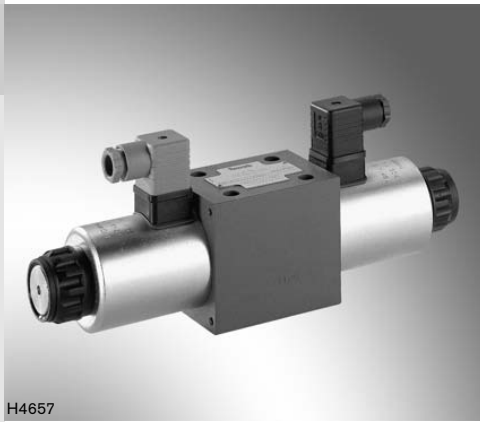
Rexroth
Bosch Group

Smoothly switching 4/2 and 4/3 directional valve with DC solenoids

RE 23183/04.05 1/12
Replaces: 02.03

Type WE…73…A12



Size 6 and 10
Component series 6X; 3X
Maximum operating pressure 350/315 bar
Maximum flow 60/100 L/min

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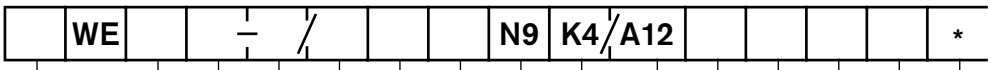
Features

- Direct operated directional spool valve with solenoid operation
- Smooth switching characteristics
- Position of ports to DIN 24340 form A (**without** locating bore)
- Position of ports to ISO 4401-03-02-0-94 (**with** locating bore, size 6) and ISO 4401-05-04-0-94 (size 10)
- Subplates, see data sheet RE 45052 (size 6), and RE 45054 (size 10), separate order
- Wet-pin DC solenoids with detachable coil
- Solenoid coil can be rotated through 90°
- Pressure-tight chamber needs not to be opened for a coil change
- Electrical connection as individual connection
- With concealed manual override

Information on available spare parts:
www.boschrexroth.com/spc

Ordering code



3 main ports = **3**
4 main ports = **4**

Size 6 = **6**
Size 10 = **10**

Spool symbols, e.g. D73, E73, E73A, E73B, etc.; for possible versions, see page 3

Component series 60 to 69 (size 6) = **6X**
(60 to 69: unchanged installation and connection dimensions)
Component series 30 to 39 (size 10) = **3X**
(30 to 39: unchanged installation and connection dimensions)

Spring return = **No code**
Without spring return with detent = **OF**
(available only with symbol "D73")

Type of solenoid for size 6 = **E**
Type of solenoid for size 10 = **C**

24 V DC = **G24**
205 V DC = **G205** [1]
(For ordering code for further voltages, see page 6)

With concealed manual override = **N9**

Electrical connection

K4 [3] = Individual connection; with component plug DIN EN 175301-803, without cable socket

A12 = Influence on switching time

No code = Without throttle insert
B08 = Throttle Ø 0.8 mm
B10 = Throttle Ø 1.0 mm
B12 = Throttle Ø 1.2 mm
Use in the case of flow > performance limit of the valve, effective in P-channel

Clamping length

No code = Standard
Z = 22 mm (size 6 only)

Seal material

No code = NBR seals
V = FKM seals
(other seals on enquiry)

⚠ **Caution!**
Observe compatibility of seals with hydraulic fluid used!

No code = Without locating bore (sizes 6 and 10)
/60 [2] = With locating bore (size 6 only)

Further details in clear text

Preferred types, see page 4, are available at short notice!

AC network (permissible voltage tolerance ± 10%)	**Nominal voltage of DC solenoid when operated with AC voltage**	**Ordering code**
110 V - 50/60 Hz 120 V - 60 Hz	96 V	**G96**
230 V - 50/60 Hz	205 V	**G205**

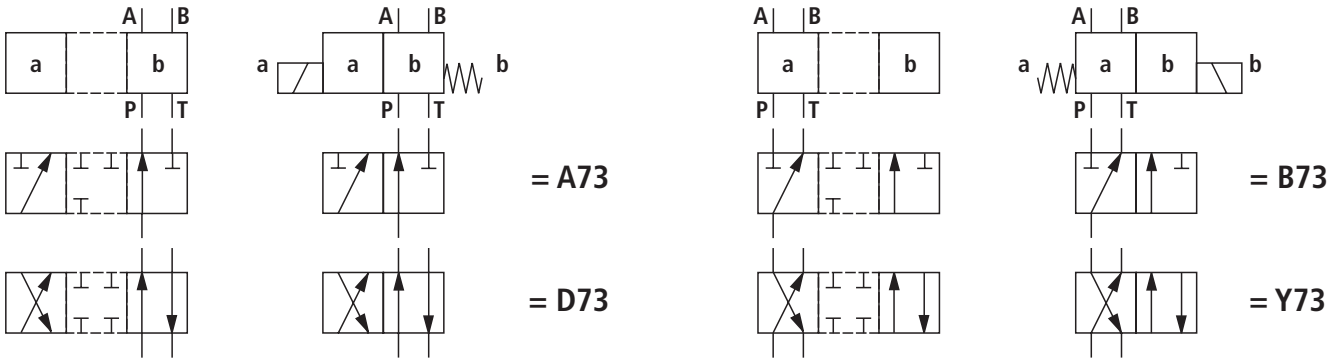
[1] For connection to the AC network, an AC solenoid **must** be used, which is controlled via a rectifier (see table on the left).

