## Proportional directional spool valve

<table>
<thead>
<tr>
<th>Type</th>
<th>Version / actuation</th>
<th>$p_{\text{max}}$ (bar)</th>
<th>$q_{\text{max}}$ (lpm)</th>
</tr>
</thead>
</table>
| **EDL**       | Prop. directional spool valve (load sensing) valve bank  
- With series connection  
- Solenoid | 2: 320                                    | 2: 50                     |
| **PSL, PSV**  | Prop. directional spool valve (load sensing) valve bank  
- With series connection  
- Manual  
- Electro-hydraulic  
- Pressure-actuated | 2: 420  
3: 420  
5: 400 | 2: 60  
3: 120  
5: 270 |
| **PSL, PSVF, SLF** | Prop. directional spool valve (load sensing) single valve  
- Individual valve for manifold mounting  
- Valve bank  
- With manifold mounting  
- Manual  
- Electro-hydraulic  
- Pressure-actuated | 3: 420  
5: 400  
7: 420 | 3: 120  
5: 270  
7: 500 |
2.1 Proportional directional spool valve type EDL

Proportional directional spool valves are a type of directional valve. They control the direction of movement and the velocity of individual or multiple hydraulic consumers actuated simultaneously. Control is independent of the load and continuous. The directional spool valve type EDL with series connection is actuated directly. The flow rates for the individual consumers can be individually adjusted. The proportional directional spool valve can be flexibly adapted to different control tasks by means of additional functions in the intermediate plates and ancillary blocks. The directional spool valve type EDL can be combined directly with the proportional directional spool valve type PSL and PSV in size 2 and is therefore suitable for constant and variable pump systems. It is used in mobile hydraulics, in particular in civil engineering and agricultural engineering.

Features and benefits:
- One valve for different control functions and small flow quantities
- Energy-saving closed-centre systems
- Compact and lightweight design
- Modular system can be directly combined with type PSL/PSV-2

Intended applications:
- Construction and construction materials machinery
- Cranes and lifting equipment
- Machines for forestry and agricultural purposes
- Municipal trucks

Design and order coding example

<table>
<thead>
<tr>
<th>EDL</th>
<th>- DA2</th>
<th>L 40/25 E /2 - G24</th>
</tr>
</thead>
</table>

Solenoid voltage 12V DC, 24V DC
- Actuated via prop. amplifier or PLVC

Ancillary blocks

Confirmation Type E, EI

Volumetric flow Volumetric flow indicator, side A, B (3...40)

Spool Type L, H

Spool block Section with inflow controller

Basic type Type EDL: directly actuated proportional directional spool valve
**Function**

**Valve sections:**

- Circuit symbol

```
L   H
B   R
A   P
```

**Versions of valve sections:**

- Additional functions in the ancillary block:
  - Shock and servo-suction valves
  - Load-holding valves
  - Check valves with release, no leakage
  - Floating and block functions can be switched

**Characteristic values for max. volumetric flows:**

<table>
<thead>
<tr>
<th>Size 2</th>
<th>3</th>
<th>6</th>
<th>10</th>
<th>25</th>
<th>40</th>
</tr>
</thead>
</table>

- Characteristic value corresponds to the max. volumetric flow [lpm] of inflow controller versions at the consumer ports A and/or B
- Volumetric flows for A and/or B can be selected separately

**Actuations:**

<table>
<thead>
<tr>
<th>Basic type</th>
<th>Brief description</th>
<th>Circuit symbol (example)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>electrical actuation with stroke limitation</td>
<td><img src="image" alt="Circuit symbol" /></td>
</tr>
<tr>
<td>EI</td>
<td>electrical actuation without stroke limitation and with emergency manual actuation</td>
<td><img src="image" alt="Circuit symbol" /></td>
</tr>
</tbody>
</table>
General parameters and dimensions

