

**RE 23 163/12.02**

Replaces: 07.02

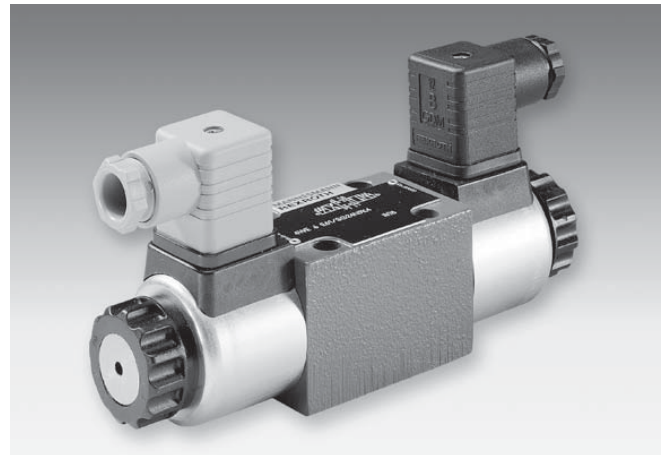
**4/3-, 4/2- and 3/2-way directional valves  
with wet pin DC solenoids  
Type WE 6 ../S**

Nominal size 6

Series 6X

Maximum operating pressure 315 bar

Maximum flow 60 L/min



H5911/98

Type 4WE 6 E6X/SG24N9K4/V with plug-in connector (separate order)

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**Features**

- Direct solenoid operated directional spool valve, standard version
- Porting pattern to DIN 24 340 form A, **without** locating pin hole (standard)
- Porting pattern to ISO 4401 and CETOP–RP 121 H, **with** locating pin hole, (ordering detail **.../60** at the end of the valve type code) for subplates see catalogue sheet RE 45 052
- Wet pin DC solenoids
- Individual electrical connections
- Hand override, optional
- Solenoid coil can be rotated through 90°
- The coils can be replaced without opening the pressure tight chamber



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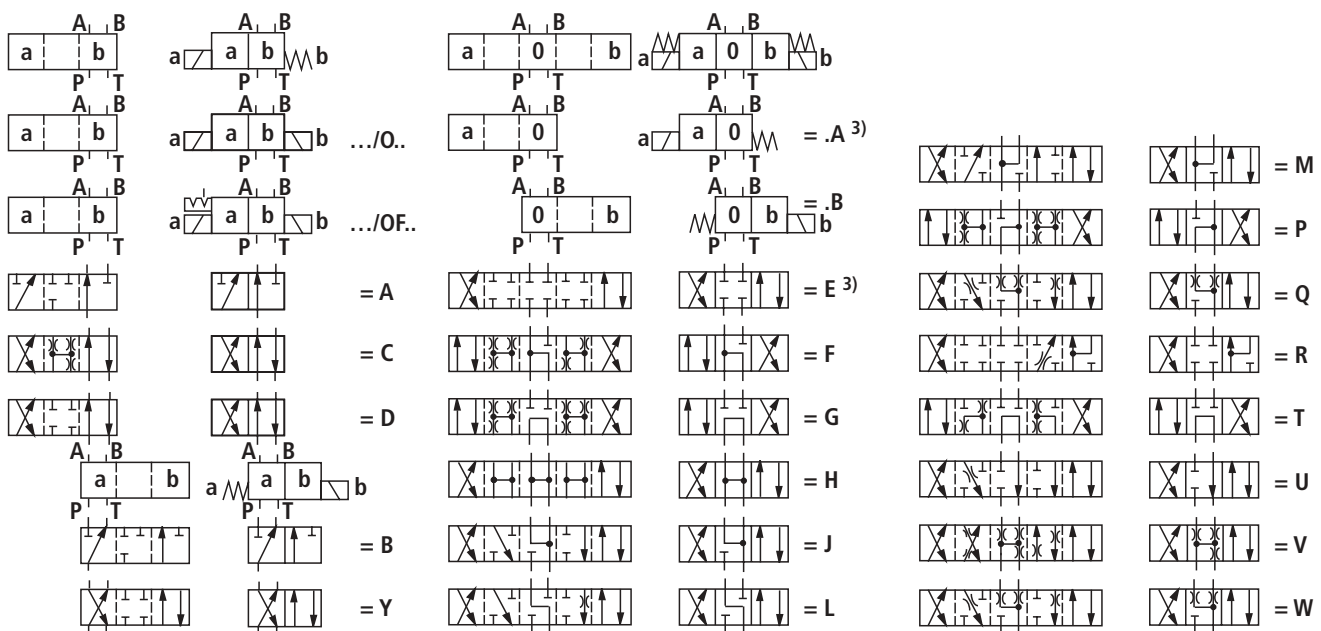
## Ordering details

