

Type WE

Ningbo Best Industrial Co.,Ltd.

4/3, 4/2 and 3/2 directional valve with wet-pin AC or DC solenoids

RE 23327/08.08 Replaces: 02.03





Size 10 Component series 3X Maximum operating pressure 315 bar [4569 psi] Maximum flow 120 l/min [31.7 US gpm]

Features

- Direct operated directional spool valve with solenoid actuation in heavy-duty design
- Porting pattern to ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-2002 D05
- Subplates, see data sheet RE 45054 (separate order)
- Wet-pin DC or AC solenoids with detachable coil
- Solenoid coil can be rotated 90°
- The pressure-tight chamber needs not to be opened for changing the coil
- Electrical connection as individual or central connection
- Manual override, optional
- Smoothly switching version, see RE 23183
- Inductive position switches and proximity sensors (contactless), see RE 24830
- For further electrical connections, see RE 08010

Ordering code

	WE	10		/	(
3 main ports =	3								
Size 10	<u>-</u> = 10								
Spool symbols e.g. C, E, EA, EB, etc.									
Component series 30 to 39 – individual connection (30 to 39: unchanged installation and connection dimensions)			= 3X						
With spring return			= No	code					
Without spring return				= 0					
Without spring return with detent				= OF					
(Wet-pin) solenoid with detachable coil					= C				
DC voltage 24 V					=	G24			
AC voltage 230 V 50/60 Hz					= V	/230			
DC voltage 205 V					= G2	05 ¹⁾			
With concealed manual override (standard)							_ = N9		
With manual override							= N		
Without manual override					:	= No (code		
Electrical connection ²⁾									
individual connection									
Without mating connector with component plug DIN EN 175301-8	03						=	K4 ³⁾	
Central connection									
Cable entry on cover, with indicator lamp							_	= DL	
Central plug-in connection on cover, with indicator lamp (without m	ating connec	ctor)					= D)KL ⁴⁾	
For further electrical connections, see RE 08010									

¹⁾ For connection to the AC voltage mains a DC solenoid must be used, which is controlled via a rectifier, (see table below). ⁴⁾ Mating connector, separate order, Material no. **R900005538**

In the case of individual connection, a large mating connector with integrated rectifier can be used (separate order).

²⁾ Also available with M12x1 plug-in connection (version "G24" only), see RE 08010

AC voltage mains (per- missible voltage toler- ance ±10%)	Nominal voltage of the DC voltage solenoid when op- erated with AC voltage	Ordering code
110 V - 50/60 Hz	96 V	G96
120 V - 60 Hz	110 V	G110
230 V - 50/60 Hz	205 V	G205

	<u> </u>	
	*	
		Further details in clear text
		Seal material
	No code =	NBR seals
	V =	FKM seals
		(other seals on request)
		Attention!
		Observe compatibility of seals with hydraulic fluid used!
No	code =	Without Throttle insert
B08	=	Throttle Ø 0.8 mm [0.031 inch]
B10	=	Throttle Ø 1.0 mm [0.039 inch]
B12	=	Throttle Ø 1.2 mm [0.047 inch]
	Use in the case	of flows that exceed the performance limit of the valve; effective in channel
		Spool position monitoring
No code =	=	Without limit switch
QMAG24	=	Monitored spool position "a"
QMBG24	=	Monitored spool position "b"
QM0G24 :	=	Monitored rest position
		For further details, see RE 24830

Spool symbols















= E ¹⁾

= F

= G

= H

¹⁾ Example:

Spool symbol E with spool position "a", ordering code .. EA..

Technical data (for applications outside these parameters, please consult us!)

