SECTIONAL DIRECTIONAL CONTROL VALVES
**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.

**DLS7**

They are for systems with fixed displacement pumps (open centre version), or variable displacement pumps (closed centre version), with Load-Sensing signal on each working section to pump flow control valve control.
- Load-independent flow control.
- Ports valves and “B” side control kits are the same of SD6 directional valve.
- L.S. signal connections on every working section.

---

**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.**
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# 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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal flow rating</td>
<td>45 l/min</td>
</tr>
</tbody>
</table>
| Operating pressure (max.)     | parallel or tandem circuit: 315 bar, 4600 psi  
                           | series circuit: 210 bar, 3050 psi  |
| Back pressure (max.)          | on outlet port T: 25 bar, 360 psi  |
| Internal leakage A(B)→T       | $\Delta p = 100$ bar - 1450 psi fluid and valve at 40°C: 3 cm³/min * 0.18 in³/min * |

## DLS7

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
</table>
| Nominal flow rating (with 14 bar / 200 psi stand-by) | on inlet port P: 75 l/min  
                           | on ports A and B: 60 l/min  |
| Operating pressure (max.)     | 315 bar, 4600 psi  |
| Back pressure (max.)          | on outlet port T: 25 bar, 360 psi  |
| Internal leakage A(B)→T       | $\Delta p = 100$ bar - 1450 psi fluid and valve at 40°C: 3 cm³/min * 0.18 in³/min * |

## Fluid

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Mineral based oil</th>
</tr>
</thead>
</table>
| Fluid temperature              | with NBR (BUNA-N) seals: from -20°C to 80°C  
                           | with FPM (VITON) seals: from -20°C to 100°C  |
| Viscosity                      | operating range: from 15 to 75 mm²/s, from 15 to 75 cSt  |
|                                | min.: 12 mm²/s, 12 cSt  
                           | max.: 400 mm²/s, 400 cSt  |
| Max level of contamination     | -/19/16 - ISO 4406 |
| Ambient temperature            | with mechanical devices: from -40°C to 60°C  
                           | with pneumatic and hydraulic devices: from -30°C to 60°C  
                           | with electric devices: from -20°C to 50°C  |
| Tie rods tightening torque     | 30 Nm, 22 lbft |
| (wrench 13)                    |                  |

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

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

<table>
<thead>
<tr>
<th></th>
<th>BSP</th>
<th>UN-UNF</th>
<th>METRICA</th>
<th>NPTF</th>
</tr>
</thead>
<tbody>
<tr>
<td>THREAD ACCORDING TO</td>
<td>ISO 228/1</td>
<td>ISO 263</td>
<td>ISO 262</td>
<td>ANSI B1.20.3</td>
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<tr>
<td></td>
<td>BS 2779</td>
<td>ANST B1.1 unified</td>
<td></td>
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<tr>
<td>CAVITY DIMENSION</td>
<td>ISO 1179</td>
<td>11926</td>
<td>9974-1</td>
<td></td>
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<tr>
<td>ACCORDING TO</td>
<td>SAE</td>
<td>J1926</td>
<td>J2244</td>
<td>J476a</td>
</tr>
<tr>
<td></td>
<td>DIN</td>
<td></td>
<td>3852-2</td>
<td>shape X or Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3852-1</td>
<td>shape X or Y</td>
</tr>
</tbody>
</table>

PORTS THREADING

**SD6**

<table>
<thead>
<tr>
<th>PORTS</th>
<th>BSP</th>
<th>UN-UNF</th>
<th>METRICA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet P</td>
<td>G 3/8</td>
<td>3/4-16 (SAE 8)</td>
<td>M18x1.5</td>
</tr>
<tr>
<td>Working ports A and B</td>
<td>G 3/8</td>
<td>9/16-18 (SAE 6)</td>
<td>M18x1.5</td>
</tr>
<tr>
<td>Outlet T and carry-over C</td>
<td>G 1/2</td>
<td>3/4-16 (SAE 8)</td>
<td>M22x1.5</td>
</tr>
</tbody>
</table>

**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 |

**DLS7**

<table>
<thead>
<tr>
<th>PORTS</th>
<th>BSP</th>
<th>UN-UNF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet P and outlet T</td>
<td>G 1/2</td>
<td>3/4-16 (SAE 8)</td>
</tr>
<tr>
<td>Working ports A and B</td>
<td>G 3/8</td>
<td>9/16-18 (SAE 6)</td>
</tr>
<tr>
<td>Load Sensing signal LS</td>
<td>G 1/4</td>
<td>9/16-18 (SAE 6)</td>
</tr>
</tbody>
</table>

**PILOT PORTS**

| Hydraulic ports | G 1/4    | 9/16-18 (SAE 6) |
| Pneumatic ports | NPTF 1/8-27 | NPTF 1/8-27 |
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### Dimensional Data (Series or Tandem Circuit)

**Production Batch:**
- P06 = Production year (2006)
- 00001 = Progressive number

- **Valve Code**

- **Carry-over Configuration**

- **Fixing Bracket Available on Request**

<table>
<thead>
<tr>
<th>Type</th>
<th>E</th>
<th>F</th>
<th>Weight kg</th>
<th>Weight lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD6/1</td>
<td>118.5</td>
<td>58</td>
<td>3.28</td>
<td>7.26</td>
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<tr>
<td>SD6/2</td>
<td>156.5</td>
<td>96</td>
<td>3.78</td>
<td>8.36</td>
</tr>
<tr>
<td>SD6/3</td>
<td>194.5</td>
<td>134</td>
<td>5.28</td>
<td>11.65</td>
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<td>SD6/4</td>
<td>232.5</td>
<td>172</td>
<td>6.77</td>
<td>14.87</td>
</tr>
<tr>
<td>SD6/5</td>
<td>270.5</td>
<td>210</td>
<td>8.27</td>
<td>17.97</td>
</tr>
<tr>
<td>SD6/6</td>
<td>308.5</td>
<td>248</td>
<td>9.76</td>
<td>21.51</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>E</th>
<th>F</th>
<th>Weight kg</th>
<th>Weight lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD6/7</td>
<td>346.5</td>
<td>286</td>
<td>11.26</td>
<td>24.80</td>
</tr>
<tr>
<td>SD6/8</td>
<td>384.5</td>
<td>324</td>
<td>12.76</td>
<td>28.12</td>
</tr>
<tr>
<td>SD6/9</td>
<td>422.5</td>
<td>362</td>
<td>14.26</td>
<td>31.47</td>
</tr>
<tr>
<td>SD6/10</td>
<td>460.5</td>
<td>400</td>
<td>15.76</td>
<td>34.78</td>
</tr>
<tr>
<td>SD6/11</td>
<td>498.5</td>
<td>438</td>
<td>17.26</td>
<td>38.23</td>
</tr>
<tr>
<td>SD6/12</td>
<td>536.5</td>
<td>476</td>
<td>18.76</td>
<td>41.58</td>
</tr>
</tbody>
</table>
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 the free flow pressure line; it's excluded when an upstream section is operated.

**Series circuit**

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

**Right inlet directional valve**

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

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

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

Ordering codes

Description example: standard configuration with side inlet and outlet

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

1. Complete inlet cover *
   - AC(YG3-120): Side inlet with VMDJ direct pressure relief valve
   - AC(YG3-120): Side inlet with VMDY direct pressure relief valve
   - AD(YG3-120): Upper inlet with VMDY direct pressure relief valve

2. Complete working section *
   - P-18L: Parallel circuit, prearranged for port valves, double acting spool with spring return, lever control
   - S-18L: As previous with series circuit
   - SP-18L: As previous with series-parallel (tandem) circuit

3. Intermediate section *
   - DFG: Pressure compensated flow divider section
   - EI1(YG3): With direct overpressure relief valve
   - EI2(YG3): With direct overpressure relief valve and auxiliary inlet

4. Complete outlet cover *
   - RC: Side outlet
   - RD: Upper outlet
   - RE: Upper outlet with side carry-over
   - RK: Upper outlet with closed centre

5. Fixing bracket
   - STAF: Brackets with fixing screws

6. Assembling kit
   - 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

NOTE - For covers and sections description composition see related pages.
NOTE (*) - Items are referred to BSP thread.
Description example: configuration with 2 side inlets and mid return manifold:

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

No. of working section

1. 2. 8. 9. 10.

1st section following section

7. Assembling kit for valve with CS1

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5TIR108193</td>
<td>Tie rod kit for 2 sections valve (with CS1)</td>
</tr>
<tr>
<td>5TIR108231</td>
<td>Tie rod kit for 3 sections valve (with CS1)</td>
</tr>
<tr>
<td>5TIR108269</td>
<td>Tie rod kit for 4 sections valve (with CS1)</td>
</tr>
<tr>
<td>5TIR108307</td>
<td>Tie rod kit for 5 sections valve (with CS1)</td>
</tr>
<tr>
<td>5TIR108345</td>
<td>Tie rod kit for 6 sections valve (with CS1)</td>
</tr>
<tr>
<td>5TIR108383</td>
<td>Tie rod kit for 7 sections valve (with CS1)</td>
</tr>
<tr>
<td>5TIR108421</td>
<td>Tie rod kit for 8 sections valve (with CS1)</td>
</tr>
<tr>
<td>5TIR108459</td>
<td>Tie rod kit for 9 sections valve (with CS1)</td>
</tr>
<tr>
<td>5TIR108497</td>
<td>Tie rod kit for 10 sections valve (with CS1)</td>
</tr>
</tbody>
</table>

8. Return manifold

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS1</td>
<td>612400010</td>
<td>Mid return manifold with G1/2 outlet port</td>
</tr>
</tbody>
</table>

9. Complete right inlet working section *

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-ED-18L</td>
<td>612101048</td>
<td>Parallel circuit, prearranged for port valves, double acting spool with spring return, lever control</td>
</tr>
<tr>
<td>S-ED-18L</td>
<td>612111017</td>
<td>As previous with series circuit</td>
</tr>
<tr>
<td>SP-ED-18L</td>
<td>612121003</td>
<td>As previous with series-parallel (tandem) circuit</td>
</tr>
</tbody>
</table>

10. Complete right inlet cover *

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC(JG3-120)</td>
<td>61220117</td>
<td>Side inlet with VMDJ direct pressure relief valve</td>
</tr>
<tr>
<td>BC(YG3-120)</td>
<td>612201130</td>
<td>Side inlet with VMDY direct pressure relief valve</td>
</tr>
<tr>
<td>BD(YG3-120)</td>
<td>612201115</td>
<td>Upper inlet with VMDY direct pressure relief valve</td>
</tr>
</tbody>
</table>

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.

