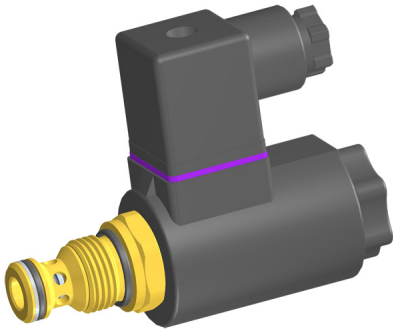


## 2/2 Cartridge Spool Valve, Size 5

$Q_{\max} = 30 \text{ l/min}$ ,  $p_{\max} = 250 \text{ bar}$   
Direct acting, with solenoid operation  
Series WK22G.../ WK22O...



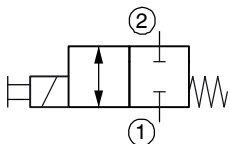
- Compact construction for cavity type AL – 3/4-16 UNF
- Optimised  $\Delta p$  values
- Choice of nominal power rating – 17 W or 27/25 W
- All exposed parts with zinc-nickel plating
- High pressure wet-armature solenoids
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- Various plug-connector systems and voltages are available
- With manual override
- Can be fitted in a line-mounting body

### 1 Description

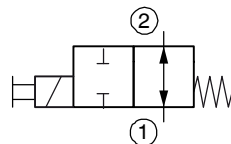
These direct acting 2/2 solenoid operated spool valves, series WK22G.../ WK22O..., are size 5, pressure balanced screw-in cartridges with a 3/4-16 UNF mounting thread. They are designed on the proven sliding-spool principle. “De-energised closed” and “de-energised open” functions are available, each with a nominal power consumption of 17 W or 27/25 W. The straightforward design delivers an outstanding price/performance ratio and good  $\Delta p$  values. These 2/2 solenoid operated spool valves are primarily used in mobile and industrial applications for controlling the

travel direction of actuators such as hydraulic motors and cylinders. All external parts of the cartridge are zinc-nickel plated to DIN 50 979 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°. If you intend to manufacture your own cavities or are designing a line-mounting installation, please refer to the section “Related data sheets”.

### 2 Symbol



WK22GEA5...  
WK22GNA5...



WK22OEA5...  
WK22ONA5...

### 3 Technical data

General characteristics	Description, value, unit
Designation	2/2 cartridge spool valve
Design	direct acting, with solenoid operation
Mounting method	screw-in cartridge 3/4-16 UNF
Tightening torque	40 Nm $\pm$ 10 %
Size	nominal size 5, cavity type AL
Weight	0.35 kg
Mounting attitude	unrestricted
Ambient temperature range	-25 °C ... +50 °C

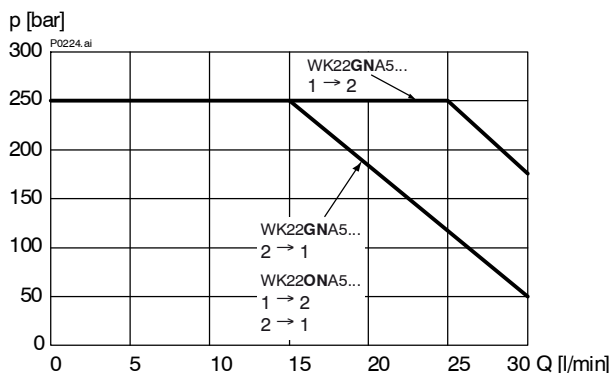
Hydraulic characteristics	Description, value, unit
Maximum operating pressure	250 bar (27 / 25 W) 50 bar (17 W)
Maximum flow rate	30 l/min
Flow direction	see symbols
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range	-25 °C ... +80 °C
Viscosity range	10...500 mm <sup>2</sup> /s (cSt), recommended 15...250 mm <sup>2</sup> /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 %
Nominal power consumption - version "N" - version "E"	V DC = 27 W / V AC = 25 W V DC = 17 W / V AC = 17 W
Switching time	Version "E" (17 W): 25 ... 75 ms (energising) 15 ... 30 ms (deenergising) Version "N" (27 / 25 W): 30 ... 110 ms (energising) 20 ... 70 ms (deenergising)  These times are strongly influenced by fluid pressure, flow rate and viscosity, as well as by the dwell time under pressure.
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	3-pin square plug to ISO 4400 / DIN 43 650 (standard) for other connectors, see "Ordering code"

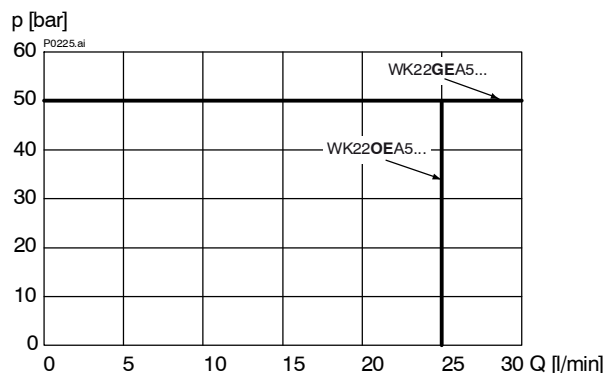
## 4 Performance graphs

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

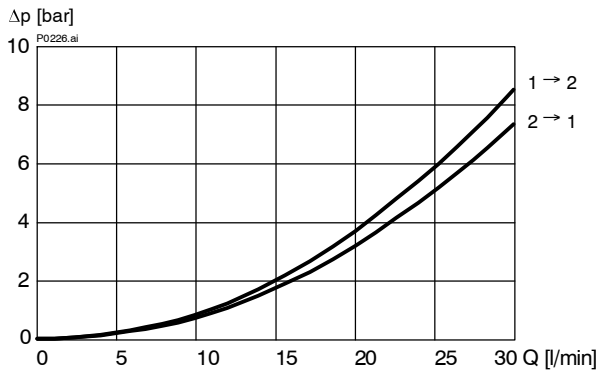
$p = f(Q)$  Performance limits [ Version - 27 / 25 W ]