General					
Weight			Individual connection	Central connection	
	/alve with one solenoid	kg [lbs]	4.4 [9.7] (DC); 3.6 [7.9] (AC)	4.3 [9.5] (DC); 3.5 [7.7] (AC)	
_ \	/alve with two solenoids	kg [lbs]	6.0 <i>[13.2]</i> (DC); 4.4 <i>[9.7]</i> (AC)	5.9 <i>[13.0]</i> (DC); 4.3 <i>[9.5]</i> (AC)	
Installation position			Optional		
Ambient temperature range	9	°C [°F]	-30 to +50 [-22 to +122] (N -20 to +50 [-4 to +122] (FK	BR seals) M seals)	
Hydraulic	ro Dorte A. P. D.	bar [nsi]	215 [4560]		
Maximum operating pressu	– Port T	bar [psi]	210 [3050] (DC); 160 [232 With symbols A and B, por age oil port, if the operating the tank pressure.	0] (AC) t T must be used as leak- g pressure is higher than	
Maximum flow		l/min [US gpm]	120 [31.7]		
Flow cross-section	– Spool symbol V	mm ² [inch ²]	11 [0.017] (A/B to T); 10,3 [0.016] (P to A/B)		
(spool position 0)	– Spool symbol W	mm ² [inch ²]	2.5 [0.004] (A/B to T)		
	– Spool symbol Q	mm ² [inch ²]] 5.5 [0.009] (A/B to T)		
Hydraulic fluid 1)			Mineral oil (HL, HLP) to DIN	51524 ²⁾ ; fast bio-degradabl	

°C [%]

mm²/s [SUS]

hydraulic fluids to VDMA 24568 (see also RE 90221); HETG (rape seed oil)²⁾; HEPG (polyglycols)³⁾; HEES (synthetic esters)³⁾; other hydraulic fluids on request

-30 to +80 [-22 to +176] (NBR seals) -20 to +80 [-4 to +176] (FKM seals)

2.8 to 500 [35 to 2320]

Class 20/18/15 4)

¹⁾ The ignition temperature of the process and operating	
medium used must be higher than the maximum solenoid	
surface temperature.	

Permissible max. degree of contamination of the

hydraulic fluid - cleanliness class to ISO 4406 (c)

²⁾ Suitable for NBR and FKM seals

Hydraulic fluid temperature range

Viscosity range

- ³⁾ Suitable only for FKM seals
- ⁴⁾ The cleanliness classes specified for components must be adhered to in hydraulic systems. Effective filtration prevents malfunction and, at the same time, prolongs the service life of components.

For the selection of filters, see data sheets RE 50070, RE 50076, RE 50081, RE 50086, RE 50087 and RE 50088.

Technical data (for applications outside these parameters, please consult us!)

Electrical					
Type of voltage			DC voltage	AC voltage 50/60 Hz	
Available voltages ⁵⁾ V (Ordering code for AC solenoids, see below) V			12, 24, 42, 60, 96, 110, 180, 205, 220 42, 110, 230		
Voltage tolerance (nominal vo	ltage)	%	±10		
Power consumption		W	35	_	
Holding power		VA	-	90	
Making capacity		VA	-	550	
Duty cycle		%	100		
Switching time to ISO 6403	– ON	ms	45 to 60	15 to 25	
	– OFF	ms	20 to 30	20 to 30	
Maximum switching frequency	/	1/h	15000	7200	
Maximum coil temperature 6)		°C [℉]	150 [302]	180 [356]	
Type of protection to DIN EN	60529		IP 65 with mating connector mounted and locked		
Insulation class VDE 0580			F	Н	
Electrical protection			Each solenoid must be protected separately with a suitable fuse with tripping characteristic K (inductive loads).		
Behavior in the event of a fault (solenoid is not enabled)			The solenoid surface ten	nperature can be exceeded.	

⁵⁾ Special voltages on request

⁶⁾ Due to the surface temperatures of the solenoid coils, observe standards ISO 13732-1 and EN 982!

If Notes!

- The manual override can only be operated up to a tank pressure of ca. 50 bar. Avoid damage to the bore for the manual override! (Special tool for operation, separate order, Material no. **R900024943**). When the manual override is blocked, the operation of the opposite solenoid must be ruled out!
- The simultaneous operation of the solenoids must be ruled out!

IF Note!

