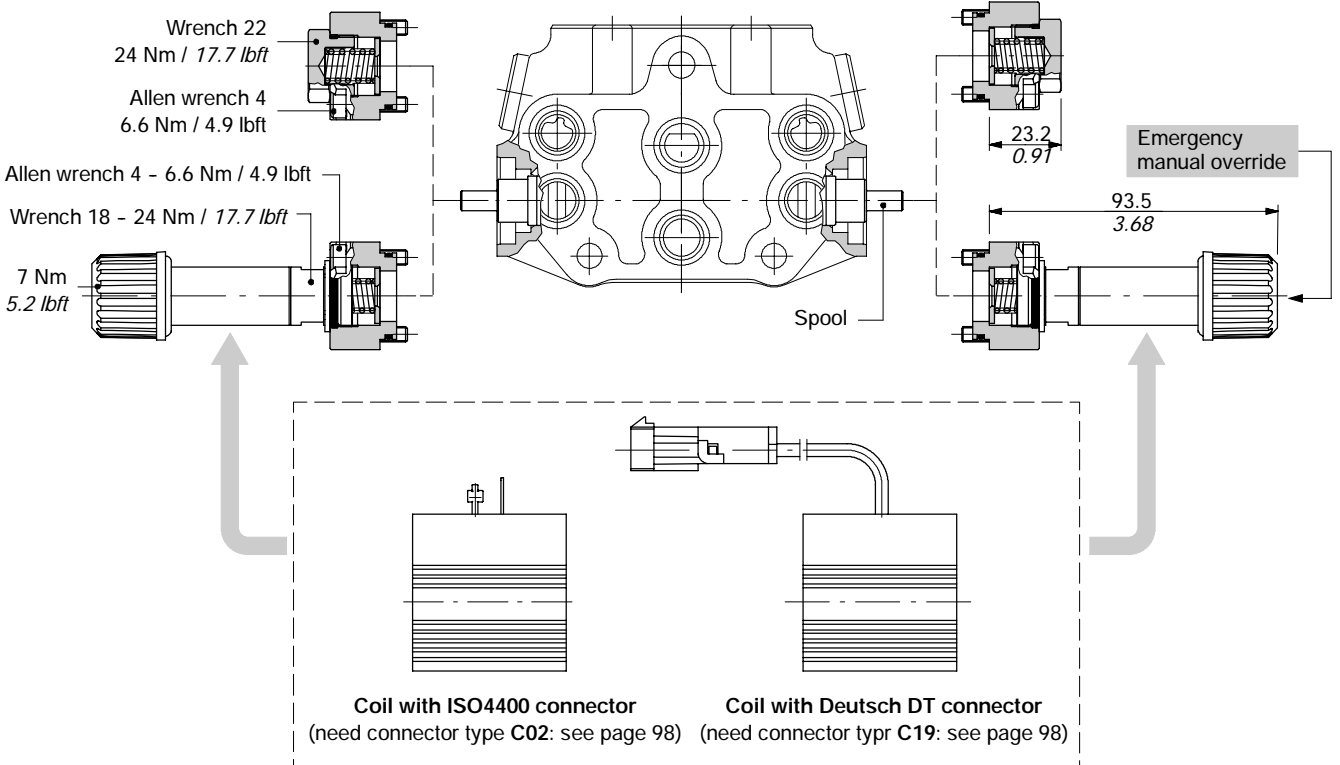
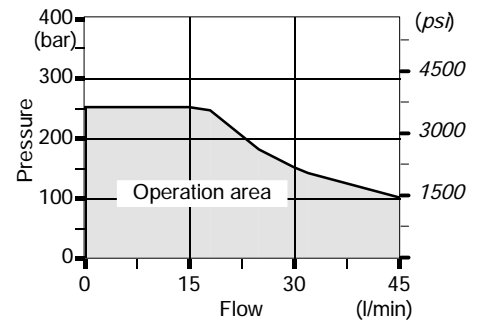
CONTROL

Internal leakage A(B)→T
($\Delta p = 100 \text{ bar} - 1450 \text{ psi} / T = 40^\circ\text{C}$) : $15 \text{ cm}^3/\text{min} - 0.91 \text{ in}^3/\text{min}$

COIL

Nominal voltage tolerance : +10%
Power rating : 36 W
Coil insulation : class H
Duty cycle : 100%

Operating condition diagram

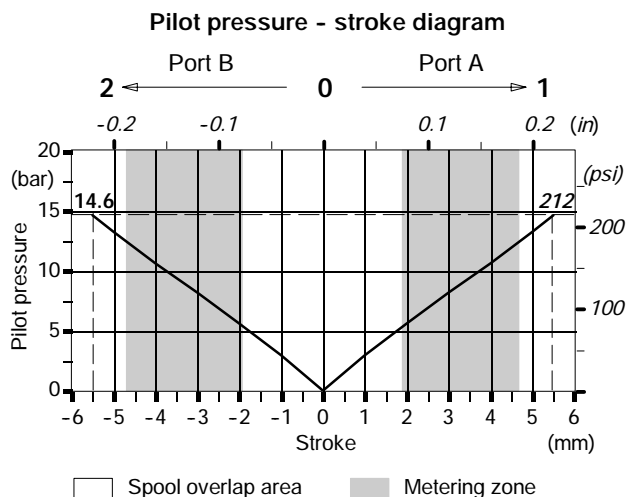
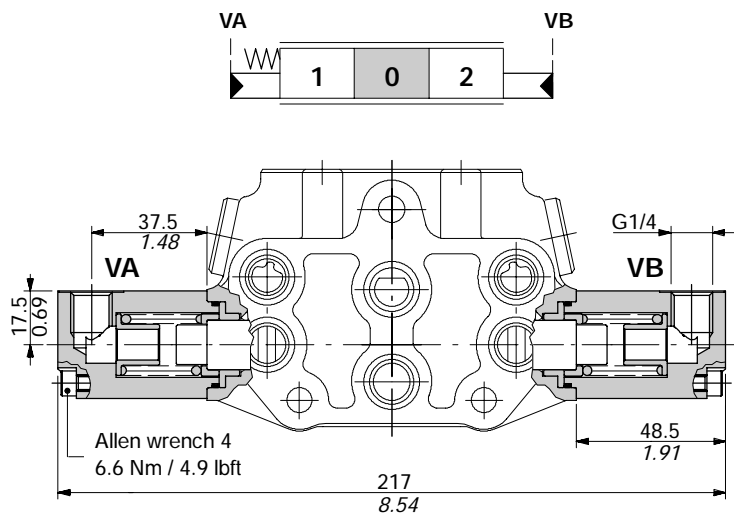


Comandi completi

8IM proportional hydraulic kit:: code 5IDR206010

It can be used with special spools and body kit without seals and ring on spool (standard body) code: 5EL106300A.

It's also available in 8IMF3-SD6 configuration with screws for spool stroke adjustment, code: 5IDR206012.



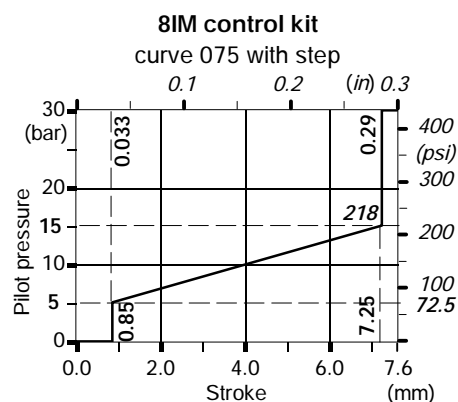
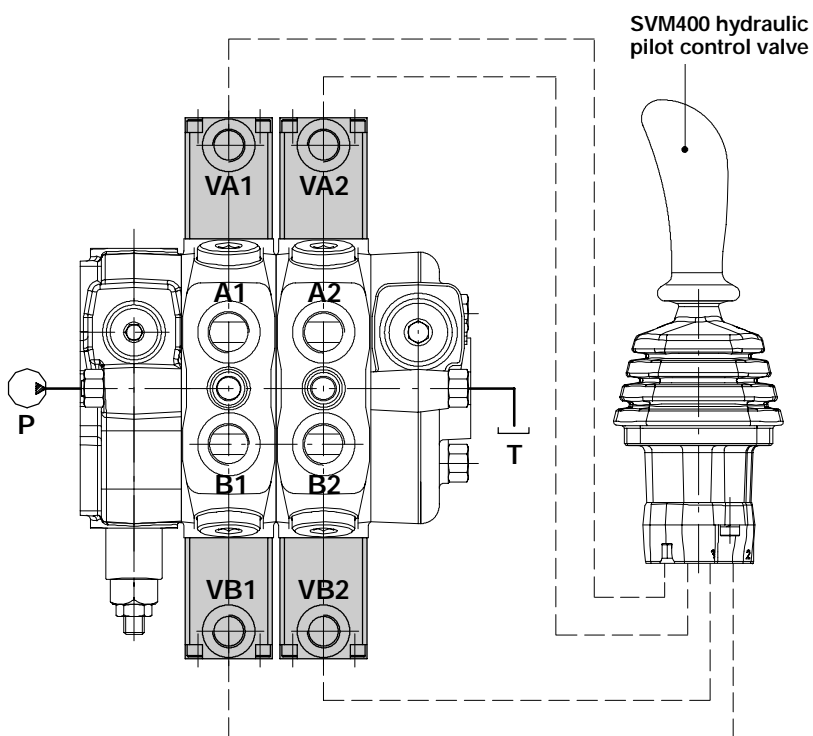
Available spools

| TYPE | CODE | DESCRIPTION |
|------|------------|-----------------------------------------------------------------------|
| 1IM | 3CU2210420 | Double acting, 3 positions, with A and B closed in neutral position |
| 2IM | 3CU2225420 | Double acting, 3 positions, with A and B open to tank in neutral pos. |

Operating features

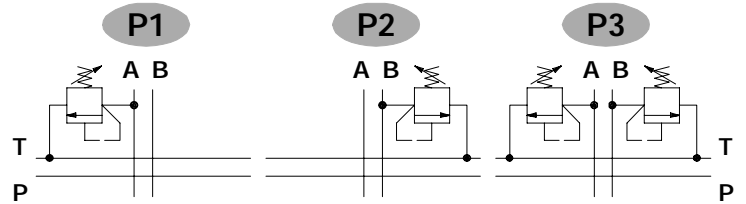
Pilot pressure : max. 50 bar / 730 psi
 Internal leakage A(B)→T ($\Delta p = 100 \text{ bar} - 1450 \text{ psi} / T = 40^\circ\text{C}$)
 : max. 6 cm³/min - 0.37 in³/min

Connection example



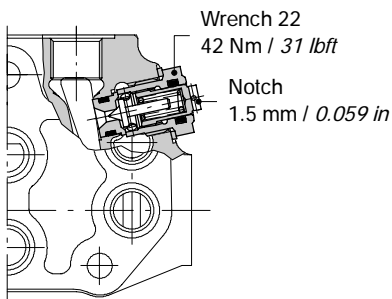
P 1 (G 3 - 100)

- Pressure setting in bar.
- Spring type (2, 3, 4).
- Adjustment type (G, H, Z).
- 1 mounted on port A.
- 2 mounted on port B.
- 3 mounted on ports A and B.

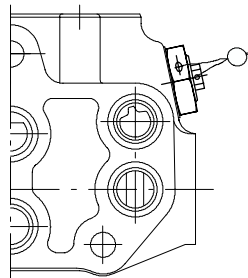


Adjustment type

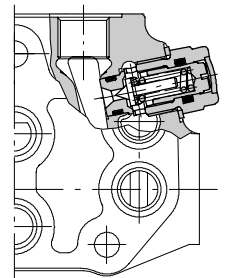
G: with screw



H: valve set and locked



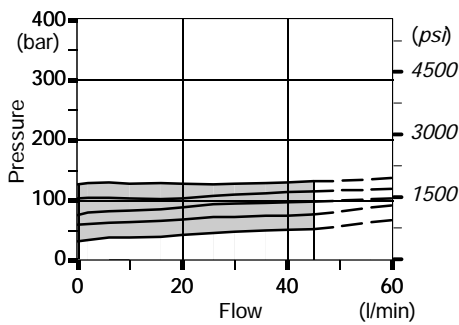
Z: tamper proof configuration



Performance data

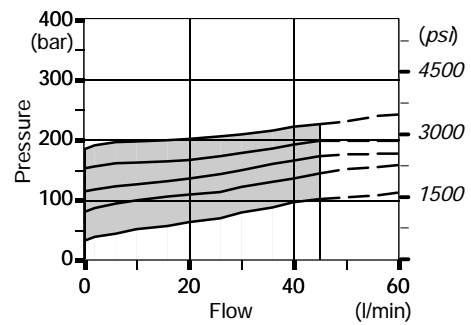
Spring nr. 2 (green band)

Standard setting: 63 bar / 900 psi



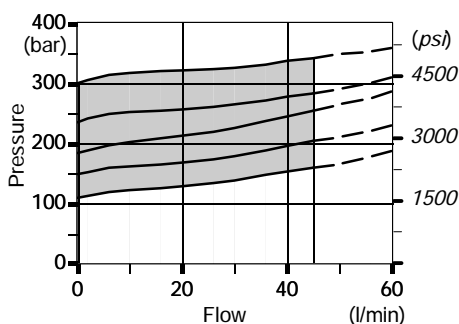
Spring nr. 3 (blue band)

Standard setting: 100 bar / 1450 psi

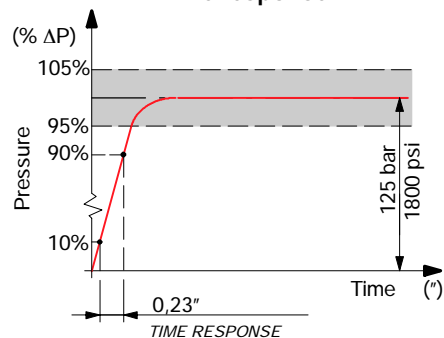


Spring nr. 4 (red band)

Standard setting: 200 bar / 2900 psi



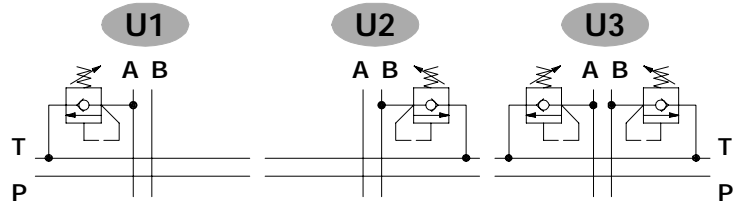
Time response



Antishock and anticavitation valves

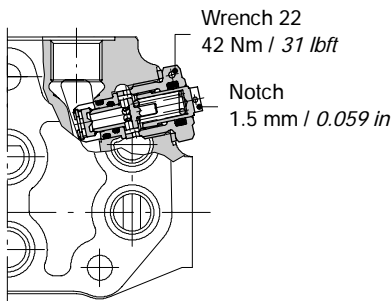
U 1 (G 3 - 100)

- Pressure setting in bar.
- Spring type (2, 3, 4).
- Adjusting type (G, H).
- 1 mounted on port A.
- 2 mounted on port B.
- 3 mounted on ports A and B.

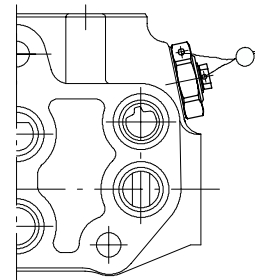


Adjusting type

G: with screw



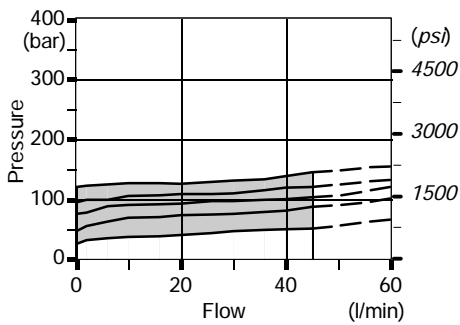
H: valve set and locked



Performance data

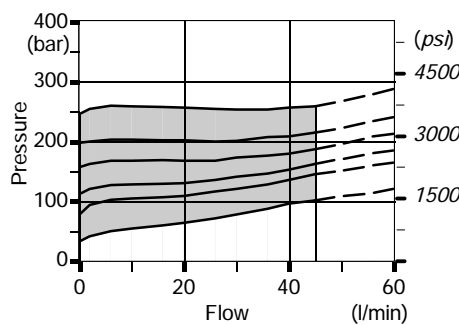
Spring nr.2 (green band)

Standard setting: 63 bar / 900 psi



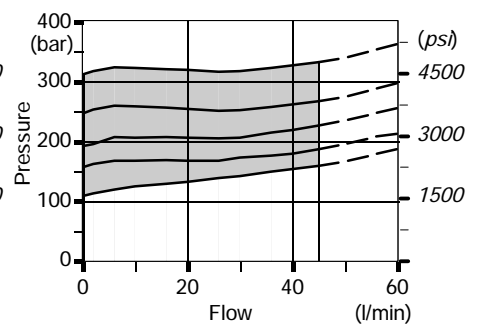
Spring nr.3 (blue band)

Standard setting: 100 bar / 1450 psi

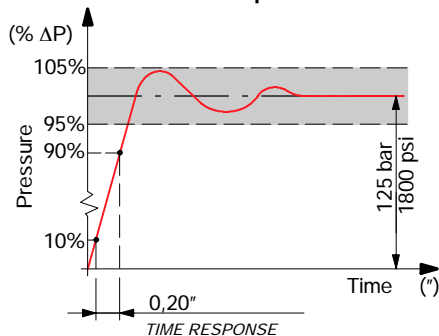


Spring nr.4 (red band)

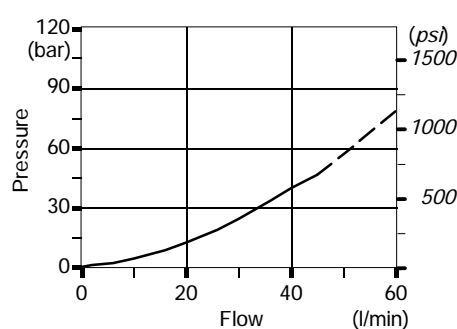
Standard setting: 200 bar / 2900 psi



Time response



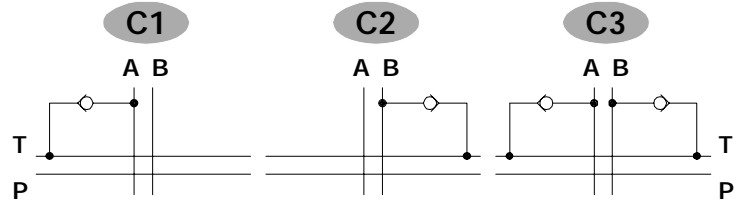
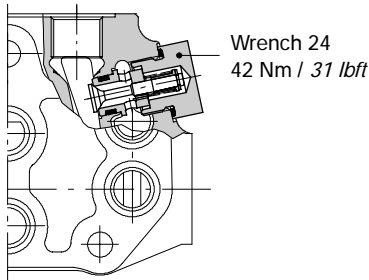
Pressure drop



Anticavitation valves

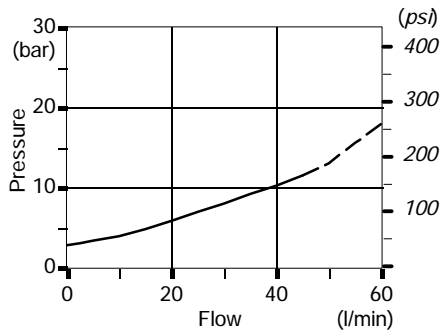
C 1

- 1 mounted on port A.
- 2 mounted on port B.
- 3 mounted on ports A and B.



Performance data

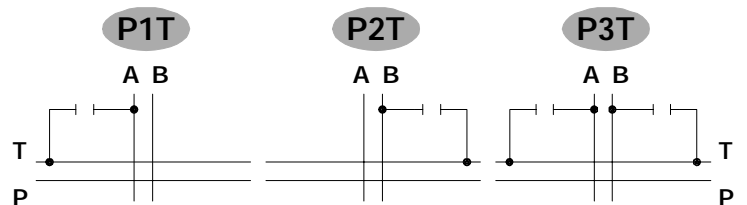
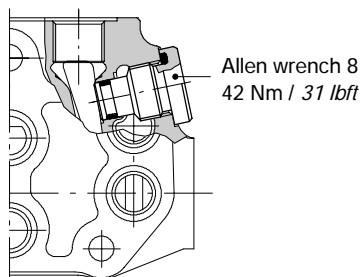
Pressure drop



Valve blanking plug

P 1 T

- 1 mounted on port A.
- 2 mounted on port B.
- 3 mounted on ports A and B.



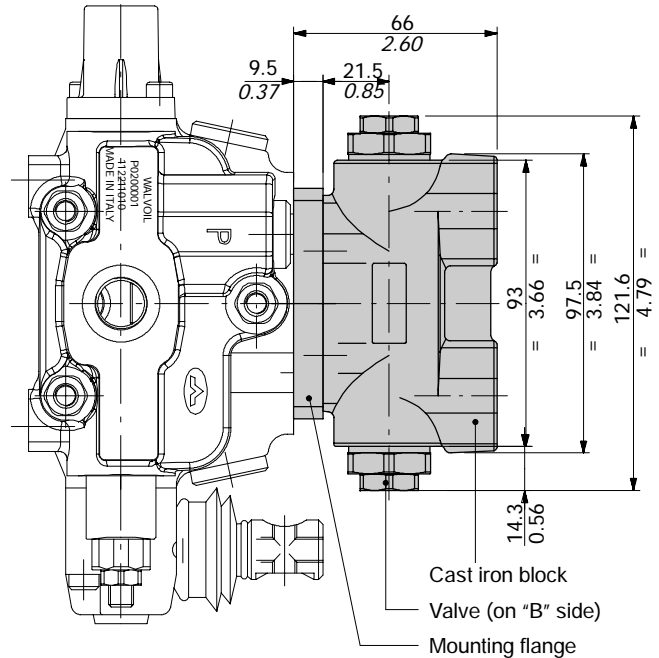
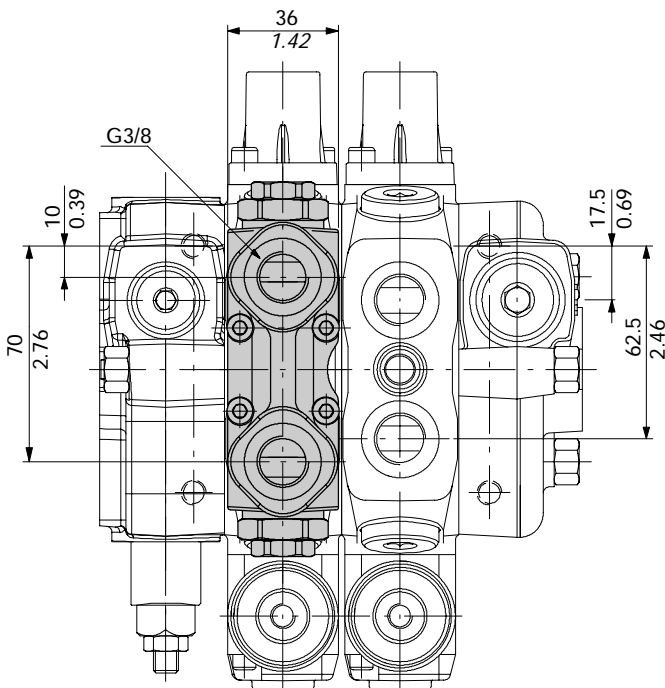
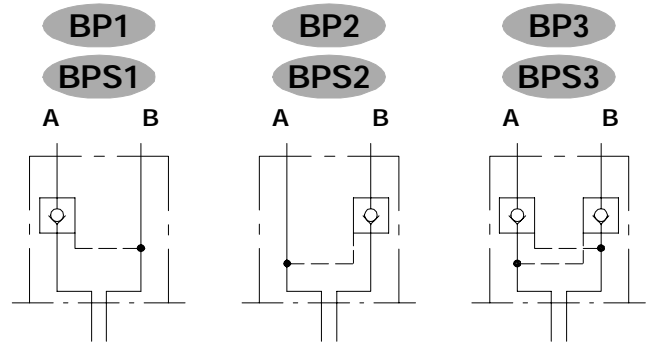
Pilot check valves

Cast iron block with pilot check valves.

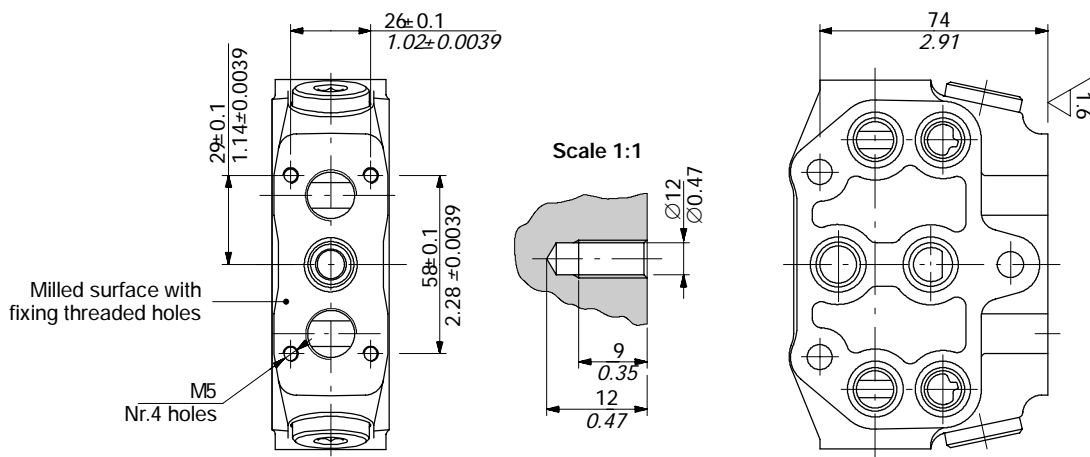
BPS 1

- 1 mounted on port A.
- 2 mounted on port B.
- 3 mounted on ports A and B.

BP direct type
BPS with pre-opening

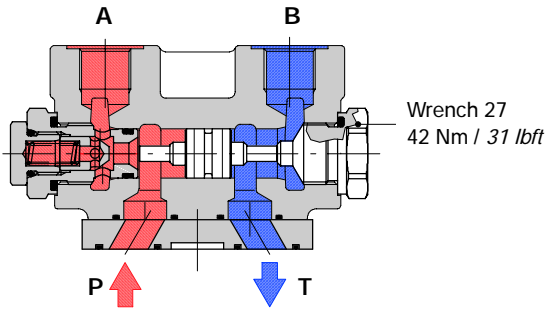


Example of extra machining on working section body



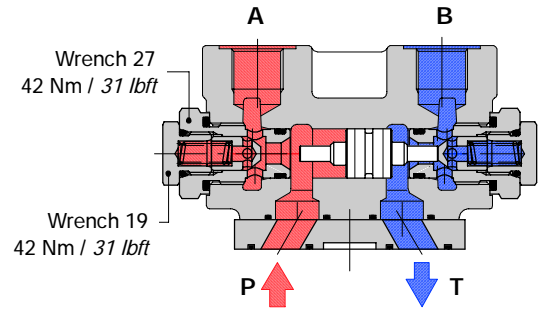
BP1 configuration

Example of pressure on port A and port B to tank

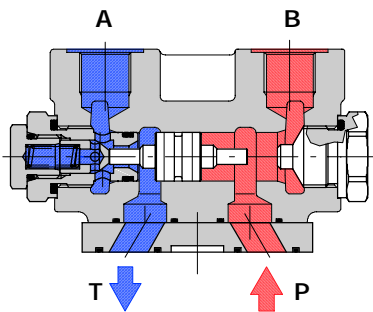


BP3 configuration

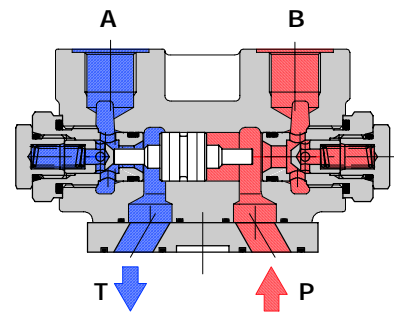
Example of pressure on port A and port B to tank



Example of pressure on port B and port A to tank

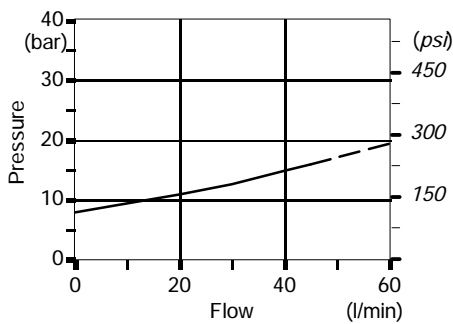


Example of pressure on port B and port A to tank



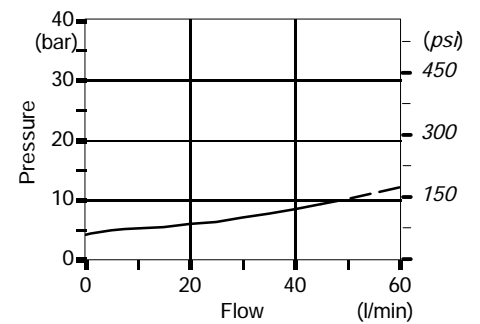
Performance data

BP valve pressure drop



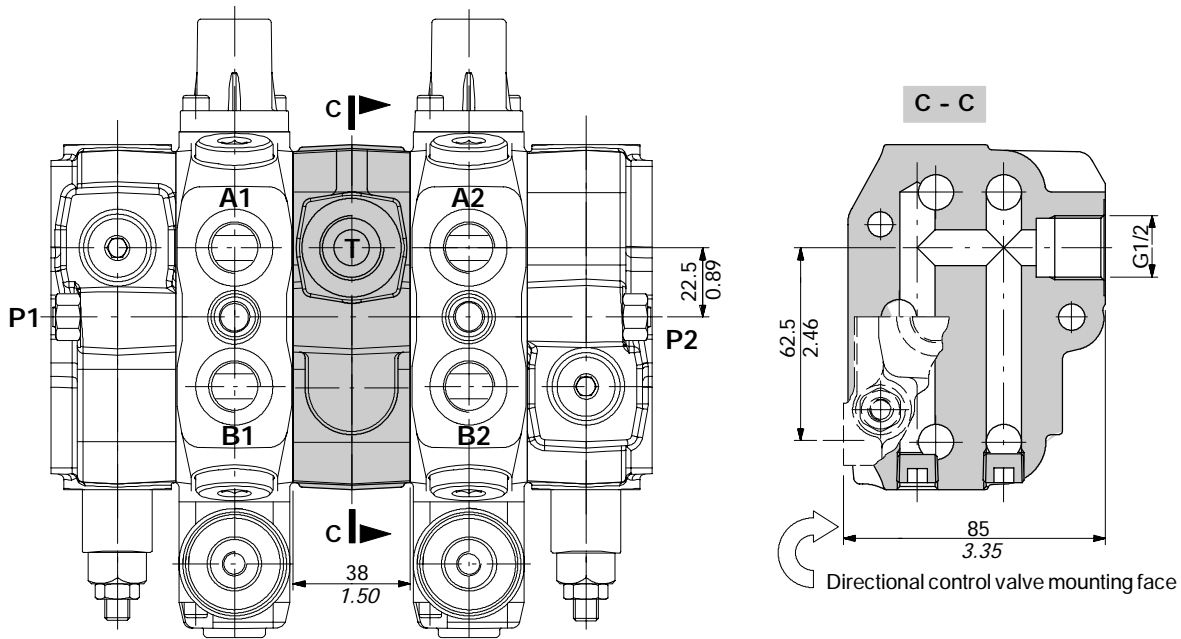
| Type | Pilot ratio | |
|------|------------------|---------|
| | With pre-opening | Main |
| BP | / | 1 : 5.3 |
| BPS | 1 : 16 | 1 : 3.2 |

BPS valve pressure drop

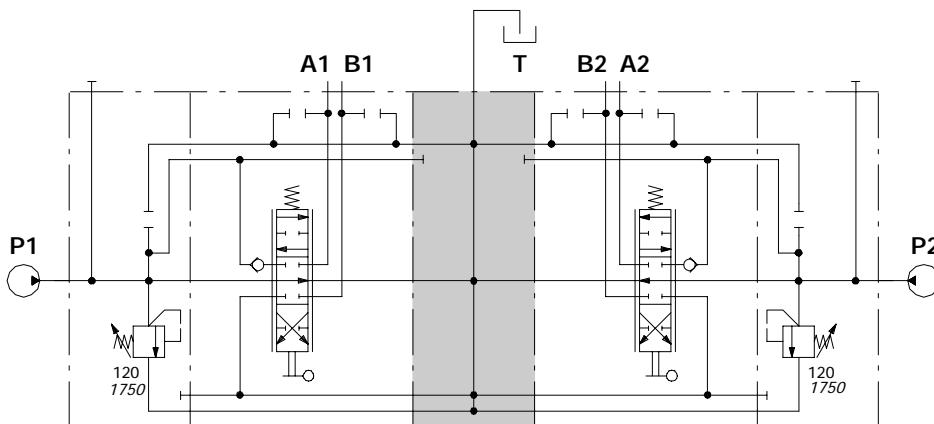


CS1 mid return manifolds

Mid return manifolds for directional valve with left and right inlet both; they allow 2 independent circuits with common outlet.



