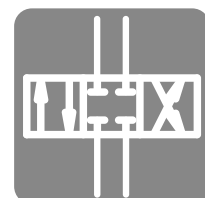


# 4/2- & 4/3-way directional spool valve type HAL (size 4)

|                               |          |
|-------------------------------|----------|
| operating pressure $p_{\max}$ | 320 bar  |
| volume flow $V_{\max}$        | 30 L/min |



## Product characteristics

Directional spool valves are a type of directional valve. They control the direction of movement and the velocity of single and doubleacting hydraulic consumers.

### Features and benefits:

- actuation with hand lever
- with and without detent

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## Technical data

### General

|                     |  |
|---------------------|--|
| type                | directional control valve, directly operated |
| design              | sub-base mounted valve                       |
| weight              | 1 kg   |
| ambient temperature | -30 to +50 °C                                |
| mounting position   | arbitrary (preferably horizontal)            |
| connection size     | ISO4401-02-01-0-05 (NG04)                    |

### Hydraulic parameters

Hydraulic fluid: mineral oil according to DIN 51524, other media on request

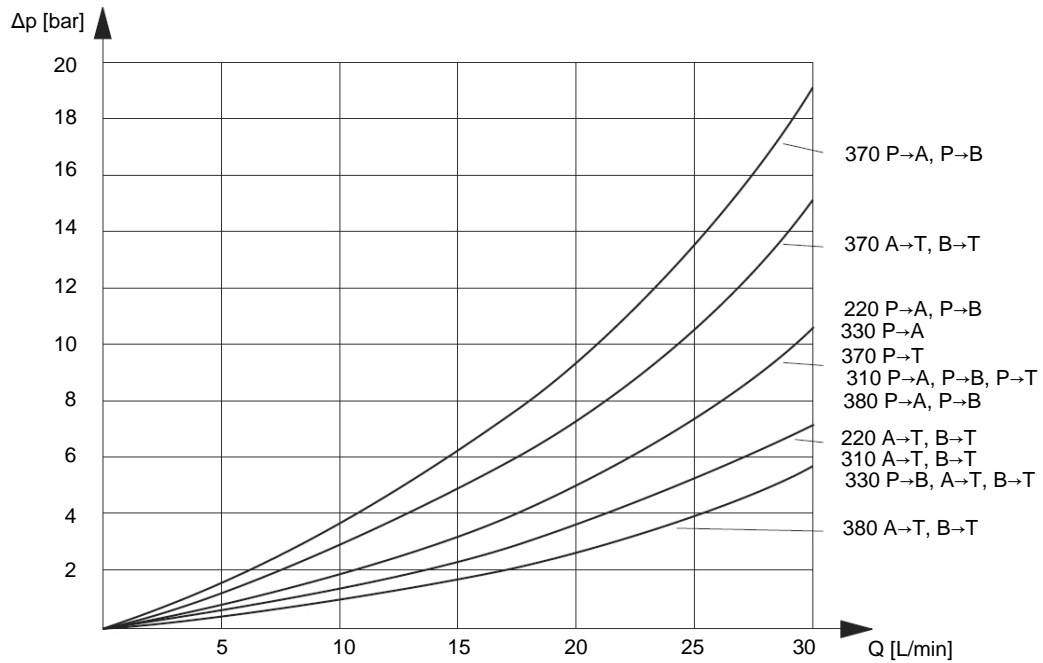
|                                 |   |
|---------------------------------|---|
| max. operating pressure         | P, A, B 320 bar<br>T 100 bar            |
| hydraulic fluid temperature     | -25 to +70 °C                           |
| viscosity                       | 10-600 mm <sup>2</sup> /s               |
| permissible degree of pollution | max. class 19/16/13 according ISO 4406  |
| filter recommendation           | filter retention rate $\beta_{25} > 75$ |

### Actuation

|             |                |
|-------------|----------------|
| actuation   | hand lever     |
| lever angle | 1x15° or 2x15° |

