2/2 Solenoid Cartridge Valve, Size 10

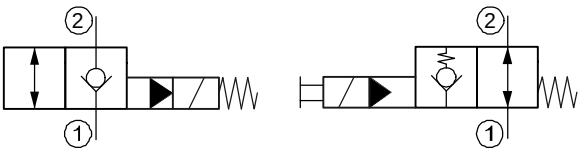
Q_{max} = 140 l/min, p_{max} = 350 bar
with solenoid operation, seat-valve shut-off, two stage
Series WR22G.H…, WR22O.H…

- With seat-valve shut-off from 2 → 1
- No external pilot drain required
- Compact construction for cavity type DH to ISO 7789-27-01-0-07
- High flow rates
- Low headloss
- Reliable switching, even after long dwell times
- Nominal power consumption 17 W – optionally 27 / 25 W
- All exposed parts with zinc-nickel plating
- High pressure wet-armature solenoids
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- Various plug-connector systems and voltages are available
- Can be fitted in a line-mounting body

1 Description

These 2/2 solenoid-operated directional seat valves, series WR22G.../ WR22O…, are size 10, two stage, pressure balanced screw-in cartridges with an M27x2 mounting thread. They are designed on the poppet/seat principle, and the 2 → 1 flow path is therefore virtually leak-free. "De-energised closed" and "de-energised open" functions are 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 2/2 solenoid operated seat 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 according to DIN EN ISO 19 598 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.

2 Symbol



WR22G.H-10… WR22O.H-10…

3 Technical data

General characteristics	Description, value, unit
Designation	2/2 solenoid cartridge valve
Design	seat-valve shut-off, with solenoid operation, two stage
Mounting method	screw-in cartridge M27 x 2
Tightening torque	80 Nm ± 10 %
Size	nominal size 10, cavity type DH

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General characteristics	Description, value, unit
Weight	0.57 kg
Mounting attitude	unrestricted
Ambient temperature range	-25 °C … +50 °C

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	350 bar
Maximum flow rate	140 l/min
Flow direction	1 → 2 / 2 → 1, see symbols Switching safety achieved by flow and Δp.
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Ambient temperature range [1)]	-25 °C … +80 °C
Hydraulic fluid temperature range [1)]	-25 °C … +80 °C [2)]
Viscosity range	10…500 mm^2/s (cSt), recommended 15...250 mm^2/s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 20/18/15

Electrical characteristics	Description, value, unit
Supply voltage	12 V DC, 24 V DC 115 V AC, 230 V AC (50 … 60 Hz)
Supply voltage tolerance	± 10 %
Ambient temperature range [1)]	-25 °C … +50 °C
Nominal power consumption	V DC = 17 W / V AC = 17 W V DC = 27 W / V AC = 25 W
Switching time	version “E”: 30 … 90 ms (energising) / 95 … 230 ms (de-energising) version “N”: 25 … 130 ms (energising) / 50 … 200 ms (de-energising) 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
Relative duty cycle	100 %
Protection class to ISO 20 653 / EN 60 529	IP 65 / IP 67 / IP 69K, see “Ordering code” (with appropriate mating connector and proper fitting and sealing)
Electrical connection	DIN EN 175301-803, 3-pin 2 P+E (standard) for other connectors, see “Ordering code”

IMPORTANT!:

1) The less favourable values from the hydraulic and electrical characteristics determine the temperature range of the whole valve.

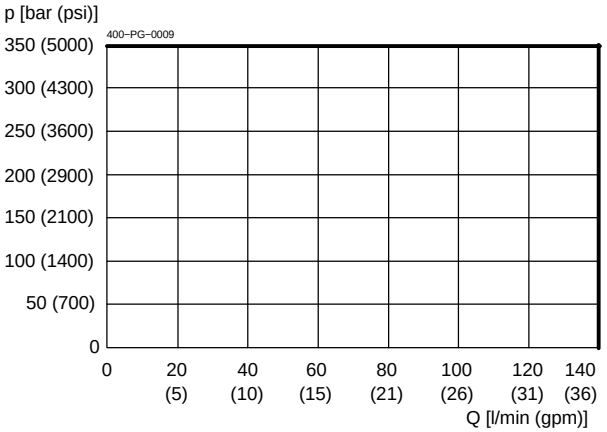
IMPORTANT!:

2) The maximum fluid temperature must not exceed the permissible ambient temperature for the whole valve.

