SECTIONAL DIRECTIONAL CONTROL VALVES
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 range of fixed setting antishock-anticavitation port valves.
- Intermediate sections for several types of circuit.
- Available manual, pneumatic, hydraulic and ON/OFF and proportional electro-hydraulic spool control kits.
- Diameter 14 mm (0.55 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.
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**SDS100**

**Configuration examples**

**Standard working sections**
Fitted with manual, pneumatic, proportional hydraulic and ON/OFF solenoid control.

1) CN standard inlet section
2) Standard working section (type P, Q....).
3) Standard working section with outlet (type RP, RQ).

**Working sections with internal pilot and drain lines**
They need inlet section with pressure reducing valve and outlet section with backpressure valve.
They are prearranged for double side proportional electro-hydraulic control but it's possible to mount manual and mechanical control using sections with pilot through and drain.

1) **CRV** inlet section with pressure reducing valve, relief valve, pilot lines on both sides, drain prearrangement, pressure reduced line prearrangement
2) Working sections (type PE, QE....) with double side electro-hydraulic control
3) Double side electro-hydraulic control working section with optional outlet (type RPE, RQE), pilot lines on both side and backpressure valve
4) Working section (type PA, QA....) with mechanical control and pilot through and drain.
5) Mechanical control working section with optional outlet (type RPA, RQA), O-ring seats for pilot throgh line closing, backpressure valve
This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm²/s - 46 cSt viscosity at 40°C temperature.

### Nominal flow rating
- 60 l/min

### Operating pressure (max.)
- 315 bar
- 4600 psi

### Back pressure (max.) on outlet T
- 10 bar
- 145 psi

### Internal leakage A(B)→T
- \( \Delta p = 100 \text{ bar} - 1450 \text{ psi} \) fluid and valve at 40°C
- 5 cm³/min
- 0.31 in³/min

### Fluid
- Mineral based oil

### 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
  - min.: 12 mm²/s
  - max.: 400 mm²/s
- from 15 to 75 mm²/s
- from 15 to 75 cSt

### Max level of contamination
- \(-/19/16 - ISO 4406\)

### Ambient temperature
- with mechanical, pneumatic and hydraulic devices: from -40°C to 60°C
- with electric devices: from -20°C to 60°C

### Tie rods tightening torque (wrench 17)
- 35 Nm
- 26 lbft

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

### Standard thread

#### REFERENCE STANDARDS

<table>
<thead>
<tr>
<th>THREAD ACCORDING TO</th>
<th>ISO 228/1</th>
<th>ISO 263</th>
<th>ANSI B1.20.3</th>
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<tbody>
<tr>
<td>BSP</td>
<td></td>
<td></td>
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<tr>
<td>UN-UNF</td>
<td></td>
<td></td>
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<tr>
<td>BS 2779</td>
<td>ISO 1179</td>
<td>ANSI B1.1 unified</td>
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<tr>
<td>NPTF</td>
<td>ISO 11926</td>
<td>J 476a</td>
<td></td>
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<tr>
<td></td>
<td>SAE J1926</td>
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<td>DIN 3852-2</td>
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<td>shape X or Y</td>
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</table>

#### PORTS THREAD

<table>
<thead>
<tr>
<th>MAIN PORTS</th>
<th>BSP</th>
<th>UN-UNF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet P and carry-over C</td>
<td>G 1/2</td>
<td>7/8-14 (SAE 10)</td>
</tr>
<tr>
<td>Ports A and B</td>
<td>G 3/8</td>
<td>3/4-16 (SAE 8)</td>
</tr>
<tr>
<td>Outlet T</td>
<td>G 1/2</td>
<td>7/8-14 (SAE 10)</td>
</tr>
<tr>
<td>Pilot V and drain L</td>
<td>G 1/4</td>
<td>9/16-18 (SAE 6)</td>
</tr>
</tbody>
</table>

**CONTROLS PILOT PORTS**

<table>
<thead>
<tr>
<th>Pneumatics</th>
<th>NPTF 1/8-27</th>
<th>NPTF 1/8-27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulics</td>
<td>G 1/4</td>
<td>7/16-20 (SAE 4)</td>
</tr>
</tbody>
</table>
**SDS100**

**Performance data (pressure drop vs. flow)**

### Open centre
From upper inlet to upper outlet.

![Diagram](image)

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

![Diagram](image)

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

![Diagram](image)

**NOTA** - Rilevate con cursore tipo 101.
Standard working section

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## Dimensional data

**WALVOIL P0500001 111020000 Ref. MADE IN ITALY**

**Production batch:**
- **P05** = production year (2005)
- **0001** = progressive number

**Customer reference**

### Table - Dimensional data

<table>
<thead>
<tr>
<th>TYPE</th>
<th>E</th>
<th>F</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>in</td>
<td>kg</td>
</tr>
<tr>
<td>SDS100/1</td>
<td>127.2</td>
<td>5.01</td>
<td>106.5</td>
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<tr>
<td>SDS100/2</td>
<td>163.2</td>
<td>6.43</td>
<td>142.5</td>
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<td>SDS100/3</td>
<td>199.2</td>
<td>7.84</td>
<td>178.5</td>
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<td>SDS100/4</td>
<td>235.2</td>
<td>9.26</td>
<td>214.5</td>
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<tr>
<td>SDS100/5</td>
<td>271.2</td>
<td>10.68</td>
<td>250.5</td>
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</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>SDS100/6</td>
<td>307.2</td>
<td>12.09</td>
<td>286.5</td>
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<tr>
<td>SDS100/7</td>
<td>343.2</td>
<td>13.51</td>
<td>322.5</td>
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<tr>
<td>SDS100/8</td>
<td>379.2</td>
<td>14.93</td>
<td>358.5</td>
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<tr>
<td>SDS100/9</td>
<td>415.2</td>
<td>16.35</td>
<td>394.5</td>
</tr>
<tr>
<td>SDS100/10</td>
<td>551.2</td>
<td>21.7</td>
<td>430.5</td>
</tr>
</tbody>
</table>
Parallel circuit

The following pictures show the directional valve with upper inlet and outlet and mechanical control.

Open centre circuit

Description example:
SDS100/2/CN(TVG3-175)/Q-101-8L/RQ-101-8L-F

Closed centre circuit

Description example:
SDS100/2/CN(TVG3-175)/Q-101-8L/RQ-101-8L-AEK
Tandem circuit

On standard working section

Description example:
SDS100/2/CN(TVG3-175)/Q-101-8L/SQ-101-8L/..

On working section with optional outlet

Special QR or PR section upstream the optional outlet section is required (see page 24).

Description example:
SDS100/2/CN(TVG3-175)/QR-101-8L/RQS-101-8L-F
**Series circuit**

**On standard working section**

Obtainable with a parallel section with a series spool 1S01 or 2S01 (see page 28) and a series-parallel (tandem) section downstream.

![Diagram of a series circuit](image)

Description example:

SDS100/2/CN(TVG3-175)/Q-1S01-8L/SQ-101-8L/..

**On working section with optional outlet**

Obtainable with a QR or PR section (see page 24) with a series spool 1S01 or 2S01 (see page 28) and a optional outlet section with series-parallel (tandem) circuit downstream.

![Diagram of a working section with optional outlet](image)

Description example:

SDS100/2/CN(TVG3-175)/QR-1S01-8L/RQS-101-8L-F
Ordering codes

Description example for standard configuration:

SDS100 / 3 / CN(TVG3-175) / Q-101-8L / EI2(TG3-125) / Q-101-8L / RQ-101-8L-F

1. Complete inlet section* page 14
   TYPE CODE DESCRIPTION
   CN(TVG3-175) 610201001 Section with upper inlet and outlet and pressure relief valve
   CN(SV) 610201002 Section with upper inlet and outlet and valve seat plugged

2. Complete working section* page 20
   TYPE CODE DESCRIPTION
   Q-101-8L 610151000 Parallel circuit, double acting spool with spring return and lever control
   P-101-8L.UTUT 610101000 As previous with port valves prearrangement
   SQ-101-8L 610121001 Tandem circuit, double acting spool with spring return and lever control
   QR-101-8L 610151005 As previous to be couple with RQS or RPS sections
   SP-101-8L.UTUT 610121000 Tandem circuit, double acting spool with spring return, lever control and port valves prearrangement
   PR-101-8L.UTUT 610101008 As previous to be couple with RQS or RPS sections

3. Intermediate section* page 56
   TYPE CODE DESCRIPTION
   EI2(TG3) 610421135 With direct service pressure relief valve and auxiliary inlet

4. Section with optional outlet* page 58
   TYPE CODE DESCRIPTION
   RQ-101-8L-F 610351001 Parallel circuit
   RP-101-8L.UTUT-F 610301001 Parallel circuit with port valves prearrangement
   RQ-101-8L-AE 610351002 Parallel circuit with carry-over
   RP-101-8L.UTUT-AE 610301002 Parallel circuit with port valves prearrangement and carry-over
   RQS-101-8L-F 610321002 Tandem circuit
   RPS-101-8L.UTUT-F 610321001 Tandem circuit with port valves prearrangement

5. Assembling kit
   CODE DIRECTIONAL VALVE
   STIR110123 Tie rod kit for 1 section valve
   STIR110160 Tie rod kit for 2 sections valve
   STIR110195 Tie rod kit for 3 sections valve
   STIR110235 Tie rod kit for 4 sections valve
   STIR110267 Tie rod kit for 5 sections valve
   STIR110304 Tie rod kit for 6 sections valve
   STIR110340 Tie rod kit for 7 sections valve
   STIR110375 Tie rod kit for 8 sections valve
   STIR110411 Tie rod kit for 9 sections valve
   STIR110449 Tie rod kit for 10 sections valve

NOTE (*) - Items are referred to BSP threads.
Description example for configuration with 2 inlet section and mid return manifold:

SDS100 / 2 / CN(TVG3-175) / Q-101-8L / CS1 / Q-101-8L / BN(TVG3-175)

6. Return manifold*

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS1</td>
<td>610400010</td>
<td>Mid return manifold</td>
</tr>
</tbody>
</table>

7. Complete right inlet working section*

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED-Q-101-8L</td>
<td>610151004</td>
<td>Parallel circuit, double acting spool with spring return and lever control</td>
</tr>
<tr>
<td>ED-P-101-8L.UTUT</td>
<td>610101007</td>
<td>As previous with port valves prearrangement</td>
</tr>
<tr>
<td>ED-SQ-101-8L</td>
<td>610121008</td>
<td>Tandem circuit, double acting spool with spring return and lever control</td>
</tr>
<tr>
<td>ED-SP-101-8L.UTUT</td>
<td>610121009</td>
<td>As previous with port valves prearrangement</td>
</tr>
</tbody>
</table>

8. Complete right inlet section*

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BN(TVG3-175)</td>
<td>610201006</td>
<td>Section with upper inlet and outlet and pressure relief valve</td>
</tr>
<tr>
<td>BN(SV)</td>
<td>610201007</td>
<td>Section with upper inlet and outlet and valve seat plugged</td>
</tr>
</tbody>
</table>

9. Assembling kit with for valve with CS1

<table>
<thead>
<tr>
<th>CODE</th>
<th>DIRECTIONAL VALVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STIR110215</td>
<td>Tie rod kit for 2 section valve + manifold</td>
</tr>
<tr>
<td>STIR110252</td>
<td>Tie rod kit for 3 section valve + manifold</td>
</tr>
<tr>
<td>STIR110289</td>
<td>Tie rod kit for 4 section valve + manifold</td>
</tr>
<tr>
<td>STIR110323</td>
<td>Tie rod kit for 5 section valve + manifold</td>
</tr>
<tr>
<td>STIR110359</td>
<td>Tie rod kit for 6 section valve + manifold</td>
</tr>
<tr>
<td>STIR110397</td>
<td>Tie rod kit for 7 section valve + manifold</td>
</tr>
<tr>
<td>STIR110431</td>
<td>Tie rod kit for 8 section valve + manifold</td>
</tr>
<tr>
<td>STIR110467</td>
<td>Tie rod kit for 9 section valve + manifold</td>
</tr>
<tr>
<td>STIR110503</td>
<td>Tie rod kit for 10 section valve + manifold</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
Inlet and outlet section

