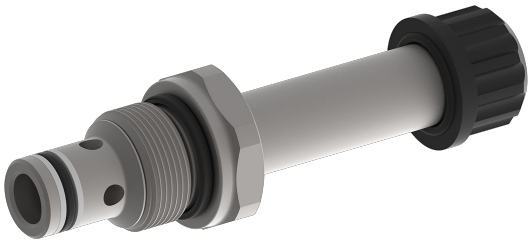
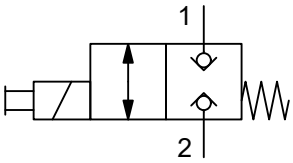
Directional valve 2-way/2-position

Q_{max} = 20 l/min, p_{max} = 250 bar
Direct acting, poppet type, switching solenoid with emergency override
Type series: WSDF22G-5H-...A...



- Screw-in cartridge valve for cavity BH/C0820
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type GBH-38
- With bidirectional seat-valve shut-off
- Compact construction
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope

Symbol



Description

The 2-way/2-position solenoid valve is a size 05 / SAE 08 direct-acting cartridge valve with bidirectional seat-valve shut-off. The valve is designed on the poppet/seat principle and virtually leak-free in both directions when de-energized. When the valve is energized, free flow is possible in both directions. The valve is predominantly used in mobile and industrial applications where leak-tight shut-off functions, like loads, tensions or clamping, are crucially important. The solenoid coil with the required connector type is not included and must be ordered separately (see "Related data sheets"). The slip-on coil can be replaced without opening the hydraulic circuit and can be positioned at any angle through 360°.

Technical data

General characteristics	Description, value, unit
Function group	directional valve
Function	2-way/2-position
Design	screw-in cartridge valve
Controls	switching solenoid with emergency override
Characteristic	direct acting, poppet type
MTTFd value	150 years
Construction size	NG 05 / SAE 08
Thread size	3/4-16 UNF-2A
Mounting attitude	unrestricted
Weight	0.2 kg
Cavity acc. factory standard	BH/C0820
Tightening torque steel	50 Nm
Tightening torque aluminium	50 Nm
Tightening torque tolerance	± 10 %
Minimum ambient temperature	- 30 °C
Maximum ambient temperature	+ 90 °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-554-N / FKM-DS-554-V

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	250 bar
Maximum flow rate	20 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 (cleanliness class according to ISO 4406:1999)	class 20/18/15

Electric characteristics	Description, value, unit
Actuator type	solenoid coil
Solenoid coils type	D30-131
Supply voltage tolerance	see "performance graphs" duty cycle solenoid coil
Nominal power consumption	VDC: 20 W
Switching time	Switching time measured at: UN; Δp = 200 bar; Q = 16 l/min; T amb = 20 °C; ϑ = 46 mm2/s; 1 to 2: 35 ms (energizing) / 25 ms (de-energizing) 2 to 1: 25 ms (energizing) / 20 ms (de-energizing)
Relative duty cycle	100 %

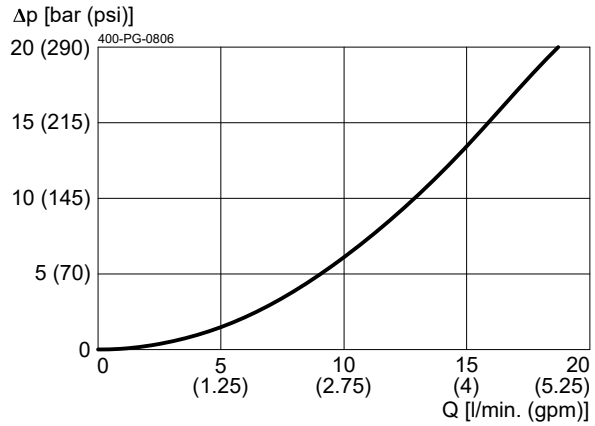
NOTE!
The switching time is in practice strongly influenced by the dwell period under pressure, flow rate, pressure, and oil viscosity, and may differ from the specified values.

Performance graphs

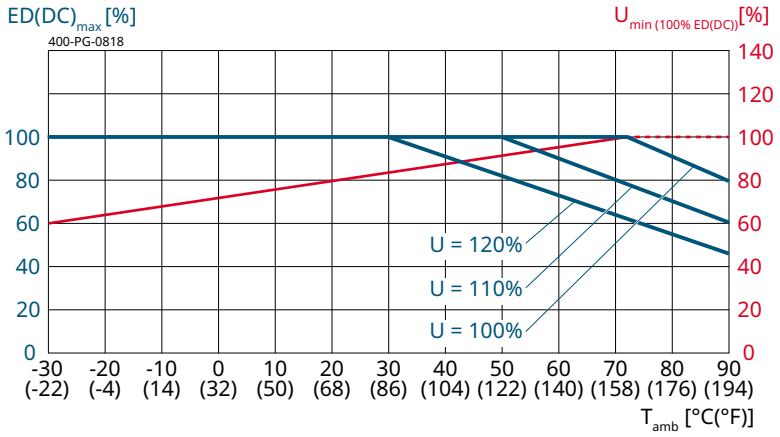
measured with oil viscosity 33.0 mm²/s (cSt), coil at steady-state temperature and 10 % undervoltage