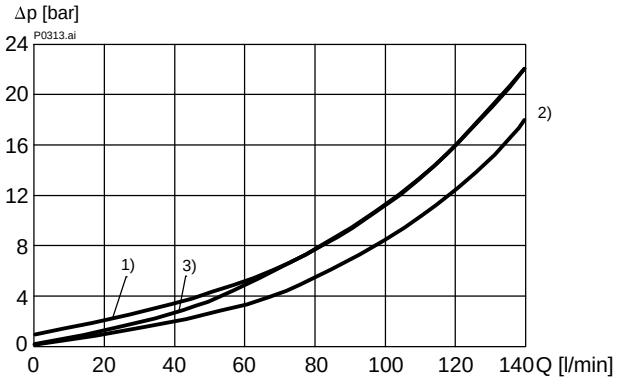
4 Performance graphs

measured with oil viscosity 33 mm^2/s (cSt), coil at steady-state temperature and 10 % undervoltage

p = f (Q) Performance limits

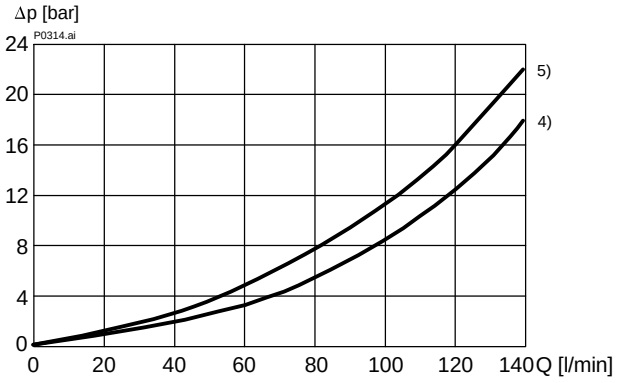


Δp = f (Q) Pressure drop - Flow rate characteristic [WR22G…]



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

Δp = f (Q) Pressure drop - Flow rate characteristic [WR22O…]



4) 1 → 2, solenoid de-energising
5) 2 → 1, solenoid de-energising

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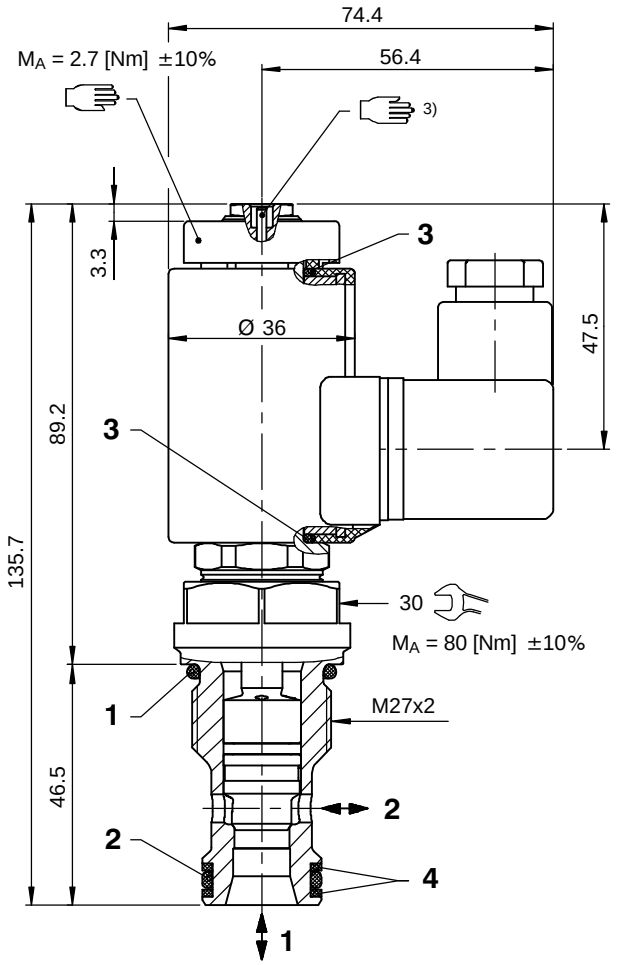
5 Dimensions & sectional view



IMPORTANT!:

3) WR22GNH… **without** manual override
WR22ONH… **with** manual override

6 Installation information

IMPORTANT!
When fitting the cartridges, use the specified tightening torque. No adjustments are necessary, since the cartridges 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.