Description example:

FE SDS100 / CN (TVG3 - 175) ELT-12VDC *

1. Section body *

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN</td>
<td>3FIA107300</td>
<td>Standard configuration</td>
</tr>
<tr>
<td>CNM</td>
<td>3FIA107301</td>
<td>With pressure gauge prearrangement</td>
</tr>
<tr>
<td>CNL</td>
<td>3FIA107304</td>
<td>With side inlet</td>
</tr>
</tbody>
</table>

2. Inlet relief options

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMD100/1: direct pressure relief valve type T (standard)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TVG2-80)</td>
<td>X196121081</td>
<td>Range 63 to 100 bar / 900 to 1450 psi standard setting 80 bar / 1160 psi</td>
</tr>
<tr>
<td>(TVG3-175)</td>
<td>X196121176</td>
<td>Range 100 to 200 bar / 1450 to 2900 psi standard setting 175 bar / 2550 psi</td>
</tr>
<tr>
<td>(TVG4-220)</td>
<td>X196121220</td>
<td>Range 200 to 300 bar / 2900 to 4350 psi standard setting 220 bar / 3200 psi</td>
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</tbody>
</table>

| SV    | XTAP526360 | Pressure relief valve blanking plug |

3. Inlet valve options

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELN</td>
<td>5CAR407330</td>
<td>12 VDC solenoid operated unloader valve</td>
</tr>
<tr>
<td></td>
<td>5CAR407331</td>
<td>As previous 24 VDC</td>
</tr>
<tr>
<td>ELT</td>
<td>5CAR407320</td>
<td>12 VDC solenoid operated unloader valve with &quot;push and twist&quot; emergency push-button</td>
</tr>
<tr>
<td></td>
<td>5CAR407325</td>
<td>As previous 24 VDC</td>
</tr>
<tr>
<td>SV</td>
<td>XTAP526360</td>
<td>Valve blanking plug: in valve description the word SV must be omitted because standard</td>
</tr>
</tbody>
</table>

NOTE (*) - Items are referred to BSP thread.
Section body and hydraulic circuit

CN standard configuration

Overpressure relief valve (pag. 17)

Directional control valve mounting face

Description example:
CN(TVG3-175)
Inlet and outlet section

Section body and hydraulic circuit

CNM configuration: with pressure gauge prearrangement

CNL configuration: with side inlet arrangement
Inlet relief options

Direct pressure relief valve

**VMD100 (TV G3 - 175)**

- Adjustable spring type (2, 3, 4).
- Pressure setting in bar (for standard value see page 8)
- Adjustment type (G, Z)

Adjustment type

- **G**: with screw
- **Z**: with tamper proof cap

Performance data

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

<table>
<thead>
<tr>
<th>Flow (l/min)</th>
<th>Pressure (bar)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>1500</td>
</tr>
<tr>
<td>10</td>
<td>200</td>
<td>3000</td>
</tr>
<tr>
<td>20</td>
<td>300</td>
<td>4500</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Flow (l/min)</th>
<th>Pressure (bar)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>1500</td>
</tr>
<tr>
<td>10</td>
<td>200</td>
<td>3000</td>
</tr>
<tr>
<td>20</td>
<td>300</td>
<td>4500</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Flow (l/min)</th>
<th>Pressure (bar)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>1500</td>
</tr>
<tr>
<td>10</td>
<td>200</td>
<td>3000</td>
</tr>
<tr>
<td>20</td>
<td>300</td>
<td>4500</td>
</tr>
</tbody>
</table>

SV: relief valve blanking plug

- Allen wrench 8
- 42 Nm / 31 lbf

Time response

- Pressure
- (\% AP)
- Time (s)
- 0.26"
- 175 bar
- 2500 psi

Cap code: 3COP124180
SDS 100

Inlet valve options

Solenoid operated unloader valves

ELT configuration
Emergency with push button and spring return; for detent position turn the button after press it.

**WARNING**: the manual override option is intended for emergency use, not for continuous duty operation.

ELN configuration
Without emergency push-button

Inlet valve options

Solenoid operated unloader valves

Description example:
CN(TVG3-175)ELN-12VDC

Description example:
CN(TVG3-175)ELT-12VDC

Pressure drop curve

Operating features

**VALVE**
Internal leakage (excited position):
75 cm³/min at 100 bar / 4.45 in³/min at 1450 psi

**COIL**
Depending on model: see following features
Inlet valve options

Solenoid operated unloader valves

COILS CODES

<table>
<thead>
<tr>
<th>Voltage</th>
<th>ISO4400</th>
<th>AMP JPT senza diodo</th>
<th>AMP JPT con diodo</th>
<th>Deutsch DT senza diodo</th>
<th>Deutsch DT con diodo</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 VDC</td>
<td>2X4311012</td>
<td>2X4311015</td>
<td>2X4311112</td>
<td>2X4311412</td>
<td></td>
</tr>
<tr>
<td>24 VDC</td>
<td>2X4311024</td>
<td>2X4311025</td>
<td>2X4311224</td>
<td>2X4311424</td>
<td></td>
</tr>
</tbody>
</table>

Coil with ISO4400 connection

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

Coil with AMP J PT connector

- Nom. voltage tolerance : ±10%
- Power rating .......... : 17 W
- Nominal current ........ : 1.3 A - 12 VDC
- 0.74 A - 24 VDC
- Coil insurance ........ : Classe F
- Weather protection ..... : IP65
- Duty .................. : 100%
- NOTE: circuit with or without diode

Coil with Deutsch DT connector

- Nom. voltage tolerance : ±10%
- Power rating .......... : 22 W
- Nominal current ........ : 1.76 A - 12 VDC
- 0.9 A - 24 VDC
- Coil insurance ........ : Classe H
- Weather protection ..... : IP67
- Duty .................. : 100%
- NOTE: circuit with diode
### Working section

#### Description example:

**EL SDS100 / Q - 101 - 8 L ***

1. 2. 3. 4. 5.

**EL SDS100 / P - 101 - 8 L . U100 U100 ***

1. 2. 3. 4. 5. 6.

---

**EL SDS100 / Q - I112 - 8IM**

5.

**EL SDS100 / Q - S112 - 8ES3-12VDC**

5.

---

1. **Working sections kit**

Include body, seals, rings and load check valve.

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q</td>
<td>5EL1073010</td>
<td>Parallel circuit without port valves prearrangement</td>
</tr>
<tr>
<td>P</td>
<td>5EL1073000</td>
<td>Parallel circuit with port valves prearrangement</td>
</tr>
<tr>
<td>SQ</td>
<td>5EL3073010</td>
<td>Tandem circuit without port valves prearrangement</td>
</tr>
<tr>
<td>QR</td>
<td>5EL1573090</td>
<td>As previous for section type RQS or RPS</td>
</tr>
<tr>
<td>SP</td>
<td>5EL3073000</td>
<td>Tandem circuit with port valves prearrangement</td>
</tr>
<tr>
<td>PR</td>
<td>5EL1573095</td>
<td>As previous for section type RQS or RPS</td>
</tr>
<tr>
<td>QS</td>
<td>5EL1073210</td>
<td>Parallel circuit and floating prearrangement: for spool type 501</td>
</tr>
<tr>
<td>PS</td>
<td>5EL1073200</td>
<td>As previous with port valves prearrangement: for spool type 501</td>
</tr>
</tbody>
</table>

---

**NOTE (**) - Items are referred to BSP thread.**
2. **Spools** page 25

If not specified otherwise, the spool are from 20 to 40 l/min flow

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>102</td>
<td>3CU62101010 Double acting, 3 positions, with A and B closed in neutral position; for flow up to 20 l/min</td>
</tr>
<tr>
<td>101</td>
<td>3CU62101000 As previous, from 20 to 40 l/min flow</td>
</tr>
<tr>
<td>109</td>
<td>3CU62102020 As previous, from 40 to 60 l/min flow</td>
</tr>
<tr>
<td>201</td>
<td>3CU62251300 Double acting, 3 positions, with A and B open to tank in neutral position</td>
</tr>
<tr>
<td>2H01</td>
<td>3CU62251000 Double acting, 3 positions, with A and B closed partially open to tank in neutral position</td>
</tr>
<tr>
<td>1S02</td>
<td>3CU62121000 Double acting, 3 positions, with A and B closed in neutral position, for series circuit</td>
</tr>
<tr>
<td>2501</td>
<td>3CU62266130 Double acting, 3 positions, with A and B open to tank in neutral position, for series circuit</td>
</tr>
<tr>
<td>301</td>
<td>3CU62311000 Single acting in A, 3 positions, B plugged: needs G3/8 plug</td>
</tr>
<tr>
<td>401</td>
<td>3CU62351000 Single acting in B, 3 positions, A plugged: needs G3/8 plug</td>
</tr>
</tbody>
</table>

**Specials spools for standard positioners kit** ............... page 29

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>801</td>
<td>3CU62421000 Double acting, 3 positions, regenerative in 2nd positions with spool in out</td>
</tr>
</tbody>
</table>

**Specials spools for particular positioners kit** ............... pag. 30

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>501</td>
<td>3CU62421000 Double acting, 4 positions, floating in 4th positions with spool in</td>
</tr>
</tbody>
</table>

3. **“A” side spool positioners** page 31

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>7FTN</td>
<td>5V07407010 With friction and neutral position sensor</td>
</tr>
<tr>
<td>8</td>
<td>5V08100000 With spring return in neutral position</td>
</tr>
<tr>
<td>8D</td>
<td>5V08107200 As type 8 and pin with M6 female thread for dual control</td>
</tr>
<tr>
<td>8F2</td>
<td>5V08107100 With spring return in neutral position and adjustable flow limiter</td>
</tr>
<tr>
<td>8TL</td>
<td>5V08107310 As type 8 and pin control for flexible cable operation</td>
</tr>
<tr>
<td>9B</td>
<td>5V09207000 With detent in position 1 and spring return in neutral position</td>
</tr>
<tr>
<td>10B</td>
<td>5V10207000 With detent in position 2 and spring return in neutral position</td>
</tr>
<tr>
<td>11B</td>
<td>5V11207000 With detent in position 1 and 2, spring return in neutral position</td>
</tr>
<tr>
<td>8K</td>
<td>5V08707112 As type 8 with 12 VDC spool solenoid lock device</td>
</tr>
<tr>
<td>8RM2</td>
<td>5V08107590 With spring return in neutral position and 12VDC electromagnetic detent in pos. 2</td>
</tr>
<tr>
<td>8MG3(NO)</td>
<td>5V08107591 As previous 24VDC</td>
</tr>
<tr>
<td>8PP</td>
<td>5V08107700 With spring return in neutral position and operation with microswitch in pos. 1 and 2</td>
</tr>
<tr>
<td>8EP3</td>
<td>5V08107735 ON/OFF 12 VDC electro-pneumatic kit</td>
</tr>
<tr>
<td>8EP3</td>
<td>5V08107740 ON/OFF 24 VDC electro-pneumatic kit</td>
</tr>
</tbody>
</table>

**Particular positioners kit for special spools** ............... page 39

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>5V13307000 4 positions with spring return in neutral, detent in 4th position: for spool type 501</td>
</tr>
<tr>
<td>13F</td>
<td>5V13507000 4 positions with spring return in neutral: for spool type 501</td>
</tr>
</tbody>
</table>

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

4. **“B” side options** page 41

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>5LEV107000 Standard lever box</td>
</tr>
<tr>
<td>LF1</td>
<td>5LEV107100 Lever box with adjustable flow limiter in pos.1</td>
</tr>
<tr>
<td>LB3</td>
<td>5LEV307000 Steel lever box, heavy duty type</td>
</tr>
<tr>
<td>SLP</td>
<td>SCOP107010 Without lever box, with dust-proof plate</td>
</tr>
<tr>
<td>SLC</td>
<td>SCOP207010 Without lever box, with endcap.</td>
</tr>
<tr>
<td>LCA1-4</td>
<td>5CL0207010 J oystick lever for 2 sections operation: configurations type 1 and 4</td>
</tr>
<tr>
<td>LCA2-3</td>
<td>5CL020711 J oystick lever for 2 sections operation: configurations type 1 and 4</td>
</tr>
<tr>
<td>3</td>
<td>5LEV107000 Type SLP with solenoid spool lock device, needs special spools: see page 46</td>
</tr>
</tbody>
</table>

5. **Complete controls** page 48

They need particular sections or spools, please see the related page.

