

### 4/3 way pilot-controlled proportional seat valve

- Pilot-controlled seat valve
- Pilot-control by means of own medium
- Leakage-free sealing on valve seat
- Force-controlled working piston
- Smooth switching, no pressure impacts

- Wear parts are easy to access and fast to replace
- Actuation magnet is protected against dirt and humidity
- The proportional valve can be driven by a position control card BLS1 only

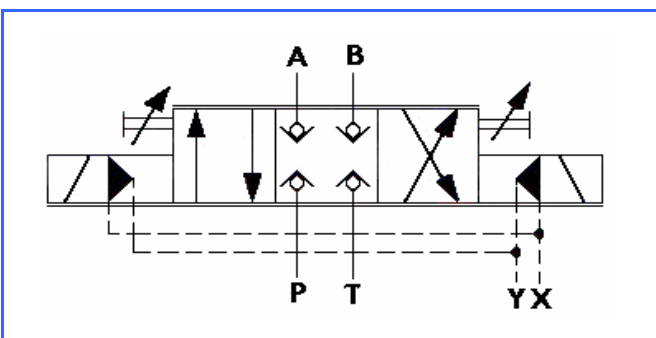


### Application

Electric arc furnaces  
 Cover lift mechanism and swivel mechanism  
 Forge presses  
 Table shifting  
 Hot rolling mill  
 change device

Roller

### Symbol



### Technical Data

#### Construction Type

Mounted seat valve

#### Pilot-control pressure

=System pressure, min. 25 bar

#### Control medium

Own medium

#### Nominal width

NG 16 - NG 40

#### Pressure fluid

HFA 97% water and 3% additive non-lubricated water (clear water) mineral oil acc. to DIN 51524 and 51525

