Directional valve 2-way/2-position

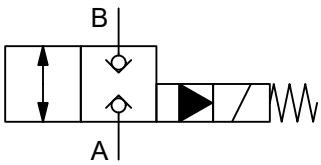
Q_{max} = 140 l/min, p_{max} = 350 bar
pilot operated, poppet type, switching solenoid
Type series: WS22GN_CB-10...

- Screw-in cartridge valve
- For cavity DC
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type DC-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



Technical data

General characteristics	Description, value, unit
Function group	Directional valve
Function	2-way/2-position
Design	Screw-in cartridge valve
Controls	switching solenoid
Characteristic	pilot operated, poppet type
Construction size	NG 10
Thread size	M24×1,5
Mounting attitude	unrestricted
Weight	0.52 kg
Cavity acc. factory standard	For cavity DC
Tightening torque steel	100 Nm
Tightening torque aluminium	100 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.

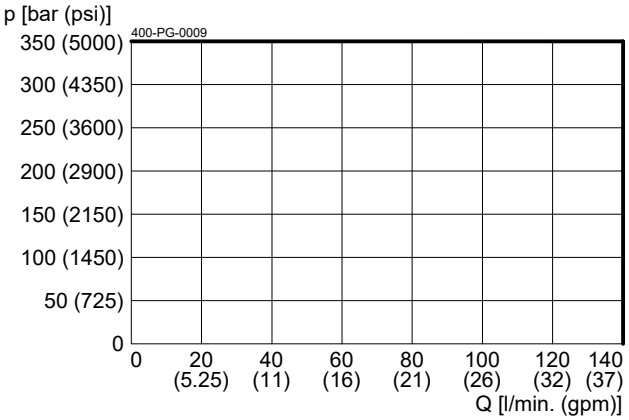
Electric characteristics	Description, value, unit
Actuator type	solenoid coil
Solenoid coils type	D36
Supply voltage DC	12/24 V DC
Supply voltage AC	115/230 (50 ... 60 Hz) V AC
Supply voltage tolerance	± 10 %

Electric characteristics	Description, value, unit
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)

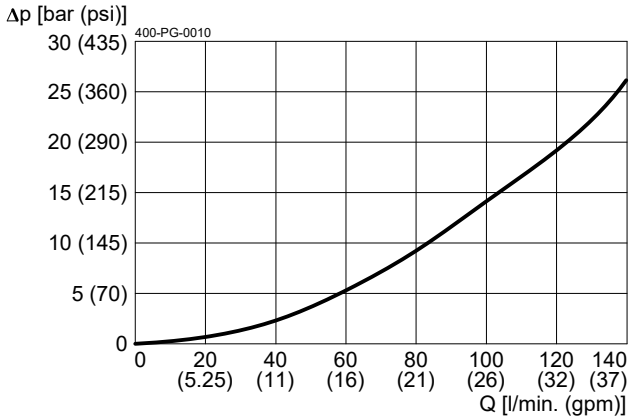
Performance graphs

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

p = f (Q) Performance limit



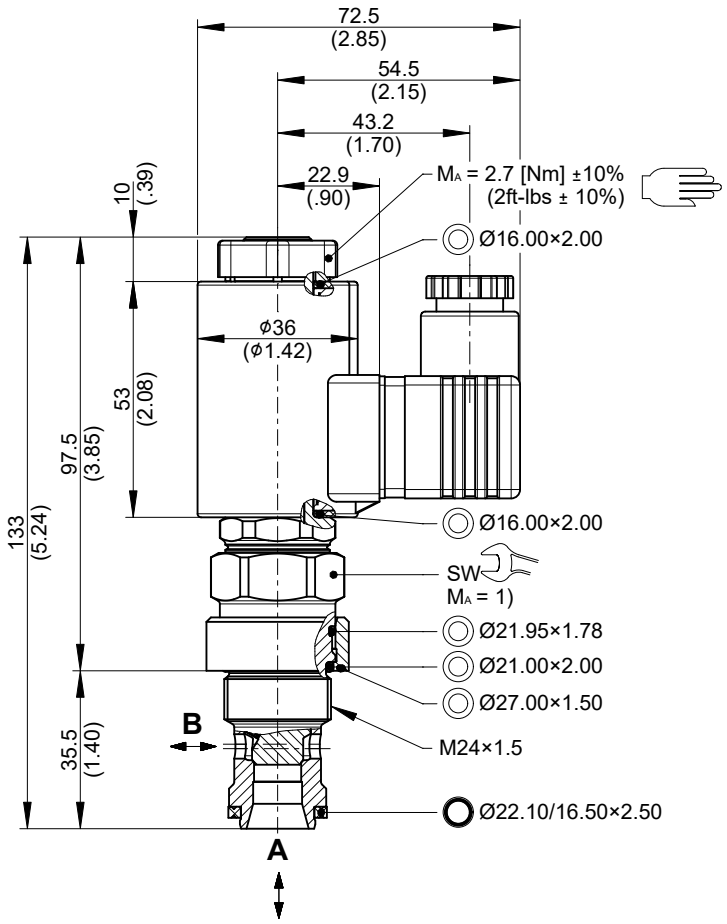
Δp = f (Q) Pressure drop-flow rate characteristic



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

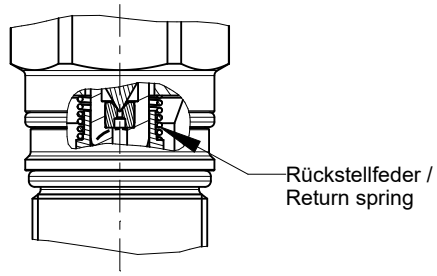
NOTE!
1) When fitting the screw-in cartridge valve, use the specified tightening torque. The value can be found in the chapter "Technical data".