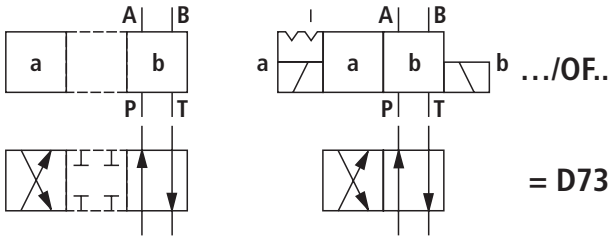
In the case of individual connection, a cable socket with integrated rectifier may be used (separate order, see page 4).

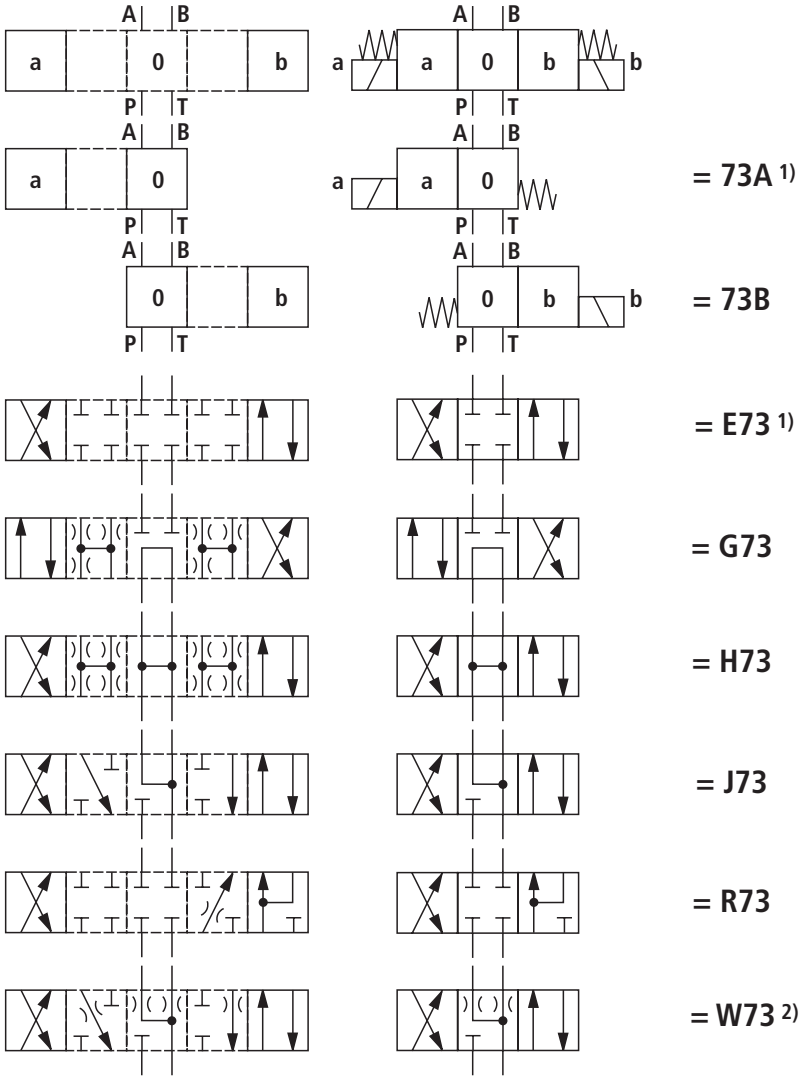
[2] Dowel pin ISO 8752-3x8-St, material no. **R900005694** (separate order)

[3] Cable sockets, separate order, see page 4

Symbols



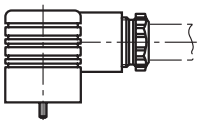
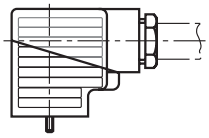




1) **Example:**
Spool E73 with spool position "a"
Ordering code ..**E73A**..