For special configuration see page 19.
2. Inlet relief options

<table>
<thead>
<tr>
<th>TYPE CODE DESCRIPTION</th>
<th>RANGE</th>
<th>STANDARD SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMD5/1 balanced direct pressure relief valve type Y (YG2)</td>
<td>63 to 125 bar / 900 to 1800 psi</td>
<td>80 bar / 1150 psi</td>
</tr>
<tr>
<td>5KIT105212</td>
<td>100 to 200 bar / 1450 to 2900 psi</td>
<td>120 bar / 1750 psi</td>
</tr>
<tr>
<td>5KIT105214</td>
<td>160 to 315 bar / 2300 to 4600 psi</td>
<td>220 bar / 3200 psi</td>
</tr>
</tbody>
</table>

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

(YG2) SKIT105412 Range 40 to 80 bar / 580 to 1150 psi standard setting 80 bar / 1150 psi

(YG3) SKIT105413 Range 63 to 200 bar / 900 to 2900 psi standard setting 120 bar / 1750 psi

(YG4) SKIT105414 Range 160 to 315 bar / 2300 to 4600 psi standard setting 220 bar / 3200 psi

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

1. Inlet valve options

<table>
<thead>
<tr>
<th>CODE DESCRIPTION</th>
<th>page 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>3FIA106302+3XTAP722160 Standard</td>
<td>1.</td>
</tr>
<tr>
<td>3FIA106302+5MAN621200 With G1/8 pressure gauge prearrangement</td>
<td>2.</td>
</tr>
<tr>
<td>3FIA106302+5MAN622320 With G1/4 pressure gauge prearrangement</td>
<td>3.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CODE DESCRIPTION</th>
<th>page 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>F Inlet anti-cavitation valve</td>
<td>1.</td>
</tr>
<tr>
<td>L Hydraulic pilot unloader valve</td>
<td>2.</td>
</tr>
<tr>
<td>ELT 12 VDC electromagnetic controlled</td>
<td>3.</td>
</tr>
<tr>
<td>unloader valve</td>
<td></td>
</tr>
<tr>
<td>5CAR406306</td>
<td></td>
</tr>
<tr>
<td>5CAR406311</td>
<td></td>
</tr>
<tr>
<td>SV Relief valve blanking plug</td>
<td></td>
</tr>
<tr>
<td>XTAP623282</td>
<td></td>
</tr>
</tbody>
</table>

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.
For left inlet directional valve (standard)

With side inlet, type AC

Example: AC (YG3-120)

With upper inlet, type AD

Example: AD (YG3-120)

For right inlet directional valve

With side inlet, type BC

Example: BC (YG3-120)

With upper inlet, type BD

Example: BD (YG3-120)
**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
  - Wrench - 42 Nm / 31 lbf ft
  - Wrench 13 - 24 Nm / 17.7 lbf ft
  - Allen wrench 4

- **H**: valve set and locked
  - Cap code: 3COP117260

**Performance data**

**Spring nr. 2 (green band)**

- **Spring nr. 3 (blue band)**

- **Spring nr. 4 (red band)**

**SV: relief valve blanking plug**

- Allen wrench 10
  - 42 Nm / 31 lbf ft

**Time response**

- 10 bar
  - 145 psi OVERSHOOT

- 17.5 bar
  - 2500 psi

- 0.03" TIME RESPONSE
  - 0.1" TRANSIENT RECOVERY TIME
Inlet valve options

Hydraulic pilot unloader valve, type L

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

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
SD6

Inlet valve options

Solenoid pilot unloader valve, type ELT

**COILS CODES**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>ISO4400</th>
<th>AMP J PT</th>
<th>Deutsch DT</th>
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<tbody>
<tr>
<td></td>
<td>with diode</td>
<td>without diode</td>
<td>with diode</td>
</tr>
<tr>
<td>12 VDC</td>
<td>2X4311012</td>
<td>2X4311015</td>
<td>2X4311212</td>
</tr>
<tr>
<td>24 VDC</td>
<td>2X4311024</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Need connector type (see page 98) C02 C08 C08 C19

Coil with ISO4400 connector

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

Coil with AMP J PT connector

Nominal voltage tolerance: ±10%
Power rating: 17 W
Nominal current: 1.3 A - 12 VDC
0.74 A - 24 VDC
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: ±10%
Power rating: 22 W
Nominal current: 1.76 A - 12 VDC
0.9 A - 24 VDC
Coil insulation: Classe H
Weather protection: IP67
Duty cycle: 100%
NOTE: circuit with bidirectional diode

Anticavitation valve type F

Wrench 24
42 Nm / 31 lbft

Wrench 19
24 Nm / 17.7 lbft

Pressure drop curve T→P

![Pressure drop curve](image)

Description example: AC(YG3-120)F
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.

**VMDY** direct overpressure relief valve.
For information see page 16.

**Hydraulic circuit and ordering codes**

**Left inlet**

- **AC(YG3-120)R2**
  - code: 612201158

**Right inlet**

- **BC(YG3-120)R2**
  - code: 612201159
S flow regulator configuration

Inlet cover with flow regulator on lever side: prioritary 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 M N W2
   - CODE 250P12002000 2S1636030210 250P12002015
   - DESCRIPTION Handwheel control Handwheel control with detent 12VDC proportional solenoid valve

Hydraulic circuit

Description example: complete Inlet cover SD6/AC(YG3-120)SN/18L/18L/...-BSP12(PT)38(AB)

Wrench 6
24 Nm / 17.7 lbft

SD6 inlet cover
**Handwheel operated**

**Continuous fine regulation**

![Diagram showing handwheel operated continuous fine regulation]

**One turn with detent**

![Diagram showing handwheel operated one turn with detent]

**Valve circuit**

![Diagram showing valve circuit]

**With proportional solenoid control**

**Solenoid operating features**
- Nominal voltage: 12 VDC
- Power rating: 17.4 W
- Duty cycle: 100%

**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**

<table>
<thead>
<tr>
<th>Q in = 45 l/min</th>
<th>1000</th>
<th>2000</th>
<th>3000 (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(l/min)</td>
<td>40</td>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

**Flow regulation diagram**

<table>
<thead>
<tr>
<th>Q in = 45 l/min - P = 100 bar (1450 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current (A)</td>
</tr>
<tr>
<td>0.3</td>
</tr>
</tbody>
</table>

- Flow control valve type M
- Flow control valve type N
- Flow control valve type W2

---

**SD6**

**inlet cover**

**S flow regulator configuration**
Ordering codes

Description example:

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

1. 2. 3. 4. 5.

1. Working section kit * page 24

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>5EL1063001</td>
<td>With parale circuit</td>
</tr>
<tr>
<td>S</td>
<td>5EL2063001</td>
<td>With serie circuit</td>
</tr>
<tr>
<td>SP</td>
<td>5EL3063001</td>
<td>With serie-parallel (tandem) circuit</td>
</tr>
</tbody>
</table>

1. Working section kit*

Include body, seals, rings and load check valve.

2. Spools page 25

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3CU2210130</td>
<td>Double acting, 3 positions, with A and B closed in neutral position</td>
</tr>
<tr>
<td>1CS</td>
<td>3CU2210210</td>
<td>Double acting, 3 positions, with A and B closed in neutral position, sensitive type</td>
</tr>
<tr>
<td>1A</td>
<td>3CU2221130</td>
<td>Double acting, 3 positions, with A open to tank in neutral position</td>
</tr>
</tbody>
</table>

2. Spools

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B</td>
<td>3CU2222130</td>
<td>Double acting, 3 positions, with B open to tank in neutral position</td>
</tr>
<tr>
<td>2</td>
<td>3CU2225130</td>
<td>Double acting, 3 positions, with A and B open to tank in neutral position</td>
</tr>
<tr>
<td>3</td>
<td>3CU2231130</td>
<td>Single acting on A, 3 positions, B plugged; requires G1/2 plug (see part I)</td>
</tr>
<tr>
<td>4</td>
<td>3CU2235130</td>
<td>Single acting on B, 3 positions, A plugged; requires G1/2 plug (see part I)</td>
</tr>
</tbody>
</table>

Special spools for particular positioner kits page 29

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5Y</td>
<td>3CU2242140</td>
<td>Double acting, 4 positions, float in position 3 with spool in</td>
</tr>
<tr>
<td>5BY</td>
<td>3CU2243130</td>
<td>Double acting, 4 positions, float in position 3 with spool out</td>
</tr>
<tr>
<td>8</td>
<td>3CU2262100</td>
<td>Double acting, 4 positions, regenerative in position 3</td>
</tr>
</tbody>
</table>
### 3. “A” side spool positioners  page 32