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.

Return spring for main spool

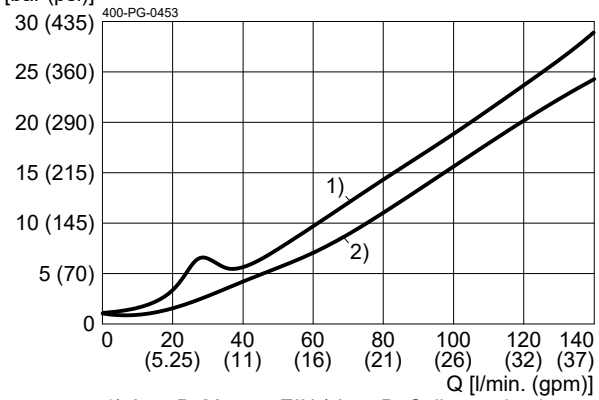
Version "R": Rückstellfreder für Hauptkolben. /
Version "R": Return spring for main spool.

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



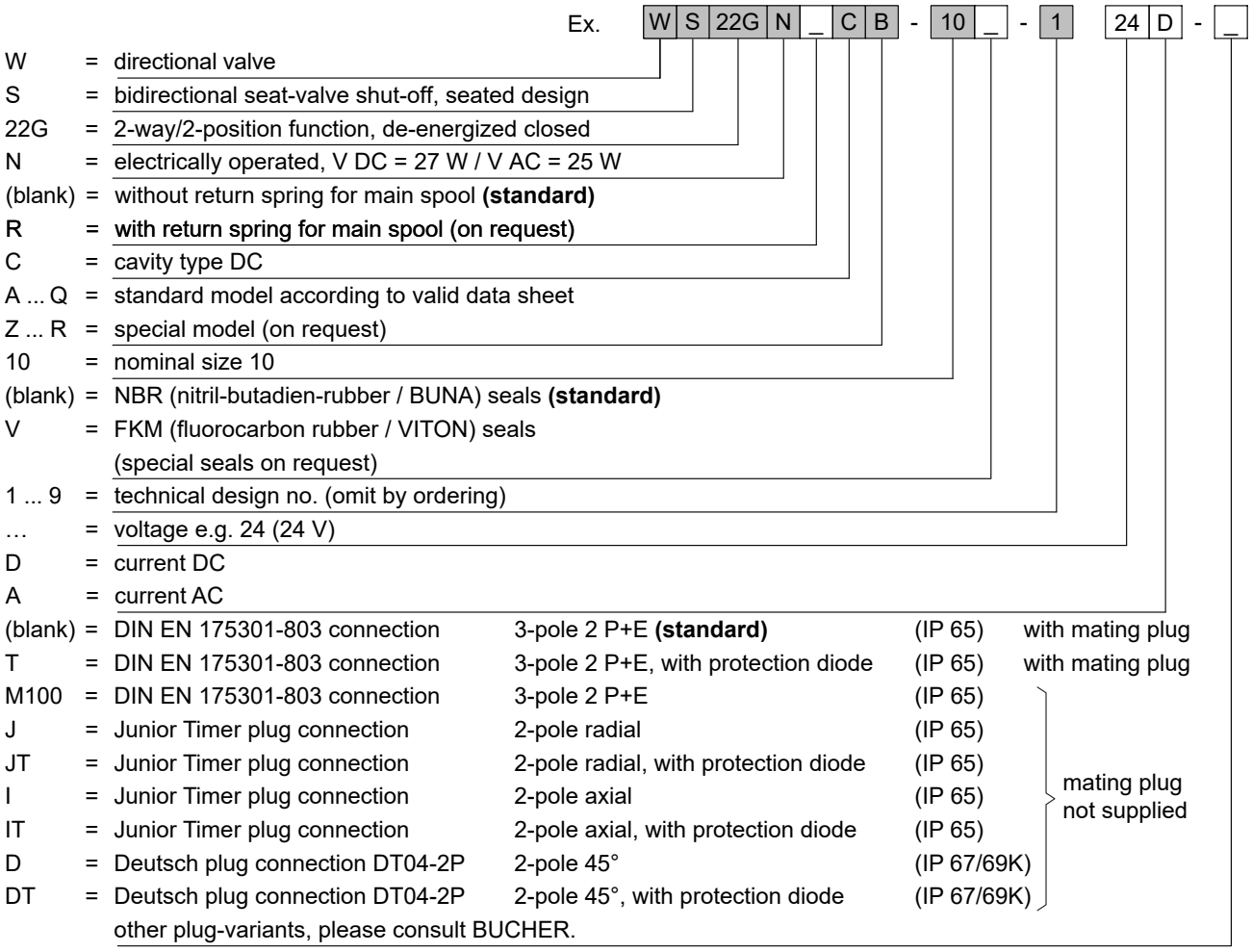
Δp = f (Q) Druckverlust-Volumenstrom

Mit Rückstellfeder / With return spring
Δp [bar (psi)]



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

Ordering code



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

Related data sheets

Reference	Description
400-P-040011	Form tools
400-P-120110	Solenoid coil D36
400-P-060111	Cavity DC
400-P-740101	Threaded port body DC-12

info.ch@bucherhydraulics.com **www.bucherhydraulics.com**