2/2 Solenoid Cartridge Valve, Size 6

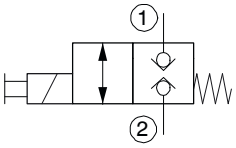
Q_{max} = 20 l/min, p_{max} = 315 bar
Bidirectional seat-valve shut-off, direct acting
Series W1C…

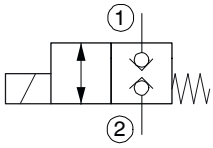
- De-energised closed
- Guided valve spool and poppet
- Available in two mounting versions
- With or without manual override
- Hand lever can be fitted on solenoid
- All exposed parts with zinc-nickel plating
- High pressure wet-armature solenoids
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- Can be fitted in a line-mounting body

1 Description

The W1C… series of 2/2 solenoid operated directional seat valves are size 6, direct acting, pressure balanced, push-in cartridges. In the normal condition (de-energised closed), flow is shut off without leakage. The core element operates on the tried and tested principle of the guided poppet, and the guide spool has a seal. Two different mounting versions are available, which allows the designer to choose the insertion depth (flange 10.1 mm or 18 mm). These cartridge seat valves are also available with or without manual override, and with the option of an additional hand lever. These 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. 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





IMPORTANT!
A “de-energised open” function can be created by using the 3/2 solenoid cartridge valve and the GADA line-mounting body. In this case, ports 2 and 3 are used. Port 1 is plugged.

3 Technical data

General characteristics	Description, value, unit
Designation	2/2 solenoid cartridge valve
Design	bidirectional seat-valve shut-off, direct acting poppet and valve-spool design (pressure balanced)
Mounting method	push-in cartridge, 4 mounting bolts M5 x 10
Tightening torque	5.2 Nm ± 5 %
Size	size 6, cavity type AA or cavity type AB
Weight	0.85 kg
Mounting attitude	unrestricted
Ambient temperature range	-25 °C … +50 °C

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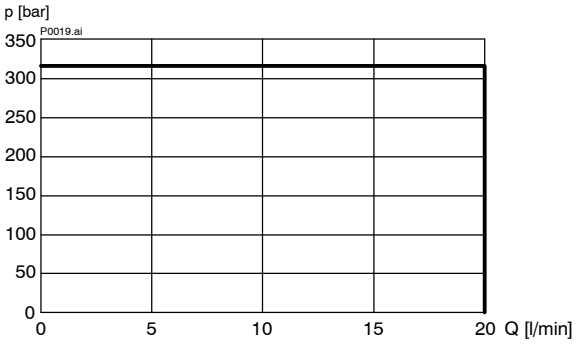
Hydraulic characteristics	Description, value, unit
Maximum operating pressure	…315 bar
Maximum flow rate	20 l/min
Flow direction	1 → 2 / 2 → 1, see symbols
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range	-25 °C … +80 °C
Viscosity 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) others by consultation
Supply voltage tolerance	± 10 %
Nominal power consumption	V DC = 30 … 32 W / V AC = 31 … 32 W
Switching time	80 … 220 ms (energising) 10 … 160 ms (deenergising) Depending on pressure, flow rate and viscosity as well as dwell time under pressure, the switching times may vary from the the stated values.
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”

