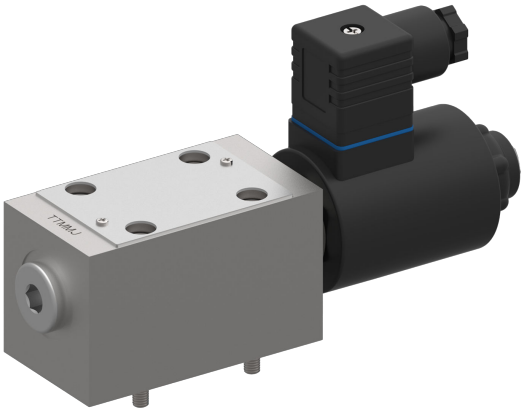
Directional valve 4-way/2-position

Q_{max} = 8 gpm, p_{max} = 4500 psi
direct acting, poppet type, switching solenoid
Type series: WESDB-42-AD-6...

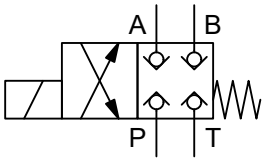


- Plate mounting valve
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Interface according to ISO 4401-03-02
- Seat tight shut-off
- Closed in the non-operated condition
- Leak-free shut-off function
- Optional with manual override
- Various plug-connector systems and voltages are available
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope

Description

The 4-way/2-position solenoid-operated directional valves, series WESDB-42-AD-6..., are size 6 with interface according to ISO 4401-03-02. They are designed on the poppet/seat principle, and are therefore virtually leak-free. All external parts of the cartridge 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 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. For self-assembly, please refer to the section related datasheets.

Symbol



Technical data

General characteristics	Description, value, unit
Function group	Directional valve
Function	4-way/2-position
Design	Plate mounting valve
Controls	switching solenoid
Characteristic	direct acting, poppet type
MTTFd value	150 years
Construction size	NG 6
Mounting attitude	unrestricted
Weight	4.4 lb
Interface according to	ISO 4401-03-02
Tightening torque steel	3.8 ft·lb
Tightening torque aluminium	3.8 ft·lb
Tightening torque tolerance	± 10 %
Minimum ambient temperature	- 22 °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-463-N / FKM-DS-463-V

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	4500 psi
Maximum flow rate	8 gpm
Flow direction	see symbol
Hydraulic fluid	HL and HLP mineral oil according to DIN 51 524; other fluids on request!
Minimum fluid temperature	- 22 °F
Maximum fluid temperature	+ 176 °F
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

Electric characteristics	Description, value, unit
Actuator type	solenoid coil
Solenoid coils type	D45/207
Supply voltage DC	12/24 V DC
Supply voltage AC	115/230 (50 ... 60 Hz) V AC
Supply voltage tolerance	± 10 %
Nominal power consumption	VDC = 30...32 W / VAC = 31...32 W
Switching time	Switching time measured at: UN; Δp = 3600 psi; Q = 24l/min; TAmbient = 20 °C; ϑ = 46 mm2/s 80 ms (energizing) 40 ms (de-energizing)

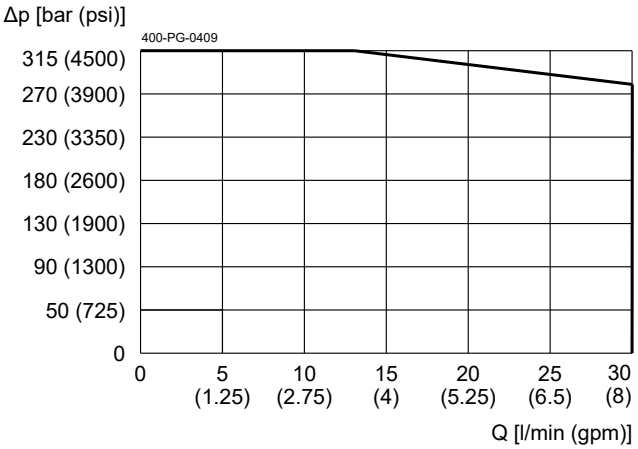
Electric characteristics	Description, value, unit
Relative duty cycle	100 %
Electrical connection coil	several connection types available, see ordering code
Protection class solenoid coil to ISO 20 653 / EN 60 529	IP 65 / IP 67 / IP 69K, see “Ordering code” (with appropriate mating connector and proper fitting and sealing)

NOTE!
The switching time can be strongly influenced by flow rate, pressure, viscosity, and the dwell period under pressure. In practice, the switching time may therefore deviate from the specified value range.