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>7FT</td>
<td>SV070405000</td>
<td>With friction and neutral position sensor</td>
</tr>
<tr>
<td>8</td>
<td>SV08105000</td>
<td>With spring return in neutral position</td>
</tr>
<tr>
<td>8D</td>
<td>SV08105200</td>
<td>As type 8 and with M6 female thread for dual control</td>
</tr>
<tr>
<td>8D2</td>
<td>SV08105220</td>
<td>As type 8 and with Ø 8 mm/0.31 in radial hole</td>
</tr>
<tr>
<td>8D3</td>
<td>SV08105230</td>
<td>As type 8 and with M8 female thread for dual control</td>
</tr>
<tr>
<td>8FG</td>
<td>SV08105101</td>
<td>As type 8 and adjustable flow limiter</td>
</tr>
<tr>
<td>19</td>
<td>SV19105000</td>
<td>2 positions, with spring return in neutral position</td>
</tr>
<tr>
<td>20</td>
<td>SV19105000</td>
<td>2 positions, with spring return in neutral position</td>
</tr>
<tr>
<td>9BZ</td>
<td>SV09202010</td>
<td>With detent in position 1 and spring return in neutral position</td>
</tr>
<tr>
<td>10BZ</td>
<td>SV10202010</td>
<td>With detent in position 2 and spring return in neutral position</td>
</tr>
<tr>
<td>11BZ</td>
<td>SV11202010</td>
<td>With detent in position 1 and 2, spring return in neutral position</td>
</tr>
<tr>
<td>8MG3(NO)</td>
<td>SV08105660</td>
<td>As type 8 and operation with microswitch in positions 1 and 2, contact normally open</td>
</tr>
<tr>
<td>8MG3(NC)</td>
<td>SV08105662</td>
<td>As previous, with contact normally closed</td>
</tr>
<tr>
<td>8RM2</td>
<td>SV08106590</td>
<td>As type 8 and 12VDC electromagnetic detent in position 2</td>
</tr>
<tr>
<td>8MHE3(NC)</td>
<td>SV08106595</td>
<td>As previous, 24VDC</td>
</tr>
<tr>
<td>8MHE3(NO)</td>
<td>SV08106540</td>
<td>As previous, with circuit normally open</td>
</tr>
<tr>
<td>8K</td>
<td>SV08705112</td>
<td>As type 8 and 12VDC solenoid lock device</td>
</tr>
<tr>
<td>8P</td>
<td>SV08105701</td>
<td>ON/OFF pneumatic kit</td>
</tr>
<tr>
<td>8EPG3</td>
<td>SV08105738</td>
<td>ON/OFF 12 VDC electro-pneumatic kit</td>
</tr>
<tr>
<td>8ED3</td>
<td>SV08105350</td>
<td>ON/OFF 12 VDC electro-hydraulic kit</td>
</tr>
<tr>
<td></td>
<td>SV08105351</td>
<td>ON/OFF 24 VDC electro-hydraulic kit</td>
</tr>
</tbody>
</table>

### 4. “B” side options  page 49

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>5LEV105000</td>
<td>Standard lever box</td>
</tr>
<tr>
<td>LM10</td>
<td>5LEV205000</td>
<td>Lever box with M10 thread</td>
</tr>
<tr>
<td>LFG5</td>
<td>5LEV105800</td>
<td>Cast iron lever box with adjustable flow limiter in positions 1 and 2</td>
</tr>
<tr>
<td>LB1</td>
<td>5LEV305100</td>
<td>Steel lever box with pivot placed down</td>
</tr>
<tr>
<td>LB3</td>
<td>5LEV305000</td>
<td>Steel lever box with pivot placed above</td>
</tr>
<tr>
<td>SL</td>
<td>-</td>
<td>Without lever box</td>
</tr>
<tr>
<td>SLP</td>
<td>5COP105000</td>
<td>Without lever box, with dust-proof plate</td>
</tr>
<tr>
<td>SLCZ</td>
<td>5COP205030</td>
<td>Without lever box, with endcap</td>
</tr>
</tbody>
</table>

### 5. Port valves  page 59

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembled on section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3T</td>
<td>XTAP524280</td>
<td>A and B ports valve blanking plugs</td>
</tr>
<tr>
<td>C</td>
<td>SKIT406100</td>
<td>Anti-cavitation</td>
</tr>
<tr>
<td>Anti-shock valve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P(G2)</td>
<td>SKIT206112</td>
<td>From 50 to 125 bar / 725 to 1800 psi standard setting</td>
</tr>
<tr>
<td>P(G3)</td>
<td>SKIT206113</td>
<td>100 bar / 1450 psi standard setting</td>
</tr>
<tr>
<td>P(G4)</td>
<td>SKIT206114</td>
<td>160 bar / 2300 psi standard setting</td>
</tr>
<tr>
<td>Anti-shock and anti-cavitation valve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U(G2)</td>
<td>SKIT306112</td>
<td>From 50 to 125 bar / 725 to 1800 psi standard setting</td>
</tr>
<tr>
<td>U(G3)</td>
<td>SKIT306113</td>
<td>100 bar / 1450 psi standard setting</td>
</tr>
<tr>
<td>U(G4)</td>
<td>SKIT306114</td>
<td>160 bar / 2300 psi standard setting</td>
</tr>
</tbody>
</table>

### 6. Complete controls  page 54

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

### I “A” and “B” ports plug *  page 52

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>G3/8</td>
<td>3XTAP722160</td>
<td>Plug for single acting spool</td>
</tr>
</tbody>
</table>

### II Optional handlevers  page 54

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL01/M8x150</td>
<td>170012150</td>
<td>For L lever box, L = 150 mm / 5.91 in</td>
</tr>
<tr>
<td>AL01/M10x150</td>
<td>170012015</td>
<td>For LM10 and LF5 lever boxes, L = 150 mm / 5.91 in</td>
</tr>
<tr>
<td>AL08/M12x200</td>
<td>170013120</td>
<td>For LCB joystick, L = 200 mm / 7.87 in</td>
</tr>
</tbody>
</table>

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**

![Parallel circuit diagram]

**Series circuit**

![Series circuit diagram]

**Series-parallel (tandem) circuit**

![Series-parallel (tandem) circuit diagram]
### Type 1

<table>
<thead>
<tr>
<th>Flow (l/min)</th>
<th>Stroke (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>1.0</td>
</tr>
<tr>
<td>45</td>
<td>0.5</td>
</tr>
</tbody>
</table>

**Spool metering P→A(B)**

- **Qin** = 45 l/min
- 

**Spool metering A(B)→T**

- **P** (on ports) = 63 bar / 900 psi
- 

- **P** (on ports) = 100 bar / 1450 psi
- 

- **P** (on ports) = 250 bar / 3600 psi
- 

**Performance data**

- **Stroke** = 5.5 mm
- **- 0.22 in**
Spools

Type 1CS

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

P - B - A - T

Stroke + 5.5 mm + 0.22 in

Stroke - 5.5 mm - 0.22 in

Performance data

Spool metering P - A(B)

Spool metering A(B) - T

Qin = 45 l/min

P (on ports) = 63bar / 900 psi

P (on ports) = 100bar / 1450 psi

P (on ports) = 250bar / 3600 psi
**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
SD6 working section

**Spools**

**Type 3**

Port B plugged
Allen wrench 6 - 24 Nm / 17.7 lbft

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

**Type 4**

Port A plugged
Allen wrench 6 - 24 Nm / 17.7 lbft

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

Spool metering

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

<table>
<thead>
<tr>
<th>Stroke (mm)</th>
<th>Flow (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0</td>
</tr>
<tr>
<td>0.2</td>
<td>0</td>
</tr>
<tr>
<td>4.5</td>
<td>60</td>
</tr>
</tbody>
</table>

Pressure drop in position 3

(last section)
Spools

Type 5BY

It needs special body with extra machining type P-5B code SEL1063205A. It must be coupled only with spool positioner 13QN (see page 45).

Performance data

Spool metering

\[ Q_{in} = 45 \text{ l/min} / P_{(on porps)} = 100 \text{ bar} - 1450 \text{ psi} \]

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**

\[ Q_{in} = 45 \text{ l/min} / P_{on \text{ ports}} = 100 \text{ bar} - 1450 \text{ psi} \]

<table>
<thead>
<tr>
<th>Flow (l/min)</th>
<th>Stroke (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**Pressure drop in position 3** (last section)

<table>
<thead>
<tr>
<th>Pressure (bar)</th>
<th>Flow (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>45</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
</tr>
</tbody>
</table>

[Diagram of Type 8 Spool with flow and pressure graphs]
"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.

8D2 kit

Allen wrench 4 - 6.6 Nm / 4.9 lbt
Wrench 9 - 9.8 Nm / 7.2 lbt

Allen wrench 4 - 6.6 Nm / 4.9 lbt
Wrench 9 - 9.8 Nm / 7.2 lbt
control kits

“A” side spool positioners

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

Allen wrench 4 - 6.6 Nm / 4.9 lbf
Wrench 5 - 9.8 Nm / 7.2 lbf

10BZ kit

Allen wrench 4 - 6.6 Nm / 4.9 lbf
Wrench 5 - 9.8 Nm / 7.2 lbf

11BZ kit

Allen wrench 4 - 6.6 Nm / 4.9 lbf
Wrench 5 - 9.8 Nm / 7.2 lbf
"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")

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

8MHE3(NC) kit
Configuration with normally closed circuit

8MHE3(NO) kit
Configuration with normally open circuit

Output signal with NC circuit

<table>
<thead>
<tr>
<th>Stroke (mm)</th>
<th>Voltage (VDC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-6</td>
<td>-6.0</td>
</tr>
<tr>
<td>-5</td>
<td>-5.0</td>
</tr>
<tr>
<td>-4</td>
<td>-4.0</td>
</tr>
<tr>
<td>-3</td>
<td>-3.0</td>
</tr>
<tr>
<td>-2</td>
<td>-2.0</td>
</tr>
<tr>
<td>-1</td>
<td>-1.0</td>
</tr>
<tr>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>0.0</td>
</tr>
<tr>
<td>3</td>
<td>0.0</td>
</tr>
<tr>
<td>4</td>
<td>0.0</td>
</tr>
<tr>
<td>5</td>
<td>0.0</td>
</tr>
<tr>
<td>6</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Tolerance range:
-0.2 to 0.2 (in)

Output signal with NO circuit

<table>
<thead>
<tr>
<th>Stroke (mm)</th>
<th>Voltage (VDC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-6</td>
<td>-6.0</td>
</tr>
<tr>
<td>-5</td>
<td>-5.0</td>
</tr>
<tr>
<td>-4</td>
<td>-4.0</td>
</tr>
<tr>
<td>-3</td>
<td>-3.0</td>
</tr>
<tr>
<td>-2</td>
<td>-2.0</td>
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<tr>
<td>-1</td>
<td>-1.0</td>
</tr>
<tr>
<td>0</td>
<td>0.0</td>
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<tr>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>0.0</td>
</tr>
<tr>
<td>3</td>
<td>0.0</td>
</tr>
<tr>
<td>4</td>
<td>0.0</td>
</tr>
<tr>
<td>5</td>
<td>0.0</td>
</tr>
<tr>
<td>6</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Tolerance range:
-0.2 to 0.2 (in)
"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.
Theese configurations are available also with normally closed (NC) contact.