2) Not for size 10

Cable sockets to DIN EN 175301-803

For details and further cable sockets, see RE 08006					
		Material no.			
Valve side	**Colour**	Without circuitry	With LED lamp 12 … 240 V	With rectifier 12 … 240 V	With LED lamp and Zener diode suppressor circuit 24 V
a	Grey	**R901017010**	–	–	–
b	Black	**R901017011**	–	–	–
a/b	Black	–	**R901017022**	**R901017025**	**R901017026**

Preferred types

Type 4WE 6	**Material number**
4WE 6 D73-6X/EG24N9K4/A12	R900546257
4WE 6 D73-6X/OFEG24N9K4/A12	R900567066
4WE 6 E73-6X/EG24N9K4/A12	R900567095
4WE 6 G73-6X/EG24N9K4/A12	R900572783
4WE 6 H73-6X/EG24N9K4/A12	R900906660
4WE 6 J73-6X/EG24N9K4/A12	R900567997
4WE 6 W73-6X/EG24N9K4/A12	R900567269
4WE 6 Y73-6X/EG24N9K4/A12	R900572186

Type 4WE 10	**Material number**
4WE 10 D73-3X/CG24N9K4/A12	R900528033
4WE 10 D73-3X/OFCG24N9K4/A12	R900563418
4WE 10 E73-3X/CG24N9K4/A12	R900525717
4WE 10 G73-3X/CG24N9K4/A12	R900560503
4WE 10 H73-3X/CG24N9K4/A12	R900912742
4WE 10 Y73-3X/CG24N9K4/A12	R900929728

Further preferred types and standard components can be found in the EPS (standard price list).

Function, section

Directional valves of type WE...73.. are solenoid operated directional spool valves with smooth switching characteristics. They control the start, stop and direction of a flow.

Due to the design of the valve spool and the solenoids, switching shocks that may occur when the valves are switched on or off are drastically reduced.

Depending on the version, switching shocks, measured in the form of acceleration values ***a***, can be reduced by approx. 85 % when compared with the standard valve (see bar chart on page 7).

These directional valves basically consist of a housing (1), one or two solenoids (2), a control spool (3), and one or two return springs (4).

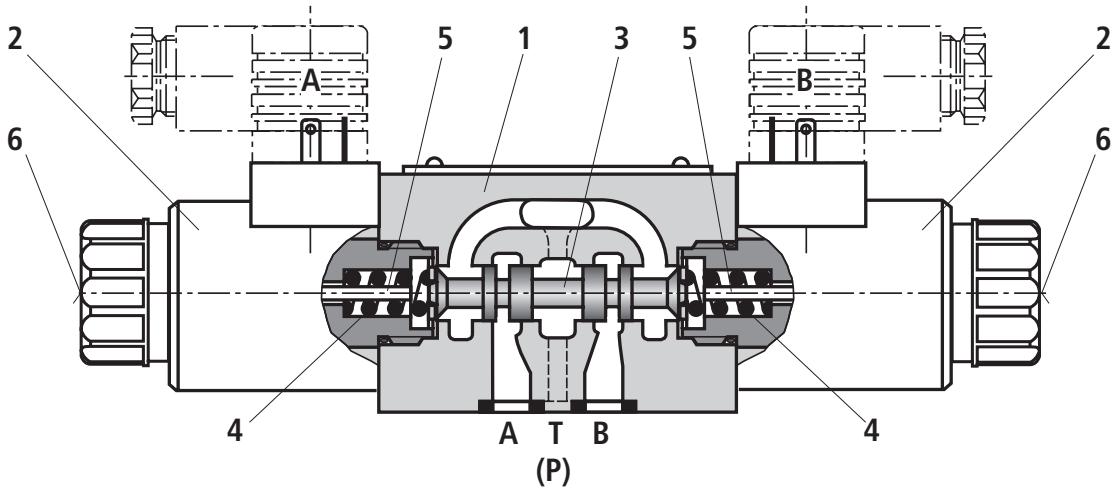
In the de-energised condition, the control spool (3) is held in the central or initial position by return springs (4) (except for impulse spools). The control spool (3) is operated by wet-pin solenoids (2).

To ensure proper operation, care must be taken that the pressure chamber of the solenoid is filled with oil.

The force of solenoid (2) acts via plunger (5) on control spool (3) and shifts it from its rest position to the required end position. This enables the required direction of flow, P to A and B to T or P to B and A to T.

After solenoid (2) was de-energised, control spool (3) is again pushed to its rest position by return spring (4).

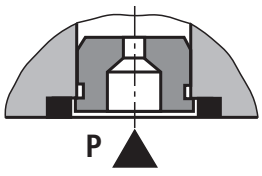
Manual override (6) allows control spool (3) to be moved without energisation of the solenoid.