AC solenoids can be used for 2 or 3 mains; e.g. solenoid type **W110** for: 110 V, 50 Hz; 110 V, 60 Hz; 120 V, 60 Hz

Characteristic curves (measured with HLP46, $\vartheta_{oil} = 40 \text{ °C } \pm 5 \text{ °C } [104 \text{ °F } \pm 9 \text{ °F]})$



Central position:

Spool	Direction of flow						
symbol	P – A	P – B	B – T	A – T	P – T		
F	4	-	-	9	9		
Р	-	5	8	-	10		
G, T	-	-	-	-	9		
Н	-	-	-	-	3		

Spool	[Direction	n of flov	v
symbol	P – A	P – B	A – T	B – T
А; В	3	3	-	-
С	3	3	4	5
D; Y	5	5	6	6
Е	1	1	4	4
F	2	3	7	4
G	3	3	6	7
Н	1	1	6	7
J	1	1	3	3
L	2	2	3	5
М	1	1	4	5
Р	4	2	5	7
Q	1	2	1	3
R	3	6	4	-
т	3	3	6	7
U; V	2	2	3	3
W	2	2	4	5

Spool position:

Spool	Direction of flow				
symbol	P – A	B – A	A – T	P – T	
R	-	9	-	-	

Performance limits (measured with HLP46, $\vartheta_{oil} = 40 \degree C \pm 5 \degree C [104 \degree f \pm 9 \degree F]$)

Attention!

The specified switching performance limits are valid for operation with two directions of flows (e.g. from P to A and simultaneous return flow from B to T).

Due to the flow forces acting within the valves, the permissible switching performance limit may be considerably lower with only one direction of flow (e.g. from P to A while port B is blocked)!

In the case of such applications, please consult us!

The switching performance limit was established while the solenoids had reached operating temperature, at 10% undervoltage and without tank preloading.



	DC voltage				
Curve	Spool symbol				
1	C; C/O; C/OF; D; D/O; D/OF; Y; M				
2	E				
3	A/O; A/OF; L; U; J; Q; W				
4	Н				
5 ¹⁾	R; L ²⁾ ; U ²⁾				
6	G				
7	Т				
8	F; P				
9	A; B				
10	V				

Return flow from actuator to tank (irrespecitve of the area ratio)

²⁾ Central position only



	AC voltage				
Curve	Spool symbol				
11	C; C/O; C/OF; D; D/O; D/OF; Y				
12	E; L; U; Q; W				
13	A/O; A/OF; J				
14	F; P				
15	Т				
16	Н				
17	R				
18 ²⁾	L; U				
19	М				

²⁾ Central position only

42 V, 50 Hz; 110 V, 50 Hz; 120 V, 60 Hz; 127 V, 50 Hz; 220 V, 50 Hz; 240 V, 60 Hz

Performance limits (measured with HLP46, $\vartheta_{oil} = 40 \text{ °C} \pm 5 \text{ °C} [104 \text{ °F} \pm 9 \text{ °F}]$)

Attention!

The specified switching performance limits are valid for operation with two directions of flows (e.g. from P to A and simultaneous return flow from B to T).

Due to the flow forces acting within the valves, the permissible switching performance limit may be considerably lower with only one direction of flow (e.g. from P to A while port B is blocked)!

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The switching performance limit was established while the solenoids had reached operating temperature, at 10% undervoltage and without tank preloading.



AC voltage			
Curve Spool symbol			
19	М		
20	А, В		
21	G		
22	V		

42 V, 50 Hz; 110 V, 50 Hz; 120 V, 60 Hz; 127 V, 50 Hz; 220 V, 50 Hz; 240 V, 60 Hz



AC voltage	
Curve	Spool symbol
23	C; C/O; C/OF; D; D/O; D/OF; Y
24	A/O; A/OF
25	E
26	М
27	V
28	Н

42 V, 60 Hz; 110 V, 60 Hz; 127 V, 60 Hz; 220 V, 60 Hz For performance limits of other spools, please consult us!

4WE10-AC-B







4WE10-AC-H

Unit dimensions:



4WE10-DC-B

Unit dimensions:



4WE10-DC-H

Unit dimensions:

