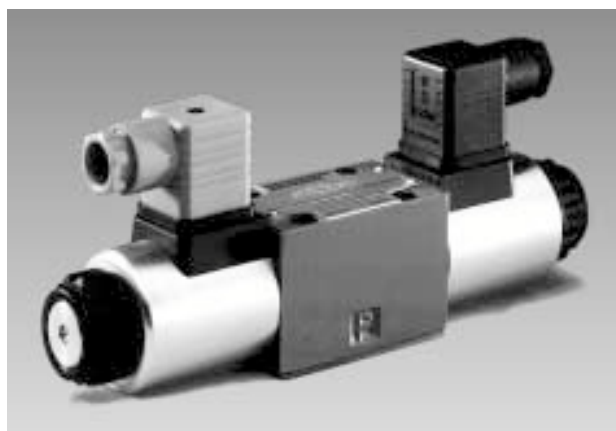


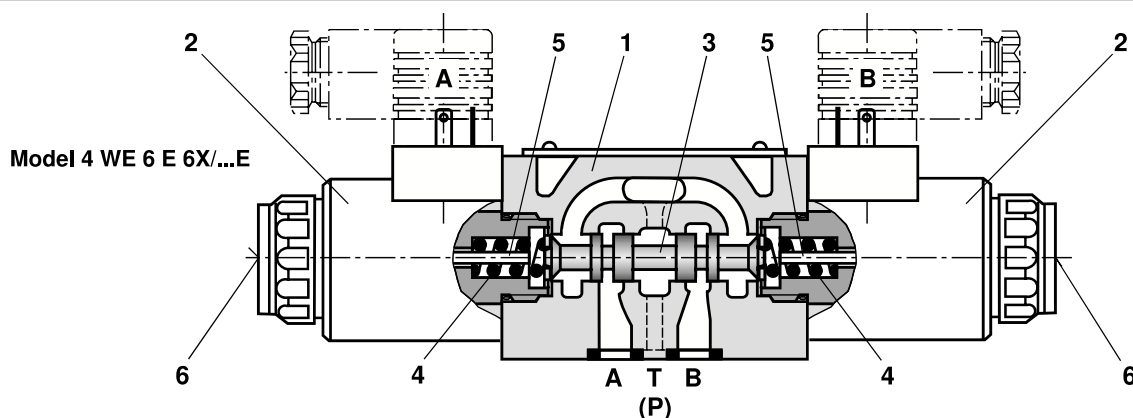
MANNESMANN REXROTH	4/3-, 4/2- and 3/2 Directional Control Valves Model WE 6.. /E, Series 6X with wet pin AC or DC solenoids			RA 23 178/08.99 Replaces: 06.98
	Size 6 (D 03)	up to 5100 PSI (350 bar)	up to 21 GPM (80 L/min)	

Features:

- Direct operated, solenoid controlled directional spool valve, heavy duty construction
- Mounting pattern to ISO/DIS 4401-3 NFPA T3.5. MR1 and ANSI B 93.7 **D03**
Subplates see data sheet RA 45 052
- Removable coils for quick replacement, or conversion, in AC or DC voltages
- Dual frequency solenoids AC voltage with 50 or 60 Hz operation
- Individual electrical connectors
- Wet pin core tubes, with high pressure tank capacity, standard.



H/A 3972/93
Model 4 WE 6...6X/EG 24 N9Z45

Functional description

Directional control valves Model WE 6 are solenoid operated directional spool valves. They control the start, stop and direction of flow.

They consist of housing (1), one or two solenoids (2), control spool (3) return spring(s) (4).

Unengaged, control spool (3) is held centered, by means of return spring(s) (4) (except for detented spool). Control spool (3) is shifted by wet pin solenoids (2). **To guarantee satisfactory operation, ensure that the solenoid core tube is filled with oil. Cycling the valve will typically ensure core tubes have filled with oil.**

The force of solenoid (2) extends push-pin (5) against control spool (3), moving it left or right from a neutral position. This provides flow from P to A and B to T or P to B and A to T.