Type 4WE 6 E73-6X/E…/A12…

Throttle insert

The use of throttle inserts is required, where, due to prevailing operating conditions, flows can occur during switching processes that **exceed** the performance limit of the valve. They are inserted in the P-channel of the directional valve.



Type 4WE...73.../…/**B**..

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

General

Sizes		Size	6	10
Weight	– Valve with one solenoid	kg	1.45	4.5
	– Valve with two solenoids	kg	1.95	6.1
Installation orientation			Optional	
Ambient temperature range		°C	– 30 to + 50 (NBR seals) – 20 to + 50 (FKM seals)	
Acceleration ***a***		%	See bar chart on page 7	

Hydraulic

Maximum operating pressure	– Ports A, B, P	bar	350	315
	– Port T	bar	210	210
Maximum flow			60	100
Hydraulic fluid			Mineral oil (HL, HLP) to DIN 51524 [1]; fast bio-degradable hydraulic fluids to VDMA 24568 (see also RE 90221); HETG (rape-seed oil) [1]; HEPG (polyglycols) [2]; HEES (synthetic esters) [2]; other hydraulic fluids on enquiry	
Hydraulic fluid temperature range		°C	– 30 to + 80 (NBR seals) – 15 to + 80 (FKM seals)	
Viscosity range		mm^2/s	2.8 to 500	
Max. permissible degree of contamination of the hydraulic fluid - cleanliness class to ISO 4406 (c)			Class 20/18/15 [3]	

Electrical

Available voltages [4]	V	12, 24, 96, 205	12, 24, 96, 205
Voltage tolerance (nominal voltage)	%	±10	
Power consumption	W	30	35
Duty cycle		100 %	
Switching time t_S to ISO 6403	ON/OFF	Approx. 3 to 4 times longer than standard valve	
Maximum switching frequency	1/h	7200	
Maximum coil temperature [5]	°C	150	
Type of protection to DIN EN 60529 [6]		IP 65	
Insulation class VDE 0580		F	

[1] Suitable for NBR and FKM seals

[2] Suitable only for FKM seals

[3] The cleanliness classes specified for components must be adhered to in hydraulic systems. Effective filtration prevents malfunction and, at the same time, increases the service life of components.
For the selection of filters, see data sheets RE 50070, RE 50076, RE 50081, RE 50086 and RE 50088.

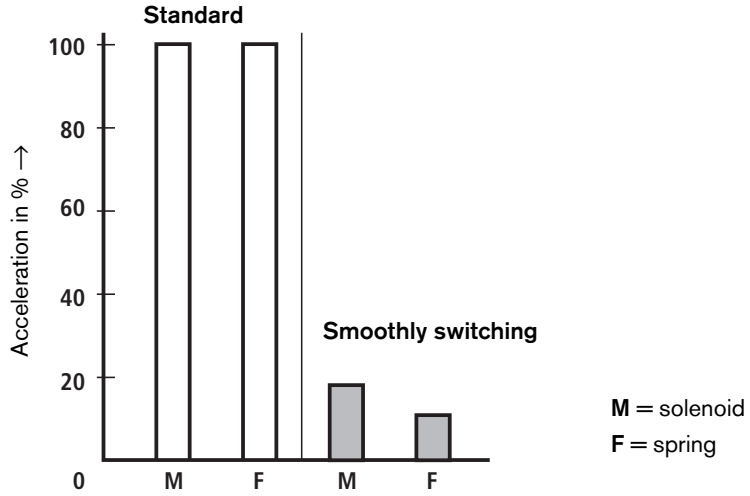
[4] Special voltages on enquiry

[5] Due to the surface temperatures occurring on the solenoid coils, observe European standards EN563 and EN982!

[6] With cable socket mounted and locked

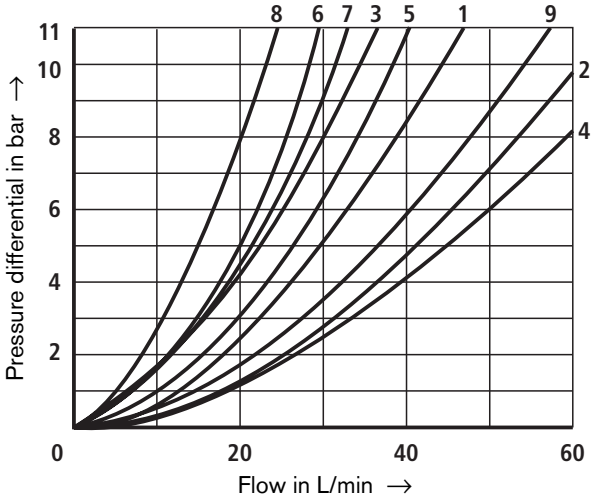
When connecting wires, properly connect the PE conductor (PE ⏚) .