Operating features

**MICROSWITCH**
Mechanical life ............... : 5x10^5 operations
Electric life (resistive load) : 10^5 oper. - 7A / 13.5VDC
: 5x10^4 oper. - 10A / 12VDC
: 5x10^4 oper. - 3A / 28VDC

**COMPLETE CONTROLS CODES**

<table>
<thead>
<tr>
<th>Contact</th>
<th>CONTROL TYPE</th>
<th>Need connector type</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>8MG3 5V08105660</td>
<td>8MG2 5V08105680</td>
</tr>
<tr>
<td>NC</td>
<td>5V08105662</td>
<td>5V08105682</td>
</tr>
</tbody>
</table>
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.

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

3 positions “A” side spool positioner type 9B, 10B, 11B. (see page 34)

Kit MG3
code: SKIT820500

Kit MG1
code: SKIT820501

Kit MG2
code: SKIT820502

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: type C40 (see page 98).
**SD6**

## “A” side spool positioners

**Solenoid lock device type 8K**

With spring return and spool electromechanical lock in neutral position; when coil is feeded 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: ±10%
- Power rating: 18 W
- Nominal current: 1.58 A - 12 VDC, 0.81 A - 24 VDC
- Coil insulation: Class F
- Weather protection: IP65
- Duty cycle: 100%

### Coil with Deutsch DT connector

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

### Coil with Packard M-Pack connector

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

---

**COMPLETE CONTROL CODES**

<table>
<thead>
<tr>
<th>CONTROL TYPE</th>
<th>ISO4400</th>
<th>Deutsch DT</th>
<th>Packard M-Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>8K</td>
<td>8K4</td>
<td>8K6</td>
</tr>
<tr>
<td>12 VDC</td>
<td>5V08706112</td>
<td>5V08706412</td>
<td>5V08706612</td>
</tr>
<tr>
<td>24 VDC</td>
<td>5V08706124</td>
<td>5V08706424</td>
<td>5V08706624</td>
</tr>
</tbody>
</table>

- Need connector type (see page 98)

<table>
<thead>
<tr>
<th>Connector type</th>
<th>C02</th>
<th>C19</th>
<th>C20</th>
</tr>
</thead>
</table>

---

**valvoilgroup**

DBU001E
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.

<table>
<thead>
<tr>
<th>COIL CODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONNECTION TYPE</td>
</tr>
<tr>
<td>Voltage</td>
</tr>
<tr>
<td>12 VDC</td>
</tr>
<tr>
<td>24 VDC</td>
</tr>
</tbody>
</table>

3 positions “A” side spool positioner type 9BZ, 10BZ, 11BZ. (see page 34)

8P ON/OFF pneumatic control

Operating features
Pilot pressure: min 5.5 bar / 80 psi, max 10 bar / 145 psi
**SD6**

**control kits**

“**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.

![Solenoid kit with connector](image)

Notch 1.2 mm / 0.047 in 6.6 Nm / 4.9 lbf

Wrench 11 - 9.8 Nm / 7.2 lbf

Allen wrench 4 - 6.6 Nm / 4.9 lbf

---

**COMPLETE CONTROL CODES**

**CONNECTION TYPE**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Deutsch DT</th>
<th>AMP</th>
<th>Packard M-Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 VDC</td>
<td>BRM2</td>
<td>5V08106590</td>
<td>5V08106591</td>
</tr>
<tr>
<td>24 VDC</td>
<td>BRM2(200)</td>
<td>5V08106595</td>
<td>5V08106596</td>
</tr>
</tbody>
</table>

Need connector type (see page 95) C19 C21 C20

---

**COIL CODES**

**CONNECTION TYPE**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Deutsch DT</th>
<th>AMP</th>
<th>Packard M-Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 VDC</td>
<td>YSOL532455</td>
<td>YSOL532452</td>
<td>YSOL532451</td>
</tr>
<tr>
<td>24 VDC</td>
<td>YSOL532456</td>
<td>YSOL532458</td>
<td>YSOL532457</td>
</tr>
</tbody>
</table>

---

**Operating features**

**COIL**

- **Niminal 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%

---

**Solenoid kit with connector**

Notch 1.2 mm / 0.047 in 6.6 Nm / 4.9 lbf

Wrench 11 - 9.8 Nm / 7.2 lbf

Allen wrench 4 - 6.6 Nm / 4.9 lbf

---

**Coil with Deutsch DT connection**

Coil with AMP Fastin-Faston connection

Coil with Packard M-Pack connection
**COMPLETE CONTROL CODES**

<table>
<thead>
<tr>
<th>CONNECTION TYPE</th>
<th>ISO6952</th>
<th>Flying leads</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL TYPE</td>
<td>8EPG3</td>
<td>8EPG35</td>
</tr>
<tr>
<td>Voltage</td>
<td>12 VDC</td>
<td>SV08105738</td>
</tr>
<tr>
<td></td>
<td>24 VDC</td>
<td>SV08105743</td>
</tr>
<tr>
<td>Need connector</td>
<td>C01 (included)</td>
<td>/</td>
</tr>
<tr>
<td>type (see page 98)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COIL CODES</th>
<th>CONNECTION TYPE</th>
<th>Flying leads *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>ISO6952</td>
<td></td>
</tr>
<tr>
<td>12 VDC</td>
<td>2XB1010121100</td>
<td>2XB1010120000</td>
</tr>
<tr>
<td>24 VDC</td>
<td>2XB1010241100</td>
<td>2XB1010240000</td>
</tr>
</tbody>
</table>

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

**Coil with ISO6952 connector**

**Coil with flying leads**

---

**Scheme ISO 1219**

**Scheme**

---

**8EP3 ON/OFF electro-pneumatic control**

---

**Wrench 15 - 6.6 Nm / 4.9 lbft**

**Wrench 13 - 24 Nm / 17.7 lbft**

**Wrench 9 - 9.8 Nm / 7.2 lbft**

**Allen wrench 4 - 6.6 Nm / 4.9 lbft**

**Special wrench - 9.8 Nm / 7.2 lbft**
"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 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**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>AMP J PT without diode</th>
<th>Deutsch DT</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 VDC</td>
<td>5V08105350</td>
<td>C02</td>
</tr>
<tr>
<td>08105250</td>
<td>5V08105280</td>
<td>C08</td>
</tr>
<tr>
<td>24 VDC</td>
<td>5V08105351</td>
<td>C02</td>
</tr>
<tr>
<td>08105251</td>
<td>5V08105281</td>
<td>C08</td>
</tr>
</tbody>
</table>

**Need connector type**

- **(see page 98)**

<table>
<thead>
<tr>
<th>Specified Type</th>
<th>C02</th>
<th>C08</th>
<th>C08</th>
<th>C19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Chiave 21 - 5 Nm

Allen wrench 4 - 6.6 Nm / 4.9 lbf

Solenoid valve:

- Wrench 24 - 9.8 Nm / 7.2 lbf
- Wrench 10 - 24 Nm / 17.7 lbf

Special wrench 9.8 Nm / 7.2 lbf

Coil insulation: Class F
control kits

SD6

"A" side spool positioner

8ED3 ON/OFF electro-hydraulic control

COIL CODES

<table>
<thead>
<tr>
<th>Voltage</th>
<th>ISO4400</th>
<th>AMP J PT without diode</th>
<th>AMP J PT with diode</th>
<th>Deutsch DT</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 VDC</td>
<td>2XB1400121100</td>
<td>2XB1400121200</td>
<td>2XB1400121210</td>
<td>2XB1400120400</td>
</tr>
<tr>
<td>24 VDC</td>
<td>2XB1400241100</td>
<td>2XB1400241200</td>
<td>2XB1400241210</td>
<td>2XB1400240400</td>
</tr>
</tbody>
</table>

Coil with ISO4400 connection (weather protection: IP65)

Coil with AMP J PT 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/R-C-KE250-24VDC

(*) codes are referred to BSP thread
**“A” side spool positioners**

### 8ED3 ON/OFF electro-hydraulic control

**Kit collettor con linee di pilotaggio e drenaggio**

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

Description example:

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

Operating features

**VRP VALVE**
- Outlet pressure: 25 bar / 363 psi
- Max. flow: 8 l/min
- Filtering: 80 µ

**VRE backpressure valve**

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

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

### COLLECTOR KIT CODES

<table>
<thead>
<tr>
<th>Type</th>
<th>Code *</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KE1R0</td>
<td>5KE1R31230</td>
<td>Kit one section</td>
</tr>
<tr>
<td>KE2R0</td>
<td>5KE2R31230</td>
<td>Kit for 2 sections</td>
</tr>
<tr>
<td>KE3R0</td>
<td>5KE3R31230</td>
<td>Kit for 3 sections</td>
</tr>
<tr>
<td>KE4R0</td>
<td>5KE4R31230</td>
<td>Kit for 4 sections</td>
</tr>
<tr>
<td>KE5R0</td>
<td>5KE5R31230</td>
<td>Kit for 5 sections</td>
</tr>
<tr>
<td>KE6R0</td>
<td>5KE6R31230</td>
<td>Kit for 6 sections</td>
</tr>
</tbody>
</table>

(*) codes are referred to BSP thread

---

Valve VRE code: X027700008

Wrench 27 – 42 Nm / 31 lbf

33.5

2.89

74.5

1.32

Valve VRE code: X027700008

Wrench 27 – 42 Nm / 31 lbf
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).