When solenoid (2) is de-energized, control spool (3) returns to center by return springs (4).

Manual override (6) allows activating the control spool (3) without electrical power.

Model 4 WE 6 .. 6X/ O E... (only for spools A, C and D)

This design permits 2 switching positions with 2 solenoids and no detent. When the solenoids are de-energized there is **no defined neutral position**.

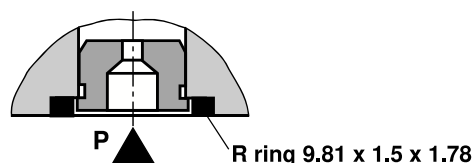
Model 4 WE 6 ..6X/ OF E... (only for spools A, C and D)

This design permits 2 switching positions with 2 solenoids and detent. Energizing either solenoid, however, only one at a time, for approx. 100 ms is sufficient to shift spool (3) and maintain a position on the detent.

Orifice Insert (Model 4 WE 6..6X/E.../B..)

To limit maximum flows, orifice inserts are optionally available. Primarily, the orifice insert is intended to prevent flow rates in excess of the maximum performance data of the valve (see page 4). The insert is installed in port "P", however, will fit any of the valve ports.

Example: 4 WE 6E 6X/EG24NDA/B12 = 1.2 mm orifice in port "P".



Ordering codes

2	3	4	6	7	9	10	11	12	15	19	22	23
4	WE	6	GA	6X/	OF	E	G12	N9	K4	/		*

3 service ports = 3
 4 service ports = 4

Size 6 = 6

Spool e.g. C, E, EA, EB etc. ¹⁾
 For possibilities, see below

Series 60 to 69 = 6X
 (60 to 69: externally interchangeable)

Spring return = No code
 Without spring return = O
 Without spring return but with detent = OF

High performance solenoid wet pin (oil-immersed) with removable coil = E

24 V DC = G24

110 V AC 50/60 Hz or 120 V 60 Hz = W110

96/196 V DC solenoid with built-in rectifier, angled plug, for connection to 110 V/220 V AC, frequency-independent (possible with Z55 or conduit box) = W110R
 = W220R

For other ordering codes for different voltages and frequencies see page 3

With protected manual override (Standard) = N9
 Covered manual override, with rubber boot = N
 Without manual override = No code

Further details in clear text

No code = NBR seals
 V = FPM seals

Attention!
 The compatibility of the seals and pressure fluid must be taken into account!

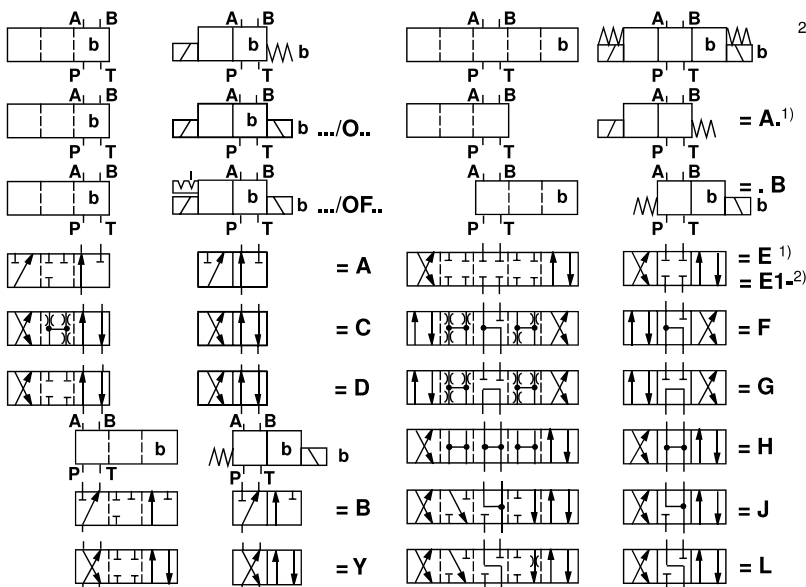
No code = Without cartridge throttle
 B 08 = Throttle Ø 0.031 (0.8 mm)
 B 10 = Throttle Ø 0.039 (1.0 mm)
 B 12 = Throttle Ø 0.047 (1.2 mm)
 Applicable if flow exceeds performance limit of valve, installed in P port

