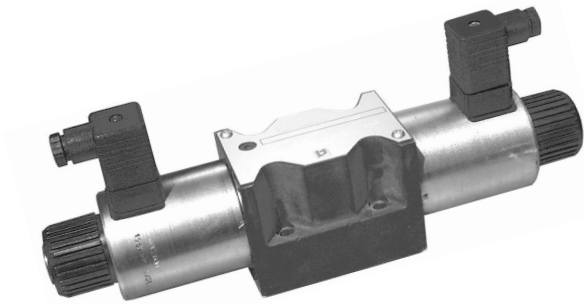


High performance directional valve, ISO size 05

$Q_{max} = 160 \text{ l/min}$, $p_{max} = 315 \text{ bar}$
Solenoid controlled, 2-stage
Series WEVDE...



- High switching reliability thanks to 2-stage follower spool operation
- Unaffected by:
 - asymmetric flow path
 - long periods under high pressure without switching
 - large pressure drops across the spool lands
 - low supply voltage
- High flow rates
- Good Δp -Q characteristics
- Pressure in P, A and B to 315 bar
- Wet armature design, change coils without opening hydraulic envelope
- With manual override
- For subplate mounting, Interface ISO size 05 to ISO 4401-05-04

1 Description

Series WEVDE ...-10 high performance spool valves are internally piloted and use the follower spool principle. The main valve components are a cast body, a spring-centered follower spool assembly and wet armature solenoids with pressure-tight core tube and slip-on coil. These valves provide reliable service even under the severest operating conditions such as very high flow rates, high operating pressures, supply voltage drops, long periods without switching, large and sudden changes in fluid temperature etc. The highly effective spool actuation method combines the advantages of direct acting and two-stage solenoid valves, without incurring the well known disadvantages of either

type. The main spool is offset by both the solenoid force and the $P \Rightarrow T$ *) pressure difference inside the valve. The greater the $P \Rightarrow T$ pressure difference, the greater the offsetting force. The spool is returned to the mid-position in the same way, using the $P \Rightarrow T$ pressure difference and without the need for the usual heavy centering springs. If very low flow rates, or an open circuit condition, result in there being no $P \Rightarrow T$ pressure difference, then the spool actuation reverts to the normal solenoid / centering spring arrangement. *) The pressure in P must always be equal to, or greater than, that in T and the valve must be connected in the conventional manner i.e. pressure to P, T to tank.

2 Symbols

4/2 FUNCTIONS WEVDE-42-A-10 1	4/2 FUNCTIONS WITH 4/3 SPOOLS WEVDE-42-AD-10 4	4/2 FUNCTIONS WITH 4/3 SPOOLS WEVDE-42-BD-10 7	4/3 FUNCTIONS WEVDE-43-D-10 10
WEVDE-42-B-10 2	WEVDE-42-AG-10 5	WEVDE-42-BG-10 8	WEVDE-43-G-10 11
Crossover transients 3	WEVDE-42-AH-10 6	WEVDE-42-BH-10 9	WEVDE-43-H-10 12

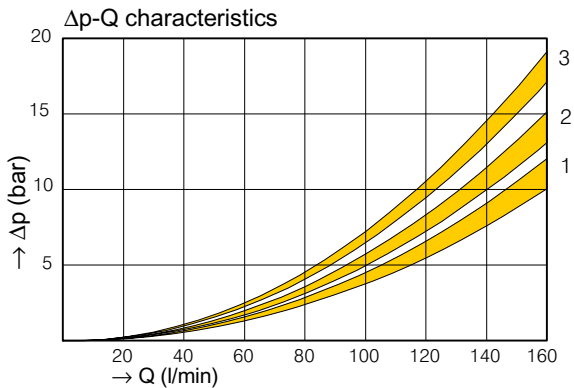
NOTE! Other spool types on request.

3 Technical data

General characteristics	Description, value, unit
Designation	4/2 and 4/3 solenoid controlled spool valves
Design	combined direct acting and 2-stage
Mounting method	manifold mounting
Size	nominal size 10 mm, 4401-05-04 size 5 interface
Mass	1 solenoid = 4.8 kg 2 solenoids = 6.3 kg
Mounting attitude	horizontal recommended (vertical mounting makes air bleeding difficult)
Hydraulic characteristics	Description, value, unit
Maximum operating pressure	P, A and B 315 bar
Maximum return pressure	160 bar
Maximum flow rate	160 l/min
Flow direction	see symbols
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range	-30 °C ... +80 °C
Ambient temperature range	-30 °C ... +50 °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
Actuator type	solenoid coil
Solenoid coils type	pressure-tight wet armature design (slip-on coil system)
Supply voltage	12 V DC, 24 V DC, 98 V DC, 196 V DC (Other voltages on request) 196 V DV: DIN (can be used with rectifier for 230 AC)
Supply voltage tolerance	± 10 %
Nominal power consumption	39 W
Relative duty cycle	100 %
Protection class to ISO 20 653 / EN 60 529	IP 65 to DIN 40050
Electrical connection	3-pin square plug rotatable 4x90° to DIN 43650 / ISO 4400

4 Performance graphs

measured with oil viscosity 33 mm²/s (cSt)



	P \Rightarrow A	B \Rightarrow T	P \Rightarrow B	A \Rightarrow T	P \Rightarrow T
A spool	3	3	2	1	-
D spool	1	2	1	1	-
G spool	1	3	1	2	-
H spool	1	2	2	2	-

Switching times

measured with: 24 VDC solenoid 5% under-voltage, coil at steady-state temperature.

