

Directional valve 4-way/3-position

$Q_{\max} = 22 \text{ l/min}$, $p_{\max} = 250 \text{ bar}$

direct acting, spool type, switching solenoid

Type series: WK43G_A5...



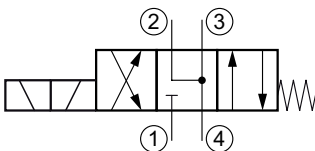
- Screw-in cartridge valve
- For cavity AN
- All external parts with zinc-nickel coating according to DIN EN ISO 19598
- Installation in threaded port body type GANA
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- Low head loss
- High pressure wet-armature solenoids
- Various plug-connector systems and voltages are available

Description

The 4-way/3-position solenoid operated spool valves, series WK43..., are size 5, direct acting, pressure balanced screw-in valves with a 3/4-16 UNF-2A mounting thread. They are designed based on the sliding-spool principle. The straightforward design delivers an outstanding price/performance ratio and excellent pressure-drop/flow rate values. All external parts of the screw-in valves are zinc-nickel plated, and are thus sui-

table for use in the harshest operating environments. The slip-on coils can be replaced without opening the hydraulic envelope and can be positioned at any angle through 360°. These valves are mainly used in mobile and industrial applications as pilot valves for controlling the travel direction of actuators such as hydraulic motors and cylinders. For self-assembly, please refer to the section related data sheets.

Symbol



Technical Data

| General Characteristics | Description, value, unit |
|------------------------------|---|
| Function group | Directional valve |
| Function | 4-way/3-position |
| Design | Screw-in cartridge valve |
| Controls | switching solenoid |
| Characteristic | direct acting, spool type |
| MTTFd value | 150 years |
| Construction size | nominal size 5 |
| Thread size | 3/4-16 UNF-2A |
| Mounting attitude | unrestricted |
| Weight | 0.64 kg |
| Cavity acc. factory standard | For cavity AN |
| Tightening torque steel | 40 Nm |
| Tightening torque aluminium | 40 Nm |
| Tightening torque tolerance | ± 10 % |
| Minimum ambient temperature | - 25 °C |
| Maximum ambient temperature | + 50 °C |
| Surface protection | All external parts with zinc-nickel coating according to DIN EN ISO 19598 |
| Available seal types | several seal types available, see ordering code |
| Seal kit order number | NBR: DS-248-N / FKM: DS-248-V |

| Hydraulic Characteristics | Description, value, unit |
|--|--|
| Maximum operating pressure | 250 bar |
| Maximum flow rate | 22 l/min |
| Flow direction | see symbol |
| Hydraulic fluid | HL and HLP mineral oil according to DIN 51 524; other fluids on request! |
| Minimum fluid temperature | - 25 °C |
| Maximum fluid temperature | + 80 °C |
| Viscosity range | 10 ... 500 mm ² /s (cSt) |
| Recommended viscosity range | 15 ... 250 mm ² /s (cSt) |
| Minimum fluid cleanliness (cleanliness class according to ISO 4406:1999) | class 20/18/15 |

| Electric Characteristics | Description, value, unit |
|---------------------------------------|--|
| Actuator type | solenoid coil |
| Solenoid coils type | D36 |
| Supply voltage DC | 12/24 V DC |
| Supply voltage AC | 115/230 V AC (50 ... 60 Hz) |
| Supply voltage tolerance | ± 10 % |
| Maximum permissible power consumption | Version "E": V DC = 17 W / V AC = 17 W Version "N": V DC = 27 W / V AC = 25 W |
| Switching time | Version "E": 50...100 ms (energized) / 40...60 ms (de-energized) Version "N": 50...180 ms (energized) / 30...65 ms (de-energized) |

| Electric Characteristics | Description, value, unit |
|--|---|
| Relative duty cycle | 100 % |
| Electrical connection coil | several connection types available, see ordering code |
| Protection class solenoid coil to ISO 20 653 / EN 60 529 | several classes of protection available, see ordering code (with appropriate mating connector and proper fitting and sealing) |



