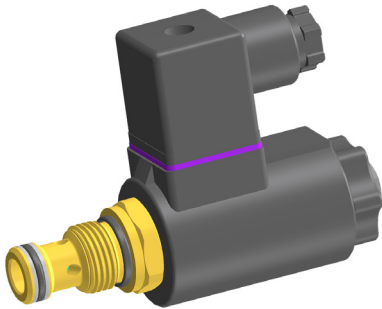


2/2 Cartridge Seat Valve, Size 3

$Q_{max} = 15 \text{ l/min}$, $p_{max} = 420 \text{ bar}$

Pilot valve, with solenoid operation, bidirectional seat-valve shut-off, direct acting
Series WSP22GNA3.../ WSP22ONA3...



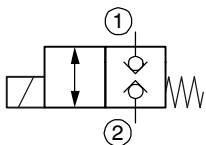
- Can be used as a high-pressure pilot valve
- With bidirectional seat-valve shut-off
- Compact construction for cavity type AL – 3/4-16 UNF
- All exposed parts with zinc-nickel plating
- High pressure wet-armature solenoids
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- Various plug-connector systems and voltages are available
- Can be fitted in a line-mounting body

1 Description

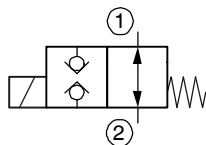
These direct acting 2/2 solenoid operated directional seat valves, series WSP22GNA3.../ WSP22ONA3..., are size 3, pressure balanced screw-in cartridges with a 3/4-16 UNF mounting thread. They are designed on the poppet/seat principle, and are therefore virtually leak-free in both directions of flow (bidirectional seat-valve shut-off). “De-energised closed” and “de-energised open” functions are available. The straightforward design delivers an outstanding price/performance ratio. These 2/2 solenoid operated seat valves are primarily used as pilot valves in certain 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 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



WSP22GNA3...



WSP22ONA3...

3 Technical data

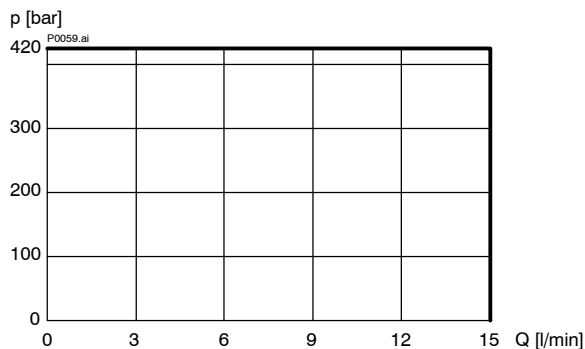
General characteristics	Description, value, unit
Designation	2/2 cartridge seat valve
Design	pilot valve, bidirectional seat-valve shut-off, with solenoid operation, direct acting
Mounting method	screw-in cartridge 3/4-16 UNF
Tightening torque	60 Nm ± 10 %
Size	nominal size 3, cavity type AL
Weight	0.40 kg
Mounting attitude	unrestricted
Ambient temperature range	-25 °C ... +50 °C

Hydraulic characteristics	Description, value, unit
Maximum operating pressure (ports 1 and 2)	420 bar
Maximum flow rate	15 l/min
Flow direction	1 → 2 / 2 → 1, 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 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 %
Nominal power consumption	V DC = 27 W V AC = 25 W
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"

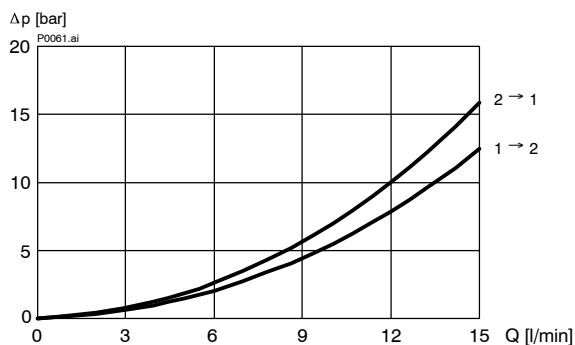
4 Performance graphs

measured with oil viscosity 33 mm²/s (cSt), coil at steady-state temperature and 10 % undervoltage