Hydraulic circuit

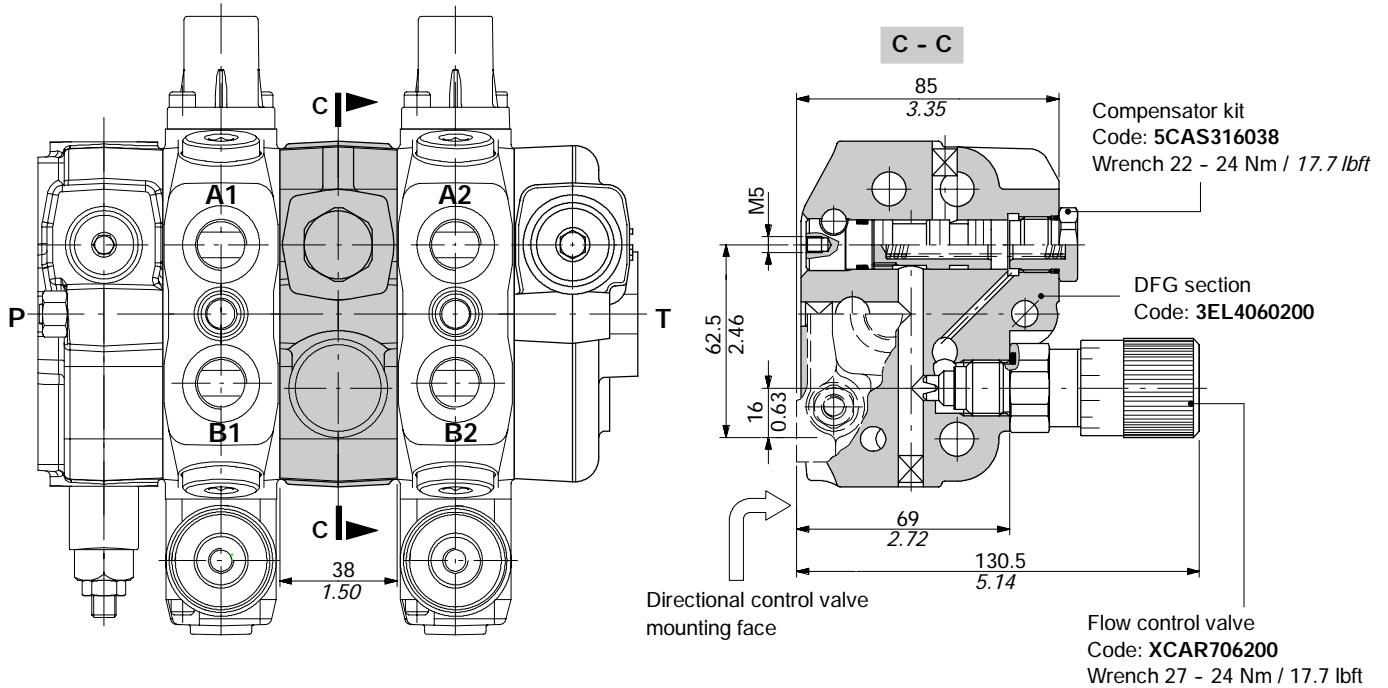


Description example:

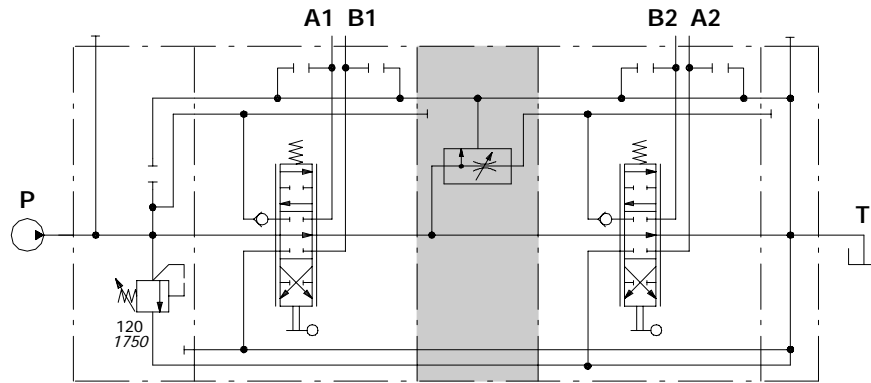
SD6/2/AC(YG3-120)/18L/CS1/18L/BC(YG3-120)

DFG pressure compensated flow divider section

The flow on the downstream sections can be adjusted from 0 to 40 l/min by means of graduated handwheel; flow exceeding setting goes to tank.

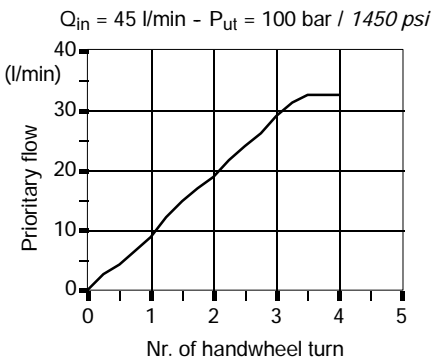


Hydraulic circuit

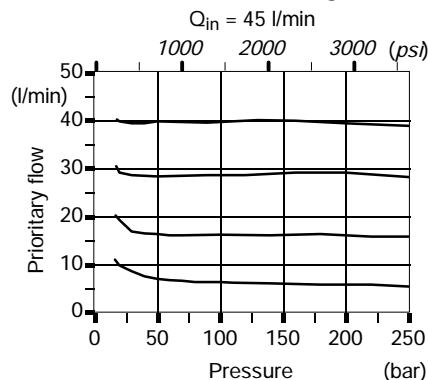


Description example:
SD6/2/AC(YG3-120)/18L/DFG/18L/RC

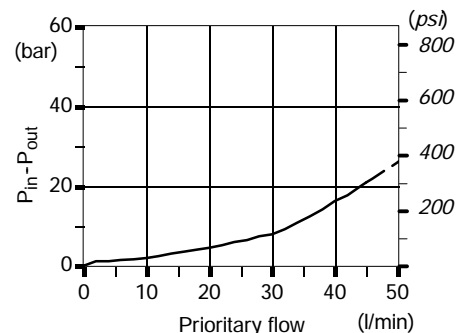
Flow regulation diagram



Pressure-flow diagram



Pressure drop



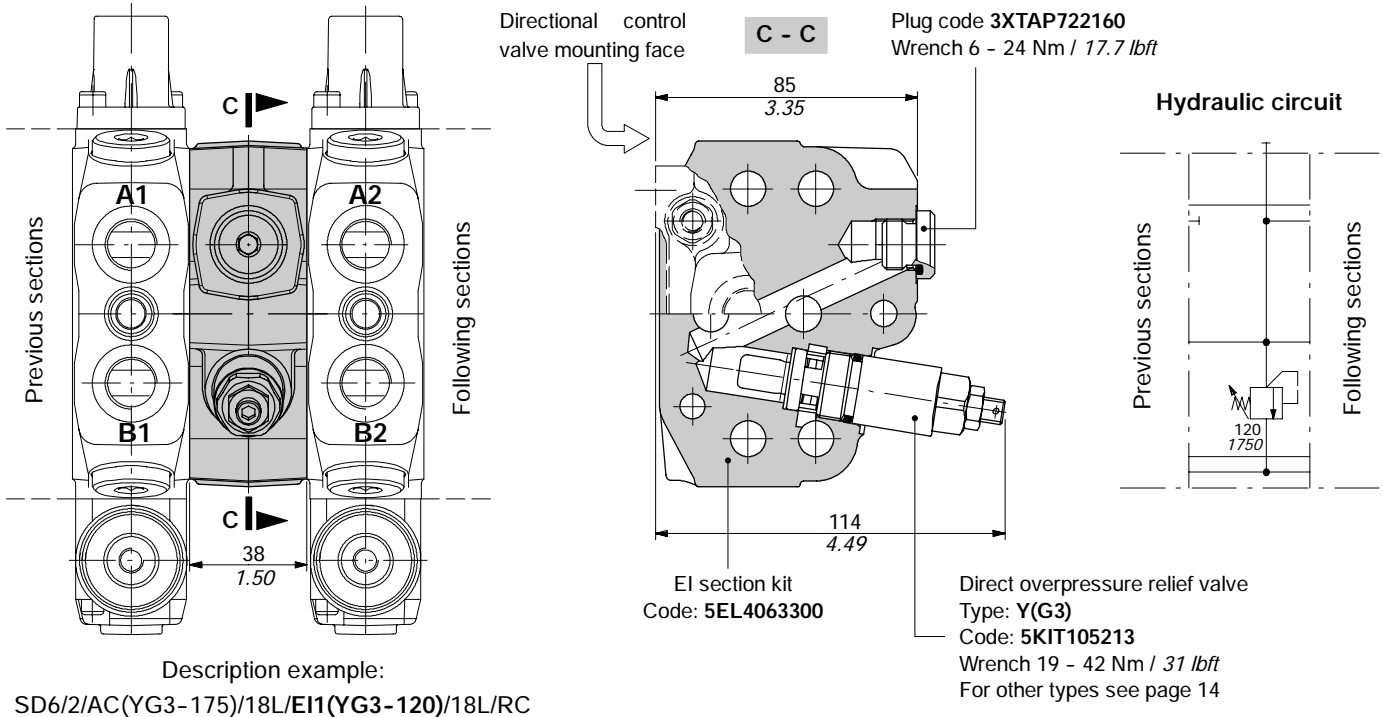
EI service relief valve section

The operation of up stream section exclude the EI downstream section.