PSL/EDL

1 Connection block
2 Valve section
3 End plate

<table>
<thead>
<tr>
<th>Flow [lpm]</th>
<th>Oper. pressure [bar]</th>
<th>Ports</th>
<th>Dimensions [mm]</th>
<th>m [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q_{max}</td>
<td>A, B</td>
<td>H</td>
<td>EDL</td>
</tr>
<tr>
<td></td>
<td>Q_{pu \ max}</td>
<td></td>
<td>H1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P_{max}</td>
<td></td>
<td>B</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Per valve section(^{1)}</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q_{max}</th>
<th>Q_{pu \ max}</th>
<th>P_{max}</th>
<th>P, R</th>
<th>A, B</th>
<th>H</th>
<th>H1</th>
<th>B</th>
<th>T</th>
<th>Per valve section(^{1)}</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ... 40</td>
<td>80</td>
<td>320</td>
<td>G 1/2, 3/4-16 UNF-2B</td>
<td>G 3/8, 3/4-16 UNF-2B</td>
<td>241</td>
<td>80</td>
<td>40</td>
<td>64</td>
<td>1.8 ... 2.9</td>
</tr>
</tbody>
</table>

1) Dep. on actuation and additional functions
Circuit example:

PSV 3-2
- DA2L40/25/E/2
- DA2L25/16/E/24l-0-A4/210-B10-B4/210
- E4-G24

Associated technical data sheets:
- Proportional directional spool valve type EDL: D 8086
- Proportional directional spool valve, type PSL and PSV size 2: D 7700-2
- Proportional directional spool valve, type PSL, PSM and PSV size 3: D 7700-3
- Proportional directional spool valve, type PSL, PSM and PSV size 5: D 7700-5
- Connection block type HMPL and HMPV for proportional directional spool valve: D 7700 H
2.1 Directional spool valve bank type DL

Throttling directional spool valves are a type of directional valve. They continuously and manually meter the flow rate in hydraulic systems with single and double-acting consumers. The throttling directional spool valve type DL influences the speed of the consumer by throttling the pump circulation via a parallel circuit (bypass control). The close fit of the spool in the throttling directional spool valve means that the leakage is limited to a minimum for lifting functions. The throttling directional spool valve type DL is suitable for applications in material handling and for lifting equipment.

Features and benefits:
- Compact design with up to 10 segments
- Various actuation variants for manual actuation
- Simple pressure reductions in downstream sections using intermediate plates
- Combinations possible for controlling lifting devices

Intended applications:
- Material handling (industrial trucks, etc.)
- Machines for agricultural and forestry purposes
- Construction and construction materials machinery
- Road vehicle

Design and order coding example:

<table>
<thead>
<tr>
<th>DL3</th>
<th>1</th>
<th>-3</th>
<th>GGD</th>
<th>-B/E1-</th>
<th>2</th>
<th>-210</th>
</tr>
</thead>
</table>

- **Pressure specification [bar]**
- **End plate**
- **Actuation, mounting**
- **Valve sections**
  - Directional spool valve
  - Valve section options:
  - Intermediate plate with pressure-limiting valve for all downstream valve sections
  - Additional functions on the consumer side in the ancillary block (e.g. double check valves, shock valves, load-holding valves etc.) (size 3)
- **Port size**
  - G 1/4, G 3/8, G 1/2 (BSPP)
- **Connection block**
  - With/without pressure limiting valve
  - With shock valve
- **Basic type, size** Type DL, sizes 1 to 4
Function

Connection blocks:

<table>
<thead>
<tr>
<th>DL .5</th>
<th>DL .1</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Connection block DL .5" /></td>
<td><img src="image2" alt="Connection block DL .1" /></td>
</tr>
</tbody>
</table>

Without pressure-limiting valve  With pressure-limiting valve

Valve sections:

<table>
<thead>
<tr>
<th>Basic symbol</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>G and B</td>
<td>D</td>
</tr>
</tbody>
</table>

![Valve symbol](image3)

Reduced internal leakage due to reduced spool valve play

Versions of valve sections:
- Additional function on the pump side (orifice, 2-way flow control valve)
- Valve sections for size 3 with consumer-side additional functions in ancillary block (e.g. double check valves, shock valves, load-holding valves etc.)
- Manual operation with return spring for switching position “a” and detent for switching position “b”
- Manual operation with detent in both switching positions
- Manual operation with combinations of contact switch, switch cam and switch carrier
- Manual operation with different mounting directions