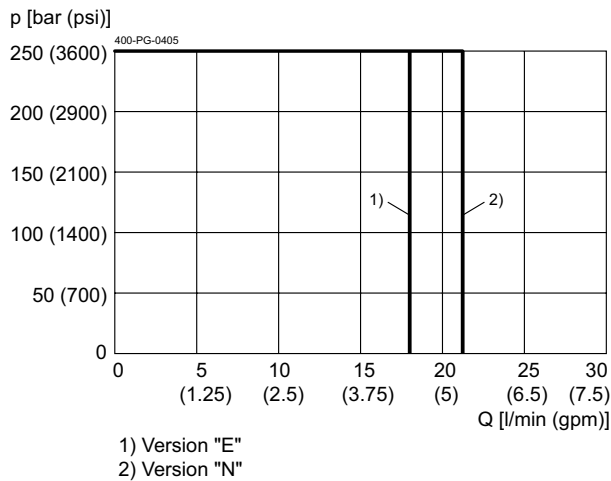
NOTE!

The switching time can be strongly dependent on flow rate, pressure, oil viscosity and the dwell time under pressure. In practice, the switching time may therefore deviate from the specified value range.

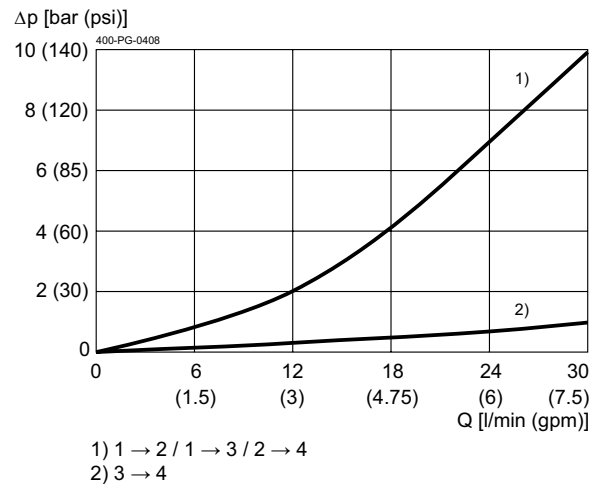
Performance graphs

measured with oil viscosity 33.0 mm²/s (cSt), coil at steady-state temperature and 10 % undervoltage