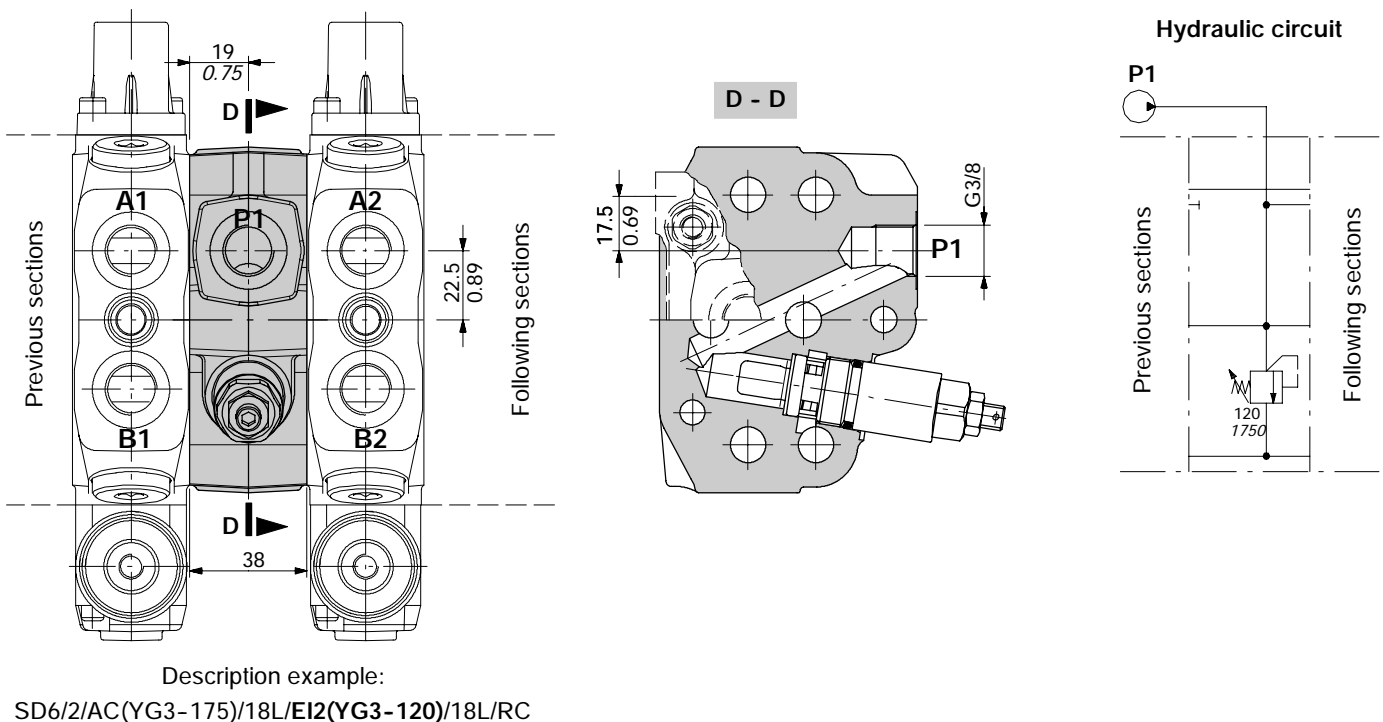
The pressure of the downstream sections should be adjusted at least 20 bar / 290 *psi* below the relief valve setting.

Execution EI2 is prearranged for a second inlet.

Execution EI1



Execution EI2



EVP3 inlet section with regulated flow

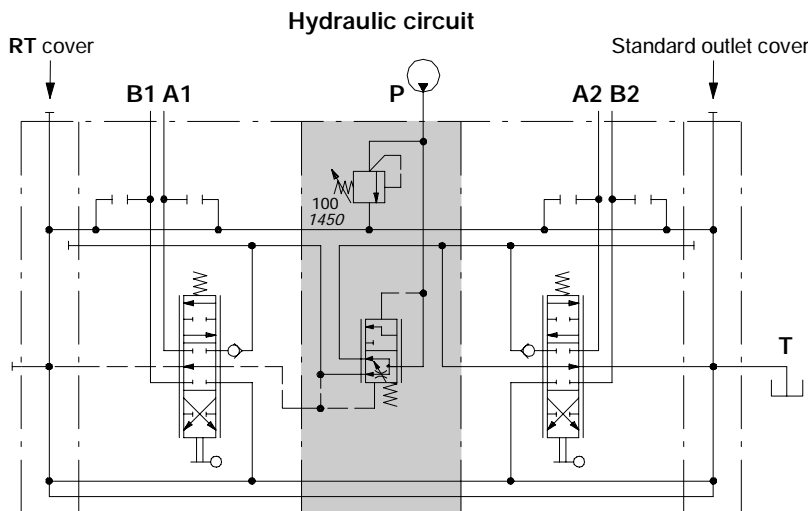
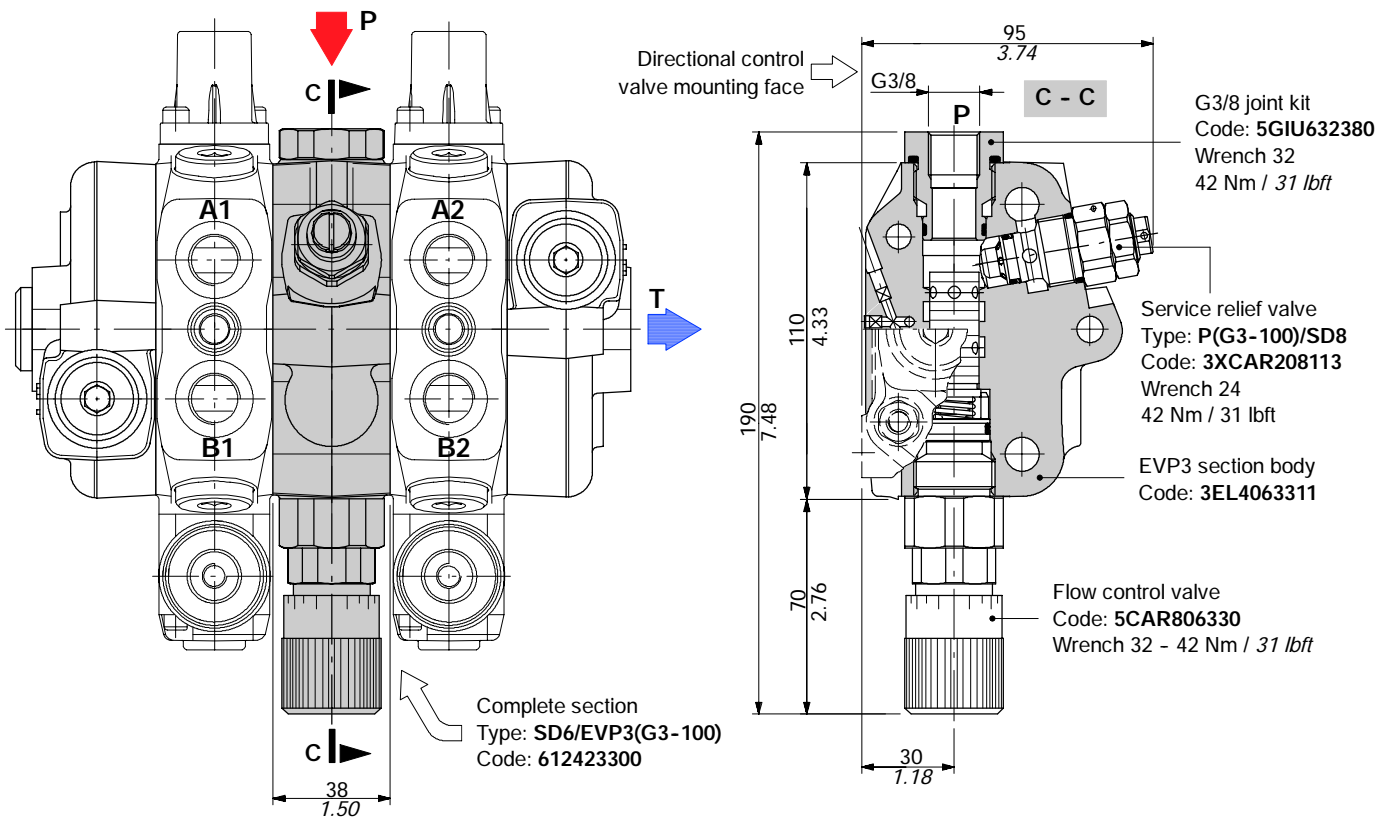
Intermediate inlet section with regulated flow priority valve and exceeding flow in pressure.

From EVP3, the regulated flow is supplied to left side working sections while the exceeding flow is supplied to right side working section.

On EVP3 is incorporate the main relief valve; the regulated flow is adjustable also with the circuit under pressure.

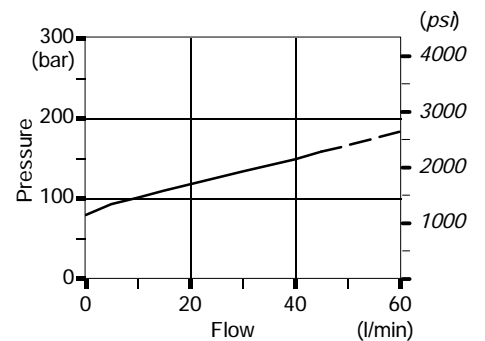
The working sections are assembled with two end cover, the left one is plugged (type RT code 612300112), while the right one has the tank port technical data:

Max. inlet flow = 60 l/min, max. regulated flow = 40 l/min.