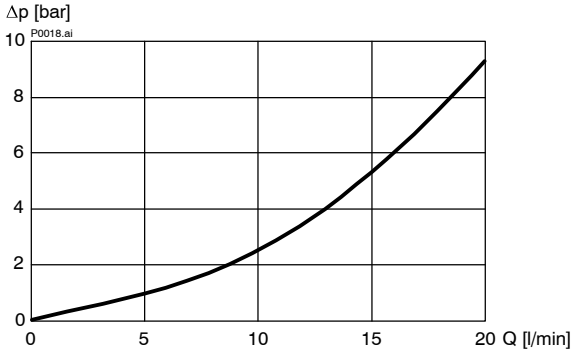
4 Performance graphs

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

p = f (Q) Performance limits

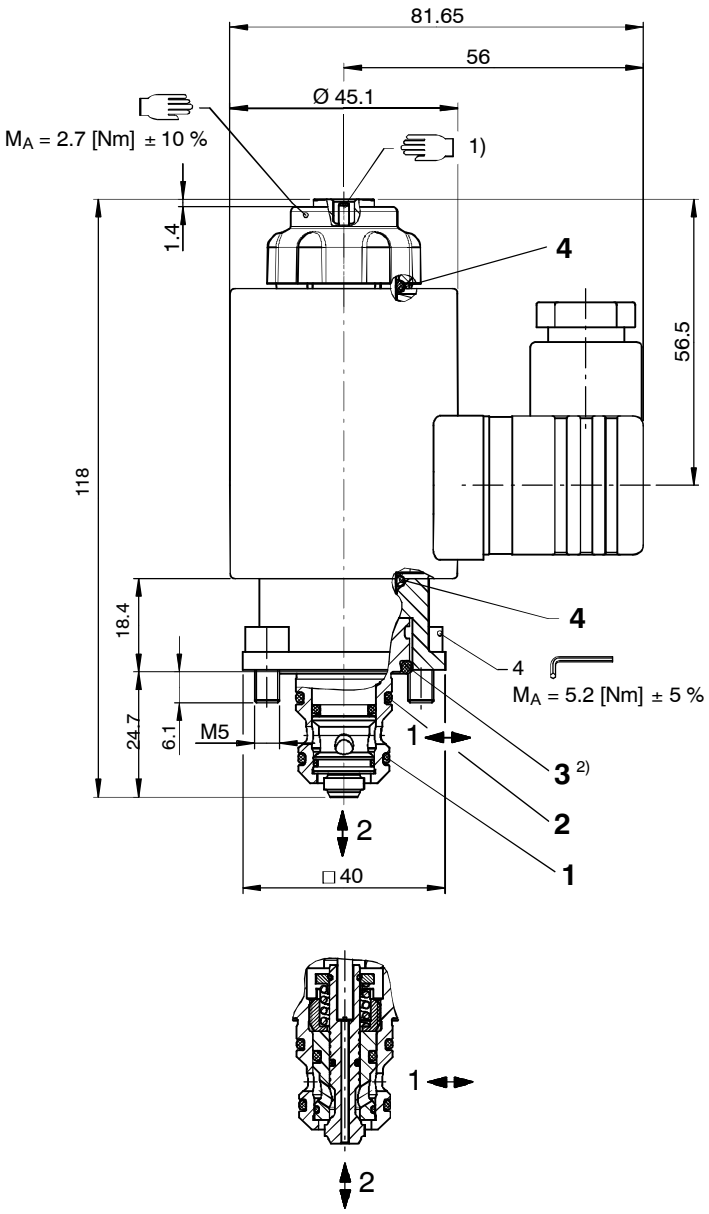


Δp = f (Q) Pressure drop - Flow rate characteristic (1 ↔ 2)



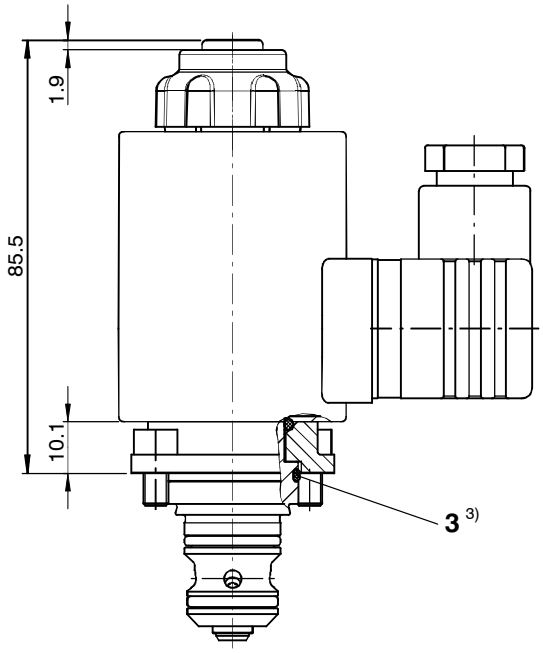
5 Dimensions & sectional view

5.1 Shallow insertion model



5.2 Deep insertion model

(shown here without manual override)



IMPORTANT!