Control kits
Operating features

**MICROSWITCH**
- Mechanical life: $5 \times 10^5$ operations
- Electric life (resistive load): $10^5$ operations - 7A / 13.5VDC
  - 5x10^4 operations - 10A / 12VDC
  - 5x10^4 operations - 3A / 28VDC

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).

**13QNM3(NO) kit**

Detent in 4th position with spool out, spring return to neutral position and microswitch operation in both directions. Available only for spool type SBY (see page 30).

**COMPLETE CONTROL CODES**

<table>
<thead>
<tr>
<th>Codes</th>
<th>Contact type</th>
<th>Need connector type</th>
</tr>
</thead>
<tbody>
<tr>
<td>5V13405660</td>
<td>NO</td>
<td>C07, see page 98</td>
</tr>
<tr>
<td>5V13405661</td>
<td>NC</td>
<td>C17</td>
</tr>
</tbody>
</table>

SD6
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

Wrench 22
42 Nm / 31 lbft

Wrench 22
42 Nm / 31 lbft

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.

<table>
<thead>
<tr>
<th>Voltage</th>
<th>ISO4400</th>
<th>Deutsch DT</th>
<th>Packard M-Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 VDC</td>
<td>2X4300012</td>
<td>2X4300014</td>
<td>YSOL300013</td>
</tr>
<tr>
<td>24 VDC</td>
<td>2X4300024</td>
<td>2X4300026</td>
<td>YSOL300025</td>
</tr>
</tbody>
</table>

Need connector type
(see page 98) C02 C19 C20

13NZ positioner kit
(see page 45)
for spool type 5Y

13QN positioner kit
(see page 45)
for spool type 5BY

Complete actuator kit, code: 5KIT810600

Special section body kit depending on used spool: for informations contact Sales Department.
Lever controls

**L type**

Aluminium lever pivot box with protective rubber bellow; it can be rotated 180° (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**).
### “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).

![Diagram of LFG5 type](image)

1. Stroke end screw for position 2 (P→B): allen wrench 2.5
2. Fixing nut: wrench 8 - 6.6 Nm / 4.9 lbft
3. Stroke end screw for position 1 (P→A): allen wrench 2.5
4. 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.

![Diagram of LB1 type](image)

**LB3 type**

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

![Diagram of LB3 type](image)
Safety lever control

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

**LEB type**

![LEB type diagram]

**LUP type**

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

![LUP type diagram]
-control kits

“B” side options

Controls prearrangement

<table>
<thead>
<tr>
<th>SL type</th>
<th>SLP type</th>
<th>SLCZ type</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

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

TQ cable remote control kit

Waterproof cap prearranged for remote control with flexible cable.

Example of cable control

NOTE - For further information about remote cable control, require related documentation.
NOTE - Due to limited space in case of LCB3 or LCB4 configuration the assembly of ports service relief valves is not possible.

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

### Dimensions and movement scheme

**Execution LCB1**
pivot placed down on the left

**Execution LCB3**
pivot placed above on the left

**Execution LCB2**
pivot placed down on the right

**Execution LCB4**
pivot placed above on the right

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

---

**Dimensions and movement scheme**

- **LCB joystick**
- **2nd section spool**
- **1st section spool**
- **Pivot**
- **Allen wrench 4**
  - 6.6 Nm / 4.9 lbf
- **Allen wrench 4 - 6.6 Nm / 4.9 lbf**
- **Wrench 13 - 24 Nm / 17.7 lbf**
- **Wrench 10**
- **Allen wrench 5 - 9.8 Nm / 7.2 lbf**
- **Wrench 13 - 24 Nm / 17.7 lbf**
- **Wrench 13 - 24 Nm / 17.7 lbf**

---

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

---

**DBU001E**

---

**valvoil group**

53
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

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(ESN)</td>
<td>3CU2210050</td>
<td>Double acting, 3 positions, with A and B closed in neutral position</td>
</tr>
<tr>
<td>2(ESN)</td>
<td>3CU2225050</td>
<td>Double acting, 3 positions, with A and B open to tank in neutral position</td>
</tr>
<tr>
<td>8ESN</td>
<td>5V08012</td>
<td>For solenoid joint, with spring return in neutral position</td>
</tr>
<tr>
<td>10.5VDC</td>
<td>XSOL314310</td>
<td>Nominal voltage 10.5VDC</td>
</tr>
<tr>
<td>12VDC</td>
<td>XSOL314312</td>
<td>Nominal voltage 12VDC</td>
</tr>
<tr>
<td>24VDC</td>
<td>XSOL314324</td>
<td>Nominal voltage 24VDC</td>
</tr>
<tr>
<td>192VDC</td>
<td>XSOL314192</td>
<td>Nominal voltage 192VDC; (for 220 VAC supply)</td>
</tr>
</tbody>
</table>

NOTE (*) - Codes are referred to BSP threads.
8ESN solenoid control

Electric wiring example

Operating features
CONTROL
Internal leakage A(B)→T
(Δp = 100 bar - 1450 psi / T = 40°C) : 10 cm³/min - 0.61 in³/min
COIL
Nominal voltage tolerance ........... : +10%
Power rating .......................... : 65 W
Coil insulation ....................... : class H
Duty cycle ............................ : 100%

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

Operating condition diagram

Manual operation: lift the bush to lever unlocking

Wrench 24
24 Nm / 17.7 lbft

Wrench 14
9.8 Nm / 7.2 lbft

Spool: Wrench 9

Allen wrench 4
6.6 Nm / 4.9 lbft

Allen wrench 4
6.6 Nm / 4.9 lbft

Allen wrench 4
6.6 Nm / 4.9 lbft

LES

CAE

8ESNLES kit
with safety lever pivot box

8ESNCAE kit
with encadp
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  8ES3 P1(G3 - 100) - 12VDC

1. Complete working section *

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P - 18ES3 - 12VDC</td>
<td>61210101C</td>
<td>Parallel circuit, double acting spool, double acting ON/OFF solenoid control</td>
</tr>
</tbody>
</table>

2. Working section kit *

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P / IM - ES</td>
<td>5EL106300A</td>
<td>Distribuzione in parallelo</td>
</tr>
</tbody>
</table>

3. Spools

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(ES)</td>
<td>3CU2210015</td>
<td>Double acting, 3 positions, with A and B closed in neutral position</td>
</tr>
<tr>
<td>2(ES)</td>
<td>3CU2225015</td>
<td>Double acting, 3 positions, with A and B open to tank in neutral position</td>
</tr>
</tbody>
</table>

4. Control kit

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>8ES1</td>
<td>SCAN08026</td>
<td>P → A, with spring return to neutral position</td>
</tr>
<tr>
<td>8ES2</td>
<td>SCAN08026</td>
<td>P → B, with spring return to neutral position</td>
</tr>
<tr>
<td>8ES3</td>
<td>SCAN08027</td>
<td>Double acting with spring return to neutral position</td>
</tr>
</tbody>
</table>

5. Port valves

For codes please refer to page 23.

6. Coils

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.5VDC</td>
<td>4SOL412011</td>
<td>Nominal voltage 10.5VDC</td>
</tr>
<tr>
<td>12VDC</td>
<td>4SOL412012</td>
<td>Nominal voltage 12VDC</td>
</tr>
<tr>
<td>24VDC</td>
<td>4SOL412024</td>
<td>Nominal voltage 24VDC</td>
</tr>
<tr>
<td>4-10.5VDC</td>
<td>4SOL412111</td>
<td>Nominal voltage 10.5VDC</td>
</tr>
<tr>
<td>4-12VDC</td>
<td>4SOL412112</td>
<td>Nominal voltage 12VDC</td>
</tr>
</tbody>
</table>

NOTE (*) - Codes are referred to BSP thread.
**8ES solenoid control**

**Operating features**

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

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

**Electric wiring example**

- To battery

**8ES3 kit**
- Double acting

**8ES1 kit**
- Single acting on A

**8ES2 kit**
- Single acting on B

**Operating condition diagram**

- Flow vs. Pressure
- Operation area

**Wrenches**
- Wrench 22: 24 Nm / 17.7 lbft
- Allen wrench 4: 6.6 Nm / 4.9 lbft
- Allen wrench 4 - 6.6 Nm / 4.9 lbft
- Wrench 18 - 24 Nm / 17.7 lbft
- 7 Nm / 5.2 lbft

**Emergency manual override**
- 23.2 / 0.91
- 93.5 / 3.68

**Coil with ISO4400 connector**
- (need connector type C02: see page 98)

**Coil with Deutsch DT connector**
- (need connector type C19: see page 98)
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

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1IM</td>
<td>3CU2210420</td>
<td>Double acting, 3 positions, with A and B closed in neutral position</td>
</tr>
<tr>
<td>2IM</td>
<td>3CU2225420</td>
<td>Double acting, 3 positions, with A and B open to tank in neutral pos.</td>
</tr>
</tbody>
</table>

Operating features

Pilot pressure: max. 50 bar / 730 psi

Internal leakage A(B) → T (Δp = 100 bar - 1450 psi / T = 40°C)

max. 6 cm³/min - 0.37 in³/min

Connection example

SVM400 hydraulic pilot control valve
Antishock valves

**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**

Wrench 22
42 Nm / 31 lbft

Notch
1.5 mm / 0.059 in
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

#### C1

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

#### Performance data

**Pressure drop**

![Pressure drop graph]