Description example: SD6/2/RT/18L/EVP3(G3-100)/18L/RC

Service relief valve performance data



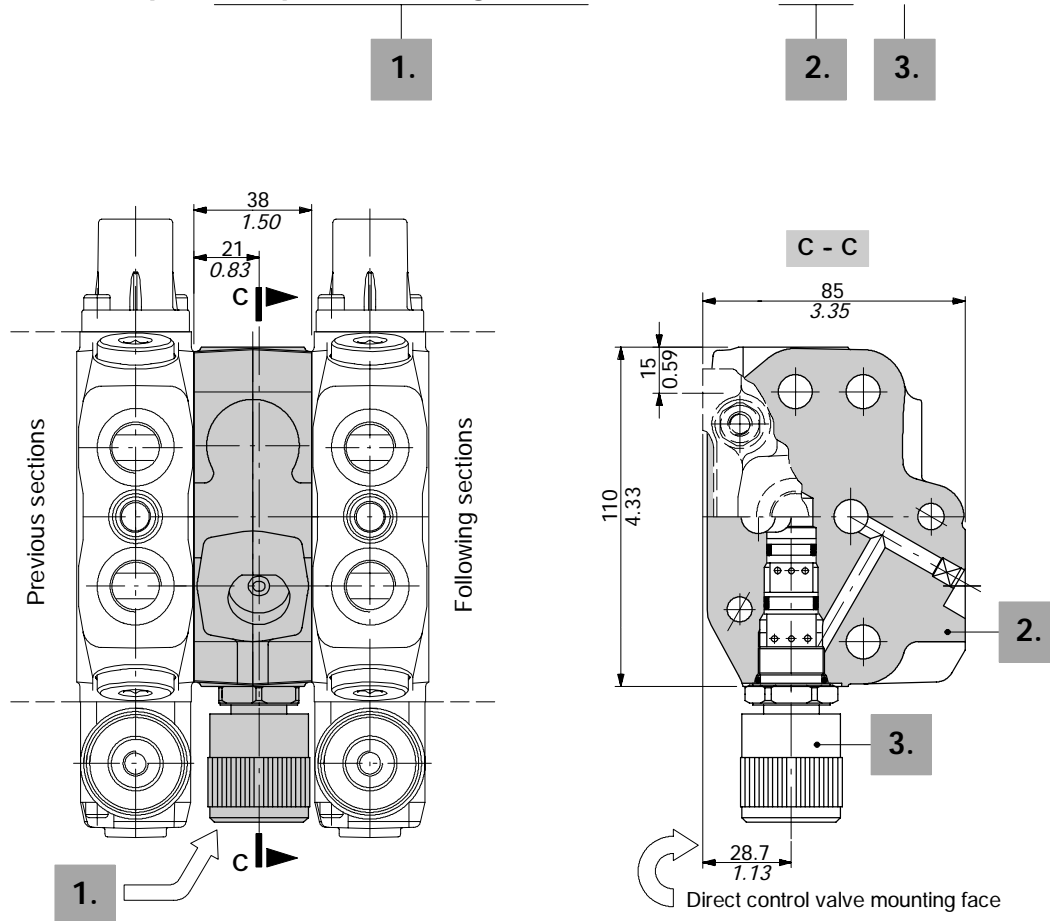
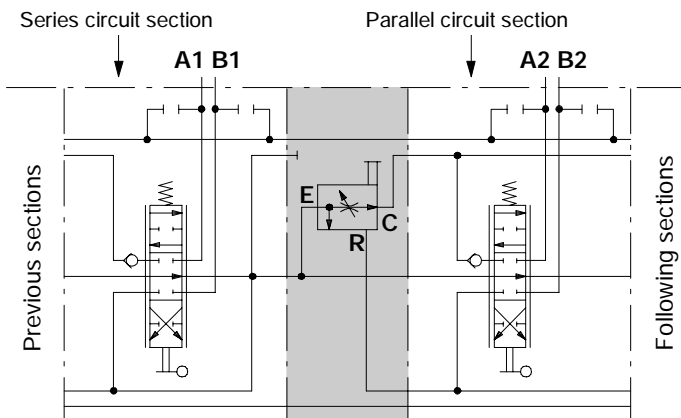
EVP9 pressure compensated flow control section

Section with pressure compensated 3-ways flow control cartridge valve.

The regulated flow is supplied to down stream sections, while the exceeding flow goes to tank.

max. inlet flow is 45 l/min, max. regulated flow is 30 l/min.

Description example: complete working section EL SD6 / EVP9 1


Hydraulic circuit


Description example:

SD6/4/AC(JG3-120)/.../S-18L/EVP91/18L/.../RC

1. Complete section

| TYPE | CODE | DESCRIPTION |
|-------|-----------|----------------------------------------|
| EVP91 | 612423503 | Fine handwheel operated |
| EVP92 | 612423501 | One turn with detent handwheel |
| EVP93 | 612423502 | With 12VDC proportional solenoid valve |

2. Section body kit

| TYPE | CODE | DESCRIPTION |
|------|------------|------------------------|
| EVP9 | 5EL4060302 | Include body and seals |

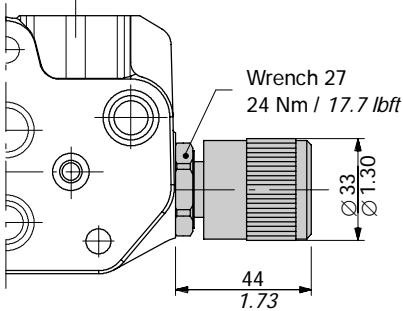
3. Flow control valve

| TYPE | CODE | DESCRIPTION |
|------|---------------|-------------------------------------------|
| 1 | 2S0PP10002000 | Fine handwheel operated valve |
| 2 | 2S1636020206 | Valve with one turn with detent handwheel |
| 3 | 2S0PP10002002 | 12VDC proportional solenoid valve |

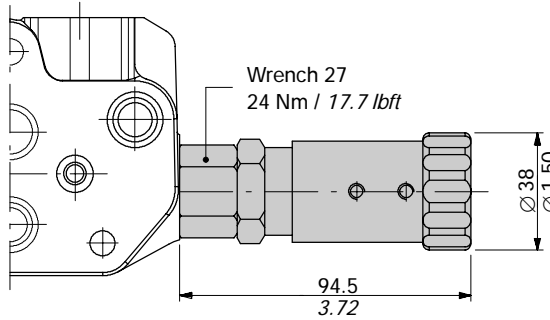
EVP9 pressure compensated flow control section

Handwheel operated

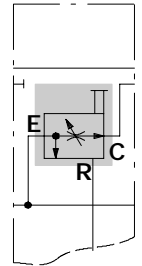
Continuous fine regulation



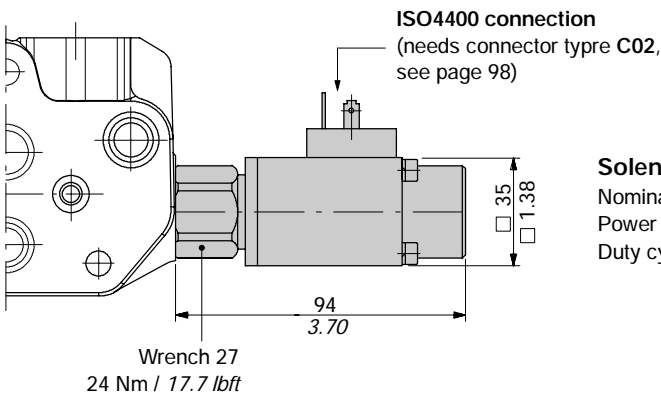
One turn with detent



Valve circuit



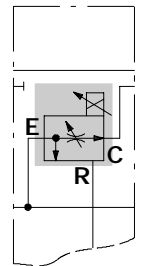
With proportional solenoid control



Solenoid operating features

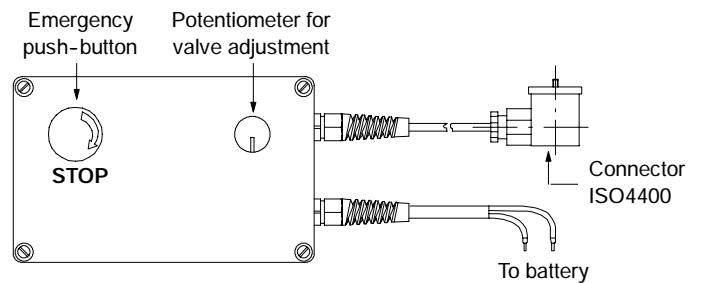
Nominal voltage . . . : 12 VDC
Power rating : 28 W
Duty cycle : 100%

Valve circuit



Example of solenoid flow control valve connection

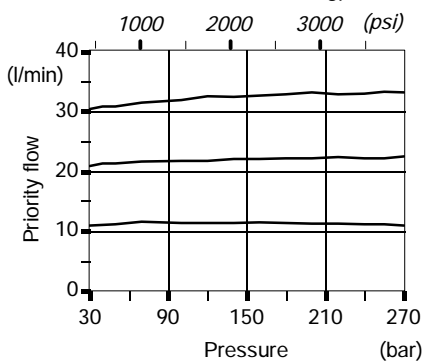
It's show a configuration with push-button panel type UPA model UPA12/100/SC01B22: for information contact Sales Dept.



Performance data

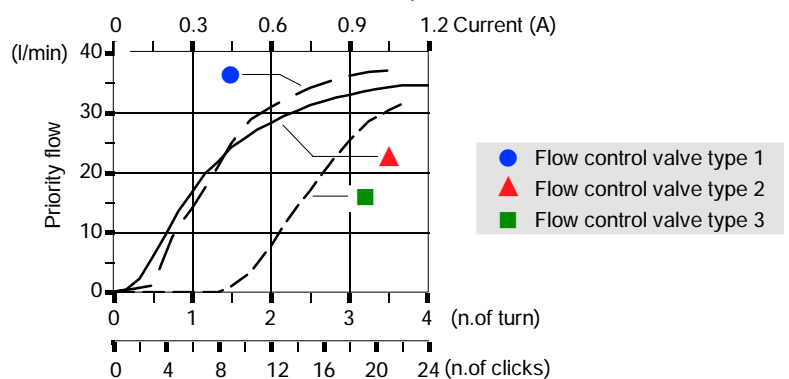
Pressure-flow diagram

Q_{in} = 45 l/min (12 US gpm)



Flow regulation diagram

Q_{in} = 45 l/min - P = 100 bar (1450 psi)



Ordering codes

Ordering example:

FS SD6 / RC *



Available configurations

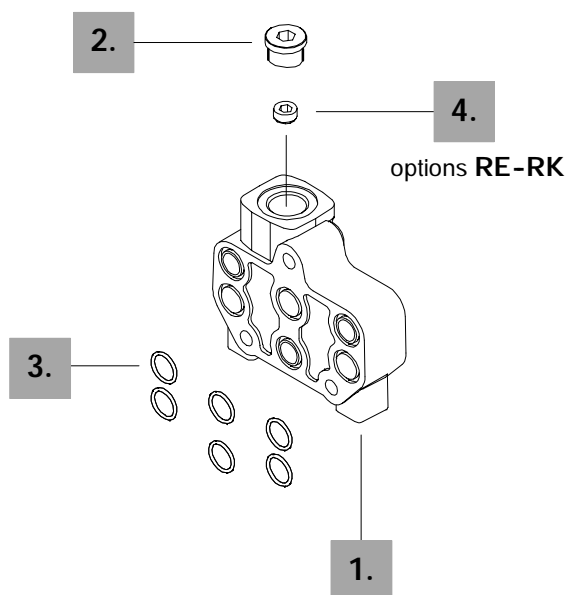
RC: side outlet

RD: upper outlet

RE: upper outlet with side carry-over

RK: upper outlet and closed centre

See page 62.