End plates:

<table>
<thead>
<tr>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4" alt="End plate 2" /></td>
<td><img src="image5" alt="End plate 3" /></td>
</tr>
</tbody>
</table>

Standard end plate with port R  End plate for subsequent connection of a DL
### General parameters and dimensions

<table>
<thead>
<tr>
<th>DL  1</th>
<th>12 ... 16</th>
<th>315</th>
<th></th>
<th>Characteristic value</th>
<th>A, B</th>
<th>H, P, R</th>
<th>H</th>
<th>B</th>
<th>T</th>
<th>m</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL  2</td>
<td>20 ... 30</td>
<td>315</td>
<td>1</td>
<td>G 1/4</td>
<td>G 1/4</td>
<td>192</td>
<td>31,5</td>
<td>45</td>
<td>0,5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>G 3/8</td>
<td>G 3/8</td>
<td>278</td>
<td>34,5</td>
<td>50</td>
<td>0,85</td>
<td></td>
</tr>
<tr>
<td>DL  3</td>
<td>30 ... 60</td>
<td>250</td>
<td>2</td>
<td>G 3/8</td>
<td>G 1/2</td>
<td>351</td>
<td>39,5</td>
<td>60</td>
<td>1,4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>G 1/2</td>
<td>G 1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL  4</td>
<td>90</td>
<td>250</td>
<td>3</td>
<td>G 1/2</td>
<td>G 3/4</td>
<td>368</td>
<td>39,5</td>
<td>70</td>
<td>1,8</td>
<td></td>
</tr>
</tbody>
</table>

1. Connection block
2. Valve section
3. End plate
Associated technical data sheets:
- Directional spool valve bank type DL: D 7260
- Directional spool valve bank type DL 4: D 7510

Circuit example:

DL 21-2-G D 71 N-B/E1-2-180
Directional spool valve DL, size 2 with pressure-limiting valve (set to 180 bar),
port size 2 with G 3/8 threaded connections, circuit symbols G, D, G, N; circuit symbol G with pressure-limiting valve in port A (coding 71),
valve sections with manual operation B (series with hand lever) and mounting type E1 (ports A, B are directed towards the front,
valve spool is pushed into the housing for switching position “a”), valve bank with end plate 2 (coding 2)
2.1 Proportional directional spool valves type PSL and PSV

Proportional directional spool valves are a type of directional valve. They control the direction of movement and the velocity of individual or multiple hydraulic consumers actuated simultaneously. Control is independent of the load and continuous. The proportional directional spool valve type PSL is suitable for constant pump systems and type PSV for variable pump systems with a pressure/flow controller. The volumetric flows and load pressures for the individual consumers can be individually adjusted. The proportional directional spool valve type PSL and PSV can be adapted to various control tasks, e.g. for safety functions. All sizes can be combined with each other.

The proportional directional spool valve type PSL and PSV is used in mobile hydraulics, in particular in crane and lifting equipment, construction and mining machinery, drilling equipment as well as in offshore and marine technology.

Features and benefits:
- One product for various control functions and volume quantities
- Energy-saving Closed-Center systems
- Compact and lightweight design
- Modular system with wide range of design variants

Intended applications:
- Construction/construction material machinery
- Mining machinery (incl. oil production)
- Cranes and lifting equipment
- Machines for forestry and agricultural purposes
- Municipal machinery

Nomenclature:
- Prop. directional spool valves as per load-sensing principle

Version:
- Valve bank in series connection

Actuation:
- Manual
  - Return spring
  - Detent
- Electro-hydraulic, pressure-actuated
  - Hydraulic
  - Pneumatic

\( p_{\text{max}} \):
- 400 bar

\( Q_{\text{max consumer}} \):
- 240 l/min

\( Q_{\text{pu max}} \):
- 300 lpm

Design and order coding example

<table>
<thead>
<tr>
<th>PSL41F</th>
<th>/380</th>
<th>-3</th>
<th>- A2340/40/EA/3</th>
<th>- E4</th>
<th>- G24</th>
</tr>
</thead>
</table>