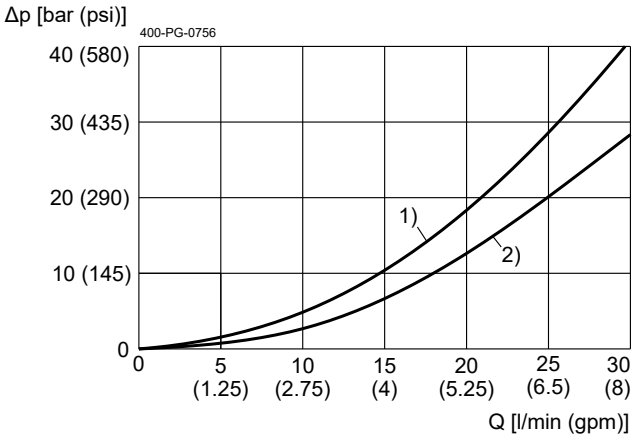
Performance graphs

measured with oil viscosity 33.0 mm²/s (cSt)

p = f (Q) Performance limit



p = f (Q) Pressure-flow rate



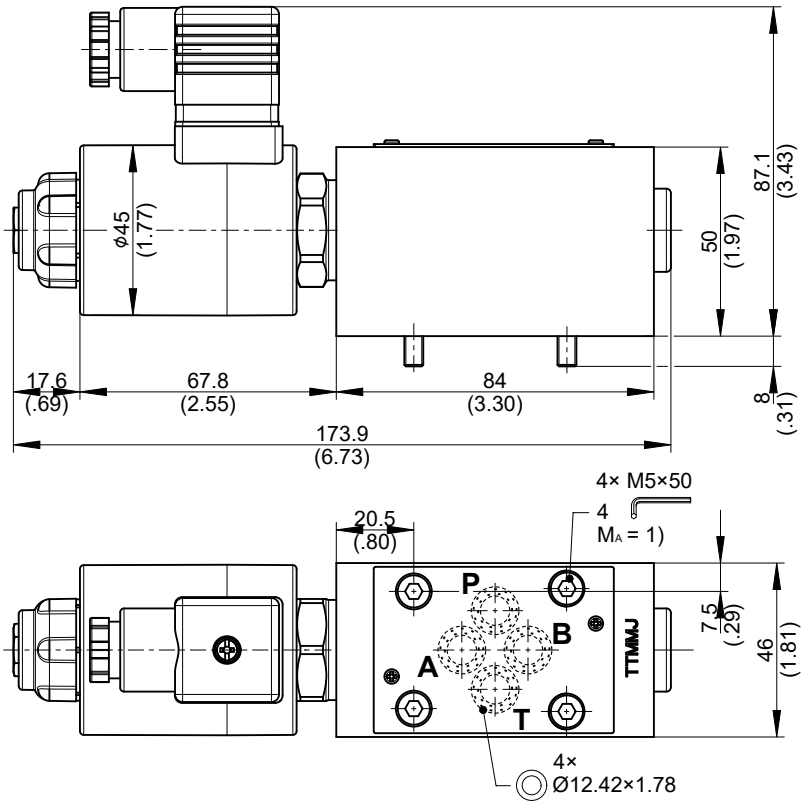
1) = P→B
2) = A→T

Dimensions and sectional view

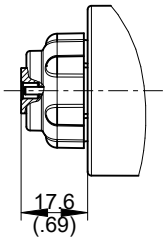
Beispiel für die Masseinheit:
Exampel for the dimensional units:

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

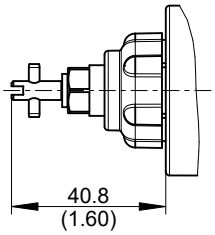
Ohne Handnotbetaetigung "O"
without manual override "O"



Mit Handnotbetaetigung "P"
with manual override "P"



Mit Handnotbetaetigung schraubbar "S"
with screw-in manual override "S"



Installation information

IMPORTANT!
1) Fixing screws, strength class 8.8, are included in the scope of delivery. When fitting 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 E S D B - 42 - AD - 6 O - N - 1 24 D _

W	=	directional valve			
E	=	electrically operated, D45/207, 30...32 W			
S	=	seat valve			
D	=	direct acting			
A ... Q	=	standard model according to valid data sheet			
Z ... R	=	special model (on request)			
42	=	4-way/2-position			
AD	=	spooltype AD, de-energized closed			
6	=	nominal size 6			
O	=	without manual override **(standard)**			
P	=	with manual override			
S	=	with screwable manual override			
N	=	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
M100	=	DIN EN 175301-803 connection	3-pole 2 P+E	(IP 65)	mating plug not supplied
JT	=	Junior Timer plug connection	2-pole radial, 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 available.

Related data sheets

Reference	Description
400-P-030501	Interface ISO 4401-03... (Size 6)
400-P-120120	Solenoid coil D45/207
400-P-126210	4-way/2-position WS42GNA-8...
400-P-010101	MTTFd Values for Hydraulic Valves

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

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