Outlet section parts

| Nr. | CODE | QTY | DESCRIPTION |
|-----|-------------|-----|------------------------------|
| 1. | 3FIA206300 | 1 | Outlet cover body * |
| 2. | 3XTAP727180 | 1 | G 1/2 plug * |
| 3. | 4GUA114018 | 6 | 14x1,78 NBR 70 SHO-ring seal |

Circuit options

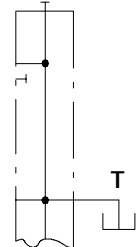
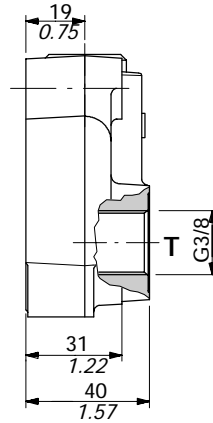
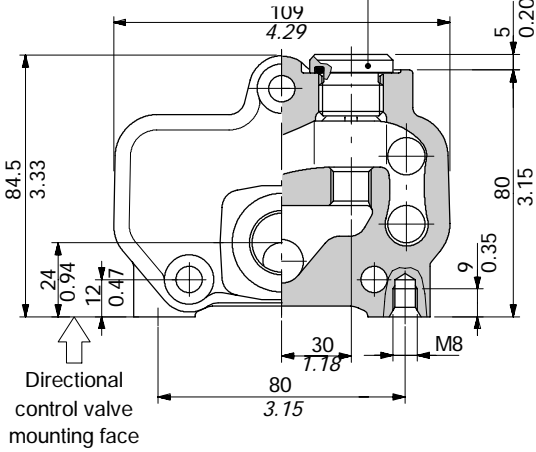
| Nr. | CODE | QTY | DESCRIPTION |
|-----|------------|-----|--------------------------------------------------------------|
| 4. | 4TAP413210 | 1 | G1/4 plug for carry-over (RE) and closed centre (RK) options |

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

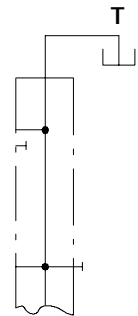
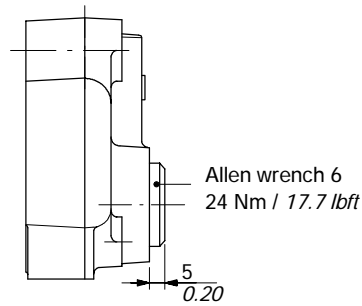
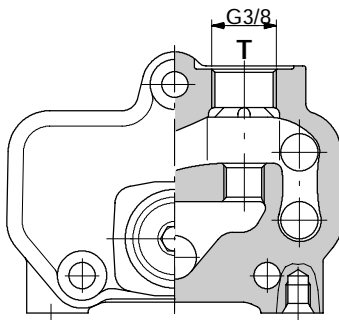
Dimensional data and hydraulic circuit

Type RC

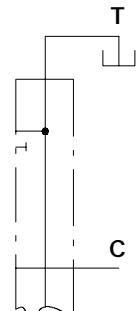
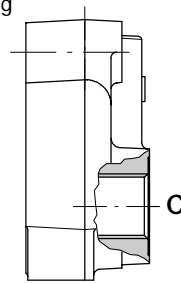
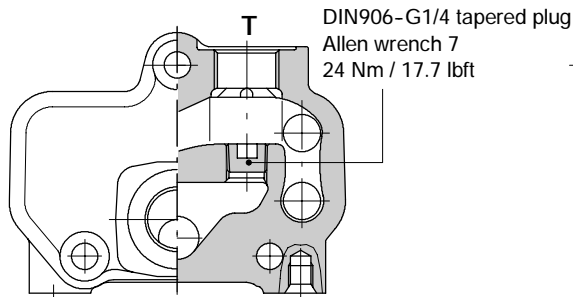
Allen wrench 6 - 24 Nm / 17.7 lbf



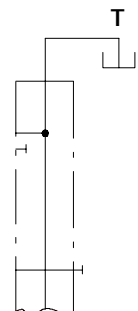
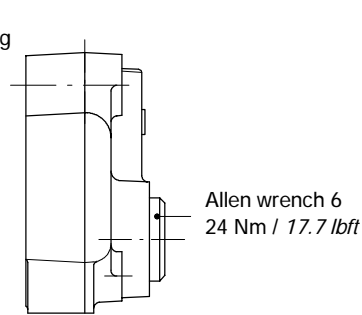
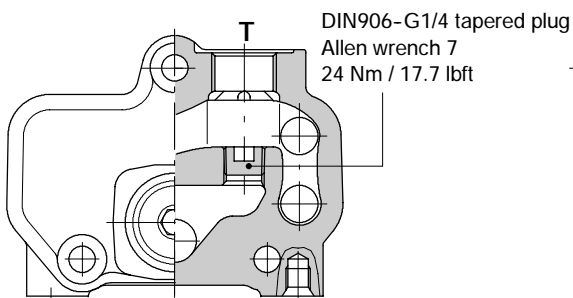
Type RD



Type RE



Type RK

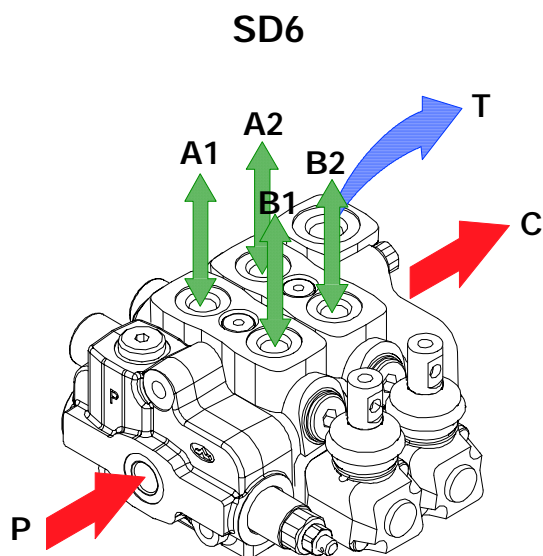


Installation and maintenance

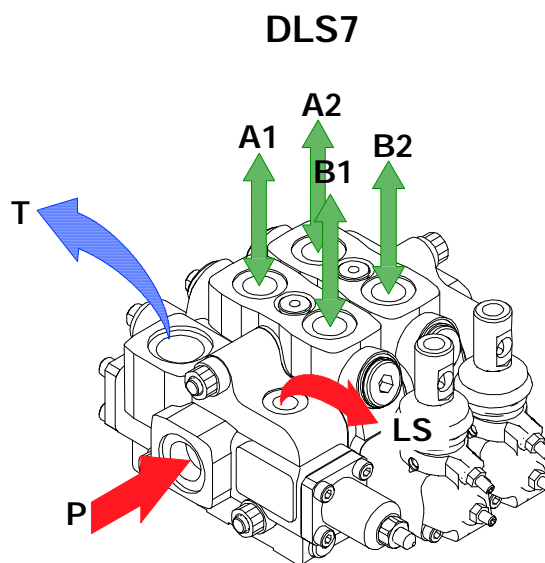
The SD6 and DLS7 valves are assembled and tested as per the technical specification of this catalogue.

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

- the valve can be assembled in any position; in order to prevent working section 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.



Configuration with carry-over



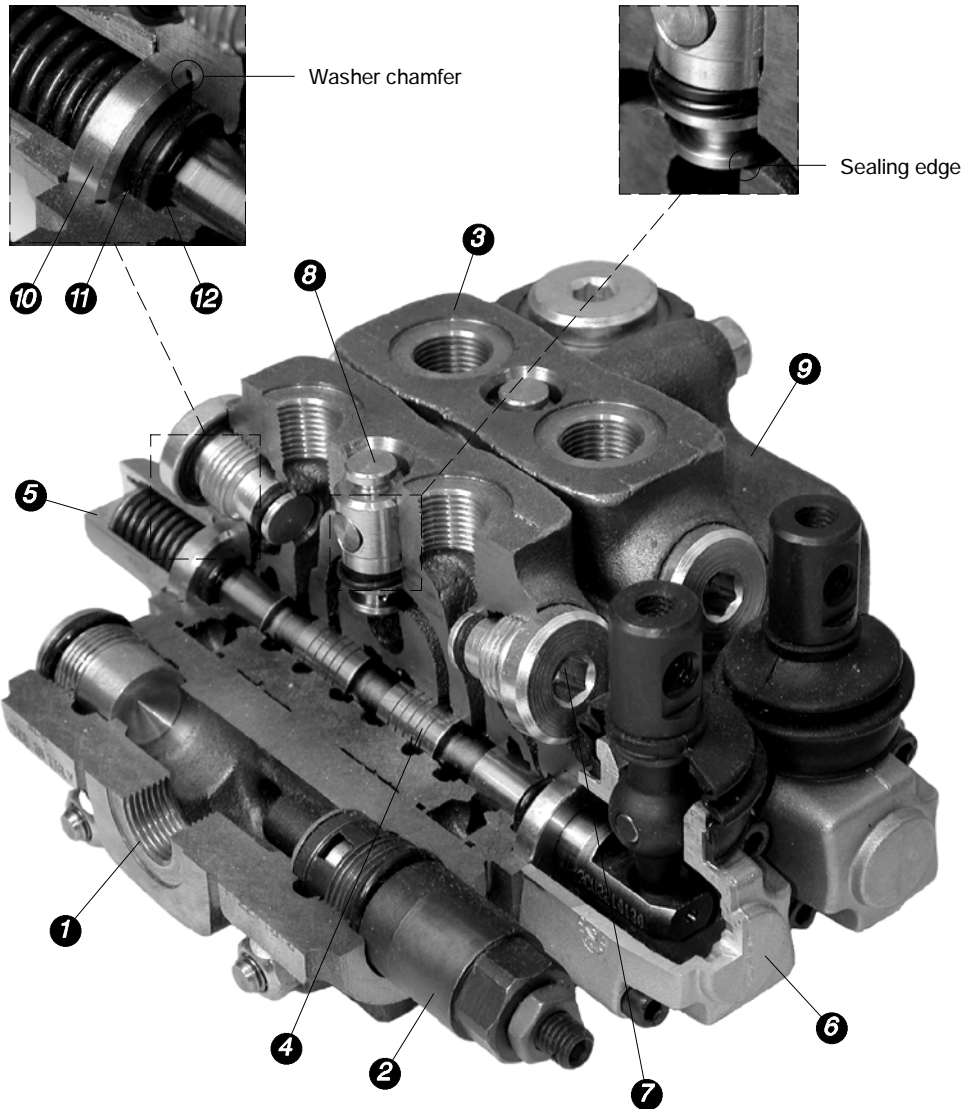
Configuration with AN inlet cover

Fitting tightening torque - Nm / lbf

| THREAD TYPE | SD6 | | | DLS7 | | |
|------------------------------|-------------------|--------------------|-------------------|-------------------|--------------------|--------------------|
| | port P | ports A, B | ports C, T | ports P, T | ports A, B | LS signal |
| BSP | G 3/8 | G 3/8 | G 1/2 | G 1/2 | G 3/8 | G 1/4 |
| With O-Ring seal | 35 / 25.8 | 35 / 25.8 | 50 / 36.9 | 50 / 36.9 | 35 / 25.8 | 20 / 15.7 |
| With copper washer | 40 / 29.5 | 40 / 29.5 | 60 / 44.3 | 60 / 44.3 | 40 / 29.5 | 25 / 18.4 |
| With steel and rubber washer | 30 / 22.1 | 30 / 22.1 | 60 / 44.3 | 60 / 44.3 | 30 / 22.1 | 16 / 11.8 |
| UN-UNF | 3/4-16 (SAE 8) | 9/16-18 (SAE 6) | 3/4-16 (SAE 8) | 3/4-16 (SAE 8) | 9/16-18 (SAE 6) | 9/16-18 (SAE 6) |
| With O-Ring seal | 50 / 36.9 | 30 / 22.1 | 50 / 36.9 | 50 / 36.9 | 30 / 22.1 | 30 / 22.1 |
| METRIC | 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 | | | |
| 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.

