

# Directional valve 4-way/2-position

$Q_{\max} = 1.25 \text{ gpm}$ ,  $p_{\max} = 6000 \text{ psi}$

direct acting, spool type, switching solenoid with emergency override

Type series: WKP42ALA1...



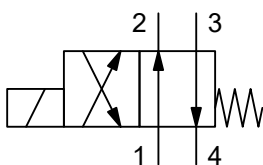
- Screw-in cartridge valve
- For cavity AN
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type GANA
- Can be used as a high-pressure pilot valve
- With manual override
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- "Low watt" version
- High pressure wet-armature solenoids
- Various plug-connector systems and voltages are available

## Description

The 4-way/2-position solenoid operated spool valves, series WKP42..., are size 1, direct acting, pressure balanced screw-in valves with a 3/4-16 UNF mounting thread. They are designed on the proven sliding-spool principle. The straightforward design delivers an outstanding price/performance ratio. All external parts of the screw-in valves 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°. These valves are primarily 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/2-position
Design	Screw-in cartridge valve
Controls	switching solenoid with emergency override
Characteristic	direct acting, spool type
Construction size	NG 1
Thread size	3/4-16 UNF-2A
Mounting attitude	unrestricted
Weight	1.06 lb
Cavity acc. factory standard	For cavity AN
Tightening torque steel	45 ft·lb
Tightening torque aluminium	45 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-248-N / FKM: DS-248-V

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	6000 psi
Restriction of the operating pressure	at port 4 max. 3600 psi
Maximum flow rate	1.25 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 <sup>2</sup> /s (cSt)
Recommended viscosity range	15 ... 250 mm <sup>2</sup> /s (cSt)
Minimum fluid cleanliness (cleanliness class according to ISO 4406:1999)	class 20/18/15

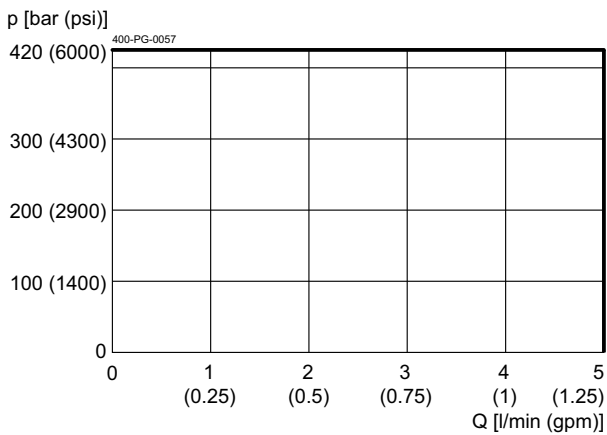
Electric characteristics	Description, value, unit
Actuator type	solenoid coil
Solenoid coils type	D36
Supply voltage DC	12/24 V DC
Supply voltage tolerance	± 10 %
Nominal power consumption	8 W
Relative duty cycle	100 %

Electric characteristics	Description, value, unit
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)

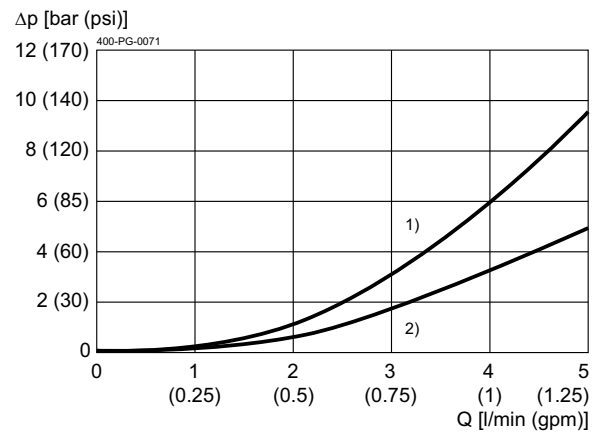
## Performance graphs

measured with oil viscosity 33.0 mm<sup>2</sup>/s (cSt), coil at steady-state temperature and 10 % undervoltage