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>8ES</td>
<td>-- ON/OFF electric control kit: available single or double action operation</td>
</tr>
<tr>
<td>8IM</td>
<td>SIDR207300* Proportional hydraulic control</td>
</tr>
<tr>
<td>13IM</td>
<td>SIDR207350* 4 positions proportional hydraulic control</td>
</tr>
</tbody>
</table>

6. **Port valves** page 54

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>SKIT410000 Anticavitation valve</td>
</tr>
<tr>
<td>UT</td>
<td>XTAP522441 Port valve blanking plug</td>
</tr>
<tr>
<td></td>
<td>Fixed setting anti-shock with prefill valve</td>
</tr>
<tr>
<td>U025</td>
<td>5KIT330025 Setting 25 bar / 360 psi</td>
</tr>
<tr>
<td>U030</td>
<td>5KIT330030 Setting 30 bar / 430 psi</td>
</tr>
<tr>
<td>U040</td>
<td>5KIT330040 Setting 40 bar / 580 psi</td>
</tr>
<tr>
<td>U050</td>
<td>5KIT330050 Setting 50 bar / 725 psi</td>
</tr>
<tr>
<td>U063</td>
<td>5KIT330063 Setting 63 bar / 900 psi</td>
</tr>
<tr>
<td>U080</td>
<td>5KIT330080 Setting 80 bar / 1150 psi</td>
</tr>
<tr>
<td>U100</td>
<td>5KIT330100 Setting 100 bar / 1450 psi</td>
</tr>
<tr>
<td>U110</td>
<td>5KIT330110 Setting 110 bar / 1600 psi</td>
</tr>
<tr>
<td>U125</td>
<td>5KIT330125 Setting 125 bar / 1800 psi</td>
</tr>
<tr>
<td>U140</td>
<td>5KIT330140 Setting 140 bar / 2050 psi</td>
</tr>
<tr>
<td>U150</td>
<td>5KIT330150 Setting 150 bar / 2180 psi</td>
</tr>
<tr>
<td>U160</td>
<td>5KIT330160 Setting 160 bar / 2300 psi</td>
</tr>
<tr>
<td>U175</td>
<td>5KIT330175 Setting 175 bar / 2550 psi</td>
</tr>
<tr>
<td>U190</td>
<td>5KIT330190 Setting 190 bar / 2750 psi</td>
</tr>
<tr>
<td>U200</td>
<td>5KIT330200 Setting 200 bar / 2900 psi</td>
</tr>
<tr>
<td>U210</td>
<td>5KIT330210 Setting 210 bar / 3050 psi</td>
</tr>
<tr>
<td>U220</td>
<td>5KIT330220 Setting 220 bar / 3200 psi</td>
</tr>
<tr>
<td>U230</td>
<td>5KIT330230 Setting 230 bar / 3350 psi</td>
</tr>
<tr>
<td>U240</td>
<td>5KIT330240 Setting 240 bar / 3500 psi</td>
</tr>
<tr>
<td>U250</td>
<td>5KIT330250 Setting 250 bar / 3600 psi</td>
</tr>
<tr>
<td>U260</td>
<td>5KIT330260 Setting 260 bar / 3750 psi</td>
</tr>
<tr>
<td>U270</td>
<td>5KIT330270 Setting 270 bar / 3900 psi</td>
</tr>
<tr>
<td>U280</td>
<td>5KIT330280 Setting 280 bar / 4050 psi</td>
</tr>
<tr>
<td>U290</td>
<td>5KIT330290 Setting 290 bar / 4200 psi</td>
</tr>
<tr>
<td>U300</td>
<td>5KIT330300 Setting 300 bar / 4350 psi</td>
</tr>
<tr>
<td>U310</td>
<td>5KIT330310 Setting 310 bar / 4500 psi</td>
</tr>
<tr>
<td>U320</td>
<td>5KIT330320 Setting 320 bar / 4650 psi</td>
</tr>
<tr>
<td>U340</td>
<td>5KIT330340 Setting 340 bar / 4950 psi</td>
</tr>
</tbody>
</table>

Setting is referred to 10 l/min flow.

I. **Optional handles**

<table>
<thead>
<tr>
<th>TYPE CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL01/M10x150</td>
<td>1700132105 For L lever box: H = 150 mm / 5.91 in</td>
</tr>
<tr>
<td>AL08/M12x150</td>
<td>1700133115 For joystick LCB: H = 150 mm / 5.91 in</td>
</tr>
</tbody>
</table>
Section kit and hydraulic circuit

Parallel or tandem circuits are available: for series circuit see page 10. All sections can be fitted with or without port valves prearrangement.

**Parallel circuit**

**Section type Q without port valves prearrangement**

![Diagram of Section type Q without port valves prearrangement]

**Section type P with port valves prearrangement**

![Diagram of Section type P with port valves prearrangement]
Section kit and hydraulic circuit

Tandem circuit

Dimensions are the same of parallel circuit section.

Section type SQ without port valves prearrangement

Section type SP with port valves prearrangement
Working section

Section kit and hydraulic circuit

Special circuit

Used to get series and tandem circuits with RQS or SQS optional outlet sections (see pages 10 and 60); dimensions are the same as parallel section.

Section type QR without port valves prearrangement

Section type PR with port valves prearrangement
**Type 101**

From 20 to 40 l/min flow.

![Diagram showing flow and stroke settings](image)

**Performance data**

**Spool metering P→A(B)**

![Graph showing flow vs. stroke](image)

**Spool metering A(B)→T**

![Graph showing flow vs. stroke](image)

**Qin = 40 l/min**

- \( P \text{ (on ports)} = 63 \text{ bar} / 900 \text{ psi} \)
- \( P \text{ (on ports)} = 100 \text{ bar} / 1450 \text{ psi} \)
- \( P \text{ (on ports)} = 250 \text{ bar} / 2900 \text{ psi} \)
### SDS100

#### Spools

**Type 102**

Up to 20 l/min flow.

```
+6.5 mm / +0.26 in
(1) ▶

(0)

(2)

- 6.5 mm / -0.26 in
```

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

**Performance data**

![Spool metering P→A(B)](image)

```
Q_{in} = 20 \text{ l/min}
```

- P_{on ports} = 63 bar / 900 psi
- P_{on ports} = 100 bar / 1450 psi
- P_{on ports} = 250 bar / 2900 psi

![Spool metering A(B)→T](image)

**Type 109**

From 40 to 60 l/min flow.

```
+6.5 mm / +0.26 in
(1) ▶

(0)

(2)

- 6.5 mm / -0.26 in
```

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

**Performance data**

![Spool metering P→A(B)](image)

```
Q_{in} = 60 \text{ l/min}
```

- P_{on ports} = 63 bar / 900 psi
- P_{on ports} = 100 bar / 1450 psi
- P_{on ports} = 250 bar / 2900 psi

![Spool metering A(B)→T](image)
Type 201

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

Type 301

Plug G3/8
Allen wrench 6 - 24 Nm / 17.7 lbft

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

Type 401

Plug G3/8
Allen wrench 6 - 24 Nm / 17.7 lbft

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

Q in = 40 l/min / P (on ports) = 100 bar - 1450 psi

Pressure drop on series connection

Performance data

Type 1S02

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

Type 2S01

P closed, A - B to tank, with flow through line (LC) open
**Type 801**

**Spool metering**

- \( Q_{in} = 40 \text{ l/min} \quad P_{(on \ports)} = 100 \text{ bar} / 1450 \text{ psi} \)

- Stroke + 6.5 mm + 0.26 in

- Stroke - 6.5 mm - 0.26 in

**Performance data**

**Pressure drop in position 2**

(last section)
Spools

Type 501

Q5 - P5 section or RQ5 - RP5 optional outlet section required, contact Sales Dpt. for further information.

To be combined with 13 or 13F spool positioners (see page 39).

Performance data

Spool metering

\[ Q_{in} = 40 \text{ l/min} / P_{(on \ ports)} = 100 \text{ bar} / 1450 \text{ psi} \]

Pressure drop in position 3

(last section)
**Spring return in neutral position**

**Type 8**

It's standard configured with spring type B (see diagram); it's also available with heavier springs type C (8MC codice: 5V08207000) or type D (8MD codice: 5V08307000).

**Type 8D**
For connect the kit 8TL to flexible cable always ask the following kits:

- **type CP50** code **STEL405005**, with fixed cap for CG cables with revolving end.
- **type TQ50** code **STEL105110**, with revolving cap for CD cables with fixed end.

**Spring return in neutral position**

**Type 8F2**

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

**Positioner type 8TL with kit CP50**

Flexible cable type **CG** with revolving end

- Allen wrench 4 - 6.6 Nm / 4.9 lbf

**Positioner type 8TL with kit TQ50**

Flexible cable type **CD** with fixed end

- Allen wrench 4 - 6.6 Nm / 4.9 lbf

**SDS100**
With detent and spring return to neutral position from either directions

**Type 9B**

![Force-stroke diagram for Type 9B](image)

Unlocking force from position 1: 160 N ±10 N / 36 lbf ±2.2 lbf

**Type 10B**

![Force-stroke diagram for Type 10B](image)

Unlocking force from position 2: 160 N ±10 N / 36 lbf ±2.2 lbf

**Type 11B**

![Force-stroke diagram for Type 11B](image)

Unlocking force from positions 1 and 2: 160 N ±10 N / 36 lbf ±2.2 lbf
**Solenoid kit with connector**

**“A” side spool positioners**

**Electromagnetic detent type 8RM2**

With electromagnetic detent in position 2 and spring return to neutral position.

![Diagram of solenoid kit with connector]

**Operating features**

**COIL**
- Nominal voltage: 12 / 24 VDC ±10%
- Power rating: 5.5 W
- Resistance (20 °C): 26.5 / 105 Ohm
- Min unlocking force: 45 N / 49.5 lbf
- Duty cycle: 100%

<table>
<thead>
<tr>
<th>CONNECTOR TYPE</th>
<th>Deutsch DT</th>
<th>AMP</th>
<th>Packard M-Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VOLTAGE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 VDC</td>
<td>BRM2</td>
<td>BRM2A(200)</td>
<td>BRM6</td>
</tr>
<tr>
<td>24 VDC</td>
<td>SV08107590</td>
<td>SV08107595</td>
<td>SV08107597</td>
</tr>
</tbody>
</table>

**Need connector (page 96)**

- C16
- C21
- C20

**COILS CODES**

<table>
<thead>
<tr>
<th>CONNECTOR TYPE</th>
<th>Deutsch DT</th>
<th>AMP</th>
<th>Packard M-Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VOLTAGE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<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>
With microswitch type 8MG3(NO)

With spring return in neutral position and microswitch operated in both directions.
Also available 8MG1(NO) configuration (microswitch operated in position 1) and 8MG2(NO) configuration (microswitch operated in position 2); dimensions are the same of 8MG3 configuration.
Same configurations are available with normally closed (NC) contact.