It's shown a section of SD6/2/AC(YG3-175)/18L/18L/RC valve.



| Callout |
|-------------------------------------------------------------------------------------------------|
| 1) Inlet cover |
| 2) Overpressure relief valve |
| 3) Working section |
| 4) Spool: <i>normally spools are interchangeable, verify the smoothness during the assembly</i> |
| 5) "A" side spool positioner |
| 6) Lever pivot box |
| 7) Port relief valve prearrangement |
| 8) Load check valve |
| 9) Outlet cover |
| 10) Holding O-Ring washer |
| 11) 16.26x2.18 Parback seal code: 4ANE816314 |
| 12) 15.88x2.62 O-ring seal code: 4GUA115926 |

NOTE - All moving parts inside cap, lever box and mechanical joystick are lubricated with synthetic base grease grade NLGI2

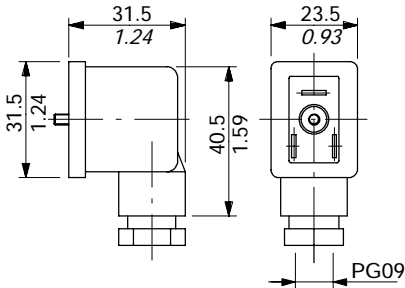
| Malfunction | Cause | Remedy |
|-------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------|
| External leakage pivot box lever or control kit side. | Worn spool seal due to mechanical actuation or high back pressure. | Locate the leakage and replace the seal. Check back pressure level. |
| Excessive internal leakage on A and B ports. | Increase clearance between spools and body due to high wear. | Replace the working section and check the oil contamination level. |
| Dropping load during transition while raising. | High leakage on the load check valve. | Remove the load check valve and clean the seat, verifying it's not dented. |
| Inability to build pressure on A and B ports. | Pressure relief valve blocked open. Low pump pressure and flow. | Remove and clean or replace the valve. Check the pump and circuit. |

Accessories

Connectors

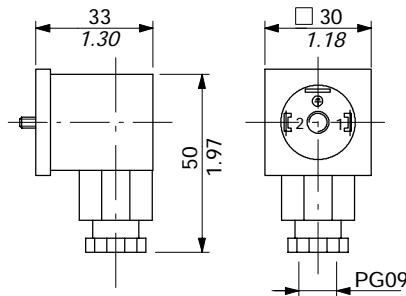
Type C01 code: 2X1001020

2P+T, according to EN175301-803



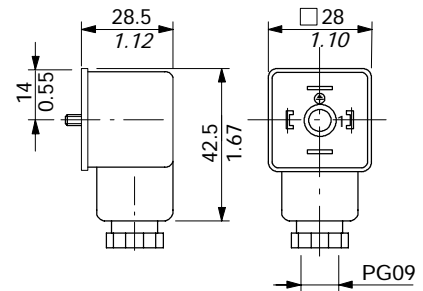
Type C02 code: 2X1001010

2P+T according to ISO4400 / EN175301-803



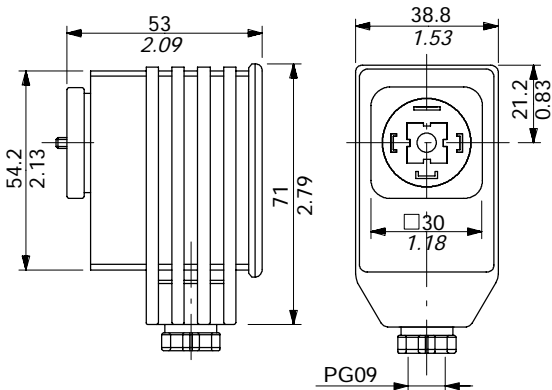
Type C03 code: 2X1001030

3P+T according to ISO4400 / EN175301-803



Type C05 code: 2X1001080

3P+T according to ISO4400 / EN175301-803.
With bridge rectifier, to use with VAC supply.

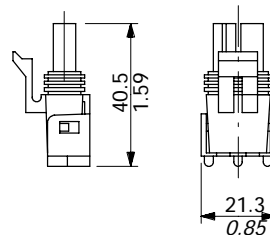


Type C07 code: 5CON001

2 Poles, type Packard male case with female contact

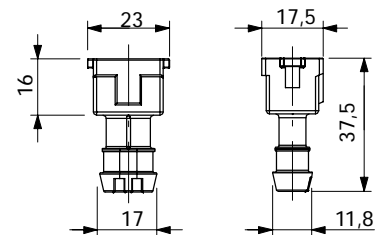
Type C40 code: 5CON140047

2 Poles, type Packard male case with male contact



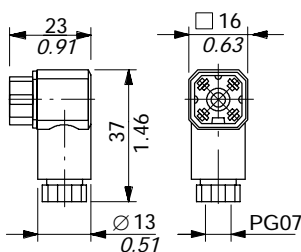
Tipò C08 codice: 5CON003

2P tipo AMP "Junior-Power-Timer" femmina con terminale femmina



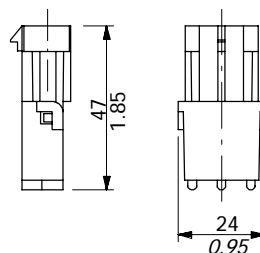
Type C11 code: 5CON006

4P according to VDE0660-0110



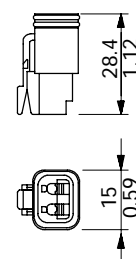
Type C17 code: 5CON005

2 Poles, type Packard female case with male contact



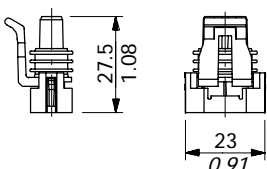
Type C19 code: 5CON130030

2 Poles, type Deutsch DT06-2S male case with female contact



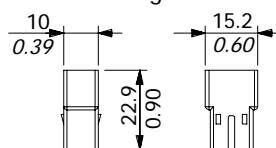
Type C20 code: 5CON017

2 pole, type "PACKARD Metri-Pack" male housing with female ends



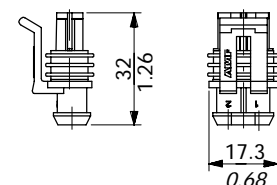
Type C21 code: 5CON018

2 poles, type "AMP Fastin-Faston" female housing with male ends



Type C24 code: 5CON0031

2 poles, type "AMP Superseal" male housing with female ends

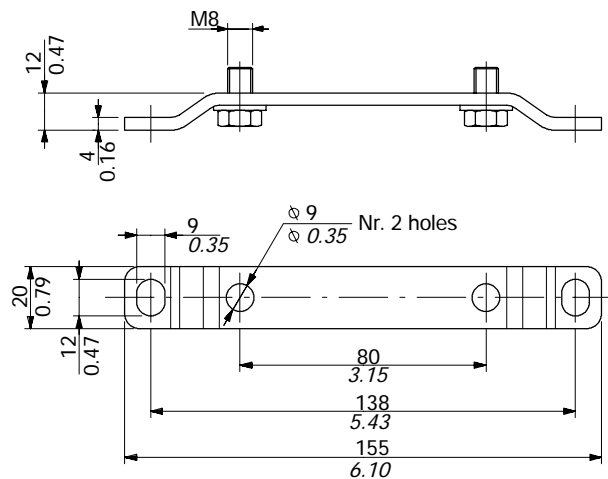
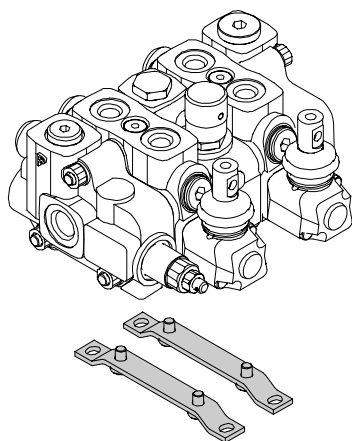


Connectors

| Type | Poles | Nominal voltage | Nominal current | Permitted conductor section range | Permitted cable diameter range | Weather protection |
|------|--------|-------------------|-----------------|------------------------------------------------------------------|-----------------------------------|--------------------|
| C01 | 2P + T | 250 VAC / 300 VDC | 10 A | max.1.5 mm ² / max.0.0023 in ² | 6 to 8 mm / 0.24 to 0.31 in | IP65 |
| C02 | 2P + T | 250 VAC / 300 VDC | 10 A | max.1.5 mm ² / max.0.0023 in ² | 6 to 8 mm / 0.24 to 0.31 in | IP65 |
| C03 | 3P + T | 250 VAC / 300 VDC | 10 A | max.1.5 mm ² / max.0.0023 in ² | 6 to 8 mm / 0.24 to 0.31 in | IP65 |
| C05 | 3P + T | 230 VAC | 1.5 A | max.1.5 mm ² / max.0.0023 in ² | 6 to 8 mm / 0.24 to 0.31 in | IP65 |
| C06 | 3P + T | 250 VAC / 300 VDC | 6 A | max.0.75 mm ² / max.0.00116 in ² | 3.5 to 6 mm / 0.14 to 0.24 in | IP65 |
| C07 | 2P | / | 20 A | 1 to 2 mm ² / 0.00155 to 0.0031 in ² | 2.8 to 3.5 mm / 0.11 to 0.14 in | IP67 |
| C08 | 2P | 250 VAC | 12 A | 0.5 to 1 mm ² / 0.00077 to 0.00155 in ² | 1.3 to 1.6 mm / 0.05 to 0.063 in | IP65 |
| C11 | 4P | 50 VAC / 120 VDC | 6 A | 0.14 to 0.5 mm ² / 0.00022 to 0.00077 in ² | 4 to 7.5 mm / 0.16 to 0.29 in | IP65 |
| C17 | 2P | / | 20 A | 1 to 2 mm ² / 0.00155 to 0.0031 in ² | 1.3 to 1.4 mm / 0.05 to 0.067 in | IP67 |
| C19 | 2P | / | 13 A | 1 to 1.2 mm ² / 0.00155 to 0.00186 in ² | 2.2 to 3.5 mm / 0.088 to 0.14 in | IP67 |
| C20 | 2P | / | 14 A | 0.8 to 1 mm ² / 0.00124 to 0.00155 in ² | 1.3 to 1.7 mm / 0.05 to 0.067 in | / |
| C21 | 2P | / | 7A | 0.3 to 0.8 mm ² / 0.00046 to 0.0012 in ² | 2.2 to 3 mm / 0.087 to 0.118 in | / |
| C24 | 2P | / | 14 A | 0.3 to 5 mm ² / 0.00046 to 0.00077 in ² | 1.4 to 1.7 mm / 0.055 to 0.067 in | IP67 |
| C40 | 2P | / | 20 A | 1 to 2 mm ² / 0.00155 to 0.0031 in ² | 2.8 to 3.5 mm / 0.11 to 0.14 in | IP67 |

Fixing brackets

They are available for SD6 and DLS7 directional valves and they are zinc plated steel, complete with mounting screws.



Note

SD6 and DLS7 valves can be supplied with one coat of black paint (CVN configuration).

Description example: SD6/2/AC(YG3-175)/18L/18L/RC-<CVN>

Description example: DLS7/2/AM(G3-120)/6V8MCLFG/6V8MCLFG/RF-<CVN>

NOTE - For different colour consult Sales Dept.



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