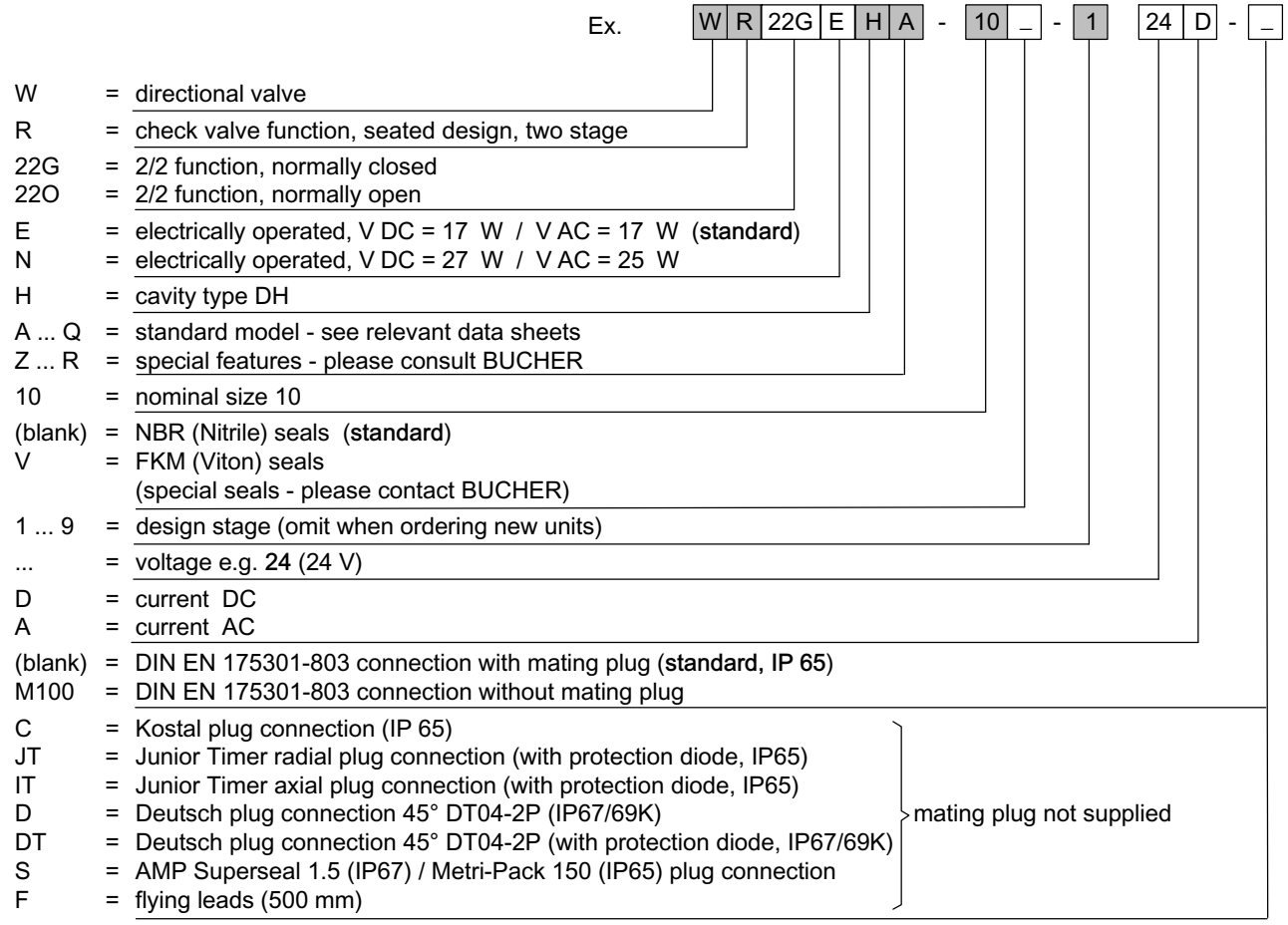
Seal kit NBR no. DS-367-N 4)

Item	Qty.	Description
1	1	O-ring no. 119 ∅ 23.47 x 2.62 N90
2	1	O-ring no. 116 ∅ 18.72 x 2.62 N90
3	2	O-ring ∅ 16.00 x 2.00 FKM
4	2	Backup ring ∅ 17.10 x 2.00 x 1.40 FI0751

IMPORTANT!

4) Seal kit with FKM (Viton) seals, no. DS-367-V

7 Ordering code



IMPORTANT!

For projects with min. 500 pcs/year

8 Related data sheets

Reference	Description
400-P-040011	The form-tool hire programme
400-P-060171	Cavity type DH to ISO 7789-27-01-0-07
400-P-120110	Coils for screw-in cartridge valves series D36
400-P-740161	Line mounting body, type GCDHA (G 3/4")

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Classification: 430.300.-.305.320.300