Other configurations

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.

<table>
<thead>
<tr>
<th>Contact type</th>
<th>CONTROLS DESCRIPTION</th>
<th>Need connector type</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>5V08107660</td>
<td>5V08107680</td>
</tr>
<tr>
<td>NC</td>
<td>5V08107661</td>
<td>5V08107681</td>
</tr>
</tbody>
</table>

Operating features

**MICROSWITCH**
Mechanical life ...............: 5x10^5 operations
Electrical life (resistive load): 10^5 oper. - 7A / 13.5VDC
: 5x10^4 oper - 10A / 12VDC
: 5x10^4 per - 3A / 28VDC
"A" side spool positioners

Spool 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

---

**COMPLETE CONTROLS CODE**

<table>
<thead>
<tr>
<th>CONTROL DESCRIPTION</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>5V08707112</td>
<td>5V08707412</td>
<td>5V08707613</td>
</tr>
<tr>
<td>24 VDC</td>
<td>5V08707124</td>
<td>5V08707424</td>
<td>5V08707624</td>
</tr>
<tr>
<td>Need connector</td>
<td>C02</td>
<td>C19</td>
<td>C20</td>
</tr>
<tr>
<td>(page 96)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COILS CODES**

<table>
<thead>
<tr>
<th>CONNECTOR TYPE</th>
<th>Voltage</th>
<th>ISO4400</th>
<th>Deutsch DT</th>
<th>Packard M-Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 VDC</td>
<td>2X4300012</td>
<td>YSOL300015</td>
<td>YSOL300014</td>
<td></td>
</tr>
<tr>
<td>24 VDC</td>
<td>2X4300024</td>
<td>YSOL300026</td>
<td>YSOL300024</td>
<td></td>
</tr>
</tbody>
</table>

---

**Coil with ISO4400 connector**

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

---

**Coil with Deutsch DT connector**

- Nom. voltage tolerance : ±10%
- Power rating .............. : 18 W
- Nominal current .......... : 1.58 A - 12 VDC
- 0.81 A - 24VDC
- Coil insulation .......... : Class F
- Weather protection ...... : IP67
- Duty .................... : 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 - 24VDC
- Coil insulation .......... : Class F
- Weather protection ...... : IP65
- Duty .................... : 100%
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.

---

Proportional pneumatic control type 8PP

Pilot pressure - stroke diagram
Pilot pressure min 7 bar / 102 psi - max 10 bar / 145 psi

---

SDS100

“A” side spool positioner

Bobina

3 positions “A” side spool positioner type 9B, 10B, 11B.
(see page 33)

Fitted with with actuator:
code 5KIT810700

---

Proportional pneumatic control type 8PP

V1 V2

Wrench 10 - 9.8 Nm / 7.2 lbf

NPT 1/8" n.2 filetti

Special wrench - 9.8 Nm / 7.2 lbf

Allen wrench 4 6.6 Nm / 4.9 lbf

---
"A" side spool positioners

ON/OFF electro-pneumatic control type 8EP3

Operating features

CONTROL
Pilot pressure ................. : 6 bar - 87 psi
(max. 10 bar - 145 psi)

COIL
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%

COMPLETE CONTROL CODE

<table>
<thead>
<tr>
<th>CONNECTION TYPE</th>
<th>ISO6992</th>
<th>Flaying leads</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL TYPE</td>
<td>8EP3</td>
<td>8EP35</td>
</tr>
<tr>
<td>Voltage</td>
<td>12 VDC</td>
<td>5V08107735</td>
</tr>
<tr>
<td></td>
<td>24 VDC</td>
<td>5V08107740</td>
</tr>
<tr>
<td>Need connector</td>
<td>C01</td>
<td>(Included)</td>
</tr>
<tr>
<td>(page 96)</td>
<td></td>
<td>/</td>
</tr>
</tbody>
</table>

COILS CODE

<table>
<thead>
<tr>
<th>CONNECTION TYPE</th>
<th>ISO6992</th>
<th>Flaying leads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>12 VDC</td>
<td>2XB1010121100</td>
</tr>
<tr>
<td></td>
<td>24 VDC</td>
<td>2XB1010241100</td>
</tr>
</tbody>
</table>

* Several type of connectors can be wired on request

Respect the tolerance value. Tightening too strongly can cause damages to the valve.
Positioners for special spools

**Kit 13**

With detent in position 3 (floating) and spring return to neutral from either directions.
Available for spool type 501 (see page 30).

![Force-stroke diagram](image1)

**Force-stroke diagram**

Locking force in position 3: 300 N ±10 N / 67.4 lbf ±2.2 lbf
Unlocking force in position 3: 250 N ±10 N / 56.2 lbf ±2.2 lbf

**Kit 13F**

With additional spring in position 3 (floating) and spring return to neutral from either directions.
Available for spool type 501 (see page 30).

![Force-stroke diagram](image2)
“A” side spool positioners

Positioners for special spools

With solenoid lock device

Several configurations are possible using 4 positions “A” side spool positioner, the K kit and one of available coils, as indicated below. For information contact Sales Department.

Available for spool type 501 (see page 30).

Operating features

ACTUATOR
Lock stroke: 3.5 mm / 0.14 in

COIL
Depending on model: see following features

### COIL CODES

<table>
<thead>
<tr>
<th>Voltage</th>
<th>CONNECTION TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 VDC</td>
<td>ISO4400 Deutsch DT Packard M-Pack</td>
</tr>
<tr>
<td>2X4300012</td>
<td>2X4300014 YSOL300014</td>
</tr>
<tr>
<td>24 VDC</td>
<td>2X4300024 YSOL300024</td>
</tr>
<tr>
<td>Need connector</td>
<td>C02 C19 C20</td>
</tr>
</tbody>
</table>

#### Need connection (page 96)

- ISO4400 connector: C02
- Deutsch DT connector: C19
- Packard M-Pack connector: C20

### Operating Features

#### ACTUATOR
- Lock stroke: 3.5 mm / 0.14 in

#### COIL
- Depending on model: see following features

### 4 positions “A” side spool positioner type 13 and 13F
(see page NO TAG)

### 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: 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: 100%

### Coil with Packard M-Pack connector
- Nom. voltage tolerance: ±10%
- Power rating: 22 W
- Nominal current: 1.58 A - 12 VDC, 0.81 A - 24 VDC
- Coil insulation: Class F
- Weather protection: IP65
- Duty: 100%
Lever control

Type L

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

Type LF1

With spool stroke adjustment in position 1 (P→A); it can be rotated 180° (configuration LF180).
**SDS100**

**“B” side options**

**Lever control**

**Type LB3**

Steel lever control, with pivot placed above; the particular construction makes it suitable for heavy duty applications. It can be rotated 180° (configuration **LB3180**).

**Controls arrangement**

**Type SLC**

Protection cap usable with 8PP pneumatic or 8EP3 electro-control

**Type SLP**

Mechanical control with dust-proof plate kit.

---

*walvoil HYDRAULIC CONTROL SYSTEMS*
Joystick type LCA

For 2 sections operation and available in two different configurations LCA1-4 e LCA2-3 for two assembling mode (see following pages).

NOTE - The handlever must be ordered separately (see page 21).
**SDS100**

### "B" side options

#### Joystick type LCA

**Configuration LCA1-4**

LCA1 and LCA4 configurations can be obtained by rotating the flange/fulcrum block by 180°.

**Assembling mode LCA1: pivot placed down on the left**

**Assembling mode LCA4: pivot placed above on the right**

**Operation angle**

Two section operation with diagonal movement

Two section operation with diagonal movement

**Spool L**

**Spool R**

L spool operation

R spool operation
Joystick type LCA

Configuration LCA2-3

LCA2 and LCA3 configurations can be obtained by rotating the flange/fulcrum block by 180°.

Assembling mode LCA2: pivot placed down on the right

Assembling mode LCA3: pivot placed above on the left

Operation angle

Two section operation with diagonal movement

L spool operation

R spool operation
Spool solenoid lock device type STK

With spring return and spool electromechanical lock in neutral position; when coil is feeded the spool can be moved. The control kit doesn’t include the coil, that has to be ordered separately and needs special spools.

For information about other “B” side controls with electromechanical lock, contact Sales Department.

### Spools Code

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B102</td>
<td>3CU6310102</td>
<td>Double acting, 3 positions, with A and B closed in neutral position</td>
</tr>
<tr>
<td>B501</td>
<td>3CU6342501</td>
<td>Double acting, 4 positions, floating in 4th positions with spool in: Q5 – P5 section or RQ5 – RPS optional outlet section required</td>
</tr>
</tbody>
</table>

If not specified otherwise, the spool are from 20 to 40 l/min flow
Spool solenoid lock device type SLK

Description example:
section SDS100 / Q- B102-8SLK

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: IP 65
- Duty: 100%

### Coil with Deutsch DT 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: IP 67
- Duty: 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: IP 65
- Duty: 100%
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 SDS100 / Q - S102 - 8ES3 - 24VDC *

1. Complete working section *
   TYPE: Q-S102-8ES3-24VDC  CODE: 610101002
   DESCRIPTION: Parallel circuit with 3 positions double acting spool, ON/OFF solenoid control
   TYPE: RQ-S102-8ES3-24VDC-F  CODE: 610351004
   DESCRIPTION: Working section with optional outlet fitted out previous
   NOTE: for working sections codes with port valves prearrangement contact Sales Department.

2. Working section kit *
   TYPE  CODE  DESCRIPTION
   Q/IM-ES  5EL107301A  Parallel circuit
   P/IM-ES  5EL107300A  Parallel circuit with port valves prearrangement
   SQ/IM-ES  5EL307301A  Tandem circuit
   SP/IM-ES  5EL307300A  Tandem circuit with port valves prearrangement
   RQ/IM-ES  5FIA20731A  Section with optional outlet and parallel circuit
   RP/IM-ES  5FIA20730A  As previous with valves prearrangement

3. Spool
   TYPE  CODE  DESCRIPTION
   S102  3CU6810102  Double acting, 3 positions with A and B closed in neutral position

4. Control kits
   TYPE  CODE  DESCRIPTION
   8ES1  5V08028  P → A, with spring return in neutral position
   8ES2  5V08028  P → B, with spring return in neutral position
   8ES3  5V08029  Double acting with spring return in neutral position

5. Coils
   With ISO 4400 connection
   10.5VDC  4SOL512011  Nominal voltage 10.5VDC
   12VDC  4SOL512012  Nominal voltage 12VDC
   24VDC  4SOL512024  Nominal voltage 24VDC
   With Deutsch DT connection
   4-10.5VDC  4SOL512111  Nominal voltage 10.5VDC
   4-12VDC  4SOL512112  Nominal voltage 12VDC

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

Electric wiring example

Operating features

**CONTROLS**
- Fuga interna A(B) → T
  - \( \Delta p = 100 \text{ bar} / T = 40^\circ C \) : 10 cm\(^3\)/min - 0.61 in\(^3\)/min

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

Operating condition diagram

- Flow
- Pressure

---

Coil with ISO4400 connection (needs connector type C02: see page. 96)

Coil with Deutsch DT connection (needs connector type C19: see page. 96)
Complete controls

8IM proportional hydraulic control

It needs special spools and standard working section body (body kit without seals on spool).

Description example:

EL SDS100 / Q - I112 - 8IM *

1. Complete working section *

<table>
<thead>
<tr>
<th>TYPE: Q-I112-8IM</th>
<th>CODE: 610101003</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Parallel circuit with 3 positions double acting spool, proportional hydraulic control</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: RQ-I112-8IM-F</th>
<th>CODE: 610351005</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Working section with optional outlet fitted out previous</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: for working sections codes with port valves prearrangement contact Sales Department.