### Valve blanking plug

#### P1T

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

![Valve blanking plug diagram]
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

Milled surface with fixing threaded holes

- **M5**
- **Nr.4 holes**
**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

**Performance data**

**BP valve pressure drop**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pilot ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>With pre-opening</td>
<td>Main</td>
</tr>
<tr>
<td>BP</td>
<td>/</td>
</tr>
<tr>
<td>BPS</td>
<td>1 : 16</td>
</tr>
</tbody>
</table>

**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.

---

**Description example:**

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

---

**Hydraulic circuit**

---

**Directional control valve mounting face**

---

**Intermediate 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.
**EI service relief valve section**

The operation of upstream 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**

![Diagram of EI1 section](image)

Description example:
SD6/2/AC(YG3-175)/18L/EI1(YG3-120)/18L/RC

**Execution EI2**

![Diagram of EI2 section](image)

Description example:
SD6/2/AC(YG3-175)/18L/EI2(YG3-120)/18L/RC

---

For other types see page 14

Wrench 19 - 42 Nm / 31 lbft
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
**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**

Series circuit section

Parallel circuit section

Description example: SD6/4/AC (J G3-120)/.../S-18L/EVP91/18L/.../RC

---

**1. Complete section**

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVP91</td>
<td>612423503</td>
</tr>
<tr>
<td>EVP92</td>
<td>612423501</td>
</tr>
<tr>
<td>EVP93</td>
<td>612423502</td>
</tr>
</tbody>
</table>

**2. Section body kit**

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVP9</td>
<td>5EL4060302</td>
</tr>
</tbody>
</table>

**3. Flow control valve**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250P10002000</td>
<td>Fine handwheel operated valve</td>
</tr>
<tr>
<td>2</td>
<td>251636020206</td>
<td>Valve with one turn with detent handwheel</td>
</tr>
<tr>
<td>3</td>
<td>250P10002002</td>
<td>12VDC proportional solenoid valve</td>
</tr>
</tbody>
</table>
### Handwheel operated

**Continuous fine regulation**

**One turn with detent**

**Valve circuit**

---

### With proportional solenoid control

**ISO4400 connection**

(necessary connector type C02, see page 98)

**Solenoid operating features**

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

**Example of solenoid flow control valve connection**

It shows 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)
- \( 1000 \) to \( 3000 \) (psi)

**Flow regulation diagram**

- \( Q_{in} = 45 \) l/min
- \( P = 100 \) bar (1450 psi)
- \( 0 \) to \( 1.2 \) Current (A)
- Priority flow
- \( 0 \) to \( 40 \) (l/min)
- \( 0 \) to \( 24 \) (n.of clicks)
- \( 0 \) to \( 24 \) (n.of turns)

---

**Flow control valve type 1**

**Flow control valve type 2**

**Flow control valve type 3**
### 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

<table>
<thead>
<tr>
<th>Nr.</th>
<th>CODE</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3FIA206300</td>
<td>1</td>
<td>Outlet cover body (*)</td>
</tr>
<tr>
<td>2.</td>
<td>3XTAP727180</td>
<td>1</td>
<td>G 1/2 plug (*)</td>
</tr>
<tr>
<td>3.</td>
<td>4GUA114018</td>
<td>6</td>
<td>14x1.78 NBR 70 SH O-ring seal</td>
</tr>
</tbody>
</table>

### Circuit options

<table>
<thead>
<tr>
<th>Nr.</th>
<th>CODE</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>4TAP413210</td>
<td>1</td>
<td>G1/4 plug for carry-over (RE) and closed centre (RK) options</td>
</tr>
</tbody>
</table>

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

Allen wrench 6 - 24 Nm / 17.7 lbft

![Type RC Diagram]

### Type RD

G3/8

Allen wrench 6
24 Nm / 17.7 lbft

![Type RD Diagram]

### Type RE

DIN906-G1/4 tapered plug
24 Nm / 17.7 lbft

Allen wrench 7

![Type RE Diagram]

### Type RK

DIN906-G1/4 tapered plug
24 Nm / 17.7 lbft

Allen wrench 7

![Type RK Diagram]
Content

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   ordering codes ................................. 79
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   “B” side options ............................... 87
   complete controls ............................ 90
   port valves .................................... 59
Return cover ..................................... 93
Dimensional data (with inlet flow control valve)

**DLS7**

<table>
<thead>
<tr>
<th>Code</th>
<th>Production batch:</th>
</tr>
</thead>
<tbody>
<tr>
<td>WALVOIL</td>
<td>P0600001</td>
</tr>
<tr>
<td>MADE IN ITALY</td>
<td>11B213000</td>
</tr>
</tbody>
</table>

**Production batch:**
- P06 = production year (2006)
- 00001 = progressive number

**Table - Dimensional data**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>E</th>
<th>F</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>in</td>
<td>kg</td>
</tr>
<tr>
<td>DLS7/1</td>
<td>121</td>
<td>4.76</td>
<td>69</td>
</tr>
<tr>
<td>DLS7/2</td>
<td>159</td>
<td>6.26</td>
<td>107</td>
</tr>
<tr>
<td>DLS7/3</td>
<td>197</td>
<td>7.76</td>
<td>145</td>
</tr>
<tr>
<td>DLS7/4</td>
<td>235</td>
<td>9.26</td>
<td>183</td>
</tr>
<tr>
<td>DLS7/5</td>
<td>273</td>
<td>10.74</td>
<td>221</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE</th>
<th>E</th>
<th>F</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>in</td>
<td>kg</td>
</tr>
<tr>
<td>DLS7/6</td>
<td>311</td>
<td>12.24</td>
<td>259</td>
</tr>
<tr>
<td>DLS7/7</td>
<td>349</td>
<td>13.74</td>
<td>297</td>
</tr>
<tr>
<td>DLS7/8</td>
<td>387</td>
<td>15.24</td>
<td>335</td>
</tr>
<tr>
<td>DLS7/9</td>
<td>425</td>
<td>16.73</td>
<td>373</td>
</tr>
<tr>
<td>DLS7/10</td>
<td>463</td>
<td>18.23</td>
<td>411</td>
</tr>
</tbody>
</table>
Fixed displacement pump (open centre)

Variable displacement pump with load-sensing compensator (closed centre)

Configuration with L.S. relief valve is also available.

Description example:
DLS 7/2/AN(G3-120)/6S8MCLFG/6S8MCLFG/RF
Performance data (pressure drop vs. flow)

Open centre
From inlet to outlet.

Inlet to work port
From inlet to A port (spool in position 1) or B port (spool in position 2).

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

NOTE - Measured with spool type 6S.
Description example of standard configuration:

DLS7 / 2 / AM(G3-120) / 6V8MCLFG / 6V8MCLFG / RF

1. Complete working section

2. Complete inlet / outlet cover*

3. Return cover*

4. Assembling kit

**NOTE (**) - Items are referred to BSP thread.**
It's shown an AM inlet and outlet cover.

**Ordering codes**

**Description example:**

FE DLS7 / A M (G3 - 120)

1. Pressure relief valve setting (bar)
2. 

**Dimensional data and hydraulic circuit**

It's shown an AM inlet and outlet cover.

**1. Cover body kit * **

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5FIA307320</td>
<td>A standard type</td>
</tr>
</tbody>
</table>

**2. Inlet options**

*On Load-sensing signal*

<table>
<thead>
<tr>
<th>TIPO</th>
<th>CODICE</th>
<th>DESCRIZIONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M(G3)</td>
<td>5KIT007300*</td>
<td>Compensator kit with overpressure valve (from 80 to 315 bar / 1150 to 4600 psi, standard setting 120 bar / 1750 psi)</td>
</tr>
<tr>
<td>P(SV)</td>
<td>5KIT007320</td>
<td>Compensator and overpressure valve blanking kit</td>
</tr>
<tr>
<td>N(G3)</td>
<td>5KIT007310</td>
<td>Compensator blanking kit with overpressure valve (from 80 to 315 bar / 1150 to 4600 psi, standard setting 120 bar / 1750 psi)</td>
</tr>
</tbody>
</table>

*NOTE (*) - Codes are referred to BSP thread.*
Type AM with flow control valve and L.S. overpressure relief valve

For systems with fixed displacement pumps (open centre version); see page 75.

Type AP without flow control valve and L.S. overpressure relief valve

For systems with variable displacement pumps (closed centre version); see page 75.

Type AN without flow control valve, with L.S. overpressure relief valve

For systems with variable displacement pumps (closed centre version); see page 75.
Ordering codes

Description example:

```
EL DLS7 / 6V 8MC LFG . P3 (G3 - 125) *
```

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

Port relief valve setting in bar

```
EL DLS7 / 6V 8IMF3
```

80
1. Working section kits * page 82

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5ELS073000</td>
<td>Parallel circuit with port valves prearrangement</td>
</tr>
</tbody>
</table>

Include body, seals, rings and load check valve.