Type of electrical connection to data sheet RA 08 006

Direct solenoid connections
 K4 ³⁾ = Without angled plug connector(s)
Central solenoid connections
 DA = Terminal box with 2 1/2" NPT conduit conn.
 DAL = Terminal box with two 1/2" NPT conduit connections and light(s)
ANSI B 93.55 M plug-pin type connectors (without female end)
 DK23 = Terminal box with 3-pin conn. (single solenoid)
 DK25 = Terminal box with 5-pin conn. (dbl. solenoid)
 DK23L = Terminal w/ 3-pin conn. & light(s) (sgl. sol.)
 DK25L = Terminal w/ 5-pin conn. & light(s) (dbl. sol.)
 DK24L2 = Terminal box w/surge suppression⁴⁾

³⁾ For additional connectors, see page 9
⁴⁾ Surge suppression, 24VDC only, with 4 pin micro connector
Example: 4WE6E6X/E924N9DK24L2

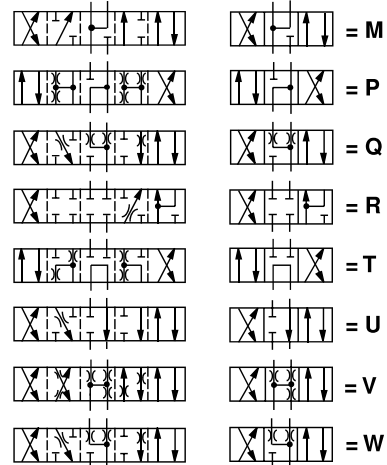
Symbols



¹⁾ **Example:** Spool E with switching position "a"
 Order code 4 WE6 EA•6X/EW 110 NK4