Acceleration value *a* (measured on the cylinder)



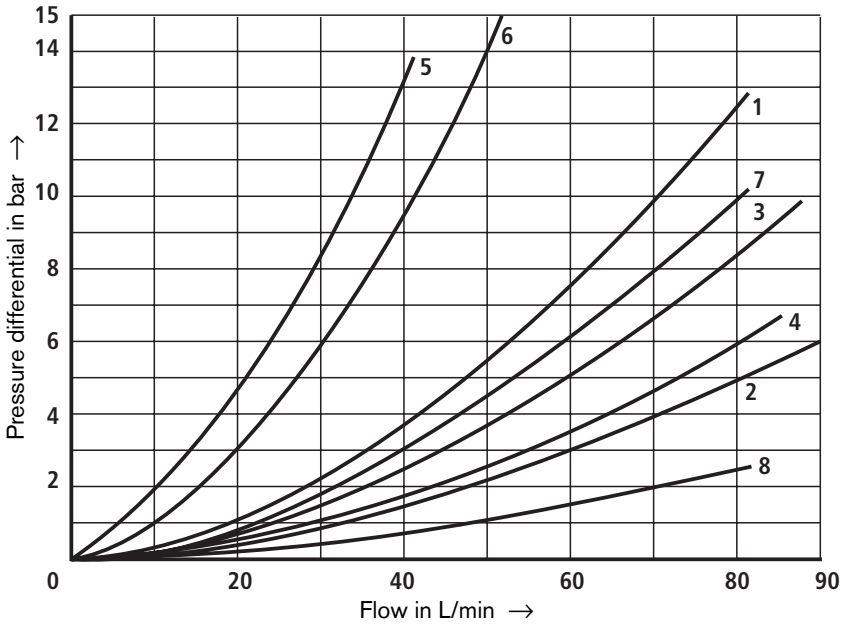
Characteristic curves (measured with HLP46, $\vartheta_{oil} = 40\ °C \pm 5\ °C$)

Δp-q_V characteristic curve, size 6



Symbol	Direction of flow					
	P–A	P–B	A–T	B-T	P–T	B–A
E73	1	1	1	1	–	–
J73	3	3	2	2	–	–
H73	1	1	1	1	5	–
A/B73	6	6	–	–	–	–
D/Y73	7	7	7	7	–	–
G73	8	8	8	8	5	
R73	9	6	9	–	–	6
W73	9	9	9	9	–	–

Δp-q_V characteristic curve, size 10



Symbol	Direction of flow				
	P–A	P–B	A–T	B–T	P–T
A/B73	2	2	–	–	–
D/Y73	1	1	1	1	–
E73	2	2	2	2	–
G73	2	2	2	2	3
H73	8	8	2	2	2
J73	4	4	2	2	–
R73	7	3	4	–	–

5 Symbol "R73" in spool position B – A (diff.)
6 Symbol "R73" in spool position P – B (diff.)

Performance limits (measured with HLP46, $\vartheta_{oil} = 40\ °C \pm 5\ °C$)

⚠ Caution!

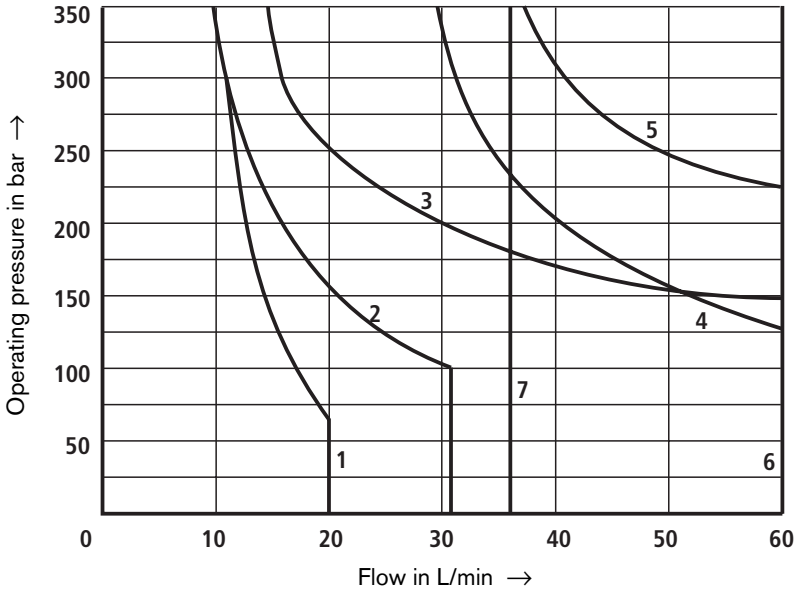
The specified switching performance limits are valid with two directions of flow (e.g. from P to A and simultaneous return flow from B to T).

Due to the flow forces acting within the valve, the permissible switching performance limit can be significantly lower with only one direction of flow (e.g. from P to A, with port B being closed)!

