BUCHER hydraulics

Directional valve 2-way/2-position

Q_{max} = 140 l/min, p_{max} = 350 bar
pilot operated, poppet type, switching solenoid
Type series: WS22GN_DB-10...

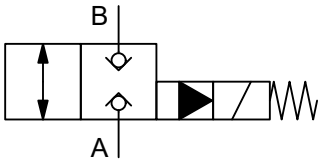


- Screw-in cartridge valve
- For cavity DD
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type DD-12
- With bidirectional seat-valve shut-off
- High flow rates
- Compact construction
- Low head loss
- De-energized closed
- The slip-on 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

Description

The 2-way/2-position solenoid-operated directional valves, series WS22..., are size 10, two stage, high performance screw-in valves with an M24×1.5 mounting thread. The main and pilot stages are both designed on the poppet/seat principle, and they are therefore virtually leak-free in both directions of flow (bidirectional seat-valve shut-off). 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 screw-in valves are predominantly used 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. For self-assembly, please refer to the section related data sheets.

Symbol



Phase-Out

Technical data

General characteristics	Description, value, unit
Product status	Phase-Out
Alternative product	WSVN22G-10F... (400-P-131310)
Function group	Directional valve
Function	2-way/2-position
Design	Screw-in cartridge valve
Controls	switching solenoid
Characteristic	pilot operated, poppet type
MTTFd value	150 years
Construction size	NG 10
Thread size	M24×1,5
Mounting attitude	unrestricted
Weight	0.52 kg
Cavity acc. factory standard	For cavity DD
Tightening torque steel	65 Nm
Tightening torque aluminium	50 Nm
Tightening torque tolerance	± 10 %
Minimum ambient temperature	- 30 °C
Maximum ambient temperature	+ 80 °C
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-281-N / FKM: DS-281-V

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	350 bar
Maximum flow rate	140 l/min
Flow direction	see symbol
Hydraulic fluid	HL and HLP mineral oil according to DIN 51 524; other fluids on request!
Minimum fluid temperature	- 30 °C
Maximum fluid temperature	+ 80 °C
Viscosity range	10 ... 500 mm^2/s (cSt)
Recommended viscosity range	15 ... 250 mm^2/s (cSt)
Minimum fluid cleanliness (cleanlineless class according to ISO 4406:1999)	class 20/18/15

IMPORTANT!
The less favorable values from the general, hydraulic and electrical characteristics determine the temperature range of the whole valve.

IMPORTANT!
The maximum fluid temperature must not exceed the permissible ambient temperature for the whole valve.

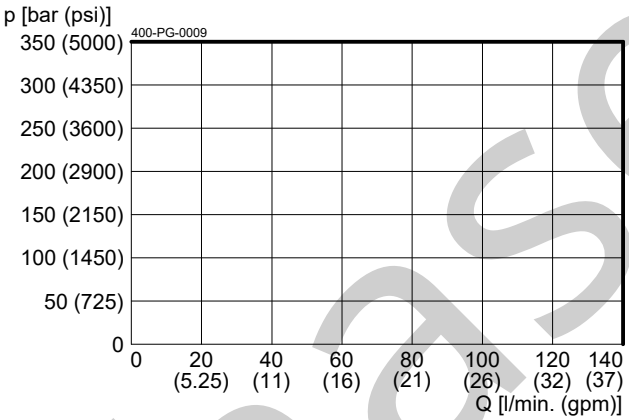
Phase-Out

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 (50 ... 60 Hz) V AC
Supply voltage tolerance	± 10 %
Nominal power consumption	V DC = 27 W / V AC = 25 W
Relative duty cycle	100 %
Minimum ambient temperature	- 30 °C
Maximum ambient temperature	+ 50 °C
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)