Solenoid ON	45 ... 110 ms
Solenoid OFF	20 ... 50 ms

These are guideline values only, and can be significantly affected by flow rate and pressure.

To achieve switching times which are largely unaffected by variations in supply voltage and coil temperature, we recommend our type LRS Power Reducing connector plug. Contact BUCHER for application assistance.

5 Installation information



ATTENTION!

All installation and servicing must be carried out with care, and by qualified personnel only. When servicing valves (cleaning, changing seals, etc.) note the following:

A (and B) spools must not be reversed, or the function P \Rightarrow A / B \Rightarrow T will become P \Rightarrow B / A \Rightarrow T (and vice versa). All other spools are symmetrical but should always be reassembled with their original orientation, in any case.



IMPORTANT! When changing seals, the new seals should be thoroughly oiled or greased before fitting them to the valve.

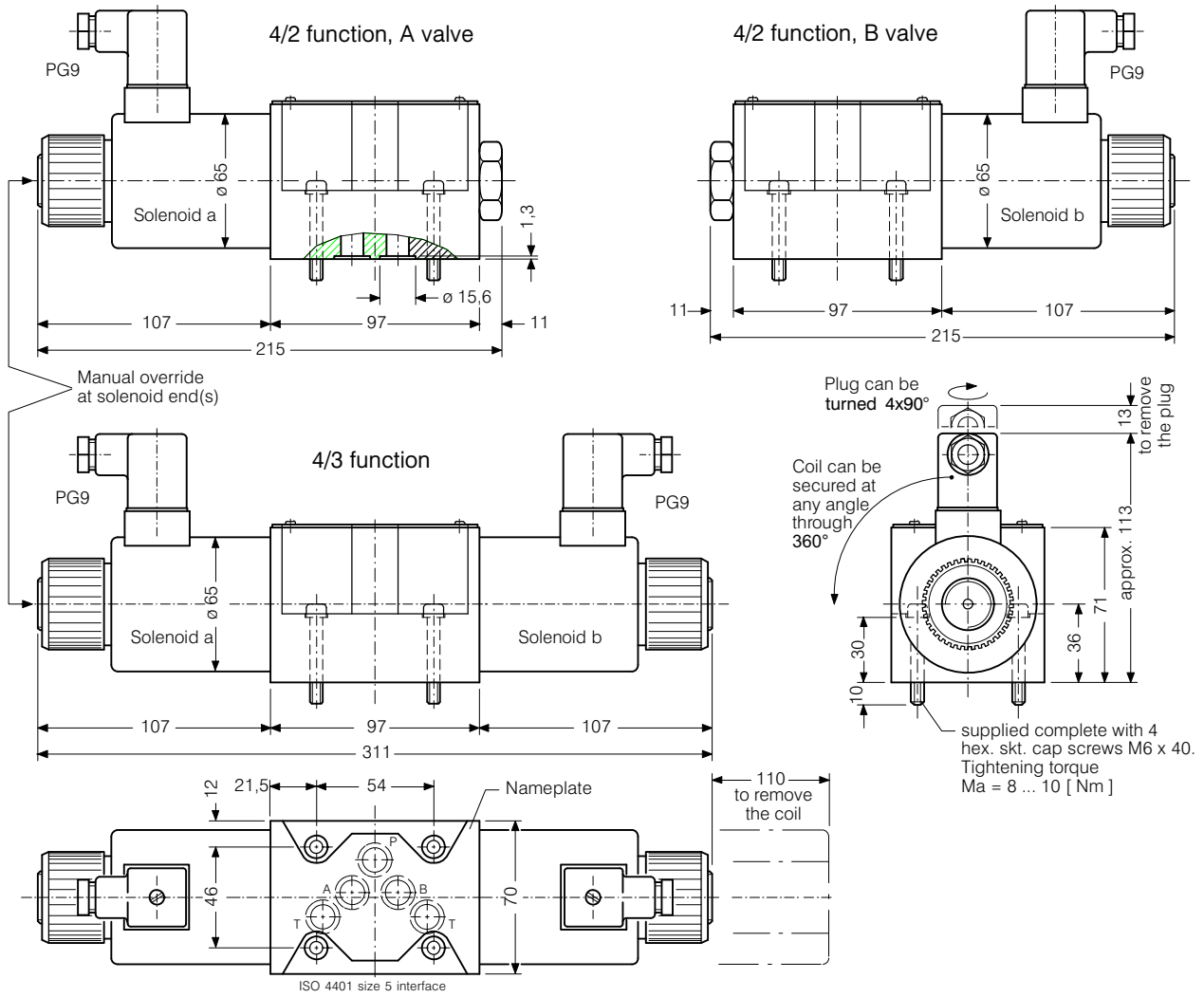


IMPORTANT! Use the correct tightening torque when fitting Spring cap, DC and Core tube.