	2	3	4	6	7	9	10	11	12	15	22	23	24
		<b>WE</b>	<b>6</b>		<b>6X</b>		<b>S</b>	<b>G24</b>		<b>K4</b>			*
3 actuator ports = 3 4 actuator ports = 4													Further details in clear text
Nominal size 6 = 6													<b>No code = Without</b> locating pin hole <b>/60<sup>4)</sup> = With</b> locating pin hole
Symbol e.g. D, E, etc. for possible versions see page 2													<b>No code =</b> NBR seals <b>V =</b> FKM seals
Series 60 to 69 (60 to 69: unchanged installation and connection dimensions)													<b>⚠ Attention!</b> The compatibility of the seals and pressure fluid has to be taken into account!
Spring return Without spring return with detent only available with symbol „D“)													<b>Electrical connections</b> <b>Single connection;</b> <b>Without</b> plug-in connector <b>With</b> component plug
Standard valve = S													<b>K4<sup>1)</sup> =</b>
24 V DC = G24 (for the ordering details of other voltages see page 4)													<b>N9 = With protected</b> hand override (standard) <b>N = With</b> hand override <b>No code = Without</b> hand override

<sup>1)</sup> Plug-in connectors must be ordered separately (see page 7)

<sup>2)</sup> Locating pin 3 x 8 DIN EN ISO 8752, Material No. **R900005694** (separate order)

## Symbols



<sup>3)</sup> **Example:** Spool E in switched position "a" ordering detail ..EA..

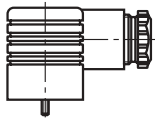
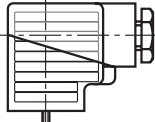
**Attention: Take the pressure intensification into account with differential cylinders!**

## Preferred types (readily available!)

Type	Material No.	Type	Material No.
3WE 6 A6X/SG24N9K4/V	<b>R900953560</b>	4WE 6 J6X/SG24N9K4/V	<b>R900953568</b>
4WE 6 C6X/SG24N9K4/V	<b>R900953563</b>	4WE 6 Y6X/SG24N9K4/V	<b>R900953569</b>
4WE 6 D6X/SG24N9K4/V	<b>R900953564</b>	4WE 6 H6X/SG24N9K4/V	<b>R900953572</b>
4WE 6 E6X/SG24N9K4/V	<b>R900953566</b>	4WE 6 D6X/OF5G24N9K4/V	<b>R900953570</b>
4WE 6 G6X/SG24N9K4/V	<b>R900953567</b>		

**Preferred types and standard components are highlighted in the RPS (Standard Price list).**

**Ordering details:** plug-in connectors to DIN EN 175 301-803 and ISO 4400 for component plug "K4"

Further plug-in connectors see RE 08 006					
		<b>Material No.</b>			
Valve side	Colour	Without circuitry	With indicator light 12 ... 240 V	With rectifier 24 ... 240 V	With indicator light and Z-diode protective circuit 24 V
a	Grey	<b>R900074683</b>	–	–	–
b	Black	<b>R900074684</b>	–	–	–
a/b	Black	–	<b>R900057292</b>	–	<b>R900310995</b>

**Function, section**

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

The directional valves basically comprise of the housing (1), one or two solenoids (2), the control spool (3), as well as one or two return springs (4).