1) Can be chosen **with** or **without** manual override. (see ordering code)

Seal kit no. DS-095-N

Item	Qty. 2)	Qty. 3)	Description
1	1	1	O-ring no. 015 ∅ 14,00 x 1,78 N90
2	1	1	O-ring no. 016 ∅ 15,60 x 1,78 N90
3	1	- - -	O-ring no. 116 ∅ 18,72 x 2,62 N70
	- - -	1	O-ring no. 021 ∅ 23,52 x 1,78 N90
4	2	2	O-ring ∅ 20,00 x 2,00 V83

2) W1CB… / W1CD… (shallow insertion model)
3) W1CC… / W1CE… (deep insertion model)

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6 Installation information

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.

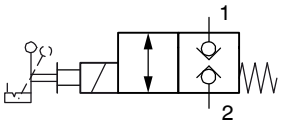
IMPORTANT!
When fitting the cartridges, use the specified tightening torque for the mounting screws. No adjustments are necessary, since the cartridges are set in the factory.

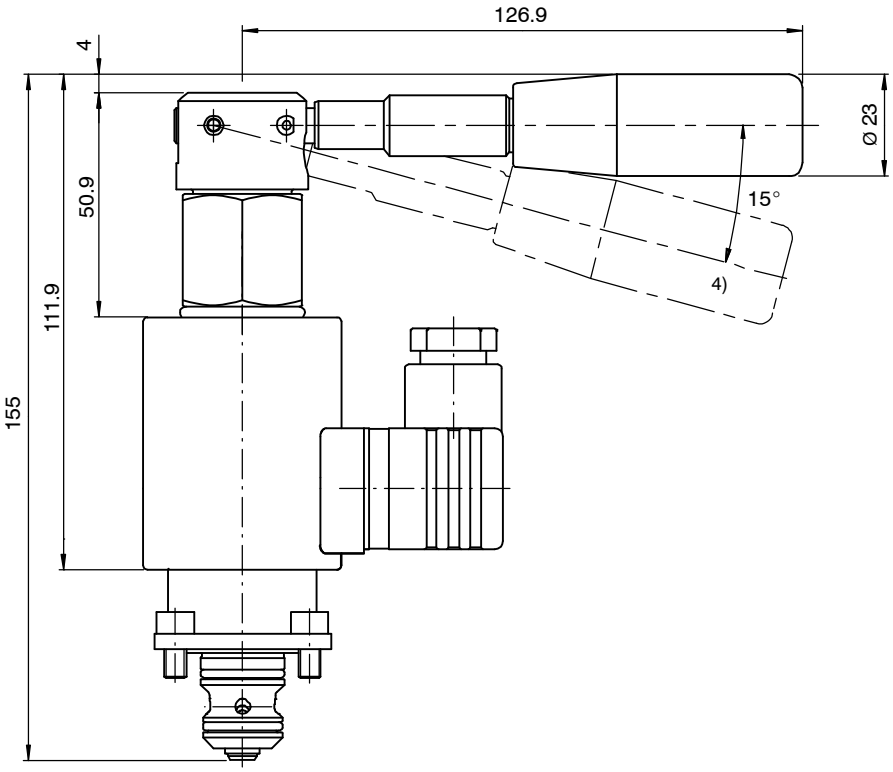
IMPORTANT!
These size 6, 2/2 solenoid operated directional cartridges can also be fitted in the AC or AD cavities, and in such cases port 3 then has the same function as port 2.

7 Hand lever fitted on solenoid (optional)

As an option, the W1C... series of 2/2 solenoid operated directional seat valves are available with an additional hand lever. Two models can be supplied; the “**HHB**” hand lever with detent feature, and the “**HHNB**” hand lever without detent feature.