Solenoid voltage: 12V DC, 24V DC
- Actuated via prop. amplifier or PLVC
- Solenoids with various plug versions
- Explosion proof solenoids

End plates
- Various connection threads
- Pressure limiting valve (piloted main pressure limiting valve)
- Suited for both constant and variable displacement pump systems (type PSM)

Size

Connection block
- Various connection threads
- Pressure limiting valve (piloted main pressure limiting valve)
- Suited for both constant and variable displacement pump systems (type PSM)

Basic type
- Type PSL (hydraulic oil supply by constant pump), sizes 2, 3 and 5
- Type PSV (hydraulic oil supply by variable pump), sizes 2, 3 and 5
- Type HMPL (hydraulic oil supply by constant pump) for industrial trucks, sizes 2 and 3
- Type HMPV (hydraulic oil supply by variable pump) for industrial trucks, sizes 2 and 3
Function

Connection blocks:

<table>
<thead>
<tr>
<th>PSL</th>
<th>PSV</th>
<th>HMPL (HMPV)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="PSL Diagram" /></td>
<td><img src="image2" alt="PSV Diagram" /></td>
<td><img src="image3" alt="HMPL Diagram" /></td>
</tr>
</tbody>
</table>

1. Pilot pressure regulating valve
2. 2/2-way solenoid valve

Connection block for constant pump systems with integrated 3-way controller, pressure-limiting valve and LS shutdown

Connection block for variable pump systems with or without pressure-limiting valve

Connection block for constant delivery pump with incorporated proportional seated valve for lifting and lowering

Additional versions of connection blocks:

- 2/2-way solenoid valve for randomly switching the pump direction
- Additional damping option of the 3-way/pump controller
- Additional isolation valve to minimise the pump direction resistance
- Version with additional shut-off valve for the pump line, can be switched randomly
- Proportionally adjustable pressure limitation

Valve sections:

<table>
<thead>
<tr>
<th>Basic symbols</th>
<th>Circuit symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4" alt="Valve Diagram" /></td>
<td><img src="image5" alt="Circuit Diagram" /></td>
</tr>
</tbody>
</table>
Versions of valve sections:
- Load pressure signal outputs at A, B; A and B together
- 3/3 directional spool valve with 2-way input and output controller
- Version with and without 2-way inflow controller
- Function deactivation feature
- Secondary pressure-limiting valves (can be selected for A and/or B)
- Prop. Pressure limitation of individual functions
- Version with ancillary blocks
- Intermediate plates for various additional functions
- Combination of various sizes possible in one valve bank
- Version with EX solenoid for use in potentially explosive areas
- Version with explosion-proof, intrinsically safe magnets for mining applications
- Version with CAN actuation

Additional functions in the ancillary block:
- Shock and servo-suction valves
- Load-holding valves
- Differential circuits
- Check valves with release, zero-leakage
- Floating and block functions can be switched
- Proportional seated valves in accordance with D 7490/1 for lifting and lowering functions with plunger cylinders

Characteristic values for max. volumetric flows:

<table>
<thead>
<tr>
<th>Size</th>
<th>Q_{A,B} [lpm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 2</td>
<td>3 6 10 16 25 40</td>
</tr>
<tr>
<td>Size 3</td>
<td>3 6 10 16 25 40 63 80</td>
</tr>
<tr>
<td>Size 5</td>
<td>16 25 40 63 80 120 160</td>
</tr>
</tbody>
</table>

- Characteristic value corresponds to the max. volumetric flow [lpm] of inflow controller versions at the consumer ports A and/or B
- Volumetric flows for A and/or B can be selected separately
- Increasing the control pressure enables 60 lpm (size 2), 120 lpm (size 3) and 240 lpm (size 5) per consumer port side.
- Version with 2-way inflow controller and check valve function, or damping elements
**Actuations:**