In the de-energised condition the control spool (3) is held in the neutral or initial position by means of the return springs (4) (with the exception of impulse spools). The control spool (3) is actuated by wet pin solenoids (2). **To guarantee satisfactory operation, care should be taken to ensure that the solenoid pressure chamber is filled with oil.**

The force of the solenoid (2) acts via the plunger (5) on the control spool (3) and pushes this from its neutral position into the required end position. Thus the required flow direction of P to A and B to T or P to B and A to T is achieved.

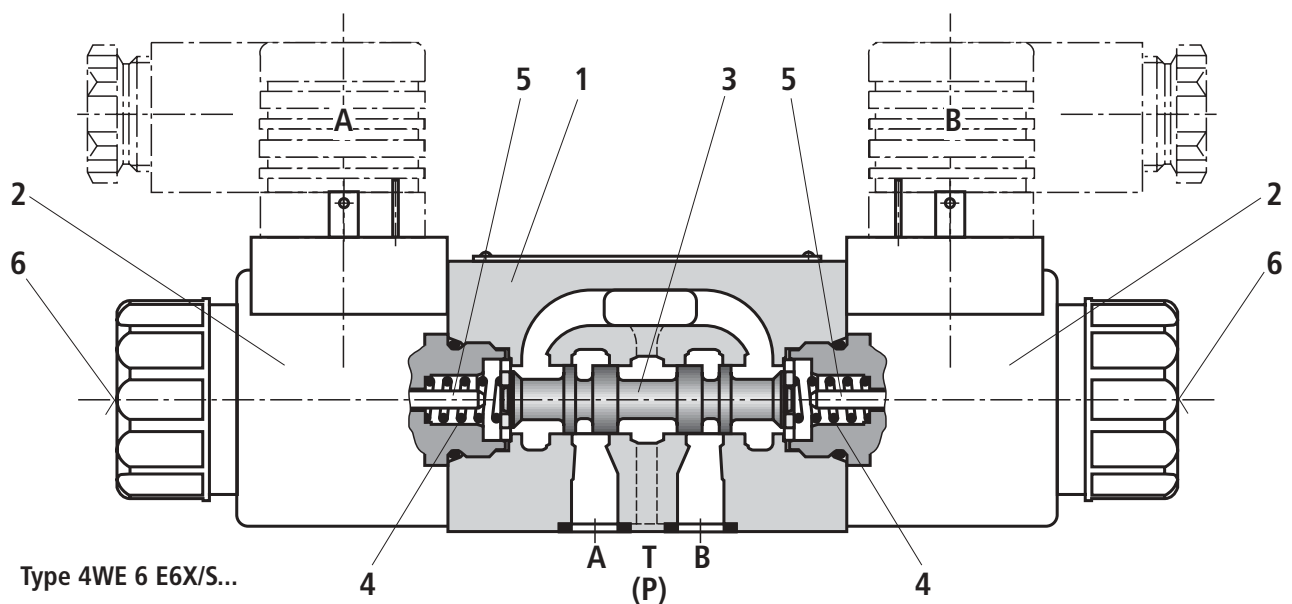
When solenoid (2) is de-energised, the control spool (3) is returned to its neutral position by means of return springs (4).

A hand override (6), optional, allows movement of the control spool (3) without energising the solenoid.

**Type 4WE 6 ..6X/OFS...** (impulse spool, only possible with symbol D)  
This version is a directional valve with 2 switched positions, 2 solenoids and a detent. Thus the relevant switched positions are alternatively fixed and continuous energisation of the solenoid is unnecessary.