2. Spools page 83

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td></td>
<td>10 l/min</td>
</tr>
<tr>
<td>V</td>
<td></td>
<td>20 l/min</td>
</tr>
<tr>
<td>T</td>
<td></td>
<td>30 l/min</td>
</tr>
<tr>
<td>Q</td>
<td></td>
<td>40 l/min</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>50 l/min</td>
</tr>
<tr>
<td>S</td>
<td></td>
<td>60 l/min</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE CODE DESCRIPTION</th>
<th>Nominal flow with 14 bar / 203 psi stand-by</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 3CU3110010 3CU3110020 3CU3110030 3CU3110040 3CU3110050 3CU3110060</td>
<td>Double acting, 3 position, with A and B closed in neutral position</td>
</tr>
<tr>
<td>7 3CU3125010 3CU3125020 3CU3125030 3CU3125040 3CU3125050 3CU3125060</td>
<td>Double acting, 3 position, with A and B to tank in neutral position</td>
</tr>
</tbody>
</table>

3. “A” side spool positioners page 85

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>7FT</td>
<td>5V07405000</td>
<td>With friction</td>
</tr>
<tr>
<td>8MC</td>
<td>5V08205000</td>
<td>With spring return in neutral position</td>
</tr>
<tr>
<td>8DMC</td>
<td>5COP205030</td>
<td>As type B and pin with M8 female thread for dual control</td>
</tr>
<tr>
<td>8PZ</td>
<td>5V08105709</td>
<td>Proportional pneumatic kit</td>
</tr>
<tr>
<td>8IZ</td>
<td>5V08106800</td>
<td>Proportional hydraulic kit</td>
</tr>
</tbody>
</table>

4. “B” side options page 87

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFG</td>
<td>5LEV107800</td>
<td>Zama (zic alloy) lever with adjustable flow limiters</td>
</tr>
<tr>
<td>SL</td>
<td>-</td>
<td>Without lever box</td>
</tr>
<tr>
<td>SLP</td>
<td>5COP107000</td>
<td>Without lever box, with dust-proof plate</td>
</tr>
<tr>
<td>SLCZ</td>
<td>5COP205030</td>
<td>Without lever box, with endcap.</td>
</tr>
<tr>
<td>TQ</td>
<td>5TEL107110</td>
<td>Flexible cable connection; for CD cables</td>
</tr>
<tr>
<td>LCB</td>
<td>5CLO202000</td>
<td>Joystick lever for 2 sections operation</td>
</tr>
</tbody>
</table>

5. Port valves page 59

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Assembled on section</td>
</tr>
<tr>
<td>P3T</td>
<td>XTA524280</td>
<td>A and B ports valve blanking plugs</td>
</tr>
<tr>
<td>C</td>
<td>SKIT406100</td>
<td>Anti-cavitation</td>
</tr>
<tr>
<td>P(G2)</td>
<td>SKIT206112</td>
<td>From 50 to 125 bar / 725 to 1800 psi standard setting 63 bar / 900 psi</td>
</tr>
<tr>
<td>P(G3)</td>
<td>SKIT206113</td>
<td>From 100 to 200 bar / 1450 to 2900 psi standard setting 100 bar / 1450 psi</td>
</tr>
<tr>
<td>P(G4)</td>
<td>SKIT206114</td>
<td>From 160 to 315 bar / 2300 to 4600 psi standard setting 200 bar / 2900 psi</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anti-shock and anti-cavitation valve</td>
</tr>
<tr>
<td>U(G2)</td>
<td>SKIT306112</td>
<td>From 50 to 125 bar / 725 to 1800 psi standard setting 63 bar / 900 psi</td>
</tr>
<tr>
<td>U(G3)</td>
<td>SKIT306113</td>
<td>From 100 to 250 bar / 1450 to 3600 psi standard setting 100 bar / 1800 psi</td>
</tr>
<tr>
<td>U(G4)</td>
<td>SKIT306114</td>
<td>From 160 to 315 bar / 2300 to 4600 psi standard setting 200 bar / 2900 psi</td>
</tr>
</tbody>
</table>

Standard setting is referred to 10 l/min flow.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPT</td>
<td>XTA627300</td>
<td>BP and BPS valves blanking plug</td>
</tr>
<tr>
<td>BP1</td>
<td>612002000*</td>
<td>Block with valve on port A</td>
</tr>
<tr>
<td>BP2</td>
<td>612002000*</td>
<td>Block with valve on port B</td>
</tr>
<tr>
<td>BP3</td>
<td>612002100*</td>
<td>Block with valves on ports A and B</td>
</tr>
<tr>
<td>BP</td>
<td>XCAN605110</td>
<td>Single valve</td>
</tr>
<tr>
<td>BPS1</td>
<td>612003000*</td>
<td>Block with valve on port A</td>
</tr>
<tr>
<td>BPS2</td>
<td>612003000*</td>
<td>Block with valve on port B</td>
</tr>
<tr>
<td>BPS3</td>
<td>612003100*</td>
<td>Block with valves on ports A and B</td>
</tr>
<tr>
<td>BPS</td>
<td>XCAR605210</td>
<td>Single valve</td>
</tr>
</tbody>
</table>

NOTE (*) - Items are referred to BSP thread.
Working section kit is fitted with body (1), washer (2), spool O-ring seals (3), load check valve (4), assembling O-ring seals (5), plug on L.S. signal (6) and ball on shuttle valve (7).

Working sections are supplied with port valve prearrangement.

Drawing shows a complete working section, type DLS7/P-7S8MCFLG.
Type 6S

- Stroke + 5.5 mm + 0.22 in
- Stroke - 5.5 mm - 0.22 in
- P → A  B → T
- P - A - B closed

Type 7S

- Stroke + 5.5 mm + 0.22 in
- Stroke - 5.5 mm - 0.22 in
- P → A  B → T
- P closed, A and B to tank
**Spools**

Spool metering with AM inlet cover and 14 bar / 203 psi standard stand-by

![Graph](image)

Spool metering with AN inlet cover

With 10 bar / 145 psi L.S. pump stand-by

![Graph](image)

With 20 bar / 290 psi L.S. pump stand-by

![Graph](image)
control kits

"A" side spool positioners

With friction type 7FT

Allen wrench 4 - 9.8 Nm / 7.2 lbf

Wrench 34
24 Nm / 17.7 lbf

Allen wrench 4 - 6.6 Nm / 4.9 lbf

With spring return

8MC kit

Allen wrench 4
6.6 Nm / 4.9 lbf

Allen wrench 5
9.8 Nm / 7.2 lbf

8DMC kit

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

Spool end joint dimension

DBU001E

valvoil group
DLS7 control kits

“A” side spool positioners

8PZ proportional pneumatic control

Operating features
Max. pilot pressure: 10 bar / 145 psi

8IZ proportional hydraulic control

It can be used with body kit without seals and ring on spool (standard body) on side “A” code: 5EL507300B.

Operating features
Max. pilot pressure: 50 bar / 725 psi
Lever controls

LFG 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 LFG180).

Controls prearrangement

<table>
<thead>
<tr>
<th>SL type</th>
<th>SLP type</th>
<th>SLCZ type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0 2</td>
<td>1 0 2</td>
<td>1 0 2</td>
</tr>
</tbody>
</table>

SL type

Mechanical control with dust-proof plate kit.

SLP type

Allen wrench 4
6.6 Nm / 4.9 lbft

SLCZ type

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**

**Execution LCB1**
- Pivot placed down on the left
- Allen wrench 3 - 9.8 Nm / 7.2 lbft
- Wrench 13 - 42 Nm / 31 lbft
- Allen wrench 6 - 24 Nm / 17.7 lbft
- 2nd section spool
- 1st section spool
- Pivot
- Wrench 13
- Wrench 14

**Execution LCB2**
- Pivot placed down on the right

**Execution LCB3**
- Pivot placed above on the left

**Execution LCB4**
- Pivot placed above on the right

**Dimensions and movement scheme**

**NOTE** - The handlever must be ordered separately (see page 81).

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

**8ESF solenoid control**

Solenoid direct control with spring return to neutral position; it needs special spools and working section body kit (without seals on spool); fitted with screws for spool stroke adjusting in booth directions.

**Description example:**

<table>
<thead>
<tr>
<th>EL</th>
<th>DLS7 / P</th>
<th>6V</th>
<th>8ES3F3</th>
<th>P1(G3 - 125)</th>
<th>12VDC</th>
</tr>
</thead>
</table>

**1. Complete working section ***

**TYPE:** P-6V8ES3F3-12VDC  
**CODE:** 61B131000  
**DESCRIPTION:** Parallel circuit, double acting spool, double acting ON/OFF solenoid control

**2. Working section kit ***

**TYPE**  
P/ES  
**CODE**  
5EL5073800  
**DESCRIPTION**  
Parallel circuit

**3. Spools**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODICE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>from 5 to 20 l/min</td>
<td>from 21 to 40 l/min</td>
<td>from 41 to 60 l/min</td>
</tr>
<tr>
<td>V</td>
<td>3CU31110120</td>
<td>3CU3110140</td>
</tr>
<tr>
<td>Q</td>
<td>3CU3125120</td>
<td>3CU3125140</td>
</tr>
<tr>
<td>S</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**4. Control kit**

**TYPE**  
8ES3F3  
**CODE**  
5CAN08021  
**DESCRIPTION**  
Double acting with spring return to neutral position

**5. Port valves**

For codes please refer to page 81.

**6. Coils**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.5VDC</td>
<td>4SOL412011</td>
<td>Nominal voltage 10.5VDC</td>
</tr>
<tr>
<td>12VDC</td>
<td>4SOL412012</td>
<td>Nominal voltage 12VDC</td>
</tr>
<tr>
<td>24VDC</td>
<td>4SOL412024</td>
<td>Nominal voltage 24VDC</td>
</tr>
<tr>
<td>With Deutsch series DT connector</td>
<td>4-10.5VDC 4SOL412111</td>
<td>Nominal voltage 10.5VDC</td>
</tr>
<tr>
<td>4-12VDC 4SOL412112</td>
<td>Nominal voltage 12VDC</td>
<td></td>
</tr>
</tbody>
</table>
8ESF solenoid control

**Electric wiring example**

- **Connector 1**
  - **P → A**
  - **B → T**
- **Connector 2**
  - **P → B**
  - **A → T**

To battery

**Operating features**

**CONTROL**
- Internal leakage A(B) → T
  - \(\Delta p = 100\) bar - 1450 psi, \(T = 40^\circ C\)
  - 15 cm³/min - 0.91 in³/min

**COIL**
- Nominal voltage tolerance: ±10%
- Power rating: 36 W
- Coil insulation: class H
- Duty cycle: 100%

---

**8ES3F3 kit double acting**

---

**Wrench**
- **13**: 24 Nm / 17.7 lbft
- **10**: 9.8 Nm / 7.2 lbft
- **30**: 24 Nm / 17.7 lbft
- **3**: 6.6 Nm / 4.9 lbft

---

**Coil**
- **ISO4400 connector**
  - (need connector type **C02**: see page 98)
- **Deutsch DT connector**
  - (need connector type **C19**: see page 98)
Complete controls

**8IMF3 proportional hydraulic kit**

With screws for spool stroke adjusting in both directions, code 5IDR207000.