2. Working section kit *

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q/IM-ES</td>
<td>5EL107301A</td>
<td>Parallel circuit</td>
</tr>
<tr>
<td>P/IM-ES</td>
<td>5EL107300A</td>
<td>Parallel circuit with port valves prearrangement</td>
</tr>
<tr>
<td>SQ/IM-ES</td>
<td>5EL307301A</td>
<td>Tandem circuit</td>
</tr>
<tr>
<td>SP/IM-ES</td>
<td>5EL307300A</td>
<td>Tandem circuit with port valves prearrangement</td>
</tr>
<tr>
<td>RQ/IM-ES</td>
<td>5FIA20731A</td>
<td>Section with optional outlet and parallel circuit</td>
</tr>
<tr>
<td>RP/IM-ES</td>
<td>5FIA20730A</td>
<td>As previous with valves prearrangement</td>
</tr>
</tbody>
</table>

3. Spools

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>I118</td>
<td>3CU6410118</td>
<td>Double acting, 3 positions, with A and B closed in neutral position; for flow up to 20 l/min</td>
</tr>
<tr>
<td>I112</td>
<td>3CU6210420</td>
<td>As previous for flow from 20 to 40 l/min</td>
</tr>
<tr>
<td>I117</td>
<td>3CU6410117</td>
<td>As previous for flow from 40 to 60 l/min</td>
</tr>
<tr>
<td>I203</td>
<td>3CU6225420</td>
<td>Double acting, 3 positions, with A and B open to tank in neutral position; for flow from 20 to 40 l/min</td>
</tr>
</tbody>
</table>

4. Control kit *

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>8IM</td>
<td>5IDR207300</td>
<td>Double sides proportional hydraulic control with spring return in neutral position</td>
</tr>
</tbody>
</table>

NOTE (*) - Codes are referred to BSP thread.
**8IM proportional hydraulic control**

**Connection example**

Configuration for connection to the pilot valve with external pump (see previous page).

Configuration for direct connection from the directional control valve to the pilot valve.
1) CR inlet section with pressure reducing valve (see page 68)
2) PA or QA working section with pilot through and drain (see page 88)
3) RPA or RQA optional outlet working section with pilot through line closing and backpressure valve (see page 90).

**Operating features**

Max pilot pressure ............: 70 bar / 1015 psi

---

**Pilot pressure - stroke diagram**

- Pilot pressure - stroke diagram
- Spool overlap area
- Metering zone

---

**SVM400 hydraulic pilot control valve with 088 pressure control curve**
**13IM proportional hydraulic control**

It needs special spools and special working section body (body kit without seals on spool).

**Description example:**

**EL  SDS100 / Q - I501 - 13IM **

1. **Complete working section **

   **TYPE:** P5-I501-13IM,UTUT  
   **CODE:** 610101600  
   **DESCRIPTION:** Parallel circuit with port valves prearrangement, 4 positions double acting spool, floating in 4th position with spool in, proportional hydraulic control

   **TYPE:** RP5-I501-13IM,UTUT  
   **CODE:** 610301600  
   **DESCRIPTION:** Working section with optional outlet fitted out previous

   **NOTE:** for working sections codes without port valves prearrangement contact Sales Department.

2. **Working section kit **

   **TYPE**  
   **Q5/IM**  
   **P5/IM**  
   **SQ5/IM**  
   **SP5/IM**  
   **RQ5/IM**  
   **RP5/IM**

   **CODE**  
   **DESCRIPTION**  
   5EL107321A  
   Parallel circuit  
   5EL107320A  
   Parallel circuit with port valves prearrangement  
   5EL307321A  
   Tandem circuit  
   5EL307320A  
   Tandem circuit with port valves prearrangement  
   5FIA207315A  
   Optional outlet working section, with parallel circuit  
   5FIA207305A  
   As previous with port valves prearrangement

3. **Spools**

   **TYPE**  
   **I503**

   **CODE:** 3CU6442000  
   **DESCRIPTION:** 4 positions double acting spool, floating circuit in 4th position with spool in, for flow from 20 to 40 l/min.

4. **Control kit **

   **TYPE**  
   **13IM**

   **CODE:** 5IDR207350  
   **DESCRIPTION:** Double sides proportional hydraulic control with spring return in neutral position; for floating circuit spool

**NOTE** (*) - Codes are referred to BSP thread.
13IM proportional hydraulic control

Operating features
Max pilot pressure: 70 bar / 1015 psi

Pilot pressure - stroke diagram

Connection example

Pressure control curve (port VA2)
Type 125 without step

Pressure control curve (port VB2)
Type 045 with step
Antishock with prefill

**U 100**

Pressure setting in bar.

Wrench 13
24 Nm / 17.7 lbft

**Performance data**

**Pressure / flow diagram**
(from 25 to 140 bar / from 360 to 2050 psi)

**Pressure / flow diagram**
(from 150 to 240 bar / from 2180 to 3500 psi)

**Pressure / flow diagram**
(from 250 to 340 bar / from 3600 to 4950 psi)

**Pressure drop**

**Time response**
Anticavitation

Performance data

Valve blanking plug

UT
EI2 intermediate section

Section with service relief valve section and prearranged for a second inlet.

Description example:
SDS100/2/CN(TG3-175)/Q-101-8L/EI2(TVG3-125)/R Q-101-8L-F

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

Direct pressure relief valve type: TV(G3)
Code: X196121176
Wrench 27 - 24 Nm / 17.7 lbft

Directional control valve mounting face

Section body code: 3EL4073400*

G1/2 plug code 3XTAP727180*
Allen wrench 8 - 24 Nm / 17.7 lbft

Joint code XGIU527600*
Wrench 27 - 24 Nm / 17.7 lbft

T A1 P B1 A2 B2

175 2550
125 1800

1.42 3.76 0.22
2.01
max. 1.65 0.43 4.69 1.02

NOTE (*) - Items are referred to BSP thread.
Mid return manifold for directional valve with left and right inlet both; they allow 2 independent circuits with common outlet.

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

Description example:
SDS100/2/CN(TVG3-175)/Q-101-8L/CS1/Q-101-8L/BN(TVG3-175)
1. Working section kit  page 59

Include body, seals, rings and load check valve.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ</td>
<td>5FIA207310</td>
<td>Parallel circuit</td>
</tr>
<tr>
<td>RP</td>
<td>5FIA207300</td>
<td>Parallel circuit prearranged for port valves</td>
</tr>
<tr>
<td>RQS</td>
<td>5FIA207319</td>
<td>Tandem circuit</td>
</tr>
<tr>
<td>RPS</td>
<td>5FIA207309</td>
<td>Tandem circuit prearranged for port valves</td>
</tr>
</tbody>
</table>

Section kits for special spools

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQS</td>
<td>5FIA207315A</td>
<td>Parallel circuit prearranged for floating circuit: for spool type 501</td>
</tr>
<tr>
<td>RPS</td>
<td>5FIA207305A</td>
<td>As previous prearranged for port valves: for spool type 501</td>
</tr>
</tbody>
</table>

2. Spools  page 25

For list see page 21.

3. “A” side spool positioners  page 31

For list see page 21.

4. “B” side options  page 41

For list see page 21.

5. Complete controls  page 48

For list see page 21.

6. Port valves  page 54

For list see page 21.

7. Circuit options  page 61

For list see page 21.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>3XTAP727180</td>
<td>With side and upper outlet ports plugged (standard): nr.2 plugs</td>
</tr>
<tr>
<td>TL</td>
<td>3XTAP727180</td>
<td>With side outlet ports open: nr.1 plug</td>
</tr>
<tr>
<td>TA</td>
<td>3XTAP727180</td>
<td>With upper outlet port open: nr.1 plug</td>
</tr>
<tr>
<td>AE</td>
<td>4TAP314010</td>
<td>Upper cam-over port nr. 1 plug</td>
</tr>
<tr>
<td>AEK</td>
<td>3XTAP727180 + 4TAP314010</td>
<td>Closed centre with side outlet port open: nr.1 plug for code type</td>
</tr>
</tbody>
</table>

NOTA (*) - Items are referred to BSP thread.
Section kit and hydraulic circuit

Configuration combining a working section with the closing flange to reduce dimensions.
Below it's show a configuration with parallel circuit, port valves prearrangement, optional side and upper outlet ports plugged (F type)

G 1/2 ports plugged
Allen wrench 8
24 Nm / 17.7 lbfl

VR load check valve
Allen wrench 6
24 Nm / 17.7 lbfl

Port valves (page 54)

"B" side option (page 41)

"A" side spool positioner (page 31)

nr 2 G3/8 ports

DBT001E  59
Section with optional outlet type R

Section kit and hydraulic circuit

Parallel circuit

Type RQ: without port valves prearrangement
Type RP: with port valves prearrangement

Description example:
RQ-101-8L-F

Description example:
RP-101-8L.UTUT-F

Tandem circuit

It's necessary to use QR or PR sections (see page 24).

Type RQS: without port valves prearrangement
Type RPS: with port valves prearrangement

Description example:
RQS-101-8L-F

Description example:
RPS-101-8L.UTUT-F
Circuit options

For type F standard configuration see page 59.

**TL configuration**

It's necessary to plug port T on inlet section.

Description example:
RQ-101-8L-TL

**TA configuration**

It's necessary to plug port T on inlet section.

Description example:
RQ-101-8L-TA

**AE configuration (carry-over)**

Outlet is on port T of inlet section.

Description example:
RQ-101-8L-AE

**AEK configuration (closed centre)**

Outlet is on port T of inlet section.

Description example:
RQ-101-8L-AEK
Working sections with internal pilot and drain lines

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inlet valve options .......................................... 18

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A type working section
ordering codes ............................................. 88
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RA type working section with optional outlet
ordering codes ............................................. 90
section body kit and hydraulic circuit .................. 91
## SDS100

### Sections with internal pilot and drain lines

#### Dimensional data

**Code**  
WALVOIL  
P0500001  
111020000  
Ref. .......  
MADE IN ITALY

**Production batch:**  
P05 = production year (2005)  
00001 = progressive number  
Customer reference

---

For dimensions of sections and controls, please see the related pages.