**Note:**

**Pressure peaks in the tank line to two or more valves can, with valves with detents, lead to unintended spool movements! It is therefore, recommended that a separate tank line is used or that a check valve is fitted into the tank line.**



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

### General

Installation			Optional
Ambient temperature range	°C		– 30 to + 50 (NBR seals) – 20 to + 50 (FKM seals)
Weight	Valve with 1 solenoid	kg	1.2
	Valve with 2 solenoids	kg	1.4

### Hydraulic

Max. operating pressure	Ports A, B, P	bar	315
	Port T	bar	210 With symbol A, connection T must be used as a drain connection when the operating pressure lies above the permissible tank pressure.
Max. flow		L/min	60
Pressure fluid			Mineral oil (HL, HLP) to DIN 51 524 <sup>1)</sup> ; Fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil) <sup>1)</sup> ; HEPG (polyglycols) <sup>2)</sup> ; HEES (synthetic ester) <sup>2)</sup> ; Other pressure fluids on request
Pressure fluid temperature range		°C	– 30 to +80 (for NBR seals) – 20 to +80 (for FKM seals)
Viscosity range		mm <sup>2</sup> /s	2.8 to 500
Contamination with solid particles according to			Max. permissible degree of contamination of the hydraulic fluid ISO 4406 class 18/16/13 (for particle sizes 2/5/15 µm) <sup>4)</sup>

### Electrical

Voltage type			DC Hz
Available voltages		V	12, 24
Voltage tolerance (nominal voltage)		%	± 10
Power consumption		W	26
Holding power		VA	–
Switch-on power		VA	–
Duty			Continuous
Switching time	ON	ms	20 to 45
	OFF	ms	10 to 25
Max. switching frequency		cycles/h	Up to 15000
Protection to DIN 40 050			IP 65 with assembled and locked plug-in connector
Insulation class VDE 0580			F
Max. coil temperature <sup>3)</sup>		°C	150

<sup>1)</sup> Suitable for NBR **and** FKM seals

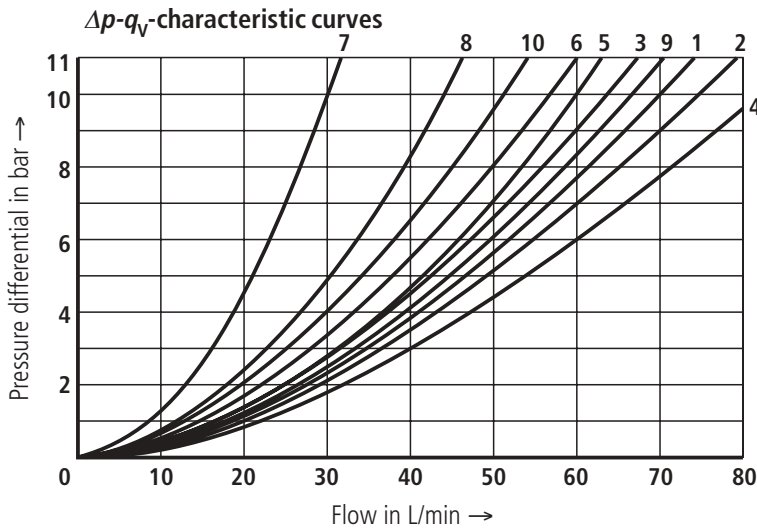
<sup>2)</sup> **Only** suitable for FKM seals

<sup>3)</sup> Due to the occurring surface temperatures of the solenoid coils, the European standards EN563 and EN982 must be taken into account!

<sup>4)</sup> The cleanliness classes specified for the components must be complied with 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 50 070, RE 50 076 and RE 50 081.

**With electrical connections the protective conductor (PE  $\downarrow$ ) must be connected according to the relevant regulations.**

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



- 7 Symbol "R" in the switched position B – A
- 8 Symbols "G" and "T" in the centre position P – T

Symbols	Flow direction			
	P – A	P – B	A – T	B – T
A, B	3	3	–	–
C	1	1	3	1
D, Y	5	5	3	3
E	3	3	1	1
F	1	3	1	1
T	10	10	9	9
H	2	4	2	2
J, Q	1	1	2	1
L	3	3	4	9
M	2	4	3	3
P	3	1	1	1
R	5	5	4	–
V	1	2	1	1
W	1	1	2	2
U	3	3	9	4
G	6	6	9	9