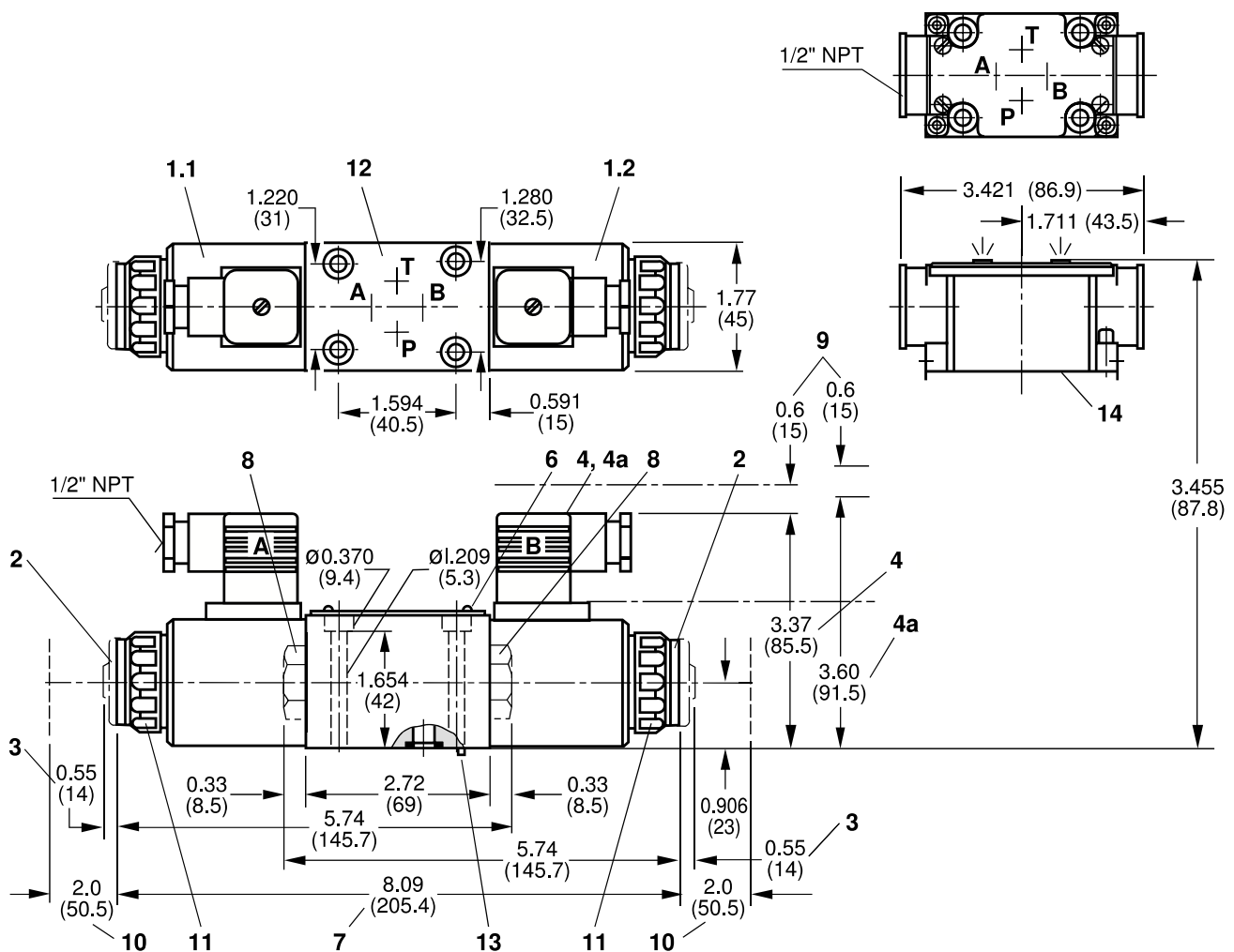
²⁾ Symbol E1-: P – A/B pre-opening

Caution: Be aware of pressure intensification in differential cylinders



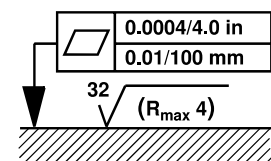
Technical data (For applications outside these parameters please consult us)					
General					
Installation position		Optional			
Ambient temperature, max.	t	°F (°C)	122 (50)		
Weight	Single solenoid valve	m	lbs (kg)	3.2 (1.45)	
	Valve with 2 solenoids	m	lbs (kg)	4.3 (1.95)	
Hydraulic					
Operating pressure	Port A, B, P	p	PSI (bar)	5100 (350)	
	Port T	p	PSI (bar)	up to 3050 (210) DC; up to 2320 (160) AC Where symbols A and B occur, port T must be employed as a drain port if the operating pressure is above the permitted tank pressure .	
Flow, max.	q_v		GPM (L/min)	up to 21 (80) DC; up to 15.8 (60) AC	
Cross section of flow (switching position 0):					
	for symbol Q	A	in ² (mm ²)	approx. 6 % of nominal cross section	
	for symbol W	A	in ² (mm ²)	approx. 3 % of nominal cross section	
Hydraulic fluid		Mineral oil (HL, HLP) to DIN 51 524 1); Fast bio-degradable pressure fluids to VDMA 24 568 (also see RA 90 221); HETG (rape seed oil) 1); HEPG (Polyglycol) 2); HEES (synthetic ester) 2); other fluids on request			
1) Suitable for NBR and FPM seals 2) Only suitable for FPM seals					
Hydraulic fluid	t	°F (°C)	– 22 to 176 (– 30 to 80) (NBR seals)		
Temperature range			– 4 to 176 (– 20 to 80) (FPM seals)		
Viscosity range	ν		SUS (mm ² /s)	35 to 2320 (2.8 to 500)	
Fluid cleanliness	Maximum permissible degree of contamination of fluid to ISO 4406 Class 18/15. We therefore recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.				
Electrical					
Type of voltage			DC voltage	AC voltage	
Available voltages ¹⁾ (for ordering codes for AC voltages see below)	U	V	12, 24, 42, 60, 96, 110, 180, 196, 220	42, 110, 120, 127, 220, 240 50/60 Hz	
Power consumption	P	W	30	–	
Holding current	P	VA	–	50	
In-rush current	P	VA	–	220	
Duty cycle			continuous	continuous	
Shifting time to ISO 6403	ON	T	ms	25 to 45	
	OFF	T	ms	10 to 25	
Shifting frequency			Sw/h	up to 15000 up to 7200	
Insulation			Exceeds NEMA class B	Exceeds NEMA class B	
Coil temperature	t	°F (°C)	up to 302 (150)	up to 356 (180)	
¹⁾ Special voltages on request <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> When making the electrical connection, the ground screw (\perp PE) must be connected to earth ground </div>					
Note on AC solenoids These solenoids may be used with 2 or 3 voltage/frequency relationships: e.g. solenoid type W110 for 110 V, 50 Hz 110 V, 60 Hz 120 V, 60 Hz					
Order codes		W42	42 V, 50 Hz 42 V, 60 Hz	W127	127 V, 50 Hz 127 V, 60 Hz
Order codes		W110	110 V, 50 Hz 110 V, 60 Hz 120 V, 60 Hz	W220	220 V, 50 Hz 220 V, 60 Hz 240 V, 60 Hz

