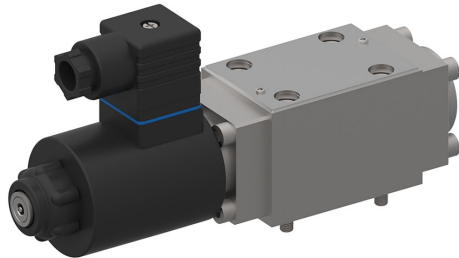


4/3 and 4/2 Directional Spool Valves, ISO Size 03

$Q_{max} = 100 \text{ l/min}$, $p_{max} = 350 \text{ bar}$
Two stage, solenoid operated
Series WEVDK...



- High switching reliability thanks to 2-stage follower spool operation
- Manifold-mounting design, interface to ISO 4401-03-02
- Operated by switching or proportional solenoids
- Very reliable functions and extremely stable
- With manual override
- 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

1 Description

Series WEVDK ...-6 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 % T *) pressure difference inside the valve. The greater the P % T pressure difference, the greater the offsetting force. The spool is returned to the mid-position in the

same way, using the P % 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 % T pressure difference, then the spool actuation reverts to the normal solenoid / centering spring arrangement. The manual over-ride, which is fitted as standard equipment to all valves, can be operated even when high tank line back-pressures exist in the core tube.

*) 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. All external parts of the valve 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°.

2 Symbols / Spool types

4/2 functions	4/2 functions with 4/3 spools	4/2 functions with 4/3 spools	4/3 functions
WEVDK-42-A-6 1 	WEVDK-42-AD-6 5 	WEVDK-42-BD-6 8 	WEVDK-43-D-6 11
WEVDK-42-B-6 2 	WEVDK-42-AG-6 6 	WEVDK-42-BG-6 9 	WEVDK-43-G-6 12
Crossover transients 3 	WEVDK-42-AH-6 7 	WEVDK-42-BH-6 10 	WEVDK-43-H-6 13
WEVDK-42-C-6 4 			

NOTE! Other spool types on request.

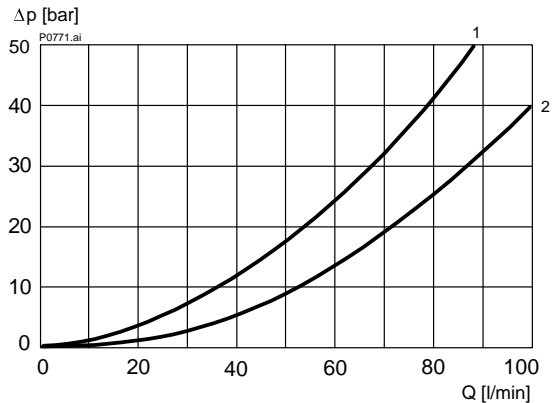
3 Technical data

General characteristics		Description, value, unit
Designation		4/3 and 4/2 directional spool valves
Design		flange design, pilot operated, electrically operated
Mounting method		4 mounting holes for M5x30 mounting bolts (valve mounting bolts supplied with the valve)
Tightening torque		5.2 Nm ± 5 %
Size		size 03 interface to ISO 4401-03-01
Weight	- valve with one solenoid - valve with two solenoids	1.60 kg 2.10 kg
Mounting attitude		unrestricted (vertical makes air bleeding difficult)
Hydraulic characteristics		Description, value, unit
Maximum operating pressure	- ports A, B, P - port T	350 bar 80 bar (static)
Maximum flow rate		100 l/min
Flow direction		see table "Symbols / Spool types"
Hydraulic fluid		HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Ambient temperature range		-30 °C ... +50 °C
Hydraulic fluid temperature range		-30 °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 (40 ... 60 Hz) (Other voltages on request)
Supply voltage tolerance		± 10 %
Nominal power consumption		12 V DC = 30 W / 24 V DC = 31 W 115 V AC = 32 W / 230 V AC = 31 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)
A, C, D, G and H spool

$\Delta p = f(Q)$ Pressure drop - Flow rate characteristic



Operated position

Spool type	Flow direction						
	P ⇒ A	B ⇒ T		P ⇒ B	A ⇒ T		P ⇒ T
		Solenoid OFF	Solenoid ON		Solenoid OFF	Solenoid ON	
A	2	1	–	2	–	1	–
C	2	1	–	2	–	1	–
D	2	–	1	2	–	1	–
G	2	1	1	2	1	1	–
H	2	1	2	2	1	2	–



IMPORTANT!

The quoted max. flow rates apply when symmetrical flows pass through the valve.
For non-symmetrical flows, the max. flows are substantially reduced, in worst cases to only 33% of the above valves.

Switching times

measured with D spool, at Q = 40 l/min, p = 100 bar
100% voltage, oil temperature +38° C, viscosity 21 cSt.

SWITCHING TIME	
ON [ms]	AUS [ms]
100 ... 350	180 ... 550

Switching times are influenced by flow rate, pressure, viscosity, supply voltage and coil temperature.

To achieve switching times which are least influenced by variations in supply voltage and coil temperature, we recommend the use of our specially developed connector plug, type LRS (see data sheet 400-P-515101).

5 Installation information



ATTENTION!