**Switching power limits** (measured with HLP46,  $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ )

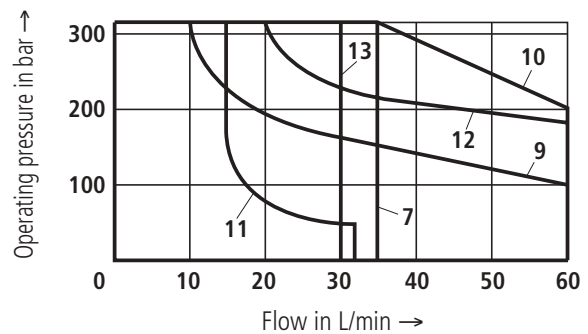
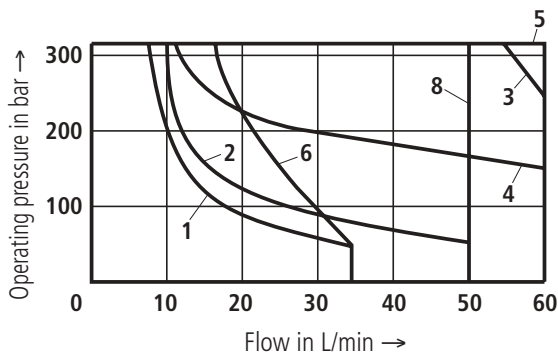
**⚠ Attention!**

The given switching power limits are valid for applications 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 valves the permissible switching power limit may be significantly lower if there is only one

direction of flow (e.g. from P to A and port B blocked!)  
(For such applications, please consult us.)

**The switching power limits were measured with the solenoids at operating temperature, 10% under voltage and without tank back pressure.**