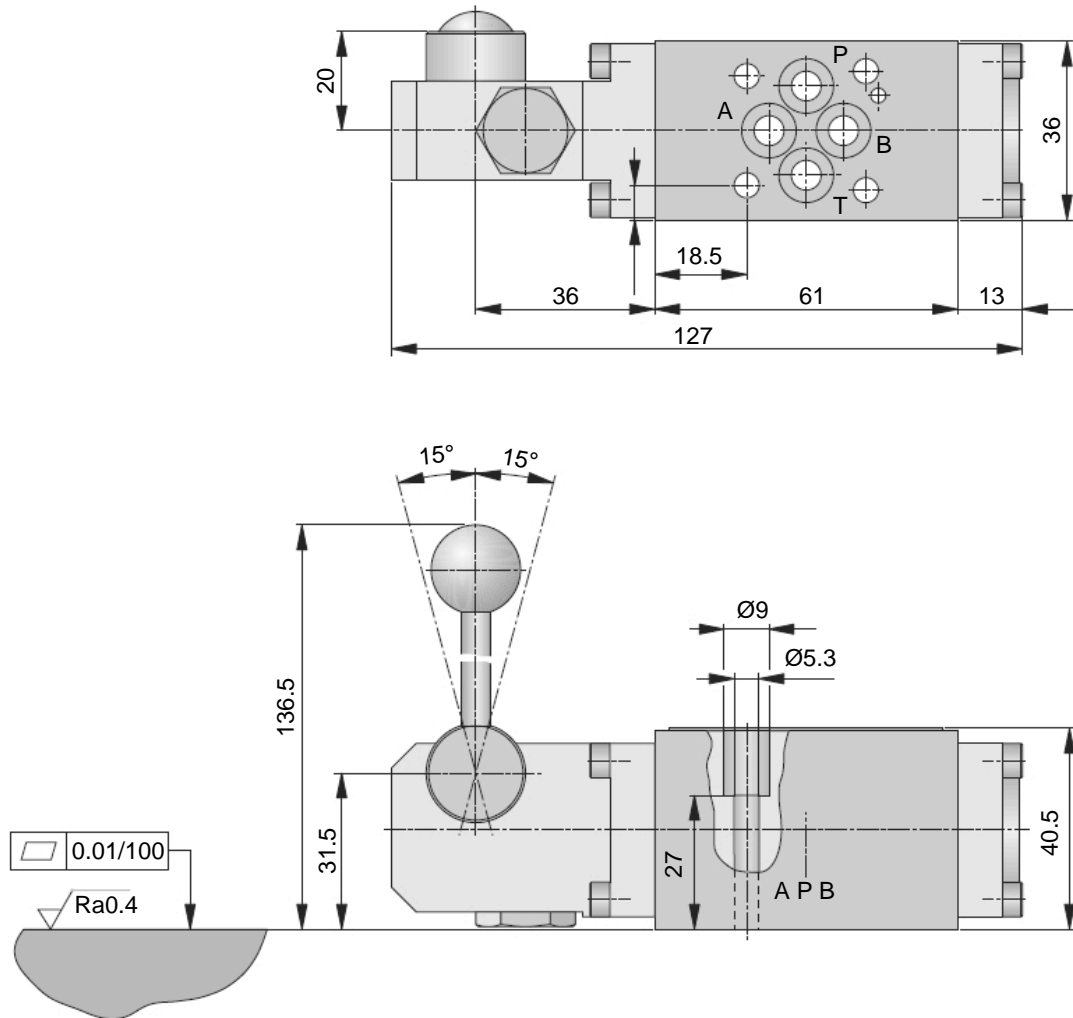
## Characteristic lines

measured at 50 °C temperature of hydraulic fluid, viscosity 32 mm<sup>2</sup>/s, tolerance ±10 %



## Dimensions and connections

Dimensions are given in mm.



4 rectangular O-rings 7,65 x 1,68 are included in the delivery. We recommend to use screws of property class 10.9 (6<sup>+2</sup> Nm), others on request.

## Order information

### Type code

| HAL         | 310                     | PC04 | R |                                  |
|-------------|-------------------------|------|---|----------------------------------|
|             |                         |      |   | <b>actuation</b>                 |
|             |                         |      |   | F without detent (spring return) |
|             |                         |      |   | R with detent                    |
|             |                         |      |   | <b>size</b>                      |
|             |                         |      |   | <b>switching symbols</b>         |
|             |                         |      |   | <b>without detent</b>            |
|             |                         |      |   | <b>with detent</b>               |
|             |                         |      |   | <b>overlap</b>                   |
| 220         |                         |      |   |                                  |
| 310         |                         |      |   |                                  |
| 330         |                         |      |   |                                  |
| 370         |                         |      |   |                                  |
| 380         |                         |      |   |                                  |
| <b>type</b> | directional spool valve |      |   |                                  |

**HAWE Hydraulik SE**

Einsteinring 17 | 85609 Aschheim/München | Postfach 11 55 | 85605 Aschheim |  
Germany Tel +49 89 379100-1000 | Fax +49 89 379100-91000 | [info@hawe.de](mailto:info@hawe.de) | [www.hawe.com](http://www.hawe.com)