

Directional valve 2-way/2-position

$Q_{\max} = 7.5 \text{ gpm}$, $p_{\max} = 3600 \text{ psi}$

switching solenoid with emergency override, direct acting, spool type

Type series: WK22G_A5...



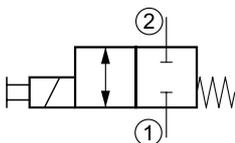
- Screw-in cartridge valve
- For cavity AL
- All external parts with zinc-nickel coating according to DIN EN ISO 19598
- Installation in threaded port body type GALA
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- High pressure wet-armature solenoids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

Description

The 2-way/2-position solenoid operated spool valves, series WK22..., are size 5, direct acting, pressure balanced screw-in valves with a 3/4-16 UNF-2A mounting thread. They are designed on the proven 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	2-way/2-position
Design	Screw-in cartridge valve
Controls	switching solenoid with emergency override
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	0.77 lb
Cavity acc. factory standard	For cavity AL
Tightening torque steel	30 ft·lb
Tightening torque aluminium	30 ft·lb
Tightening torque tolerance	± 10 %
Minimum ambient temperature	- 13 °F
Maximum ambient temperature	+ 122 °F
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-246-N / FKM: DS-246-V

Hydraulic Characteristics	Description, value, unit
Maximum operating pressure	3600 psi
Restriction of the operating pressure	Version "E" - 17 W: max. 700 psi
Maximum flow rate	7.5 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 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": 25...75 ms (energized) / 15...30 ms (de-energized) Version "N": 30...110 ms (energized) / 20...70 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)



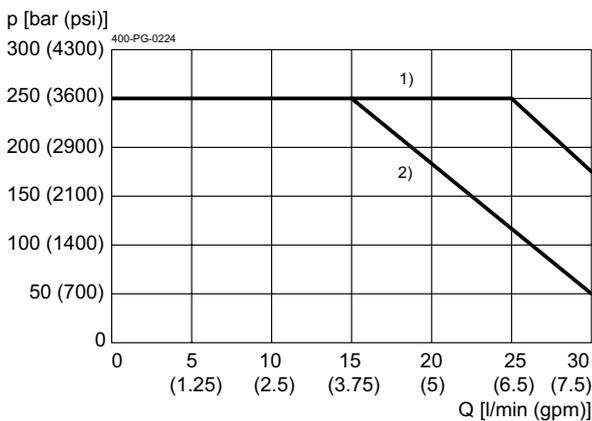
NOTE!