It can be used with special spools and body kit without seals and ring on spool (standard body) code: 5EL507300A.

**Available double acting spools**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 l/min</td>
<td>20 l/min</td>
<td>30 l/min</td>
</tr>
<tr>
<td>D</td>
<td>V</td>
<td>T</td>
</tr>
<tr>
<td>6</td>
<td>3CU33310010 3CU33310020 3CU33310030 3CU33310040 3CU33310050 3CU33310060</td>
<td>3 pos., with A and B closed in neutral pos.</td>
</tr>
<tr>
<td>7</td>
<td>3CU33325010 3CU33325020 3CU33325030 3CU33325040 3CU33325050 3CU33325060</td>
<td>3 pos., with A and B to tank in neutral pos.</td>
</tr>
</tbody>
</table>

**Connection example**

**8IMF3 control kit: curve 075 with step**

**8IMF3 control kit: curve 178 without step**
Dimensional data and hydraulic circuit

**Type RF standard**

Allen wrench 8 - 24 Nm / 17.7 lbft

**Hydraulic circuit**

**Type RH**

With L.S. signal carry-over, for two DLS7 directional valve connection: dimensions are the same of RF return cover.
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.

<table>
<thead>
<tr>
<th>THREAD TYPE</th>
<th>SD6 (Nm)</th>
<th>DLS7 (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>port P</td>
<td>35/25.8</td>
<td>50/36.9</td>
</tr>
<tr>
<td>ports A, B</td>
<td>40/29.5</td>
<td>60/44.3</td>
</tr>
<tr>
<td>ports C, T</td>
<td>30/22.1</td>
<td>60/44.3</td>
</tr>
<tr>
<td>With O-Ring seal</td>
<td>3/4-16</td>
<td>3/4-16</td>
</tr>
<tr>
<td>(SAE 8)</td>
<td>(SAE 8)</td>
<td>(SAE 8)</td>
</tr>
<tr>
<td>With copper washer</td>
<td>50/36.9</td>
<td>50/36.9</td>
</tr>
<tr>
<td>With steel and rubber washer</td>
<td>40/29.5</td>
<td>60/44.3</td>
</tr>
</tbody>
</table>

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.

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

Callout
1) Inlet cover
2) Overpressure relief valve
3) Working section
4) Spool: normally spools are inter-changeable, verify the smoothness during the assembly
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

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. | Remove and clean or replace the valve.
 | Low pump pressure and flow. | Check the pump and circuit.
Installation and maintenance

It's shown a section of DLS 7/2/AM(G3-120)/6V8MCLFG/6V8MCLFG/RF valve.

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

#### 4SFE204000: ∅ 4 mm (0.157 in) ball for shuttle valve

### 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 out of stand-by value. | L.S. overpressure valve blocked open. | Remove and clean or replace the valve.
| Low pump pressure and flow. | Check the pump and circuit.
| Flow compensator blocked open (only for AM configuration) | Remove and clean or replace the compensator.
| Shuttle valve on working section blocked | Disassembling directional valve and clean the seat, verifying it's not dented.
### Connectors

<table>
<thead>
<tr>
<th>Type Code</th>
<th>Description</th>
<th>Code</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>C01</td>
<td>2P+T, according to EN175301-803</td>
<td>2X1001020</td>
<td><img src="image1.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C02</td>
<td>2P+T according to ISO4400 / EN175301-803</td>
<td>2X1001010</td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C03</td>
<td>3P+T according to ISO4400 / EN175301-803</td>
<td>2X1001030</td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C05</td>
<td>3P+T according to ISO4400 / EN175301-803. With bridge rectifier, to use with VAC supply.</td>
<td>2X1001080</td>
<td><img src="image4.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C07</td>
<td>2 Poles, type Packard male case with female contact</td>
<td>5CON001</td>
<td><img src="image5.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C40</td>
<td>2 Poles, type Packard male case with male contact</td>
<td>5CON140047</td>
<td><img src="image6.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C11</td>
<td>4P according to VDE0660-0110</td>
<td>5CON006</td>
<td><img src="image7.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C17</td>
<td>2 Poles, type Packard female case with male contact</td>
<td>5CON005</td>
<td><img src="image8.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C19</td>
<td>2 Poles, type Deutsch DT06-2S male case with female contact</td>
<td>5CON130030</td>
<td><img src="image9.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C20</td>
<td>2 pole, type “PACKARD Metri-Pack” male housing with female ends</td>
<td>5CON017</td>
<td><img src="image10.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C21</td>
<td>2 poles, type “AMP Fastin-Faston” female housing with male ends</td>
<td>5CON018</td>
<td><img src="image11.png" alt="Diagram" /></td>
</tr>
<tr>
<td>C24</td>
<td>2 poles, type “AMP Superseal” male housing with female ends</td>
<td>5CON0031</td>
<td><img src="image12.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>
Connectors

<table>
<thead>
<tr>
<th>Type</th>
<th>Poles</th>
<th>Nominal voltage</th>
<th>Nominal current</th>
<th>Permitted conductor section range</th>
<th>Permitted cable diameter range</th>
<th>Weather protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>C01</td>
<td>2P + T</td>
<td>250 VAC / 300 VDC</td>
<td>10 A</td>
<td>max. 1.5 mm² / max. 0.0023 in²</td>
<td>6 to 8 mm / 0.24 to 0.31 in</td>
<td>IP65</td>
</tr>
<tr>
<td>C02</td>
<td>2P + T</td>
<td>250 VAC / 300 VDC</td>
<td>10 A</td>
<td>max. 1.5 mm² / max. 0.0023 in²</td>
<td>6 to 8 mm / 0.24 to 0.31 in</td>
<td>IP65</td>
</tr>
<tr>
<td>C03</td>
<td>3P + T</td>
<td>250 VAC / 300 VDC</td>
<td>10 A</td>
<td>max. 1.5 mm² / max. 0.0023 in²</td>
<td>6 to 8 mm / 0.24 to 0.31 in</td>
<td>IP65</td>
</tr>
<tr>
<td>C05</td>
<td>3P + T</td>
<td>230 VAC</td>
<td>1.5 A</td>
<td>max. 1.5 mm² / max. 0.0023 in²</td>
<td>6 to 8 mm / 0.24 to 0.31 in</td>
<td>IP65</td>
</tr>
<tr>
<td>C06</td>
<td>3P + T</td>
<td>250 VAC / 300 VDC</td>
<td>6 A</td>
<td>max. 0.75 mm² / max. 0.00116 in²</td>
<td>3.5 to 6 mm / 0.14 to 0.24 in</td>
<td>IP65</td>
</tr>
<tr>
<td>C07</td>
<td>2P</td>
<td>/</td>
<td>20 A</td>
<td>1 to 2 mm² / 0.00155 to 0.0031 in²</td>
<td>2.8 to 3.5 mm / 0.11 to 0.14 in</td>
<td>IP67</td>
</tr>
<tr>
<td>C08</td>
<td>2P</td>
<td>250 VAC</td>
<td>12 A</td>
<td>0.5 to 1 mm² / 0.00077 to 0.00155 in²</td>
<td>1.3 to 1.6 mm / 0.05 to 0.063 in</td>
<td>IP65</td>
</tr>
<tr>
<td>C11</td>
<td>4P</td>
<td>50 VAC / 120 VDC</td>
<td>6 A</td>
<td>0.14 to 0.5 mm² / 0.00022 to 0.00077 in²</td>
<td>4 to 7.5 mm / 0.16 to 0.29 in</td>
<td>IP65</td>
</tr>
<tr>
<td>C17</td>
<td>2P</td>
<td>/</td>
<td>20 A</td>
<td>1 to 2 mm² / 0.00155 to 0.0031 in²</td>
<td>1.3 to 1.4 mm / 0.05 to 0.067 in</td>
<td>IP67</td>
</tr>
<tr>
<td>C19</td>
<td>2P</td>
<td>/</td>
<td>13 A</td>
<td>1 to 1.2 mm² / 0.00155 to 0.00186 in²</td>
<td>2.2 to 3.5 mm / 0.088 to 0.14 in</td>
<td>IP67</td>
</tr>
<tr>
<td>C20</td>
<td>2P</td>
<td>/</td>
<td>14 A</td>
<td>0.8 to 1 mm² / 0.00124 to 0.00155 in²</td>
<td>1.3 to 1.7 mm / 0.05 to 0.067 in</td>
<td>/</td>
</tr>
<tr>
<td>C21</td>
<td>2P</td>
<td>/</td>
<td>7A</td>
<td>0.3 to 0.8 mm² / 0.00046 to 0.0012 in²</td>
<td>2.2 to 3 mm / 0.087 to 0.118 in</td>
<td>/</td>
</tr>
<tr>
<td>C24</td>
<td>2P</td>
<td>/</td>
<td>14 A</td>
<td>0.3 to 5 mm² / 0.00046 to 0.00077 in²</td>
<td>1.4 to 1.7 mm / 0.055 to 0.067 in</td>
<td>IP67</td>
</tr>
<tr>
<td>C40</td>
<td>2P</td>
<td>/</td>
<td>20 A</td>
<td>1 to 2 mm² / 0.00155 to 0.0031 in²</td>
<td>2.8 to 3.5 mm / 0.11 to 0.14 in</td>
<td>IP67</td>
</tr>
</tbody>
</table>

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.