### SDS100/1

<table>
<thead>
<tr>
<th>Type</th>
<th>E (mm)</th>
<th>E (in)</th>
<th>F (mm)</th>
<th>F (in)</th>
<th>Weight (kg)</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS100/1</td>
<td>157</td>
<td>6.18</td>
<td>118</td>
<td>4.65</td>
<td>10.2</td>
<td>22.5</td>
</tr>
</tbody>
</table>

### SDS100/2

<table>
<thead>
<tr>
<th>Type</th>
<th>E (mm)</th>
<th>E (in)</th>
<th>F (mm)</th>
<th>F (in)</th>
<th>Weight (kg)</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS100/2</td>
<td>193</td>
<td>7.60</td>
<td>154</td>
<td>6.06</td>
<td>13.8</td>
<td>30.4</td>
</tr>
</tbody>
</table>

### SDS100/3

<table>
<thead>
<tr>
<th>Type</th>
<th>E (mm)</th>
<th>E (in)</th>
<th>F (mm)</th>
<th>F (in)</th>
<th>Weight (kg)</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS100/3</td>
<td>229</td>
<td>9.02</td>
<td>190</td>
<td>7.48</td>
<td>17.4</td>
<td>38.4</td>
</tr>
</tbody>
</table>

### SDS100/4

<table>
<thead>
<tr>
<th>Type</th>
<th>E (mm)</th>
<th>E (in)</th>
<th>F (mm)</th>
<th>F (in)</th>
<th>Weight (kg)</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS100/4</td>
<td>265</td>
<td>10.43</td>
<td>226</td>
<td>8.90</td>
<td>21</td>
<td>46.3</td>
</tr>
</tbody>
</table>

### SDS100/5

<table>
<thead>
<tr>
<th>Type</th>
<th>E (mm)</th>
<th>E (in)</th>
<th>F (mm)</th>
<th>F (in)</th>
<th>Weight (kg)</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS100/5</td>
<td>301</td>
<td>11.85</td>
<td>262</td>
<td>10.31</td>
<td>24.6</td>
<td>54.2</td>
</tr>
</tbody>
</table>

---

**SDS100/6**  
**SDS100/7**  
**SDS100/8**  
**SDS100/9**  
**SDS100/10**

<table>
<thead>
<tr>
<th>Type</th>
<th>E (mm)</th>
<th>E (in)</th>
<th>F (mm)</th>
<th>F (in)</th>
<th>Weight (kg)</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS100/6</td>
<td>337</td>
<td>13.27</td>
<td>298</td>
<td>11.73</td>
<td>28.2</td>
<td>62.2</td>
</tr>
<tr>
<td>SDS100/7</td>
<td>373</td>
<td>14.69</td>
<td>334</td>
<td>13.15</td>
<td>31.8</td>
<td>70.1</td>
</tr>
<tr>
<td>SDS100/8</td>
<td>409</td>
<td>16.10</td>
<td>370</td>
<td>14.57</td>
<td>35.4</td>
<td>78.0</td>
</tr>
<tr>
<td>SDS100/9</td>
<td>445</td>
<td>17.52</td>
<td>406</td>
<td>15.98</td>
<td>39</td>
<td>86</td>
</tr>
<tr>
<td>SDS100/10</td>
<td>481</td>
<td>18.94</td>
<td>442</td>
<td>17.40</td>
<td>42.6</td>
<td>93.9</td>
</tr>
</tbody>
</table>
sections with internal pilot and drain lines

**Parallel**

![Parallel Hydraulic Circuit Diagram](image)

Description example:

SDS100/3/CRV(TVG3-175)/QE-E101-8EB3/RQE-E101-8EB3-VRC-F-12VDC

**Tandem**

![Tandem Hydraulic Circuit Diagram](image)

Description example:

SDS100/3/CRV(TVG3-175)/QE-E101-8EB3/SQE-E101-8EB3/RQE-E101-8EB3-VRC-F-12VDC
sections with internal pilot and drain lines

Ordering codes

Description example:

SDS100/3/CRV(TVG3-175)/QE-E101-8EB3/QA-101-8L/
RQA-101-8L-VRC-F
NOTAP(L)-12VDC

1. nr. of working sections
2a. 1st section
2b. 2nd section
3a. last section
3b. last section
4. Solenoid valves feeding voltage

1st section

Solenoid valves feeding voltage
sections with internal pilot and drain lines

**Ordering codes**

**1. Complete inlet section**  * page 68

<table>
<thead>
<tr>
<th>TYPE: CRV(TVG3-175)......-NOTAP(L)</th>
<th>CODE: 610201008</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Section with upper inlet, with pressure relief valve, with internal pilot and external drain.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: CRV(SV)......-NOTAP(L)</th>
<th>CODE: 610201009</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: As previous with pressure relief valve blanking plug</td>
<td></td>
</tr>
</tbody>
</table>

**With electro-hydraulic control**

**2a. Complete working section type E**  * page 72

<table>
<thead>
<tr>
<th>TYPE: QE-E101-8EB3-12VDC</th>
<th>CODE: 610151002</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Parallel circuit with double side electro-hydraulic control</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: PE-E101-8EB3.UTUT-12VDC</th>
<th>CODE: 610101006</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Parallel circuit with double side electro-hydraulic control and port valves prearrangement</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: SQE-E101-8EB3-12VDC</th>
<th>CODE: 610121006</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Tandem circuit with double side electro-hydraulic control</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: SPE-E101-8EB3.UTUT-12VDC</th>
<th>CODE: 610121007</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Tandem circuit with double side electro-hydraulic control and port valves prearrangement</td>
<td></td>
</tr>
</tbody>
</table>

**With mechanical controls**

**2b. Complete working section type A**  * page 88

<table>
<thead>
<tr>
<th>TYPE: QA-101-8L</th>
<th>CODE: 610153001</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Parallel circuit with lever control and spring return in neutral position</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: PA-101-8L.UTUT</th>
<th>CODE: 610103001</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Parallel circuit with lever control and spring return in neutral position, prearranged for port valves</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: SQA-101-8L</th>
<th>CODE: 610123001</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Tandem circuit with lever control and spring return in neutral position</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: SPA-101-8L.UTUT</th>
<th>CODE: 610123002</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Tandem circuit with lever control and spring return in neutral position, prearranged for port valves</td>
<td></td>
</tr>
</tbody>
</table>

**3a. Section with optional outlet type E**  * page 84

<table>
<thead>
<tr>
<th>TYPE: RQE-E101-8EB3-VRC-F-12VDC</th>
<th>CODE: 610351006</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Parallel circuit with double side electrohydraulic control and backpressure valve</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: RPE-E101-8EB3.UTUT-VRC-F-12VDC</th>
<th>CODE: 610301006</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: As previous with port valves prearrangement</td>
<td></td>
</tr>
</tbody>
</table>

**3b. Section with optional outlet type A**  * page 90

<table>
<thead>
<tr>
<th>TYPE: RQA-101-8L-VRC-F</th>
<th>CODE: 610301008</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: Parallel circuit with lever control and spring return in neutral position and backpressure valve</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: RPA-101-8L.UTUT-VRC-F</th>
<th>CODE: 610301009</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION: As previous with port valves prearrangement</td>
<td></td>
</tr>
</tbody>
</table>

**4. Assembling kit**

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5TIR 110145</td>
<td>Tie rod kit for 1 section valve</td>
</tr>
<tr>
<td>5TIR 110179</td>
<td>Tie rod kit for 2 sections valve</td>
</tr>
<tr>
<td>5TIR 110215</td>
<td>Tie rod kit for 3 sections valve</td>
</tr>
<tr>
<td>5TIR 110252</td>
<td>Tie rod kit for 4 sections valve</td>
</tr>
<tr>
<td>5TIR 110289</td>
<td>Tie rod kit for 5 sections valve</td>
</tr>
<tr>
<td>5TIR 110323</td>
<td>Tie rod kit for 6 sections valve</td>
</tr>
<tr>
<td>5TIR 110359</td>
<td>Tie rod kit for 7 sections valve</td>
</tr>
<tr>
<td>5TIR 110397</td>
<td>Tie rod kit for 8 sections valve</td>
</tr>
<tr>
<td>5TIR 110431</td>
<td>Tie rod kit for 9 sections valve</td>
</tr>
<tr>
<td>5TIR 110467</td>
<td>Tie rod kit for 10 sections valve</td>
</tr>
</tbody>
</table>

**NOTE (*) - Codes are referred to BSP thread.**
Inlet and outlet section

Description example:

FE SDS100 / C RV (TVG3 - 175) ELT-12VDC .......... NOTAP(L) *

Pressure relief valve setting in bar

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>5FIA107305</td>
<td>Standard configuration fitted with relief valve VLP</td>
</tr>
</tbody>
</table>

1. Section body kit * page 69

2. Pressure reducing valve page 69

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RV</td>
<td>X219740030</td>
<td>With pressure reducing valve VRPF</td>
</tr>
<tr>
<td>SRV</td>
<td>XTAP519350</td>
<td>With valve blanking plug</td>
</tr>
</tbody>
</table>

3. Inlet relief options page 17

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>5FIA107305</td>
<td>Standard configuration fitted with relief valve VLP</td>
</tr>
<tr>
<td>VMD100</td>
<td>XTAP109200</td>
<td>Direct pressure relief valve type T (standard)</td>
</tr>
<tr>
<td>TVG2</td>
<td>X196112081</td>
<td>Range 63 to 100 bar / 900 to 1450 psi</td>
</tr>
<tr>
<td></td>
<td>standard setting</td>
<td>80 bar / 1160 psi</td>
</tr>
<tr>
<td>TVG3</td>
<td>X1962121176</td>
<td>Range 100 to 200 bar / 1450 to 2900 psi</td>
</tr>
<tr>
<td></td>
<td>standard setting</td>
<td>175 bar / 2550 psi</td>
</tr>
<tr>
<td>TVG4</td>
<td>X196121220</td>
<td>Range 200 to 300 bar / 2900 to 4350 psi</td>
</tr>
<tr>
<td></td>
<td>standard setting</td>
<td>220 bar / 3200 psi</td>
</tr>
<tr>
<td>SV</td>
<td>XTAP526360</td>
<td>Pressure relief valve blanking plug</td>
</tr>
</tbody>
</table>

4. Inlet valve options page 18

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELT</td>
<td>5CAR407320</td>
<td>12 VDC solenoid operated unloader valve</td>
</tr>
<tr>
<td></td>
<td>5CAR407325</td>
<td>24 VDC solenoid operated unloader valve</td>
</tr>
<tr>
<td>SV</td>
<td>XTAP526360</td>
<td>Valve blanking plug; in valve description the word SV must be omitted because standard</td>
</tr>
</tbody>
</table>

5. Pilot and drain* page 69

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAP(VL)</td>
<td>3XTAP719150</td>
<td>Internal pilot and drain: needs two G1/4 plugs</td>
</tr>
<tr>
<td>NOTAP(L)</td>
<td>3XTAP719150+4TAP308006</td>
<td>Internal pilot and external drain: needs G1/4 plug and M8x1 tapered plug</td>
</tr>
<tr>
<td>NOTAP(V)</td>
<td>3XTAP719150</td>
<td>External pilot and internal drain: needs G1/4 plug</td>
</tr>
<tr>
<td>NOTAP(VL)</td>
<td>4TAP308006</td>
<td>External pilot and drain: needs M8x1 tapered plug</td>
</tr>
</tbody>
</table>

NOTE (*) - Codes are referred to BSP thread.
sections with internal pilot and drain lines

Section kit and hydraulic circuit

It's show a configuration with internal pilot and drain.

Pressure reducing valve **VRPF**
Wrench 19 - 42 Nm / 31 lbf

Relief valve **VLP**
Allen wrench 4
6.6 Nm / 4.9 lbf

**VRP** pressure reducing valve
performance curve

**VLP** relief valve
performance curve

Description example:
CRV(TVG3-175)....- TAP(VL)
Section kit and hydraulic circuit

External drain configuration

Suggested configuration for valve with 8EB3LH electro-hydraulic control: required to avoid that backpressure on return can influence the hysteresis of the control.

Description example:
CRV(TVG3-175)....- NOTAP(L)

External pilot and drain configuration

Description example:
CRV(TVG3-175)....- NOTAP(VL)
sections with internal pilot and drain lines

Section kit and hydraulic circuit

Configuration without pressure reducing valve

The electro-hydraulic control kit can be driven by connecting a pump (Q= 5 l/min and P max= 50 bar / 725 psi) to the V port and replacing the pressure reducing valve with the appropriate plug (see page 69).

Available with internal or external drain.