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

Without filter screen



DC_{max}/U_{min}(100%DC) = f (T amb) Duty cycle solenoid coil

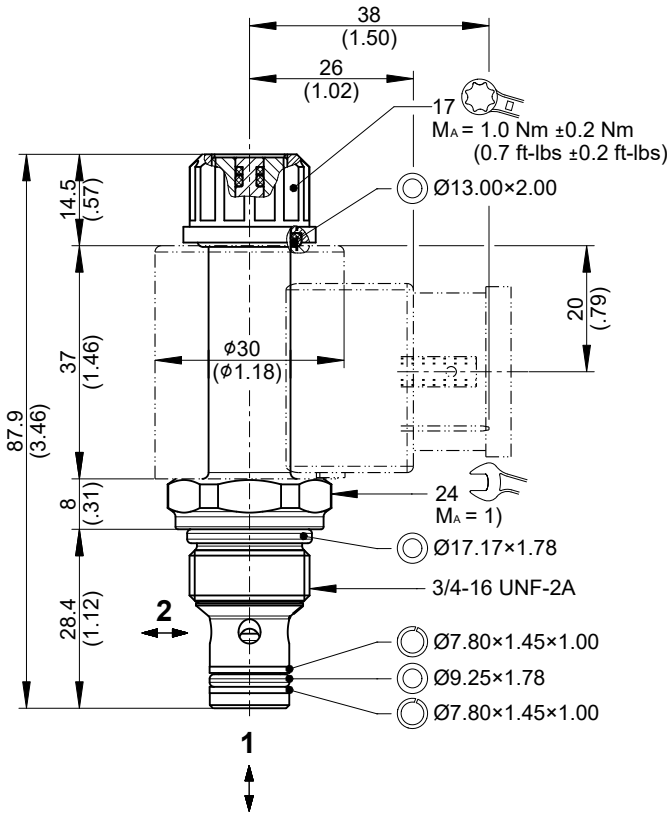


Installation

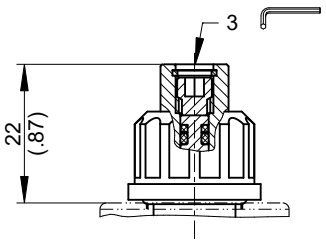
Beispiel für die Masseinheit:
Example for the dimensional units:

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

Handnotbetätigung "P"
manual override "P"



Handnotbetätigung schraubbar "S"
screw-in manual override "S"

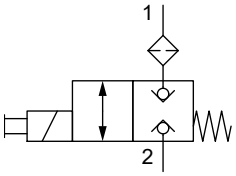


ATTENTION!
Only qualified personnel with mechanical skills may carry out any maintenance work on the valve. The qualified personnel may only replace or inspect the seals. New seals must always be oiled or greased before installation.

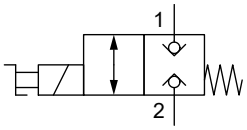
IMPORTANT!
1) When fitting the valves, use the specified tightening torque (see "Technical Data").

Additional symbols

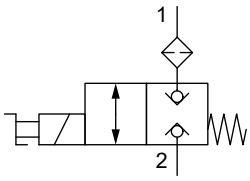
WSDF22G-5H-P-F2-...



WSDF22G-5H-S-O-...

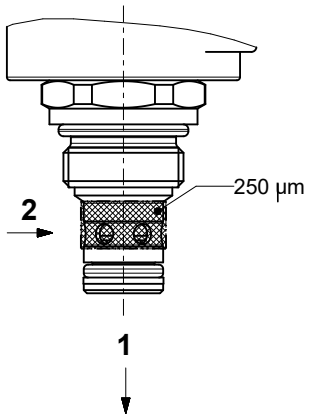


WSDF22G-5H-S-F2-...



Filter option

The pressure drop of the filter amounts to an additional approx. 2 bar (30 psi) at 20 l/min (5.25 gpm).



Ordering code

Ex. W S D F 22 G - 5 H - P - O - N A 1

W	=	directional valve
S	=	bidirectional seat-valve shut-off
D	=	direct acting
F	=	electrically operated, COIL D30-131-37..., 20 W
22	=	2-way/2-position function
G	=	de-energized closed
5	=	nominal size 05 / SAE 08
H	=	cavity type BH/C0820
P	=	manual override **(standard)**
S	=	screwable manual override
O	=	without filter screen **(standard)**
F2	=	filter screen in port 2
N	=	NBR (nitrile butadiene rubber / BUNA) seals **(standard)**
V	=	FKM (fluorocarbon rubber / VITON) seals
		(special seals on request)
A ... Q	=	standard model according to valid data sheet
1 ... 9	=	technical design no. (omit when ordering)

IMPORTANT!
The solenoid coil with the required connector type is not included and must be ordered separately (see "Related data sheets").

Related data sheets

Reference	Description
400-P-040011	form tools
400-P-120140	solenoid coil COIL D30-131...
400-P-040401	cavity BH/C0820
400-P-738571	threaded port body GBH-38...
400-P-010101	MTTFd Values for Hydraulic Valves

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