#### Pilot-control pressure

see separate data sheets

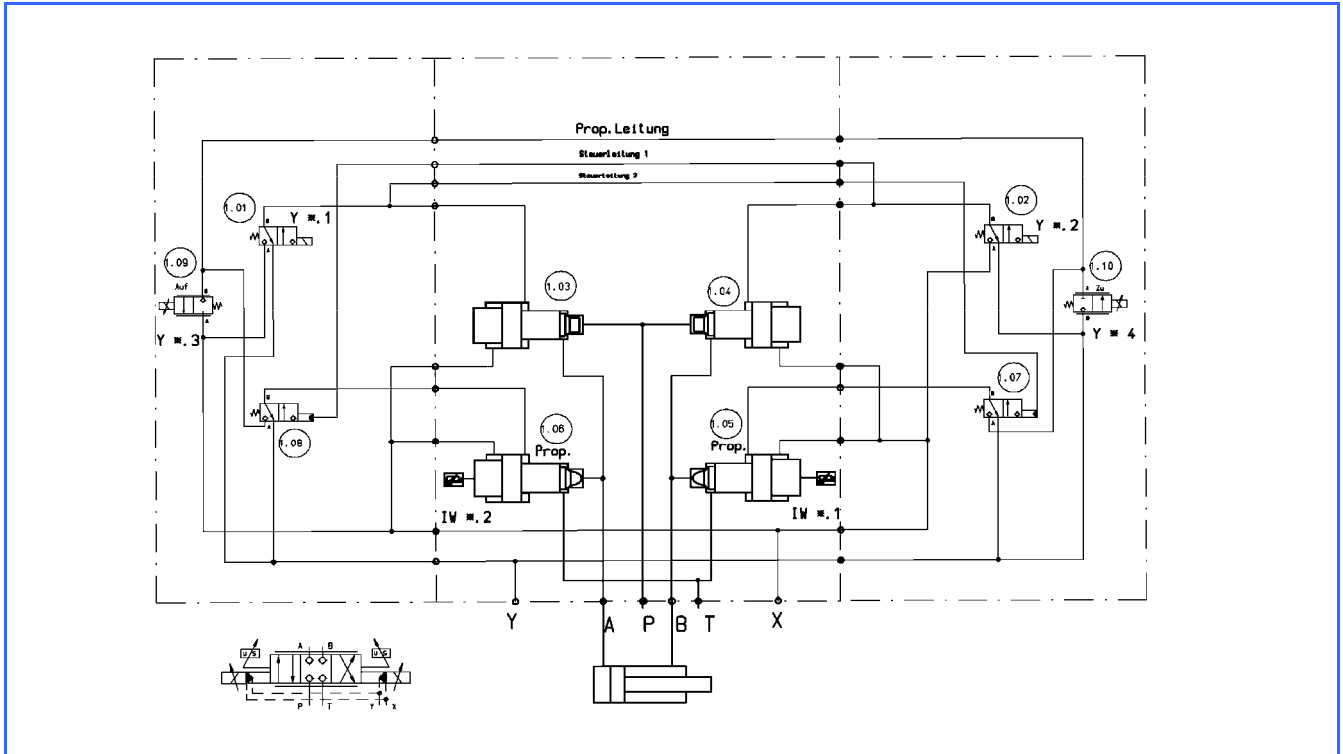
#### Max. operating pressure

320 bar

#### Filtering

Main valve 100  $\mu$ , pilot-control 25  $\mu$

### Function screen



### Function description for 4/3 directional control proportional valve

Two proportional directional control valves are connected by means of a relevant valve combination such that they form a 4/3 directional control proportional valve.

#### Swivel out (furnace cover)

By operating the direction valve 1.01(Y1) the fitted seat valve 1.03 is opened (connection X-line for lower larger piston surface 1.03). This causes P to be applied to the piston surface of the working cylinder (port A). At the same time, valve 1.07 is switched internally, and the prop. directional control valves 1.09(Y3); 1.10(Y4) for prop. directional control valve 1.05 are released. Depending on the degree of opening the prop. directional control valve 1.05 can relieve the ring surface of the working cylinder (port B) to the tank more quickly or somewhat more slowly. A working cylinder movement from A to B with greater or smaller speed is initiated.

#### Mode of operation - proportional control system

The upper smaller ring surface of the piston in the prop. directional control valve 1.05 is constantly subjected to the pilot pressure via the X line. If the prop. pilot-control valve 1.09(Y3) is operated, the pilot control pressure is fed - via prop. valve 1.07 - to the lower larger ring surface of the piston in prop. directional control valve 1.05, the valve opens.

If the prop. directional control valve 1.09(Y3); 1.10(Y4) are not operated the piston of the prop. directional control valve 1.05 remains in its last position. When the prop. directional control valve 1.10(Y4) is operated the larger ring surface of the piston in prop. directional control valve 1.05 - via valve 1.07 - is relieved to the Y port, the valve closes.

If no direction valve 1.01(Y1) or 1.02(Y2) is switched, then the lower larger piston surfaces of the prop. directional control valves 1.06 and 1.05 as well as the fitted seat valves 1.03 and 1.04 are relieved via the Y line, and the pilot-control pressure via the X line begins to act on the upper smaller piston surfaces. The valves are closed, the working cylinder stops.

### Swivel in (furnace cover)

By operating the direction valve 1.02(Y2) the fitted seat valve 1.04 is opened (connection X line to the lower larger piston surface 1.04). This causes P to be applied to the ring surface of the working cylinder (port A). At the same time, valve 1.08 is switched internally, and the prop. directional control valves 1.09(Y3); 1.10(Y4) for prop. directional control valve 1.06 are released. Depending on the degree of opening the prop. directional control valve 1.06 can relieve the piston surface of the working cylinder (port B) to the tank more quickly or somewhat more slowly. A working cylinder movement from B to A with greater or smaller speed is initiated.

### Mode of operation - proportional control system

The upper smaller ring surface of the piston in the prop. directional control valve 1.06 is constantly subjected to the pilot pressure via the X line. If the prop. pilot-control valve 1.09(Y3) is operated, the pilot control pressure is fed - via prop. valve 1.08 - to the lower larger ring surface of the piston in prop. directional control valve 1.06, the valve opens. If the prop. directional control valve 1.09(Y3); 1.10(Y4) are not operated the piston of the prop. directional control valve 1.06 remains in its last position. When the prop. directional control valve 1.10(Y4) is operated the larger ring surface of the piston in prop. directional control valve 1.06 - via valve 1.08 - is relieved to the Y port, the valve closes.

If no direction valve 1.01(Y1) or 1.02(Y2) is switched, then the lower larger piston surfaces of the prop. directional control valves 1.06 and 1.05 as well as the fitted seat valves 1.03 and 1.04 are relieved via the Y line, and the pilot-control pressure via the X line begins to act on the upper smaller piston surfaces. The valves are closed, the working cylinder stops.



### Safety note

In order to avoid malfunctions, only one direction valve 1.01(Y1) or 1.02(Y2) may be operated at any one time. It is also not permitted to switch both prop. pilot-control valves 1.09(Y3) or 1.10(Y4) simultaneously.