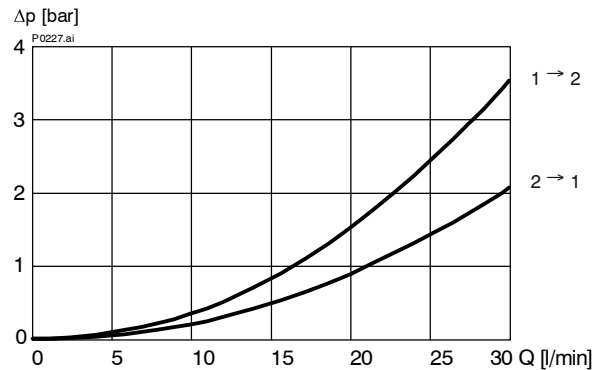
$p = f(Q)$  Performance limits [ Version - 17 W ]



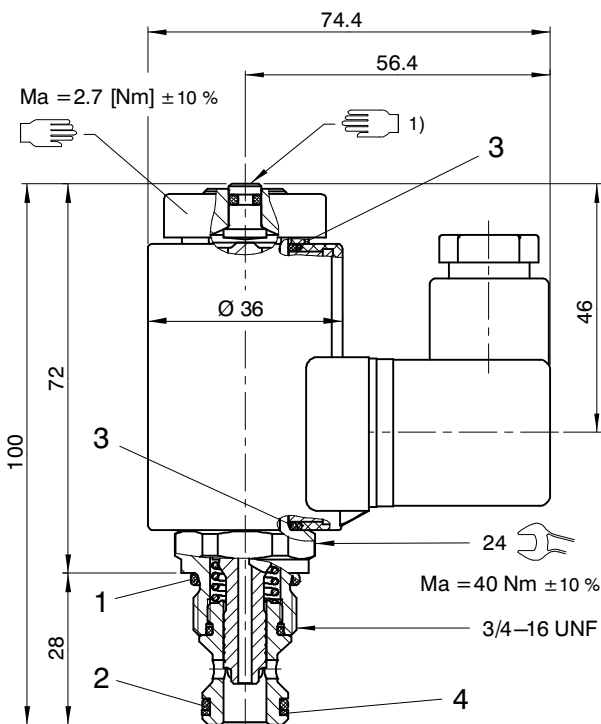
$\Delta p = f(Q)$  Pressure drop - Flow rate characteristic  
[ WK22GNA5.../ WK22GEA5... ]



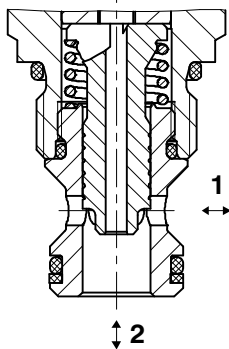
$\Delta p = f(Q)$  Pressure drop - Flow rate characteristic  
[ WK22ONA5.../ WK22OEA5... ]



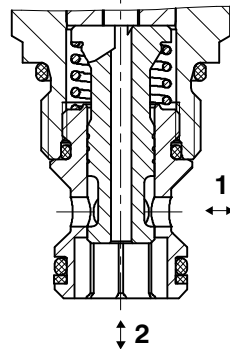
## 5 Dimensions & sectional view



WK22O...



WK22G...



**IMPORTANT!:**

1) 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.

NBR seal kit no. DS-246-N <sup>2)</sup>

Item	Qty.	Description
1	1	O-ring no. 017 Ø 17.17 x 1.78 N90
2	1	O-ring no. 014 Ø 12.42 x 1.78 N90
3	2	O-ring Ø 16.00 x 2.00 FKM
4	1	Backup ring Ø 10.70 x 1.45 x 1.00 FI0751



**IMPORTANT!**

2) Seal kit with FKM (Viton) seals, no. DS-246-V

### 7 Ordering code

Ex. 

W	K	22G	N	A	5	-	1	24 VDC	-
---	---	-----	---	---	---	---	---	--------	---

- W = directional valve
- K = spool-type, direct acting
- 22G = 2/2 function, de-energised closed
- 22O = 2/2 function, de-energised open
- 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 - see relevant data sheets
- Z ... R = special features - please consult BUCHER
- 5 = nominal size 5
- (blank) = NBR (Nitrile) seals (standard)
- V = FKM (Viton) seals  
(special seals - please contact BUCHER)
- 1 ... 9 = design stage (omit when ordering new units)
- ... = voltage e.g. 24 (24 V)
- (blank) = ISO 4400 / DIN 43 650 mating plug (standard, IP 65)
- M100 = without mating DIN plug

C	= Kostal plug connection (IP 65)	} mating plug not supplied
JT	= Junior Timer radial plug connection (with protection diode, IP65)	
IT	= Junior Timer axial plug connection (with protection diode, IP65)	
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)	
F	= flying leads (500 mm)	

### 8 Related data sheets

Reference	(Old no.)	Description
400-P-040011	(i-32)	The form-tool hire programme
400-P-060171		Cavity type AL
400-P-120100	(W-2.140)	Overview of directional solenoid cartridge valves, size 1...5
400-P-120110	(W-2.141)	Coils for screw-in cartridge valves
400-P-720101		Line-mounting body, type GALA (G 3/8")

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Classification: 430.300.-.305.310.300