Description example:

\[ \text{CSRV(TVG3-175)... NOTAP(V)} \]
Working section type E

Description example:

EL SDS100 / PE - E101 - 8EB3 . U100U100 - 12VDC *

1. Working sections kit * page 73
   Include body, seals and load check valve.
   TYPE CODE DESCRIPTION
   QE 5EL1073012 Parallel circuit without port valves prearrangement
   PE 5EL1073002 Parallel circuit with port valves prearrangement
   SQE 5EL3073012 Tandem circuit without port valves prearrangement
   SPE 5EL3073002 Tandem circuit with port valves prearrangement

2. Spools page 74
   If not specified otherwise, the spool are from 20 to 40 l/min flow
   TYPE CODE DESCRIPTION
   E102 3CU6710102 Double acting, 3 positions, with A and B closed in neutral position; for flow up to 20 l/min
   E101 3CU6710000 As previous, from 20 to 40 l/min flow
   E103 3CU6710103 As previous, from 40 to 60 l/min flow
   E201 3CU6725000 Double acting, 3 positions, with A and B open to tank in neutral position
   E301 3CU6731000 Single acting in A, 3 positions, B plugged: needs G3/8 plug
   Specials spools for particular positioners kit ............... pag. 77
   E501 3CU6752501 Double acting, 4 positions, floating in 4th positions with spool in

3. Electro-hydraulic controls page 78
   TYPE CODE DESCRIPTION
   8EB3 SIDR907312 12VDC double side proportional type with spring return to neutral position
   SIDR907324 As previous 24VDC
   8EB3LH SIDR907612 12VDC double side proportional type with spring return to neutral position and wet-type lever control
   SIDR907624 As previous 24VDC
   Particular positioners kit for special spools ................. page 78
   TYPE CODE DESCRIPTION
   13EB3 SIDR917312 AS type 8EB3, 12VDC: for spool type E501
   SIDR917324 As previous 24VDC
   13EB3LH SIDR917712 AS type 8EB3LH, 12VDC: for spool type E501
   SIDR917724 As previous 24VDC

4. Port valves page 54
   Fixed setting antishock with prefill valves.

NOTE (*) - Codes are referred to BSP thread.
sections with internal pilot and drain lines

Section kit and hydraulic circuit

It can be supplied with parallel or tandem circuit; series circuit is obtained as related to page 10.

All sections are available with or without valves prearrangement

Parallel circuit

Tandem circuit
**SDS 100**

sections with internal pilot and drain lines

**Working section type E**

**Spools**

**Type E101**

![Diagram of Spool metering P→A(B) and A(B)→T]

**Spool metering P→A(B)**

- Stroke: +6.5 mm (0.26 in)
- Stroke: -6.5 mm (0.26 in)

**Spool metering A(B)→T**

- Flow: Qin = 40 l/min
- Pressure ranges:
  - P(on ports) = 63 bar / 900 psi
  - P(on ports) = 100 bar / 1450 psi
  - P(on ports) = 250 bar / 2900 psi

**Flow and Current Graphs**

- Flow vs. Current for 12VDC and 24VDC
- Graphs show flow rates for different current values.
sections with internal pilot and drain lines

Spools

Type E102

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

Spool metering P→A(B)

Qin = 20 l/min

P_{(on~ports)} = 63 ~bar / 900 ~psi
P_{(on~ports)} = 100 ~bar / 1450 ~psi
P_{(on~ports)} = 250 ~bar / 2900 ~psi

Spool metering A(B)→T

Type E103

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

Spool metering P→A(B)

Qin = 60 l/min

P_{(on~ports)} = 63 ~bar / 900 ~psi
P_{(on~ports)} = 100 ~bar / 1450 ~psi
P_{(on~ports)} = 250 ~bar / 2900 ~psi

Walvoil HYDRAULIC CONTROL SYSTEMS
Working section type E

Spools

Type E201

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

Type E301

P - A - B - T closed, with flow through line (LC) open
sections with internal pilot and drain lines

Spools

Type E501

QE5 - PE5 section or RQE5 - RPE5 optional outlet section required, contact Sales Dpt. for further information.

To be combined with 13EB3 (see page 78) or 13EB3LH (see page 82) electrohydraulic controls.

---

Spool metering

\[ Q_{in} = 40 \text{ l/min} / P_{on \text{ ports}} = 100 \text{ bar} / 1450 \text{ psi} \]

---

Pressure drop in position 3

(last section)
8EB3 proportional electro-hydraulic control

With spring return to neutral position.

Operating features

SOLENOID VALVE

Pilot max. pressure : 315 bar - 4600 psi
Min. feeding pressure : 40 bar - 580 psi
Max. backpressure on drain : 20 bar - 290 psi
Max. internal leakage : 3 cm³/min - 0.18 in³/min
Max. hysteresis : 13%
Nominal voltage : 12 - 24 VDC ± 10%
Coil resistance (20 °C) : 5.3 - 24 Ω
Nominal current : 1.5 - 0.63 A
Duty cycle : 100%
Operating frequency : 125 Hz
Weather protection : IP65

Current – stroke diagram

“JPT” AMP connection
(need connector type C08, see page 96)
sections with internal pilot and drain lines

8EB3LH proportional electro-hydraulic control

With spring return to neutral position and wet-type lever box.

Callout
1) CRV type inlet cover with pressure-reducing valve (VRP), relief valve (VLP), internal pilot and external drain (suggested)
2) Working section (PE, QE...) with pilot lines
3) Optional outlet working section (RPE, RQE) with pilot lines and backpressure valve (VRC or VRE)
21. Working section type E

8EB3LH proportional electro-hydraulic control

Lever-holder configuration

The control is supplied with lever-holder in standard configuration; different position must always specified (8EB3LH1 and 8EB3LH2).
sections with internal pilot and drain lines

13EB3 proportional electro-hydraulic control

With spring return to neutral position: available for spool type E501 (see page 77).

Operating features

SOLENOID VALVES
Pilot max. pressure : 315 bar - 4600 psi
Min. feeding pressure : 40 bar - 580 psi
Max. backpressure on drain : 20 bar - 290 psi
Max. internal leakage : 3 cm³/min - 0.18 in³/min
Max. hysteresis : 13%
Nominal voltage : 12 - 24 VDC ± 10%
Coil resistance (20 °C) : 5.3 - 24 Ω
Nominal current : 1.5 - 0.63 A
Duty cycle : 100%
Operating frequency : 125 Hz
Weather protection : IP65

Current - stroke diagram

Callout

1) CRV type inlet cover with pressure-reducing valve (VRP), relief valve (VLP), internal pilot and drain
2) Working section (PE, QE...) with pilot lines
3) Optional outlet working section (RPE, RQE) with pilot lines and backpressure valve VRC(21)

“JPT” AMP connection
(need connector type C08, see page 96)
Working section type E20.

13EB3LH proportional electro-hydraulic control

With spring return to neutral position and wet-type lever box: available for spool type E501 (see page 77).

Operating features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solenoid Valve</strong></td>
<td></td>
</tr>
<tr>
<td>Pilot max. pressure</td>
<td>315 bar - 4600 psi</td>
</tr>
<tr>
<td>Min. feeding pressure</td>
<td>40 bar - 580 psi</td>
</tr>
<tr>
<td>Max. backpressure on drain</td>
<td>20 bar - 290 psi</td>
</tr>
<tr>
<td>Max. internal leakage</td>
<td>3 cm³/min - 0.18 in³/min</td>
</tr>
<tr>
<td>Max. hysteresis</td>
<td>13%</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>12 24 VDC ± 10%</td>
</tr>
<tr>
<td>Coil resistance (20 °C)</td>
<td>5.3 24 Ω</td>
</tr>
<tr>
<td>Nominal current</td>
<td>1.5 0.63 A</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>100%</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>125 Hz</td>
</tr>
<tr>
<td>Weather protection</td>
<td>IP65</td>
</tr>
</tbody>
</table>

Current - stroke diagram

Callout

1) CRV type inlet cover with pressure-reducing valve (VRP), relief valve (VLP), internal pilot and external drain (suggested)
2) Working section (PE,QE...) with pilot lines
3) Optional outlet working section (RPE, RQE) with pilot lines and backpressure valve VRC(21)
sections with internal pilot and drain lines

21. Working section type E

8EB3LH proportional electro-hydraulic control

---

**Lever-holder configuration**

The control is supplied with lever-holder in standard configuration; different position must always specified (13EB3LH1 and 13EB3LH2).
sections with internal pilot and drain lines

Section with optional outlet type RE

Valve description:

EL SDS100 / RPE - E101 - 8EB3 - U100U100 - VRC - F - 12VDC *

1. Working section kit * page 85
Include body, seals and load check valve.
- TYPE CODE DESCRIPTION
  - RQE 5FIA207312 Parallel circuit without port valves prearrangement
  - RPE 5FIA207302 Parallel circuit with port valves prearrangement

2. Spools page 74
If not specified otherwise, the spool are from 20 to 40 l/min flow
- TYPE CODE DESCRIPTION
  - E102 3CU6710102 Double acting, 3 positions, with A and B closed in neutral position; for flow up to 20 l/min
  - E101 3CU6710000 As previous, from 20 to 40 l/min flow
  - E103 3CU6710103 As previous, from 40 to 60 l/min flow
  - E201 3CU6725000 Double acting, 3 positions, with A and B open to tank in neutral position
  - E301 3CU6731000 Single acting in A, 3 positions, B plugged: needs G3/8 plug
Specials spools for particular positioners kit ............... pag. 77
- E501 3CU6752501 Double acting, 4 positions, floating in 4th positions with spool in

3. Electro-hydraulic controls page 78
- TYPE CODE DESCRIPTION
  - 8EB3 SIDR907312 12VDC double side proportional type with spring return to neutral position
  - 8EB3LH SIDR907324 As previous 24VDC
  - 8EB3LH SIDR907612 12VDC double side proportional type with spring return to neutral position and wet-type lever control
  - 8EB3LH SIDR907624 As previous 24VDC
Particular positioners kit for special spools ................. page 78
- TYPE CODE DESCRIPTION
  - 13EB3 SIDR917312 AS type 8EB3, 12VDC: for spool type E501
  - 13EB3 SIDR917324 As previous 24VDC
  - 13EB3LH SIDR917712 AS type 8EB3LH, 12VDC: for spool type E501
  - 13EB3LH SIDR917724 As previous 24VDC

4. Port valves page 54
Fixed setting antishock with prefill valves.

5. Circuit options * page 87
- TYPE CODE DESCRIPTION
  - VRC SGJUS11370 Backpressure valve for 8EB3 and 8EB3LH controls
  - VRC(21) SGJUS11371 Backpressure valve for 13EB3 and 13EB3LH controls
  - VRE SGJUS27590 Backpressure valve and carry-over: include M14x1.5 plug. Only for 8EB3 and 8EB3LH controls

NOTE (*) - Codes are referred to BSP thread.
sections with internal pilot and drain lines

Section kit and hydraulic circuit

Configuration combining a working section with the closing flange to reduce dimensions. Below it's a configuration with parallel circuit, backpressure valve, optional side outlet port plugged (F type).

Double side electro-hydraulic control (page 78)

VR load check valve
Allen wrench 6 - 24 Nm / 17.7 lbft

nr.2 G 3/8 ports

SDS100
**SDS100** sections with internal pilot and drain lines

**Section with optional outlet type RE**

**Section kit and hydraulic circuit**

Type **RQE**: without port valves prearrangement

Type **RPE**: with port valves prearrangement

**Description example:**

**RQE** - E101-8EB3-VRC-F-12VDC

**RPE** - E101-8EB3.UUTUT-VRC-F-12VDC
sections with internal pilot and drain lines

Circuit options

With VRC backpressure valve

VRC performance diagram

With VRE backpressure valve (carry-over)

VRE performance diagram
sections with internal pilot and drain lines

Working section type A

Description example:

EL SDS100 / PA - 101 - 8 L . U100 U100 *

1a. Working section kit *  page 89

For mechanical controls.
Include body, seals, rings and load check valve.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>QA</td>
<td>5EL1073013</td>
<td>Parallel circuit without port valves</td>
</tr>
<tr>
<td>PA</td>
<td>5EL1073003</td>
<td>Parallel circuit with port valves</td>
</tr>
<tr>
<td>SQA</td>
<td>5EL3073013</td>
<td>Tandem circuit without port valves</td>
</tr>
<tr>
<td>SPA</td>
<td>5EL3073003</td>
<td>Tandem circuit with port valves</td>
</tr>
</tbody>
</table>

1b. Working section kit *

For proportional hydraulic and ON/OFF solenoid controls.
Include body, seals and load check valve.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>QA/IM-ES</td>
<td>5EL1073013A</td>
<td>Parallel circuit without port valves</td>
</tr>
<tr>
<td>PA/IM-ES</td>
<td>5EL1073003A</td>
<td>Parallel circuit with port valves</td>
</tr>
<tr>
<td>SQA/IM-ES</td>
<td>5EL3073013A</td>
<td>Tandem circuit without port valves</td>
</tr>
<tr>
<td>SPA/IM-ES</td>
<td>5EL3073003A</td>
<td>Tandem circuit with port valves</td>
</tr>
</tbody>
</table>

1 Other options  page 21

For complete list of spools, controls and port valves see page 21: available options are the same of directional valve with standard working section.