In such cases, please consult us!

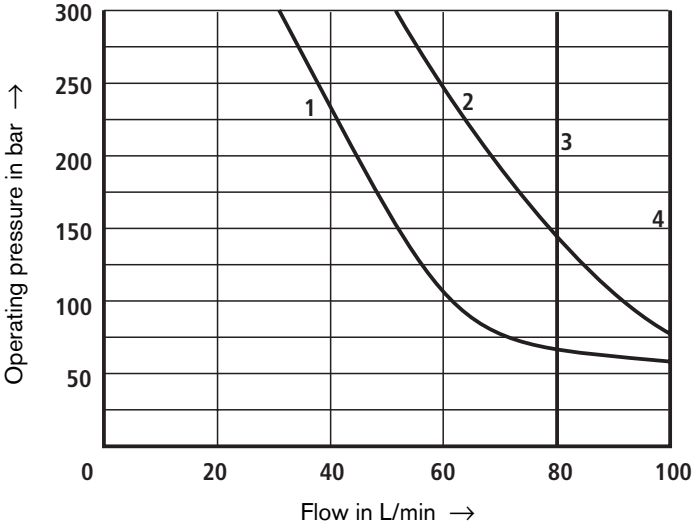
The switching performance limit was determined with the solenoid at operating temperature, at 10 % under-voltage and without tank pre-loading.

Size 6



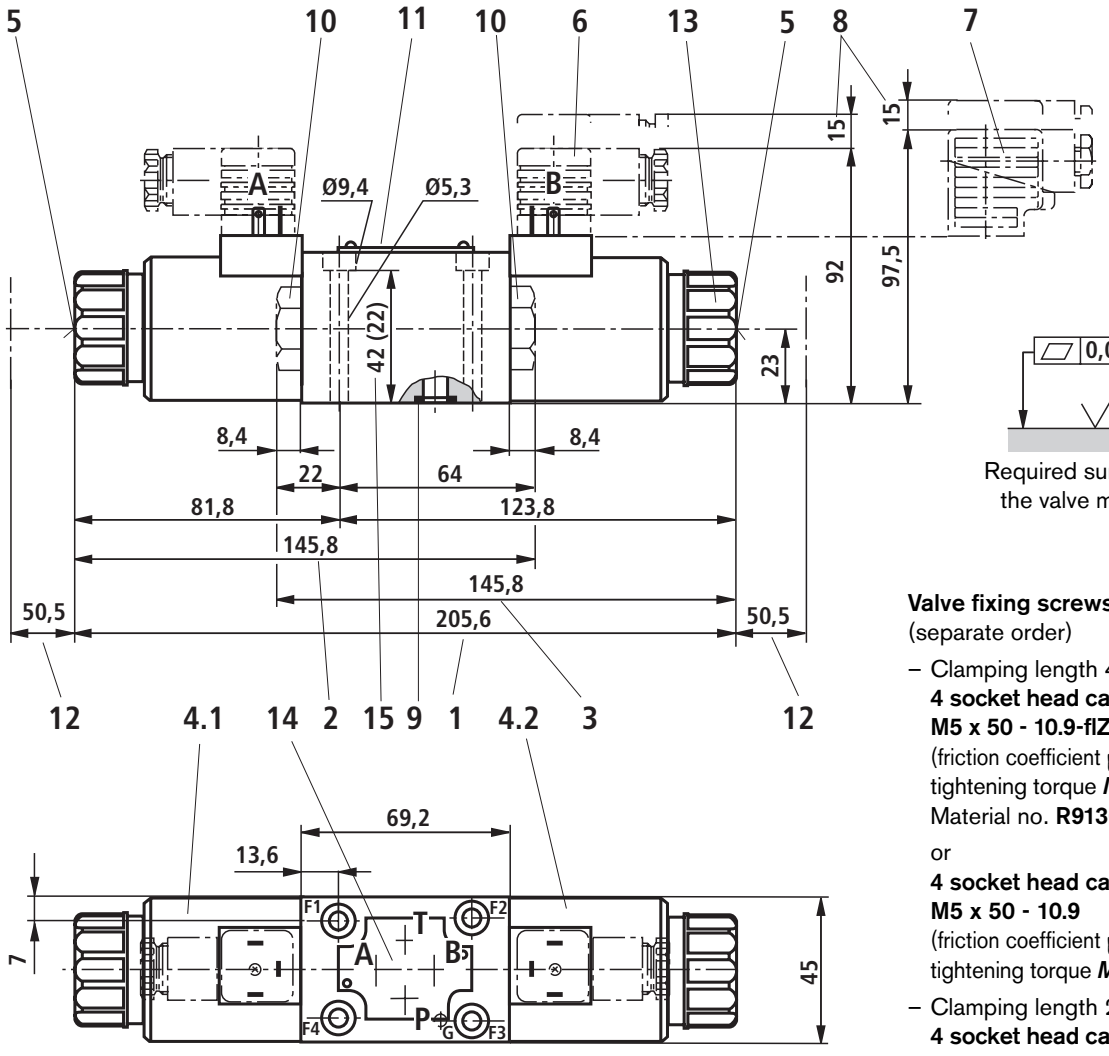
Char. curve	Symbol
1	A73, B73
2	G73
3	D73, Y73
4	J73
5	R73
6	E73, W73, D73/OF
7	H73