<table>
<thead>
<tr>
<th>Basic type</th>
<th>Brief description</th>
<th>Circuit symbol (example)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Manual actuation</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Detent (continuous)</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Electro-hydraulic actuation in combination with manual operation</td>
<td>Combination of electro-hydraulic and manual actuation</td>
</tr>
<tr>
<td>EA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI CAN</td>
<td>CAN: Actuation variant with CAN control in combination with manual operation</td>
<td></td>
</tr>
<tr>
<td>EA CAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H, P</td>
<td>Hydraulic and pneumatic actuation in combination with manual operation</td>
<td></td>
</tr>
<tr>
<td>HA, PA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEA</td>
<td>Combination of H, E and A actuation</td>
<td></td>
</tr>
</tbody>
</table>

**Intermediate plates:**
- Electrically or hydraulically actuated shut-off valve for all downstream consumers
- With pressure-limiting valve to limit the operation pressure of all downstream valves
- For random switchable reduction of the volumetric flow of all downstream consumers
- Priority module, size 3

**End plates:**

<table>
<thead>
<tr>
<th>E1</th>
<th>E2</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Standard end plate" /></td>
<td><img src="image" alt="With additional Y-port for LS-input signal" /></td>
</tr>
</tbody>
</table>

**Additional versions of end plates:**
- End plate with internal leakage oil routing (no T gallery)
- End plates with additional P and R gallery
- Adapter plate to combine size 5 and 3 (coding ZPL 53), size 5 and 2 (coding ZPL 52) and size 3 and 2 (coding ZPL 32)
- End plate with integrated connection block function for dual-pump/dual-circuit systems
### General parameters and dimensions

<table>
<thead>
<tr>
<th>Flow [lpm]</th>
<th>Oper. pressure [bar]</th>
<th>Ports</th>
<th>Dimensions [mm]</th>
<th>m [kg]</th>
<th>Per valve section</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Q_{\text{max}}$</td>
<td>$Q_{\text{pr max}}$</td>
<td>$p_{\text{max}}$</td>
<td>P, R</td>
<td>A, B</td>
<td>H</td>
</tr>
<tr>
<td>PSL/PSV 2</td>
<td>3 ... 54</td>
<td>80</td>
<td>420</td>
<td>G 1/2, 3/4-16 UNF-2B</td>
<td>G 3/8, 3/4-16 UNF-2B</td>
</tr>
<tr>
<td>PSL/PSV 3</td>
<td>3 ... 120</td>
<td>200</td>
<td>420</td>
<td>G 1/2, G 3/4, G 1, 1 1/16-12 UNF-2B</td>
<td>G 1/2, G 3/4, 7/8-14 UNF-2B</td>
</tr>
<tr>
<td>PSL/PSV 5</td>
<td>16 ... 240</td>
<td>300</td>
<td>400</td>
<td>G 1, G 1 1/4, 1 5/8-12 UNF-2B</td>
<td>G 1, 5/16-12 UNF-2B</td>
</tr>
</tbody>
</table>

1) Dep. on actuation and additional functions
Circuit example:

<table>
<thead>
<tr>
<th>PSL 41/350 - 3</th>
<th>-32 J 25/16 A300 F1/EA</th>
<th></th>
<th>- E2 - G24</th>
</tr>
</thead>
<tbody>
<tr>
<td>-42 O 80/63 C250/EA</td>
<td>-42 J 63/63 A100 B120 F3/EA</td>
<td>-31 L 40/16/A</td>
<td></td>
</tr>
</tbody>
</table>

Type PSL valve bank for constant pump systems

Connection block:
- Coding for thread size
  (here 4 = G 3/4)
- Coding for pilot pressure-reducing valve
  (here 1)
- Coding for set pressure at pressure-limiting valve (here 350 bar)

Size: 3

1. Valve section: (exemplary for all subsequent valve sections):
- Directional spool valve block with coding for consumer connection size (here 3 = G 1/2)
- Coding for the type of directional spool valve block (here 2)
- Circuit symbol (here J)
- Coding for max. consumer volumetric flow to ports A and B (here 25 and 16 lpm)
- Coding of additional functions (here A 300; secondary pressure-limiting valve at port A set to 300 bar, function deactivated for port A (here F1))
- Coding for actuation type (here EA)