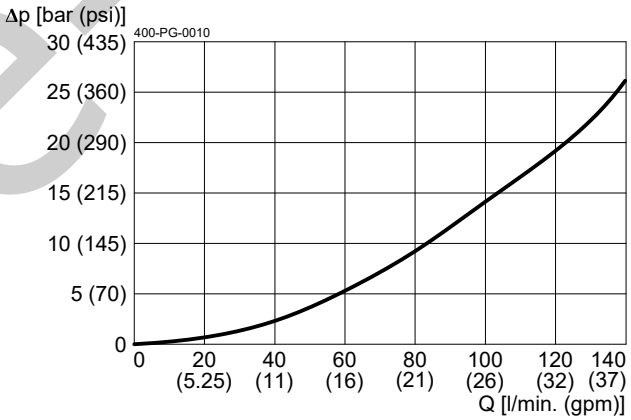
Performance graphs

measured with oil viscosity 33.0 mm²/s (cSt), coil at steady-state temperature and 10 % undervoltage

p = f (Q) Performance limit



Δp = f (Q) Pressure drop-flow rate characteristic

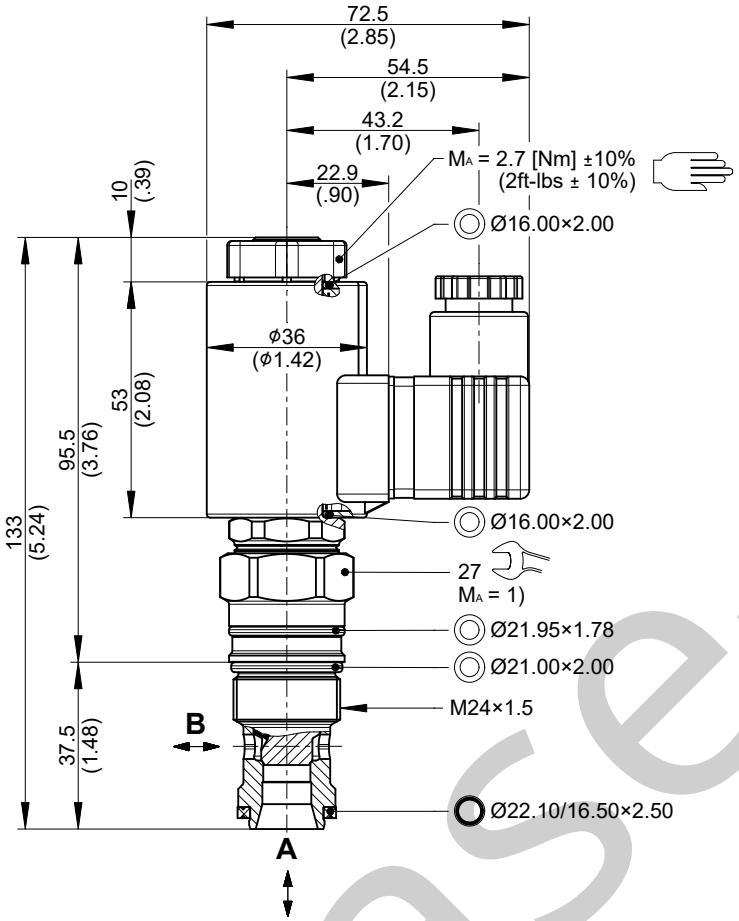


Phase-Out

Dimensions and sectional view

Beispiel für die Masseinheit:
Exampel for the dimensional units:

0.79	= 0.79 mm	millimeter
(.031)	= 0.031"	inch



Installation information

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

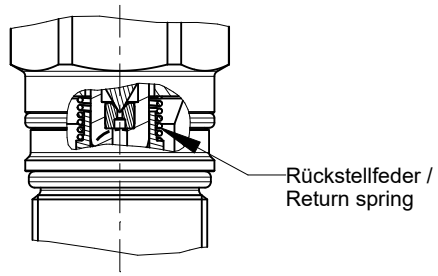
ATTENTION!
Only qualified personnel with mechanical skills may carry out any maintenance work. Generally, the only work that should ever be undertaken is to check, and possibly replace, the seals. When changing seals, oil or grease the new seals thoroughly before fitting them.