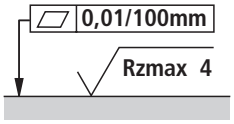
Size 10



Char. curve	Symbol
1	A73, B73
2	G73
3	H73
4	J73, D73, Y73, E73, R73, D73/OF

Unit dimensions: Size 6 (nominal dimensions in mm)





Required surface quality of the valve mounting face

1 3-position valve (E73..)

2 2-position valve with 1 solenoid (A73, D73, E73A...)

3 2-position valve with 1 solenoid (Y73, E73B...)

4.1 Solenoid "a"

4.2 Solenoid "b"

5 Concealed manual override "**N9**" The manual override can only be operated at a tank pressure of up to approx. 50 bar. Prevent damage to the bore for the manual override!

6 Cable socket **without** circuitry (separate order, see page 4)

7 Cable socket **with** circuitry (separate order, see page 4)

8 Space required to remove cable socket

9 Identical seal rings for ports A, B, P, T

10 Plug screw for valves with one solenoid

11 Nameplate

12 Space required to remove coil

13 Fixing nut, tightening torque $M_T = 4$ Nm

14 Position of ports to DIN 24340 form A (**without** locating bore), or ISO 4401-03-02-0-94 (**with** locating bore for dowel pin ISO 8752-3x8-St, material no. **R900005694**, separate order)

15 Alternative clamping length (): 22 mm

Valve fixing screws
(separate order)

– Clamping length 42 mm:
4 socket head cap screws ISO 4762 - M5 x 50 - 10.9-flZn-240h-L
(friction coefficient $\mu_{total} = 0.09$ to 0.14); tightening torque $M_T = 7$ Nm ± 10%. Material no. **R913000064**

or

4 socket head cap screws ISO 4762 - M5 x 50 - 10.9
(friction coefficient $\mu_{total} = 0.12$ to 0.17); tightening torque $M_T = 8.1$ Nm ± 10%

– Clamping length 22 mm:
4 socket head cap screws ISO 4762 - M5 x 30 - 10.9-flZn-240h-L
(friction coefficient $\mu_{total} = 0.09$ to 0.14); tightening torque $M_T = 7$ Nm ± 10%. Material no. **R913000316**

or

4 socket head cap screws ISO 4762 - M5 x 30 - 10.9
(friction coefficient $\mu_{total} = 0.12$ to 0.17); tightening torque $M_T = 8.1$ Nm ± 10%

Subplates
to data sheet RE 45052 (separate order)