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

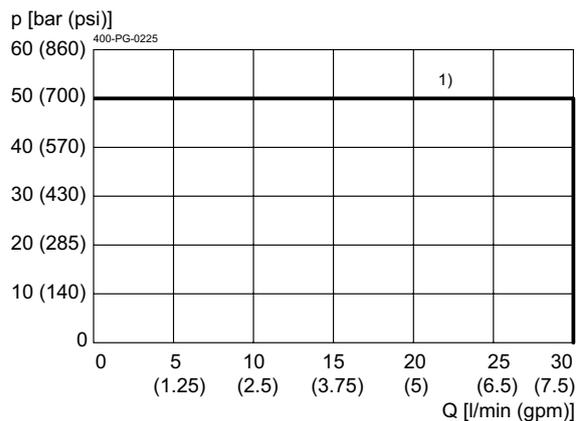
$p = f(Q)$ Performance limit



Version "N" - 27/25 W

- 1) 1 → 2
- 2) 2 → 1

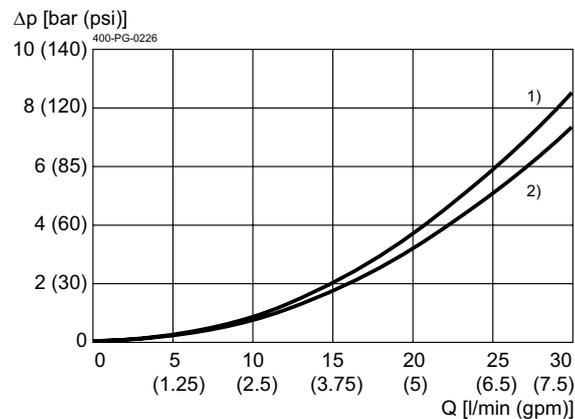
$p = f(Q)$ Performance limit



Version "E" - 17 W

- 1) 1 → 2, 2 → 1

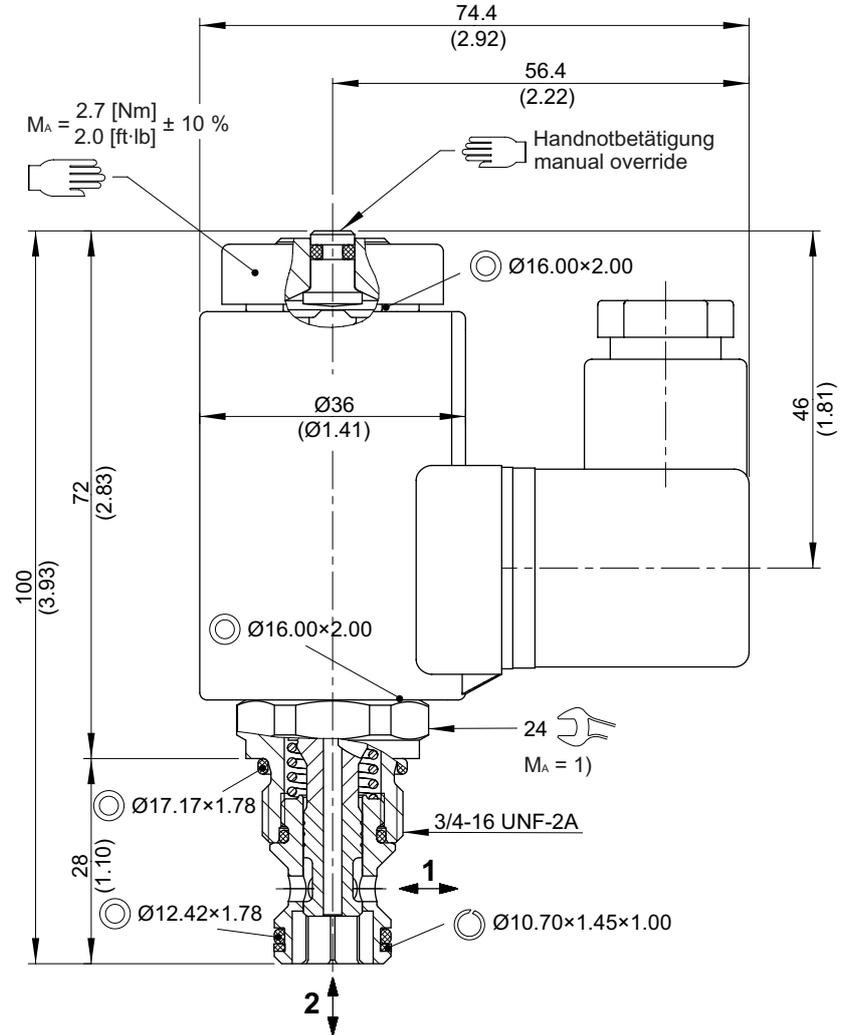
$\Delta p = f(Q)$ Pressure drop-flow rate characteristic



- 1) 1 → 2
- 2) 2 → 1

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

i 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	22G	N	A	5	-	2	24	D	-
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- W = directional valve
 - K = spool-type, direct acting
 - 22G = 2-way/2-position, de-energized closed
 - N = electrically operated, V DC = 27 W / V AC = 25 W
 - E = electrically operated, V DC = 17 W / V AC = 17 W
 - A ... Q = standard model according to valid data sheet (*standard*)
 - Z ... R = special model after consultation
 - 5 = nominal size 5
 - (blank) = NBR (nitril-butadien-rubber / BUNA) seals (*standard*)
 - V = FKM (fluorocarbon rubber / VITON) seals (*special seals - please consult BUCHER*)
 - 1 ... 9 = technical design no. (omit when ordering)
 - ... = voltage e.g. 24 (24 V)
 - D = current DC
 - A = current AC
 - (blank) = DIN EN 175301-803 connection, 3-pole 2 P+E with mating plug, IP 65 (*standard*)
 - M100 = DIN EN 175301-803 connection, 3-pole 2 P+E
 - 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 DT04-2P (IP 67/69K)
 - DT = Deutsch plug connection 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

Related data sheets

Reference	Description
400-P-040011	Forming tools
400-P-040171	Cavity AL
400-P-720101	Threaded port body GALA
400-P-120110	Solenoid coilD 36
400-P-010101	MTTFD Values for Hydraulic Valves