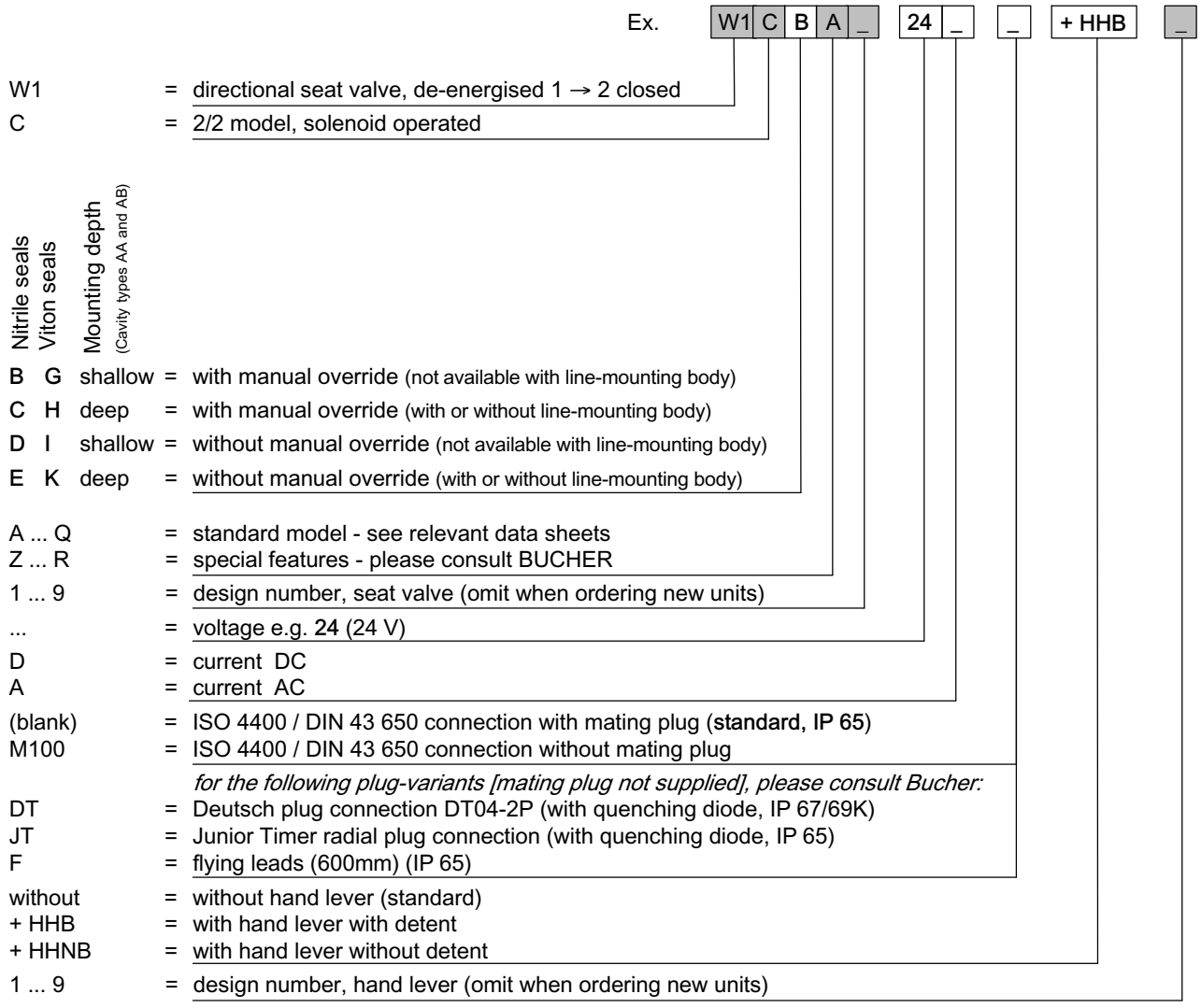
IMPORTANT!
Hand levers can only be fitted to valves that have a manual override.





4) Operated position

8 Ordering code



9 Related data sheets

Reference	(Old no.)	Description
400-P-040011	(i-32)	The form-tool hire programme
400-P-040101	(i-33.1)	Cavity type AA and AB
400-P-040111	(i-33.2)	Cavity type AC and AD
400-P-110115	(W-2.12)	3/2 solenoid cartridge valve, series W1D…, W1F… size 6
400-P-120120		Solenoid coil, series D45/207
400-P-730111	(G-2.10)	Line-mounting body, type GABA (G 3/8")
400-P-730121	(G-2.20)	Line-mounting body, type GADA (G 3/8")

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

Classification: 430.300.-.305.310.300 (W-2.11)