

Directional valve 2-way/2-position

$Q_{\max} = 36 \text{ gpm}$, $p_{\max} = 5000 \text{ psi}$
switching solenoid, pilot operated, poppet type
Type series: WRV_22G-10F-_A...



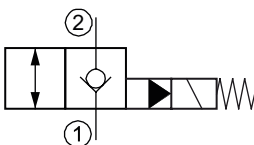
- Screw-in cartridge valve
- For cavity HF/C1220A
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Fits common cavity according to ISO
- Reliable switching, even after long dwell times
- Low head loss
- High flow rates
- Installation in threaded port body type GHF-34
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- High pressure wet-armature solenoids
- Various plug-connector systems and voltages are available

Description

The 2-way/2-position solenoid operated directional seat valves, series WRV_22G-10F..., are size 10 / SAE 12, two stage, pressure balanced screw-in valves with a 1 1/16-12 UN mounting thread. They are designed on the poppet/seat principle, and the 2 to 1 flow path is therefore virtually leak-free. "De-energized closed" function is available. The switching times can be influenced by using solenoid coils with differing power ratings. The straightforward design delivers a good price/performance ratio and outstanding headloss/flow ratings. These valves are used in mobile and

industrial applications where leak-tight shut-off functions are crucially important. Examples are where loads, tensions, or clamping forces must be held without leakage. All external parts of the cartridge are zinc-nickel plated and are thus suitable 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°. For self-assembly, please refer to the section related data sheets.

Symbol



Technical data

| General characteristics | Description, value, unit |
|------------------------------|---|
| Sales category | project specific (on request) |
| Function group | Directional valve |
| Function | 2-way/2-position |
| Design | Screw-in cartridge valve |
| Controls | switching solenoid |
| Characteristic | pilot operated, poppet type |
| MTTFd value | 150 years |
| Construction size | NG 10 / SAE 12 |
| Thread size | 1 1/16-12 UN-2A |
| Mounting attitude | unrestricted |
| Weight | 1.54 lb |
| Cavity size acc. ISO | fits into ISO 17209: 1 1/16-01-0-13 |
| Cavity acc. factory standard | For cavity HF/C1220A |
| Tightening torque steel | 110 ft·lb |
| Tightening torque aluminium | 110 ft·lb |
| Tightening torque tolerance | ± 10 % |
| Minimum ambient temperature | - 13 °F |
| Maximum ambient temperature | + 122 °F |
| Surface protection | All external parts with zinc-nickel plating according to DIN EN ISO 19598 |
| Sealing material | see ordering code |
| Seal kit order number | NBR: DS-351-N / FKM: DS-351-V |

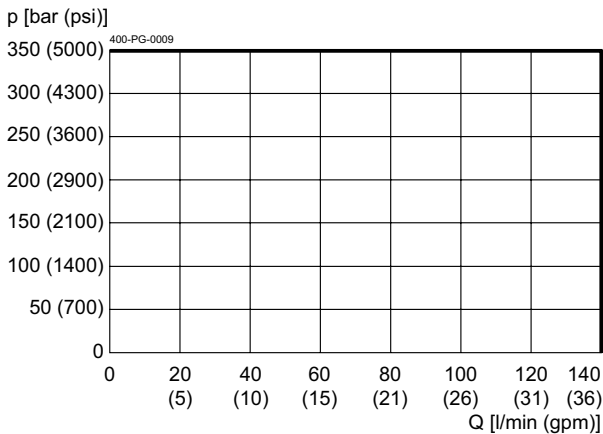
| Hydraulic characteristics | Description, value, unit |
|--|--|
| Maximum operating pressure | 5000 psi |
| Maximum flow rate | 36 gpm |
| Flow direction | see symbol |
| Hydraulic fluid | HL and HLP mineral oil according to DIN 51 524; other fluids on request! |
| Minimum fluid temperature | - 13 °F |
| Maximum fluid temperature | + 176 °F |
| 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 (50 ... 60 Hz) V AC |
| 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 | Switching time measured at: U _N : Δp = 350 bar; Q = 80 l/min; T _{Ambient} = 20 °C; θ = 46 mm ² /s WRVE: 45 ms (energizing) 115 ms (de-energizing) WRVN: 45 ms (energizing) 71 ms (de-energizing) |
| 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) |