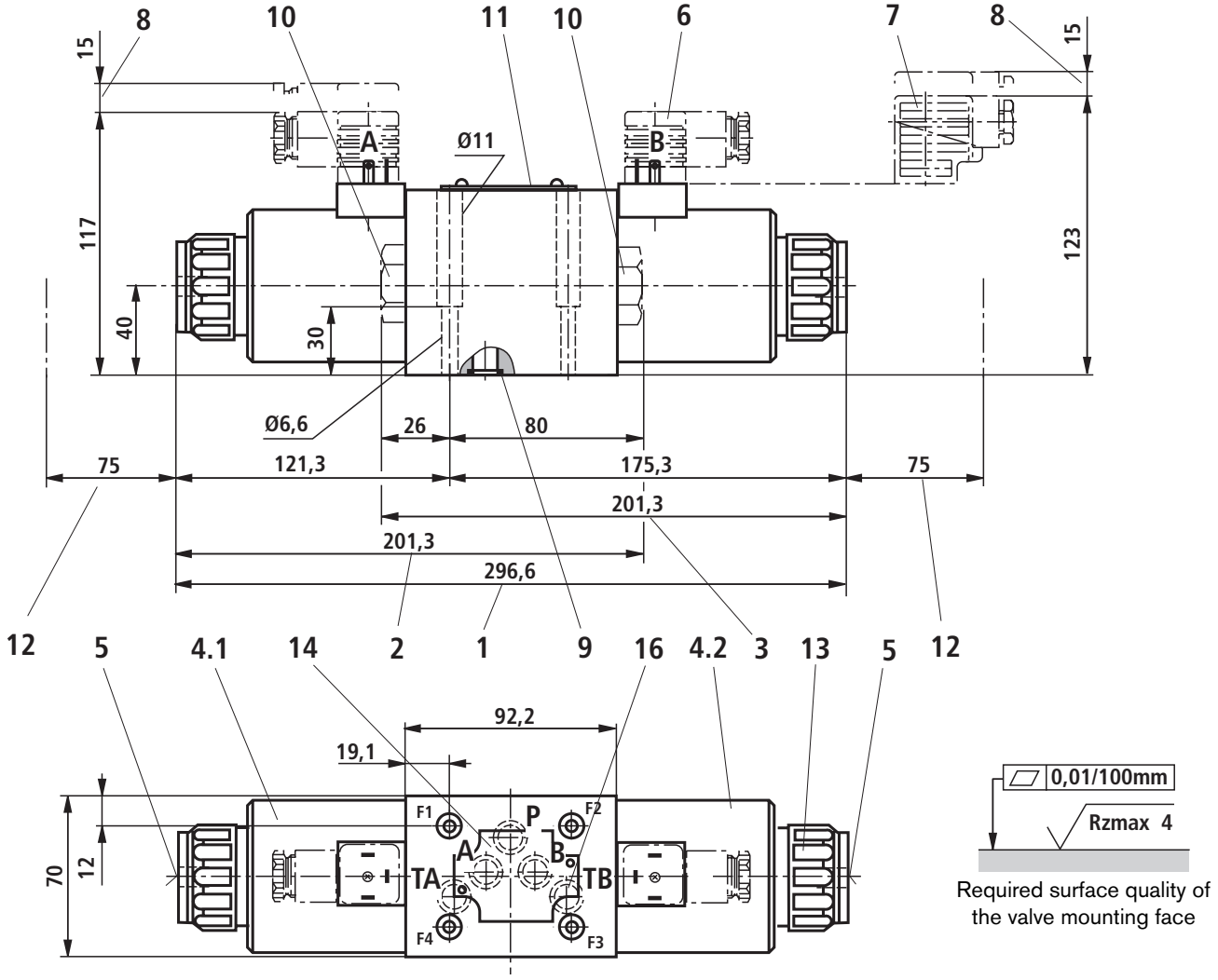
(**without** locating bore)	G 341/01 (G1/4)
	G 342/01 (G3/8)
	G 502/01 (G1/2)
(**with** locating bore)	G 341/60 (G1/4)
	G 342/60 (G3/8)
	G 502/60 (G1/2)

Tolerances:

– General tolerances ISO 2768-mK

– Tolerancing principle ISO 8015

Unit dimensions: Size 10 (nominal sizes in mm)



Required surface quality of the valve mounting face

1 3-position valve (E73..)

2 2-position valve with 1 solenoid (A73, D73, E73A...)

3 2-position valve with 1 solenoid (Y73, E73B...)

4.1 Solenoid "a"

4.2 Solenoid "b"

5 Concealed manual override "**N9**" The manual override can only be operated at a tank pressure of up to approx. 50 bar. Prevent damage to the bore for the manual override!

6 Cable socket **without** circuitry (separate order, see page 4)

7 Cable socket **with** circuitry (separate order, see page 4)

8 Space required to remove cable socket

9 Identical seal rings for ports A, B, P, T (not for valve with throttle insert in P)

10 Plug screw for valves with one solenoid

11 Nameplate

12 Space required to remove coil

13 Fixing nut, tightening torque $M_T = 6^{+2}$ Nm

14 Position of ports to ISO 4401-05-04-0-94; differing from standard: Port TB (Ø 11.2 max.)

16 Additional T-port (TB) can be used optionally for drilled blocks.

Valve fixing screws
(separate order)

– **4 socket head cap screws ISO 4762 - M6 x 40 - 10.9-flZn-240h-L**
(friction coefficient $\mu_{total} = 0.09$ to 0.14); tightening torque $M_T = 12.5$ Nm ± 10%.
Material no. **R913000058**
or

– **4 socket head cap screws ISO 4762 - M6 x 40 - 10.9**
(friction coefficient $\mu_{total} = 0.12$ to 0.17); tightening torque $M_T = 15.5$ Nm ± 10%

Subplates
to data sheet RE 45054 (separate order)

G 66/01 (G3/8)
G 67/01 (G1/2)
G 534/01 (G3/4)

Tolerances:

– General tolerances ISO 2768-mK

– Tolerancing principle ISO 8015

Notes

Notes

Bosch Rexroth AG
Hydraulics
Zum Eisengießer 1
97816 Lohr am Main, Germany
Phone +49 (0) 93 52 / 18-0
Fax +49 (0) 93 52 / 18-23 58
documentation@boschrexroth.de
www.boschrexroth.de