Phase-Out

Return spring for main spool

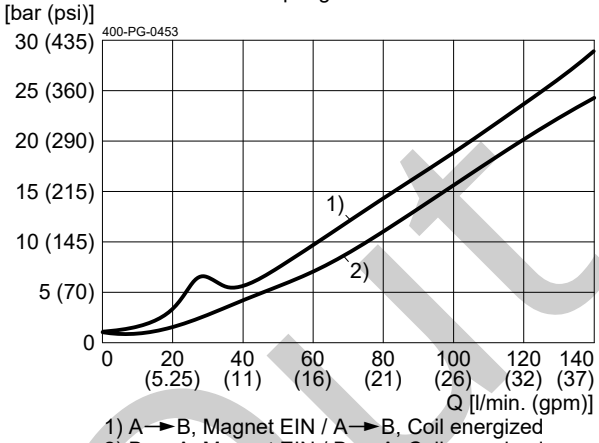
Version "R": Rückstellfreder für Hauptkolben. /
Version "R": Return spring for main spool.

Zur Unterstützung der Schliesskraft.
Gleichzeitig wird das Δp beim Öffnen erhöht. /
To assist the closingforce.
This results in a higher Δp when opening.



Δp = f (Q) Druckverlust-Volumenstrom

Mit Rückstellfeder / With return spring



1) A→B, Magnet EIN / A→B, Coil energized
2) B→A, Magnet EIN / B→A, Coil energized

Ordering code

Ex. | W | S | 22G | N | _ | D | B | - | 10 | _ | - | 1 | | 24 | D | - | _ |

W	=	directional valve			
S	=	bidirectional seat-valve shut-off, seated design			
22G	=	2-way/2-position function, de-energized closed			
N	=	electrically operated, V DC = 27 W / V AC = 25 W			
(blank)	=	without return spring for main spool **(standard)**			
R	=	with return spring for main spool (on request)			
D	=	cavity type DD			
A ... Q	=	standard model according to valid data sheet			
Z ... R	=	special model (on request)			
10	=	nominal size 10			
(blank)	=	NBR (nitril-butadien-rubber / BUNA) seals **(standard)**			
V	=	FKM (fluorocarbon rubber / VITON) seals (special seals on request)			
1 ... 9	=	technical design no. (omit by ordering)			
…	=	voltage e.g. 24 (24 V)			
D	=	current DC			
A	=	current AC			
(blank)	=	DIN EN 175301-803 connection	3-pole 2 P+E **(standard)**	(IP 65)	with mating plug
T	=	DIN EN 175301-803 connection	3-pole 2 P+E, with protection diode	(IP 65)	with mating plug
M100	=	DIN EN 175301-803 connection	3-pole 2 P+E	(IP 65)	mating plug not supplied
J	=	Junior Timer plug connection	2-pole radial	(IP 65)	
JT	=	Junior Timer plug connection	2-pole radial, with protection diode	(IP 65)	
I	=	Junior Timer plug connection	2-pole axial	(IP 65)	
IT	=	Junior Timer plug connection	2-pole axial, with protection diode	(IP 65)	
D	=	Deutsch plug connection DT04-2P	2-pole 45°	(IP 67/69K)	
DT	=	Deutsch plug connection DT04-2P	2-pole 45°, with protection diode	(IP 67/69K)	
		other plug-variants, please consult BUCHER.			

IMPORTANT!
Not every combination of voltage values, current type and plug connections vailable.

Phase-Out

Related data sheets

Reference	Description
400-P-040011	Form tools
400-P-010101	MTTFd Values for Hydraulic Valves
400-P-120110	Solenoid coil D36
400-P-060121	Cavity DD
400-P-740111	Threaded port body DD-12

Phase-Out

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