Unit dimensions, valve with DC solenoid: dimensions in inches (millimeters)



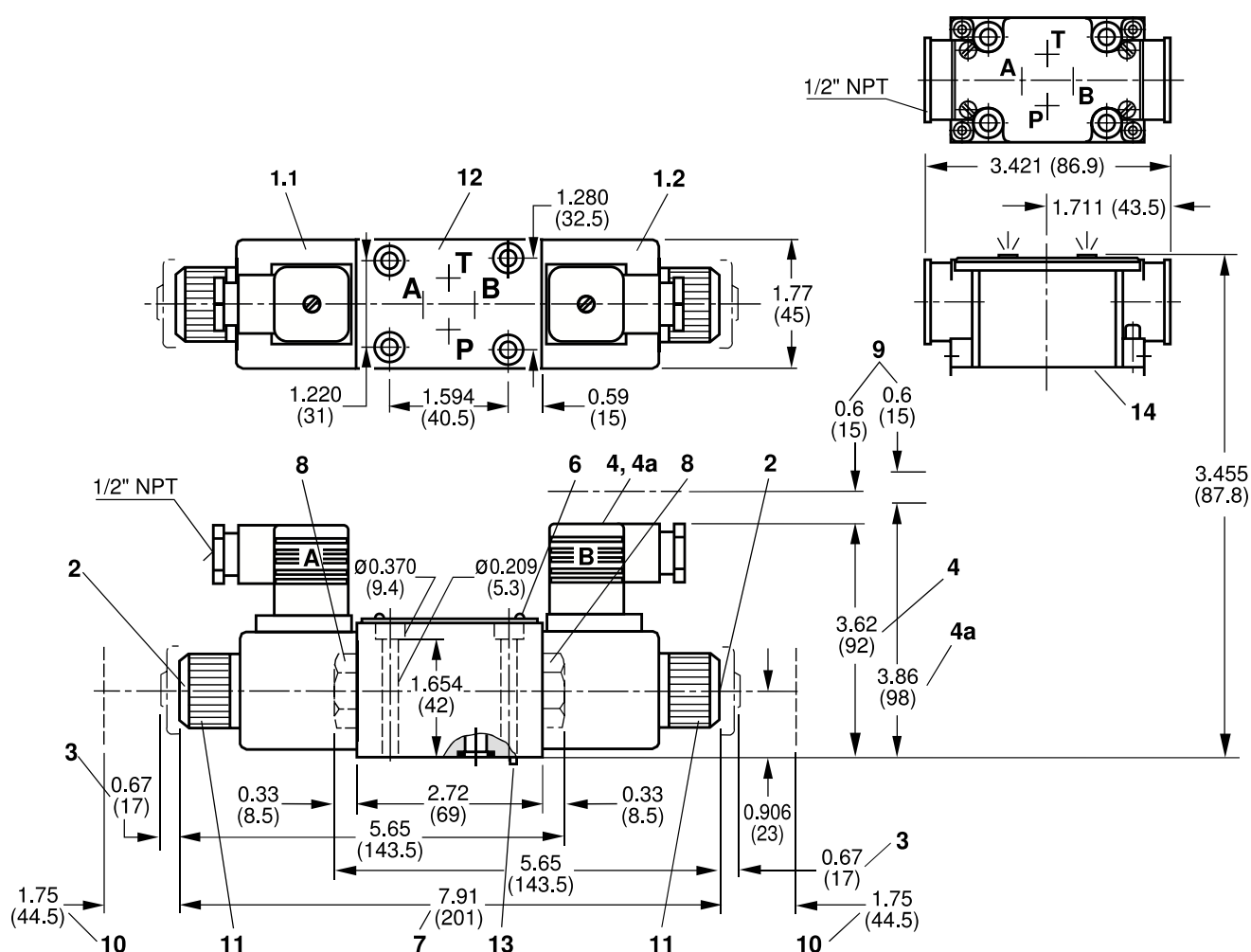
- 1.1 Solenoid a
- 1.2 Solenoid b
- 2 Manual override "N9" (standard) only possible manual operation to 725 PSI (50 bar). Do not damage the manual override bore. Handknob part # RR00 024943 may be used.
- 3 Dimension for solenoid with manual override "N", (rubber boot covered)
- 4 Angled plug Z45
- 4a Angled plugs type Z55 and Z55L
- 6 Nameplate
- 7 R-ring 9.81 mm x 1.5 mm x 1.78 mm
- 8 Screw cap for single solenoid valve
- 9 Space required to remove plug