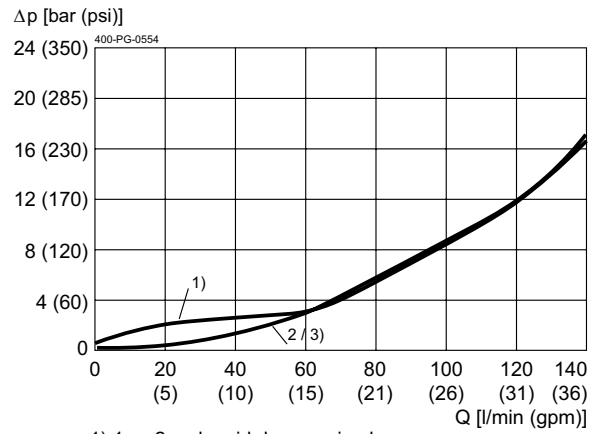
Performance graphs

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

p = f(Q) Performance limit



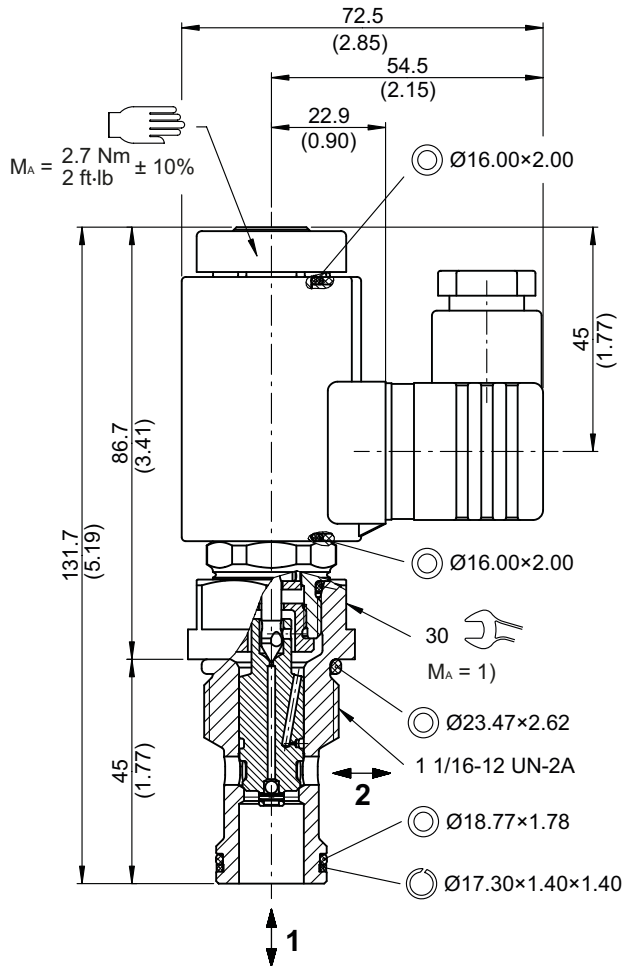
Δp = f(Q) Pressure drop-flow rate characteristic



- 1) 1 → 2, solenoid de-energized
- 2) 2 → 1, solenoid energized
- 3) 1 → 2, solenoid energized

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

i IMPORTANT!
 When fitting the screw-in valves, use the specified tightening torque. No adjustments are necessary, since the valves are set in the factory.

! 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 | R | V | _ | 22G | - | 10 | F | - | N | A | 1 | 24 | _ | _ |
|---|---|---|---|-----|---|----|---|---|---|---|---|----|---|---|

- W = directional valve
 - R = check valve function, seated design
 - V = pilot operated
 - E = electrically operated, V DC = 17 W / V AC = 17 W
 - N = electrically operated, V DC = 27 W / V AC = 25 W
 - 22G = 2-way/2-position, normally closed
 - 10 = nominal size 10 / SAE 12
 - F = cavity type HF/C1220A
 - N = NBR (Nitrile) seals **(standard)**
 - V = FKM (Viton) seals
(special seals - please contact BUCHER)
 - A ... Q = standard model - see relevant data sheet
 - Z ... R = special model - please consult BUCHER
 - 1 ... 9 = technical design no. (omit when ordering)
 - ... = voltage e. g. 24 (24 V)
 - D = current DC
 - A = current AC
 - Ohne = DIN EN 175301-803 connection with mating plug **(standard, IP 65)**
 - M100 = DIN EN 175301-803 connection without mating plug
 - C = Kostal plug connection (IP 65)
 - JT = Junior Timer radial plug connection (with protection diode, IP 65)
 - IT = Junior Timer axial plug connection (with protection diode, IP 65)
 - D = Deutsch plug connection 45° DT04-2P (IP 67/69K)
 - DT = Deutsch plug connection 45° DT04-2P (with protection diode, IP 67/69K)
 - S = AMP Superseal 1.5 (IP 67) / Metri-Pack 150 (IP 65) plug connection
 - F = flying leads (500 mm)
- mating plug not supplied

IMPORTANT!
For projects with min. 500 pcs/year

Related data sheets

| Reference | Description |
|--------------|-----------------------------------|
| 400-P-040011 | Form tools |
| 400-P-120110 | Solenoid coil D36 |
| 400-P-065111 | Cavity HF/C1220A |
| 400-P-740551 | Threaded port body GHF-34... |
| 400-P-010101 | MTTFD Values for Hydraulic Valves |

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