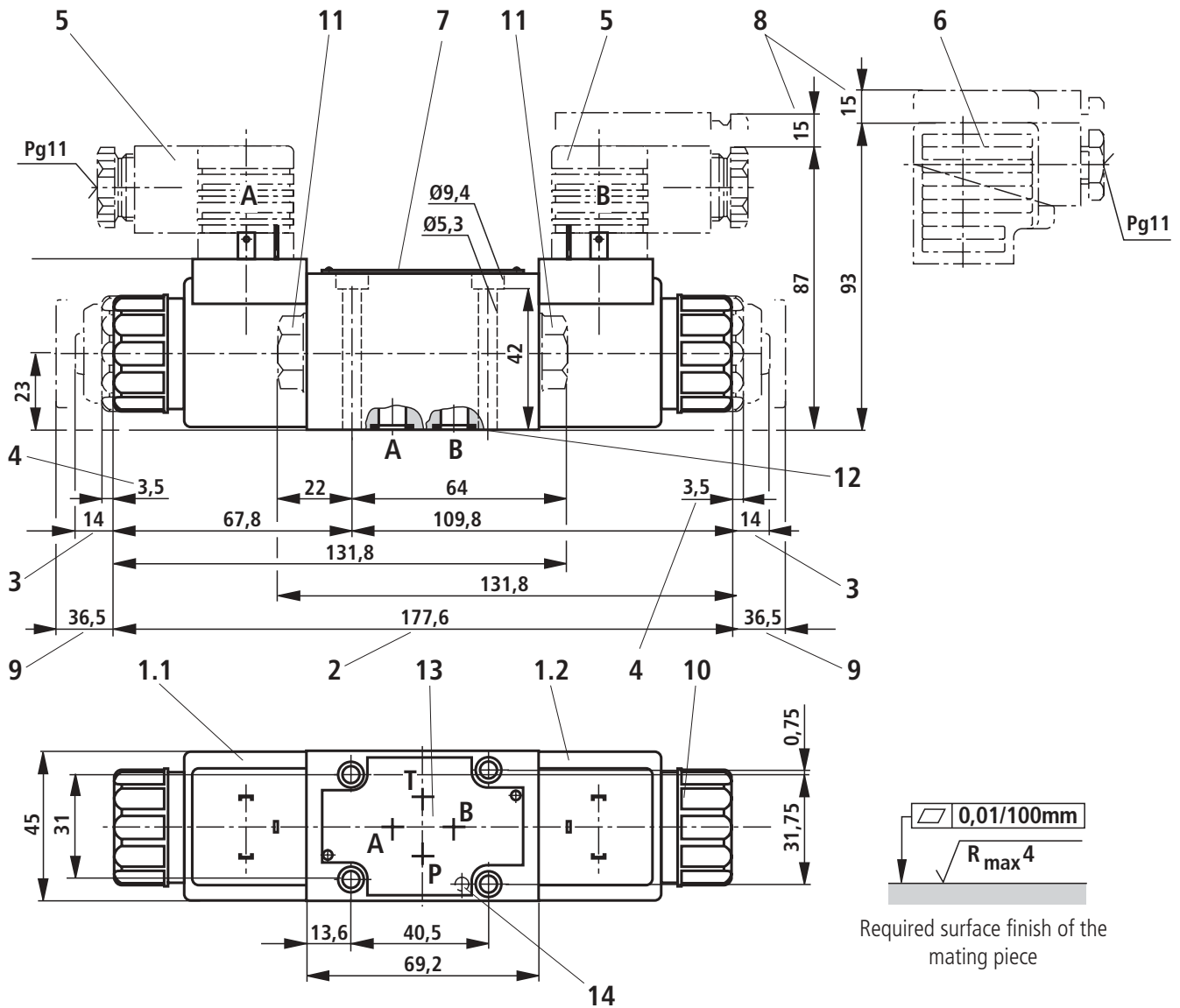


DC solenoids			
Char. curve	Symbol	Char. curve	Symbol
1	A, B <sup>1)</sup>	7	G
2	A, B	8	H
3	C, D, Y	9	J, L, Q, U, W
4	E	10	R <sup>2)</sup>
5	M, C/O	11	V
	D/O, C/OF	12	A/O, A/OF
	D/OF	13	T
6	F, P		

<sup>1)</sup> With hand override

<sup>2)</sup> Return from actuator to tank

## Unit dimensions (dimensions in mm)



- |  |  |  |
|--|--|--|
| <p><b>1.1</b> Solenoid "a"<br/> <b>1.2</b> Solenoid "b"<br/> <b>2</b> Dim. for solenoid <b>with protected</b> hand override "N9"<br/>         – The hand override can only be actuated up to a tank pressure of approx. 50 bar<br/>         Avoid damage to the hand override pin bore!<br/> <b>3</b> Dim. for solenoid <b>with</b> hand override „N“<br/> <b>4</b> Dim. for solenoid <b>without</b> hand override</p> | <p><b>5</b> Plug-in connector <b>without</b> circuitry <sup>1)</sup><br/> <b>6</b> Plug-in connector <b>with</b> circuitry <sup>1)</sup><br/> <b>7</b> Name plate<br/> <b>8</b> Space required to remove the plug-in connector<br/> <b>9</b> Space require to remove the coil<br/> <b>10</b> Securing nut, <math>M_A = 4</math> Nm<br/> <b>11</b> Plug for valve with one solenoid<br/> <b>12</b> Identical seal rings for ports A, B, P and T<br/> <b>13</b> Porting pattern to DIN 24 340 form A, <b>without</b> locating pin hole</p> | <p><b>14</b> Porting pattern to ISO 4401 and CETOP–RP 121 H <b>with</b> locating pin hole <math>\varnothing 3.5 \times 5</math> deep.<br/> <b>Subplates</b> G 341/01 (G 1/4)<br/>         (<b>without</b> locating pin hole) G 342/01 (G 3/8)<br/>         G 502/01 (G 1/2)<br/>         (<b>with</b> locating pin hole) G 341/60 (G 1/4)<br/>         G 342/60 (G 3/8)<br/>         G 502/60 (G 1/2)<br/>         to catalogue sheet RE 45 052 and<br/> <b>Valve fixing screws</b><br/>         M5 x 50 DIN 912-10.9, <math>M_A = 8.9</math> Nm,<br/>         must be ordered separately.</p> |
|--|--|--|

<sup>1)</sup> Must be ordered separately, see page 3

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