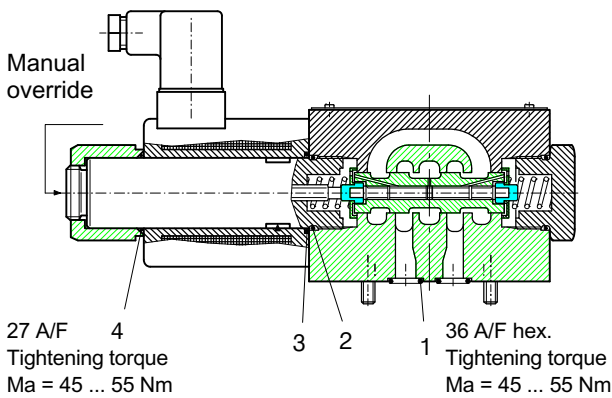


IMPORTANT! At installation, be sure to mount the valve with its hydraulic ports mating with those of the manifold block or subplate and, finally, use the correct tightening torque for the 4 x M6 mounting screws.

6 Dimensions & sectional view



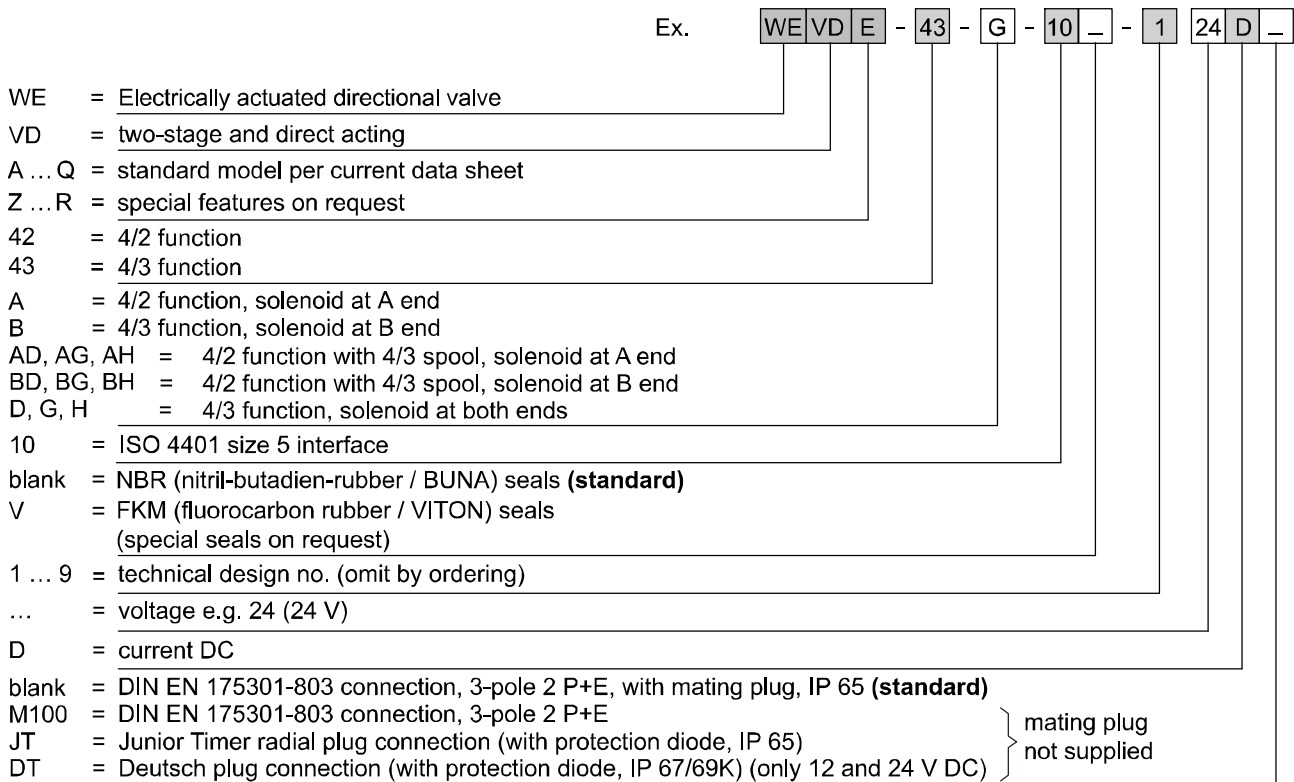
7 Schematic section



Sealkit no. DS-146, comprising:

Itm.	Qty.	Description	Size
1	5	O-ring no. 014	$\varnothing 12,42 \times 1,78$ N90
2	2	O-ring no. 118	$\varnothing 21,89 \times 2,62$ N90
3	2	O-ring	$\varnothing 30,00 \times 2,00$ N70
4	2	O-ring	$\varnothing 30,00 \times 2,00$ N70

8 Ordering code



9 Related data sheets

Reference	Description
400-P-050101	Size 05 interface to ISO 4401-05-04
400-P-515101	LRSA DIN plug

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Classification: 430.300.300.305.305