End plate:
- Coding for end plate (here E2)
- Coding for 24V DC solenoid voltage (here G24)

Products suitable for combination:
- Load-holding valves type LHT, LHDV: Page 198
- Joystick: Proportional pressure-reducing valve type KFB 01: D 6600-01

Additional electrical components:
- Proportional amplifier: Page 272
- Programmable logic valve control type PLVC: Page 276
- CAN node type CAN-IO: Page 276
- Other electronic accessories See "Electronics"

Associated technical data sheets:
- Proportional directional spool valve, type PSL and PSV size 2: D 7700-2
- Proportional directional spool valve, type PSL, PSM and PSV size 3: D 7700-3
- Proportional directional spool valve, type PSL, PSM and PSV size 5: D 7700-5
- Actuation for proportional directional spool valves type PSL/PSV: D 7700 CAN

Associated technical data sheets:
- Connection block type HMPL and HMPV for proportional directional spool valve: D 7700 H
- Proportional directional spool valve type EDL: D 8086
**Proportional directional spool valve type PSLF, PSLV and SLF**

Proportional directional spool valves are a type of directional valve. They control the direction of movement and the velocity of individual or multiple hydraulic consumers actuated simultaneously. Control is independent of the load and continuous. The proportional directional spool valve type PSLF is suitable for constant pump systems and type PSVF for variable pump systems with a pressure/flow controller. The proportional directional spool valve type PSLF and PSVF is available as an individual manifold mounting valve or in the valve bank. The volumetric flows and load pressures for the individual consumers can be individually adjusted. The directional spool valve can be adapted to different control tasks. Connections on the rear permit easy access to the valve for servicing, even in tight installation spaces. All sizes can be combined with each other. The proportional directional spool valve type PSLF and PSVF is used in mobile hydraulics, in particular in crane and lifting equipment, construction and mining machinery, drilling equipment as well as in offshore and marine technology.

**Features and benefits:**
- Max. flow 1000 lpm at 420 bar
- Rear side ports for easy access to valves, even in small installation spaces
- Flange design can be combined across all sizes with fast valve replacement
- Simultaneous operation of several functions at full speed

**Intended applications:**
- Construction machinery and machines for building materials
- Cranes and lifting equipment
- Offshore and marine technology
- Mining machinery

**Design and order coding example**

<table>
<thead>
<tr>
<th>PSLF</th>
<th>A1/380/4</th>
<th>- 3</th>
<th>A2J40/40/EA/3</th>
<th>- E2</th>
<th>- G24</th>
</tr>
</thead>
</table>

**Solenoid voltage**
- 12V DC, 24V DC
- Operated using a proportional amplifier or PLVC
- Magnets with different plug versions
- Explosion-proof magnets

**End plates**

**Valve sections with actuation**

**Size**

**Connection block**
- Various connection threads
- Pressure-limiting valve (pilot-controlled main pressure-limiting valve) in connection block

**Basic type**
- Type PSLF (supply via constant pump),
- Type PSVF (supply via variable displacement pump),
- size 3, 5 and 7
Function

Connection blocks:

PSLF

![Diagram of PSLF connection block]

1. Pilot pressure valve
2. 2/2-way solenoid valve

Connection block for constant pump systems with integrated 3-way controller, pressure-limiting valve and LS shutdown

PSVF

![Diagram of PSVF connection block]

Connection block for variable pump systems with and without pressure-limiting valve

Additional versions of connection blocks:
- 2/2-way solenoid actuated directional valve for arbitrary idle pump circulation
- Additional damping of the 3-way flow controller or pump controller
- Proportional adjustable pressure limitation

Valve sections:

<table>
<thead>
<tr>
<th>Basic symbol</th>
<th>Circuit symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Versions of valve sections:
- Load-signal outlets at A, B; A and B together
- Version with and without 2-way inflow controller
- Function deactivation
- Secondary pressure-limiting valves (can be individually selected for A and/or B)
- Proportional pressure limitation of the individual functions
- Sub-plates with different additional functions
- Sub-plates for ancillary blocks
- Sub-plates for combining various sizes
- Combination of various sizes in one valve bank possible
- Version with EX solenoid for use in potentially explosive areas
- Version with explosion-proof, intrinsically safe solenoids for mining applications