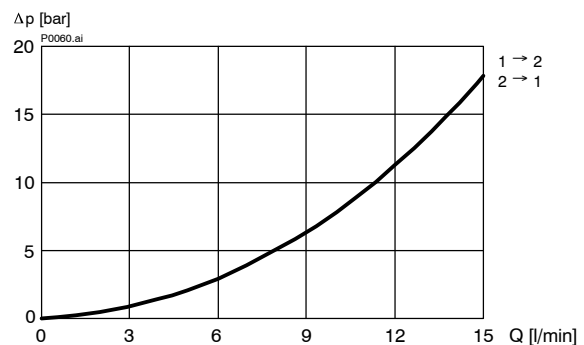
$p = f(Q)$ Performance limits



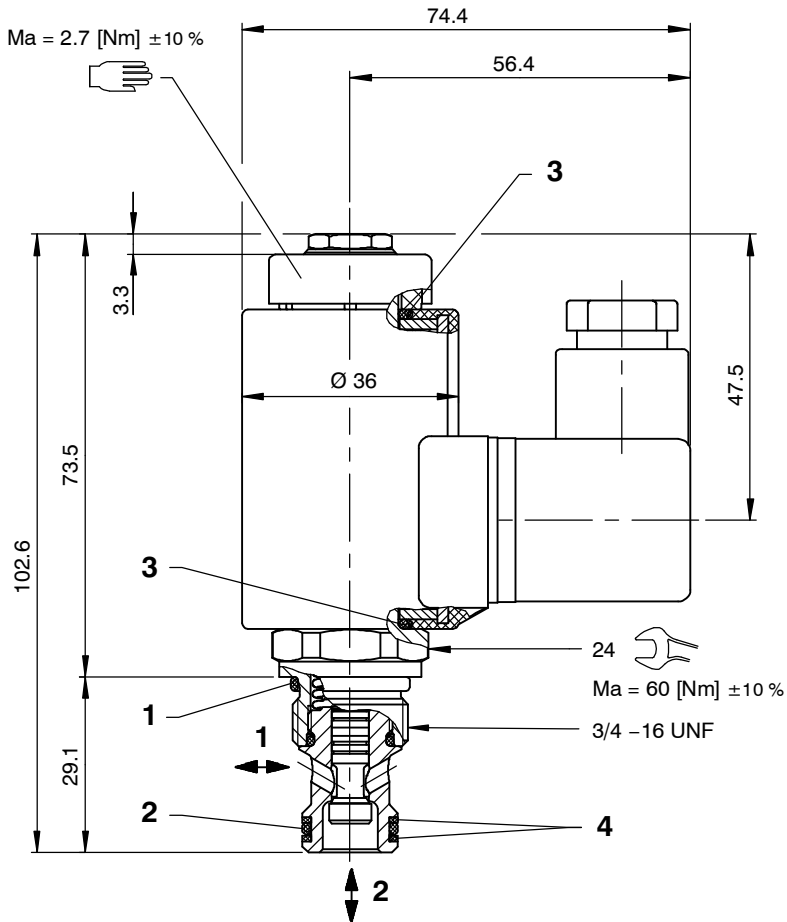
$\Delta p = f(Q)$ Pressure drop - Flow rate characteristic
[WSP22G...]



$\Delta p = f(Q)$ Pressure drop - Flow rate characteristic
[WSP22O...]



5 Dimensions & sectional view



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 ¹⁾

Item	Qty.	Description
1	1	O-ring no. 017 $\varnothing 17,17 \times 1,78$ N90
2	1	O-ring no. 014 $\varnothing 12,42 \times 1,78$ N90
3	2	O-ring $\varnothing 16,00 \times 2,00$ Viton
4	2	Backup ring $\varnothing 10,70 \times 1,45 \times 1,00$ FI0751



IMPORTANT!

¹⁾ Seal kit with FKM (Viton) seals, no. DS-246-V

7 Ordering code

Ex.

W	S	P	22G	N	A	3	_	-	1	24 VDC	_
---	---	---	-----	---	---	---	---	---	---	--------	---

- W = directional valve
- S = seat valve, direct acting
- P = high-pressure model, 420 bar
- 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
- A ... Q = standard model - see relevant data sheets
- Y ... R = special features - please consult BUCHER
- 3 = nominal size 3 (primarily for pilot controls)
- (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

<ul style="list-style-type: none"> C = Kostal plug connection (IP 65) 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) 	} mating plug not supplied
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8 Related data sheets

Reference	(Old no.)	Description
400-P-040011	(i-32)	The form-tool hire programme
400-P-040171	(i-33.10)	Cavity type AL
400-P-120100	(W-2.140)	Overview directional solenoid cartridge valve Size 1...5
400-P-120110	(W-2.141)	Coils for screw-in cartridge valves
400-P-720101	(G-4.10)	Line-mounting body, type GALA (G 3/8")

info.ch@bucherhydraulics.com

www.bucherhydraulics.com

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Classification: 430.300.-.305.305.300