$p = f(Q)$ Performance limit

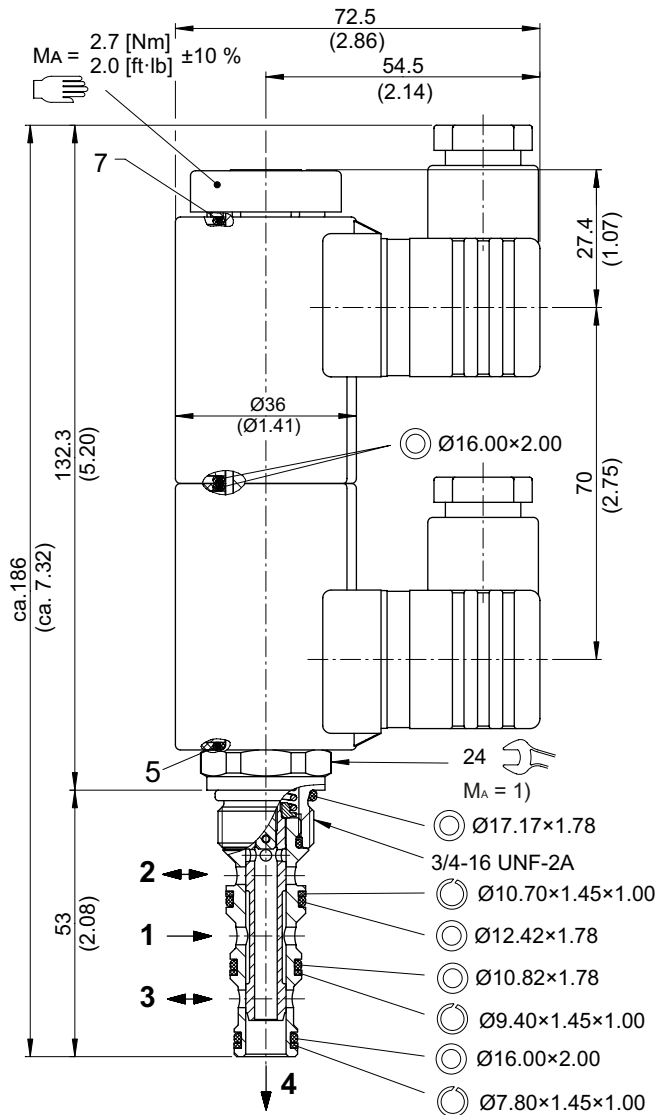


$\Delta p = f(Q)$ Pressure drop-flow rate characteristic



Dimensions and sectional view

Beispiel für die Masseinheit:
Example for the dimensional units:
 0.79 = 0.79 mm millimeter
 (.031) = 0.031" inch



Installation information



NOTE!

1) When fitting the screw-in cartridge valve, use the specified tightening torque. The value can be found in the chapter "technical data".



NOTE!

The seals are not available individually. The seal kit order number can be found in the chapter "Technical data".



ATTENTION!

Only qualified personnel with mechanical skills may carry out any maintenance work. Generally, the only work that should ever be undertaken is to check, and possibly replace, the seals. When changing seals, oil or grease the new seals thoroughly before fitting them.

Ordering code

Ex.

| | | | | | | | | | | |
|---|---|-----|---|---|---|---|---|----|---|---|
| W | K | 43G | N | A | 5 | - | 1 | 24 | D | - |
|---|---|-----|---|---|---|---|---|----|---|---|

| | |
|--|--|
| <p>W = directional valve</p> <p>K = spool-type, direct acting</p> <p>43G = 4-way/3-position with spool type "G"</p> <p>N = electrically operated, V DC = 27 W / V AC = 25 W</p> <p>E = electrically operated, V DC = 17 W / V AC = 17 W</p> <p>A ... Q = standard model according to valid data sheet (<i>standard</i>)</p> <p>Z ... R = special model after consultation</p> <p>5 = nominal size 5</p> <p>(blank) = NBR (nitril-butadien-rubber / BUNA) seals (<i>standard</i>)</p> <p>V = FKM (fluorocarbon rubber / VITON) seals (<i>special seals - please consult BUCHER</i>)</p> <p>1 ... 9 = technical design no. (omit when ordering)</p> <p>... = voltage e.g. 24 (24 V)</p> <p>D = current DC</p> <p>A = current AC</p> <p>(blank) = DIN EN 175301-803 connection, 3-pole 2 P+E with mating plug, IP 65 (<i>standard</i>)</p> <p>M100 = DIN EN 175301-803 connection, 3-pole 2 P+E</p> <p>C = Kostal plug connection (IP 65)</p> <p>JT = Junior Timer radial plug connection (with protection diode, IP 65)</p> <p>IT = Junior Timer axial plug connection (with protection diode, IP 65)</p> <p>D = Deutsch plug connection DT04-2P (IP 67/69K)</p> <p>DT = Deutsch plug connection DT04-2P (with protection diode, IP 67/69K)</p> <p>S = AMP Superseal 1.5 (IP 67) / Metri-Pack 150 (IP 65) plug connection</p> <p>F = flying leads (500 mm)</p> | <p style="font-size: 2em;">}</p> <p>mating plug not supplied</p> |
|--|--|

Related data sheets

| Reference | Description |
|--------------|-----------------------------------|
| 400-P-040011 | Forming tools |
| 400-P-040191 | Cavity AN |
| 400-P-720121 | Threaded port body GANA |
| 400-P-120110 | Solenoid coil D36 |
| 400-P-010101 | MTTFD Values for Hydraulic Valves |

info.ch@bucherhydraulics.com

www.bucherhydraulics.com

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