$p = f(Q)$  Performance limit



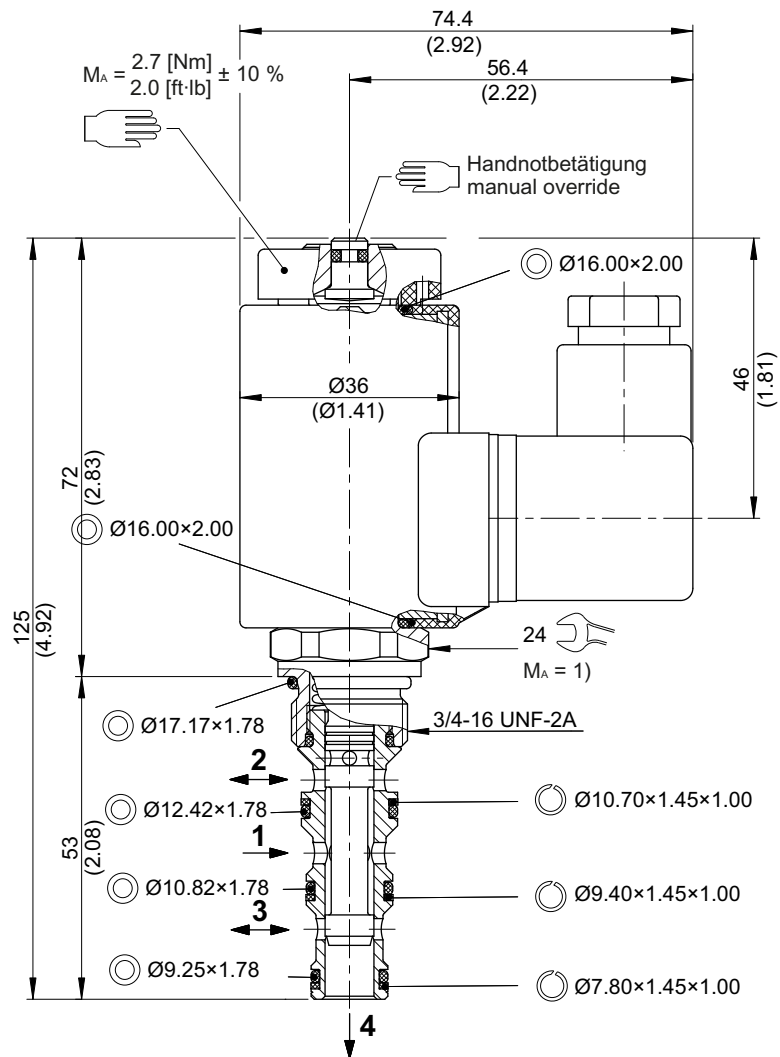
$\Delta p = f(Q)$  Pressure drop-flow rate characteristic



1) 2 → 4 / 3 → 4  
2) 1 → 2 / 1 → 3

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".

**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.

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

Ordering code

Ex. 

W	K	P	42A	L	A	1	_	-	2	24	D	_
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- W = directional valve
- K = spool-type, direct acting
- P = high-pressure version (420 bar)
- 42A = 4-way/2-position with spool type "A"
- L = electrically operated, V DC = 8 W
- A ... Q = standard model according to valid data sheet (*standard*)
- Z ... R = special model after consultation
- 1 = nominal size 1 (preferably as pilot valve)
- (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
- (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  
*the following plug-variant on request:*
- DT = Deutsch plug connection DT04-2P (with protection diode, IP 67/69K), mating plug not supplied

Related data sheets

Reference	Description
<a href="#">400-P-040011</a>	Form tools
<a href="#">400-P-040191</a>	Cavity AN
<a href="#">400-P-720121</a>	Threaded port body GANA
<a href="#">400-P-120110</a>	Solenoid coil D36