- 10 Space required to remove coil
- 11 Locknut
Tightening torque = 35 in-lbs (4 Nm)
- 12 Mounting pattern to ISO/DIS 4401-3 NFPA T3.5.1 MR1 and ANSI B93.7 D 03
Subplates: G341/12 (SAE-6), G342/12 (SAE-8), G502/12 (SAE-10)
to data sheet RA 45 052 and **valve mounting bolts** 10-24 UNC x 2" (M5 x 50mm), Tightening torque = 6.5 ft-lbs (8.9 Nm), must be ordered separately.
- 13 Hole for locating pin, Δ 0.23 in (3 mm)
- 14 Conduit box variation, model "DA" or "DAL"



Required surface finish of interface when mounting the valve without our subplate

Unit dimensions, valve with AC solenoid: dimensions in inches (millimeters)



- 1.1 Solenoid a
- 1.2 Solenoid b
- 2 Manual override "N9" (standard) only possible manual operation to 725 PSI (50 bar). Do not damage the manual override bore. Handknob part # RR00 024943 may be used.
- 3 Dimension for solenoid with manual override "N" (rubber boot covered)
- 4 Angled plug type Z45
- 4a Angled plugs type Z55 and Z55L
- 6 Nameplate
- 7 R-ring 9.81 mm x 1.5 mm x 1.78 mm
- 8 Screw cap for single solenoid valves
- 9 Space required to remove plug
- 10 Space required to remove coil
- 11 Locknut
Tightening torque = 35 in-lbs (4 Nm)
- 12 Mounting pattern to ISO/DIS 4401-3 NFPA T3.5. MR1, and ANSI B 93.7 D 03
Subplates: G 341/12 (SAE-8), G 342/12 (SAE-8), G 502/12 (SAE-10)
to data sheet RA 45 052
Valve mounting bolts
10-24 UNC x 2" (M5 x 50)
Tightening torque = 6.5 ft-lbs (8.9 Nm), must be ordered separately.
- 13 Hole for locating pin, \varnothing 0.23 in (3 mm)
- 14 Conduit box variation, model "DA" or "DAL"