NOTE (*) - Codes are referred to BSP thread.
sections with internal pilot and drain lines

Section kit and hydraulic circuit

Sections with pilot lines for manual/mechanical control in electro-hydraulic valves. Dimensions are the same as other sections.

Parallel circuit

"A" side spool positioner (page 31)

"B" side options (page 41)

Type QA: without port valves prearrangement

Type PA: with port valves prearrangement

Tandem circuit

Pilot through and drain

Description example: PA-101-8L.UTUT

Type SQA: without port valves prearrangement

Type SPA: with port valves prearrangement

Description example: SPA-101-8L.UTUT
sections with internal pilot and drain lines

### Section with optional outlet type RA

Description example:

**EL SDS100 / RPA - 101 - 8L . U100U100 - VRC - F**

**1a. Working section kit**  
For mechanical controls.  
Include body, seals, rings and load check valve.  
<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQA</td>
<td>5FIA207314</td>
<td>Parallel circuit without port valves arrangement</td>
</tr>
<tr>
<td>RPA</td>
<td>5FIA207306</td>
<td>Parallel circuit with port valves arrangement</td>
</tr>
</tbody>
</table>

**2. Circuit options**  
For proportional hydraulic and ON/OFF solenoid controls.  
Include body, seals and load check valve.  
<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRC</td>
<td>5GIU511370</td>
<td>Backpressure valve for 8EB3 and 8EB3LH prop. electrohydraulic controls</td>
</tr>
<tr>
<td>VRC(21)</td>
<td>5GIU511371</td>
<td>Backpressure valve for 13EB3 and 13EB3LH prop. electrohydraulic controls</td>
</tr>
<tr>
<td>VRE</td>
<td>5GIU527590</td>
<td>Backpressure valve and carry-over: include M14x1.5 plug. Only for 8EB3 and 8EB3LH prop. electrohydraulic controls</td>
</tr>
</tbody>
</table>

**1b. Working section kit**  
For proportional hydraulic and ON/OFF solenoid controls.  
Include body, seals and load check valve.  
<table>
<thead>
<tr>
<th>TYPE</th>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQA/IM-ES</td>
<td>5FIA207316A</td>
<td>Parallel circuit without port valves arrangement</td>
</tr>
<tr>
<td>RPA/IM-ES</td>
<td>5FIA207306A</td>
<td>Parallel circuit with port valves arrangement</td>
</tr>
</tbody>
</table>

**Other options**  
For complete list of spools, controls and port valves see page 21: available options are the same of directional valve with standard working section.

**EL SDS100 / RQA - S112 - 8ES3 - VRC - F - 12VDC**

NOTE (*) - Codes are referred to BSP thread.
sections with internal pilot and drain lines

Section kit and hydraulic circuit

For dimensions and characteristics see section type RE at page 85.

Type RQA: without port valves prearrangement

Type RPA: with port valves prearrangement

Descriprion example:

RQA -101-8L-VRC-F

RQA -101-8L-VRE-F

RPA -101-8L.UTUT-VRC-F

RPA -101-8L.UTUT-VRE-F
sections with internal pilot and drain lines
The SDS100 valve is assembled and tested as per the technical specification of this catalogue. Before the final installation on your equipment, follow the below recommendations:
- the valve can be assembled in any position, in order to prevent body deformation and spool sticking mount the product on a flat surface;
- in order to prevent the possibility of water entering the lever box and spool control kit, do not use high pressure wash down directly on the valve;
- prior to painting, ensure plastic port plugs are tightly in place.

### Fitting tightening torque - Nm / lbft

<table>
<thead>
<tr>
<th>THREADS TYPE</th>
<th>P and C ports</th>
<th>A and B ports</th>
<th>T port</th>
<th>V and L ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSP</td>
<td>G 1/2</td>
<td>G 3/8</td>
<td>G 1/2</td>
<td>G 1/4</td>
</tr>
<tr>
<td>With O-Ring seal</td>
<td>50 / 36.9</td>
<td>35 / 25.8</td>
<td>50 / 36.9</td>
<td>20 / 14.7</td>
</tr>
<tr>
<td>With copper washer</td>
<td>60 / 44.3</td>
<td>40 / 29.5</td>
<td>60 / 44.3</td>
<td>25 / 18.4</td>
</tr>
<tr>
<td>With steel and rubber washer</td>
<td>60 / 44.3</td>
<td>30 / 22.1</td>
<td>60 / 44.3</td>
<td>16 / 11.8</td>
</tr>
<tr>
<td>UN-UNF</td>
<td>7/8-14 (SAE 10)</td>
<td>3/4-16 (SAE 8)</td>
<td>7/8-14 (SAE 10)</td>
<td>9/16-18 (SAE 6)</td>
</tr>
<tr>
<td>With O-Ring seal</td>
<td>90 / 66.4</td>
<td>35 / 25.8</td>
<td>90 / 66.4</td>
<td>30 / 22.1</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.
### Installation and maintenance

#### Mechanical control configuration.

![Mechanical control configuration diagram]

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

<table>
<thead>
<tr>
<th>Callout</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Inlet cover</td>
</tr>
<tr>
<td>2)</td>
<td>Overpressure relief valve</td>
</tr>
<tr>
<td>3)</td>
<td>Overpressure relief valve blanking plug</td>
</tr>
<tr>
<td>4)</td>
<td>Working section</td>
</tr>
<tr>
<td>5)</td>
<td>Spool: normally spools are interchangeable, verify the smoothness during the assembly</td>
</tr>
<tr>
<td>6)</td>
<td>“A” side spool positioner</td>
</tr>
<tr>
<td>7)</td>
<td>Lever pivot box</td>
</tr>
<tr>
<td>8)</td>
<td>Dust-proof flange</td>
</tr>
<tr>
<td>9)</td>
<td>Port valves</td>
</tr>
<tr>
<td>10)</td>
<td>Load check valve</td>
</tr>
<tr>
<td>11)</td>
<td>Working section with optional outlet</td>
</tr>
<tr>
<td>12)</td>
<td>Holding O-Ring washer code: 3ANE126020</td>
</tr>
<tr>
<td>13)</td>
<td>O-Ring seal 14.00x2 code: 4GUA114020</td>
</tr>
</tbody>
</table>

#### Malfunction

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

Electrohydraulic proportional control configuration.

**Callout**
1) Inlet cover.
2) Overpressure relief valve.
3) Overpressure relief valve blanking plug.
4) Main pressure reducing valve.
5) Working section type E.
6) Spool: normally spools are interchangeable, verify the smoothness during the assembly.
7) 8EB3 spool control.
8) 8EB3LH spool control.
9) Pressure reducing valves.
10) Port valve.
11) Load check valve.
12) Working section with optional outlet type RE, with backpressure valve.

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>External leakage pivot box lever or control kit side.</td>
<td>Worn spool seal due to mechanical actuation or high back pressure.</td>
<td>Sostituire le guarnizioni usurate.</td>
</tr>
<tr>
<td>Excessive internal leakage on A and B ports.</td>
<td>Increase clearance between spools and body due to high wear.</td>
<td>Replace the working section and check the oil contamination level.</td>
</tr>
<tr>
<td>Dropping load during transition while raising.</td>
<td>High leakage on the load check valve.</td>
<td>Remove the load check valve and clean the seat, verifying it’s not dented.</td>
</tr>
<tr>
<td>Inability to build pressure on A and B ports.</td>
<td>Pressure relief valve blocked open.</td>
<td>Remove and clean or replace the valve.</td>
</tr>
<tr>
<td></td>
<td>Low pump pressure and flow.</td>
<td>Check the pump and circuit.</td>
</tr>
<tr>
<td></td>
<td>Current absence to pressure reducing solenoid valves.</td>
<td>Check the electric circuit.</td>
</tr>
<tr>
<td></td>
<td>Low pilot circuit pressure.</td>
<td>Check the pilot circuit.</td>
</tr>
</tbody>
</table>
3P+T according to ISO4400 / EN175301-803

42.5 28
1.12
0.56
1.67
1.10

Type C03 codice: 2X1001030
3P+T according to ISO4400 / EN175301-803

Type C07 code: 5CON001
2P male case with female end type PACKARD “Weather Pack”

Type C08 code: 5CON003
2P female case with female end type AMP “Junior-Power-Timer”

Type C17 code: 5CON005
2P female case with male end type PACKARD “Weather Pack”

Type C19 code: 5CON007
2P male case with female end type Deutsch DT06-2S

Type C20 code: 5CON017
2P male case with female end type PACKARD “Metri-Pack”

Type C21 code: 5CON018
2P female case with male end type AMP “Fastin-Faston”

Type C24 code: 5CON0031
2P male case with female end type AMP “Superseal”

Accessories
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>6-8 mm / 0.24-0.31 in</td>
<td>IP 65</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>6-8 mm / 0.24-0.31 in</td>
<td>IP 65</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>IP 65</td>
</tr>
<tr>
<td>C07</td>
<td>2P</td>
<td></td>
<td>20 A</td>
<td>1-2 mm² / 0.00155-0.0031 in²</td>
<td>2.8-3.5 mm / 0.11-0.14 in</td>
<td>IP 67</td>
</tr>
<tr>
<td>C08</td>
<td>2P</td>
<td>250 VAC</td>
<td>12 A</td>
<td>0.5-1 mm² / 0.00077-0.00155 in²</td>
<td>1.3-1.7 mm / 0.051-0.063 in</td>
<td>IP 65</td>
</tr>
<tr>
<td>C17</td>
<td>2P</td>
<td></td>
<td>20 A</td>
<td>1-2 mm² / 0.00155-0.0031 in²</td>
<td>1.4-1.6 mm / 0.055-0.067 in</td>
<td>IP 67</td>
</tr>
<tr>
<td>C19</td>
<td>2P</td>
<td></td>
<td>13 A</td>
<td>1-1.2 mm² / 0.00155-0.00186 in²</td>
<td>2.2-3.5 mm / 0.088-0.14 in</td>
<td>IP 67</td>
</tr>
<tr>
<td>C20</td>
<td>2P</td>
<td></td>
<td>14 A</td>
<td>0.8-1 mm² / 0.00124-0.00155 in²</td>
<td>1.3-1.7 mm / 0.051-0.067 in</td>
<td>IP 65</td>
</tr>
<tr>
<td>C21</td>
<td>2P</td>
<td></td>
<td>7A</td>
<td>0.3-0.8 mm² / 0.00046-0.00124 in²</td>
<td>2.2-3 mm / 0.087-0.118 in</td>
<td>/</td>
</tr>
<tr>
<td>C24</td>
<td>2P</td>
<td></td>
<td>14A</td>
<td>0.3-0.5 mm² / 0.00046-0.00077 in²</td>
<td>1.4-1.7 mm / 0.055-0.067 in</td>
<td>IP 67</td>
</tr>
</tbody>
</table>