Key figures for max. flow rates:

| Size 3 | 3 | 6 | 10 | 16 | 25 | 40 | 63 | 80 |
| Size 5 | 16 | 25 | 40 | 63 | 80 | 120 | 160 |
| Size 7 | 120 | 160 | 250 | 320 | 400 |

- Key figure represents the max. flow rate (lpm) at consumer ports A or B for version with inflow controller
- Flow rates for A and/or B can be selected individually
- Increasing the control pressure means that 60 lpm (size 2), 120 lpm (size 3), 240 lpm (size 5) and 500 lpm (size 7) is possible per consumer port side.
- Versions with 2-way inflow controller and check valve function

Actuations:

<table>
<thead>
<tr>
<th>Basic type</th>
<th>Brief description</th>
<th>Circuit symbol (example)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Manual operation</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Detent (stepless)</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Electro-hydraulic actuation in combination with manual operation</td>
<td>Combination of electro-hydraulic and manual operation</td>
</tr>
<tr>
<td>EA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI CAN</td>
<td>CAN: Actuation variant with CAN control in combination with manual operation</td>
<td></td>
</tr>
<tr>
<td>EA CAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H, P</td>
<td>Hydraulic and pneumatic actuation in combination with manual operation</td>
<td></td>
</tr>
<tr>
<td>HA, PA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEA</td>
<td>Combination of H, E and A actuation</td>
<td></td>
</tr>
</tbody>
</table>

End plates:

- E1: Standard end plate
- E2: Additional Y-input for LS control signal

Additional versions of end plates:
- End plate with internal leakage oil routing (no tank connection)
- End plates with additional R port
- Adapter plate for combining size 5 and 3 (coding ZPL 53)
## General parameters and dimensions

### Flow

<table>
<thead>
<tr>
<th>PSLF/PSVF 3</th>
<th>Q_{max}</th>
<th>Q_{PU max}</th>
<th>P_{max}</th>
<th>P, R</th>
<th>A, B</th>
<th>H1</th>
<th>B</th>
<th>T</th>
<th>T1</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - 120</td>
<td>200</td>
<td>420</td>
<td>G 3/4, 1 1/16-12 UN-2B</td>
<td>G 1/2, G 3/4, 7/8-14 UNF-2B</td>
<td>195</td>
<td>50</td>
<td>80</td>
<td>50</td>
<td>3.3 ... 4.1</td>
</tr>
<tr>
<td>PSLF/PSVF 5</td>
<td>16 - 210</td>
<td>350</td>
<td>400</td>
<td>G 1, G 1 1/4, SAE 1 1/2&quot;</td>
<td>G 1, SAE 1&quot;</td>
<td>224</td>
<td>62.5</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>PSLF/PSVF 7</td>
<td>120 - 500</td>
<td>1000</td>
<td>400</td>
<td>G 1 1/2, SAE 1 1/2&quot;</td>
<td>G 1 1/4, SAE 1 1/4&quot;</td>
<td>305</td>
<td>106</td>
<td>101</td>
<td>95</td>
</tr>
</tbody>
</table>

1) Per valve section depending on actuation and additional functions
2) Per valve section complete with sub-plate

### Products suitable for combination:
- Load-holding valves type LHT, LHDV: Page 198
- Joystick: Proportional pressure-reducing valve type KFB 01: D 6600-01

### Additional electrical components:
- Proportional amplifier: Page 272
- Programmable logic valve control type PLVC: Page 276
- CAN node type CAN-IO: Page 276
- Other electronic accessories See "Electronics"

### Associated technical data sheets:
- Proportional directional spool valve type PSLF, PSVF and SLF: D 7700-F
- Proportional directional spool valve banks type PSLF and PSVF size 7: D 7700-7F
- Actuation for proportional directional spool valves type PSL/PSV: D 7700 CAN