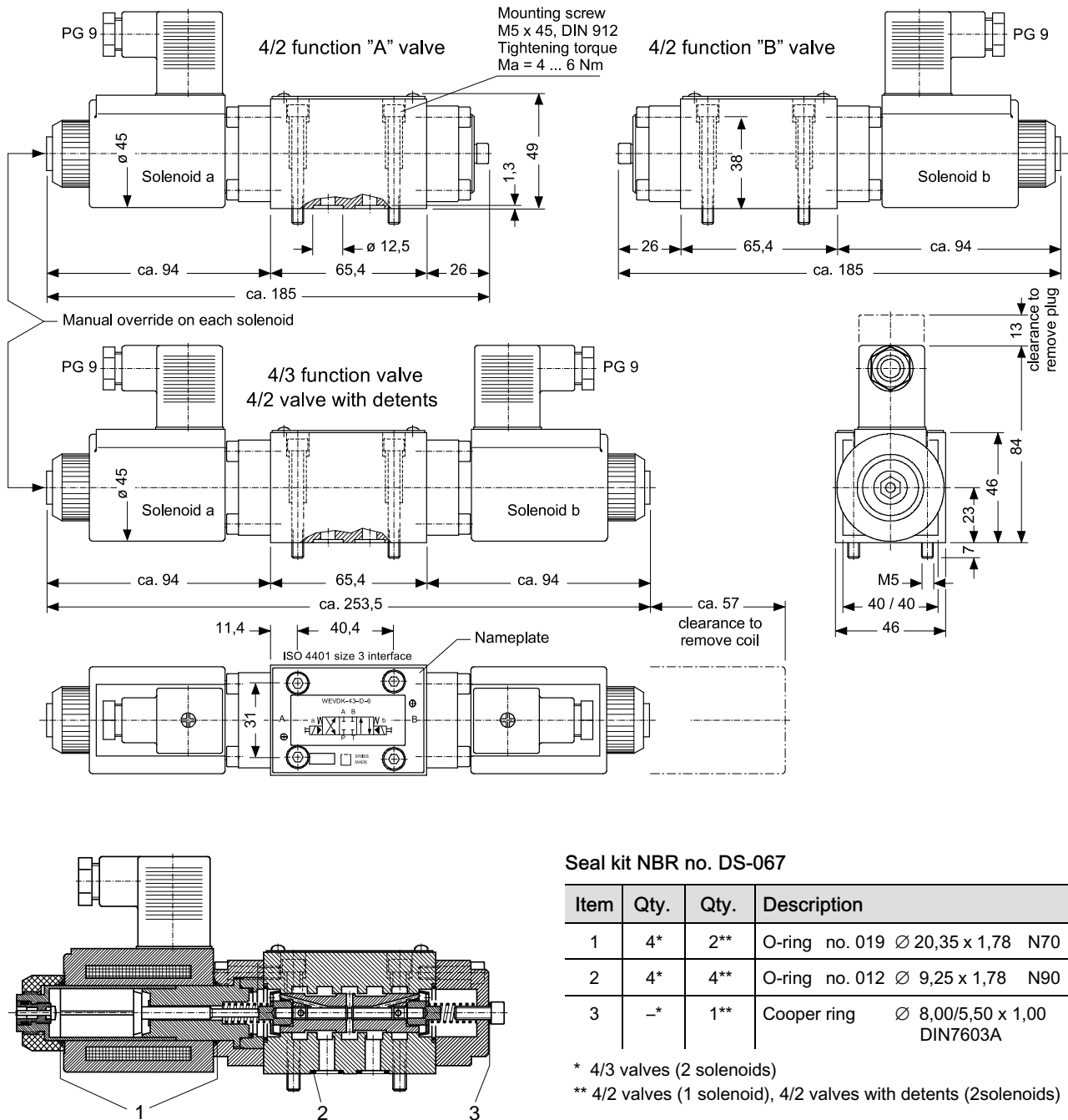
Only qualified personnel with mechanical skills may carry out any maintenance work. Generally, the only work that should ever be undertaken is to check, and possibly replace, the seals. When changing seals, oil or grease the new seals thoroughly before fitting them.



IMPORTANT!

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

6 Dimensions & sectional view



Seal kit NBR no. DS-067

Item	Qty.	Qty.	Description
1	4*	2**	O-ring no. 019 Ø 20,35 x 1,78 N70
2	4*	4**	O-ring no. 012 Ø 9,25 x 1,78 N90
3	-*	1**	Cooper ring Ø 8,00/5,50 x 1,00 DIN7603A

* 4/3 valves (2 solenoids)

** 4/2 valves (1 solenoid), 4/2 valves with detents (2 solenoids)

7 Ordering code

Ex. WE VD K - 43 - G - 6 - - - 1 24 D -

WE	= Electrically actuated directional valve
VD	= two-stage and direct acting
A ... Q	= standard model per current data sheet
Z ... R	= special features on request
43	= 4/3 function
42	= 4/2 function
A	= 4/2 function, solenoid at A end
B	= 4/2 function, solenoid at B end
C	= 4/2 function with detents at spool end positions, solenoids at both ends
AD, AG, AH	= 4/2 function with 4/3 spool, solenoid at A end
BD, BG, BH	= 4/2 function with 4/3 spool, solenoid at B end
D, G, H	= 4/3 function, solenoid at both ends
6	= ISO 4401 size 3 interface
blank	= 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, with mating plug, IP 65 (standard)
M100	= DIN EN 175301-803 connection, 3-pole 2 P+E, mating plug not supplied
<i>Other additional plug-variants on request</i>	

8 Related data sheets

Reference	(Old no.)	Description
400-P-030501	(i-31)	Size 03 interface to ISO 4401-03-02
400-P-515101	(P-20)	LRSA DIN plug
400-P-120120		Solenoid coil D45/207

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