

RE 23 193/08.02

Replaces: 09.99

**4/2- and 4/3-way isolator valves
Type Z4WE 6**

Nominal size 6

Series 3X

Maximum operating pressure 315 bar

Maximum flow 40 L/min

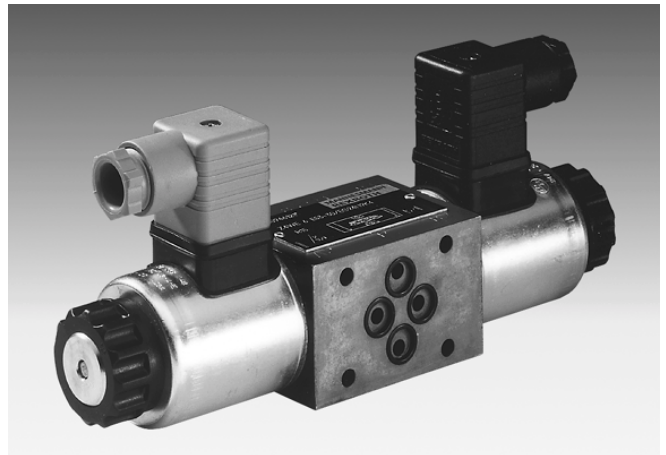
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Features

- Direct solenoid operated directional spool valve
- Sandwich plate valve
- For use as an isolator/free-flow valve or as an isolator/free-flow short circuit valve
- Free-flow through ports P and T in all switched positions
- 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 code **.../60** at the end of the valve type code) for subplates see catalogue sheet RE 45 052 (separate order)
- Wet pin AC or DC solenoids
- Hand override, optional
- Inductive limit switch

The contactless, inductive limit switch with integrated switching amplifier switch's shortly before reaching the switched position which is to be monitored. A binary signal indicates when the switched position has been reached.



HA5959/98

Type Z4WE 6 E53-3X/EG24N9K4 with plug-in connectors (separate order)

The advantages of an inductive switch are:

- Direct monitoring of the switched position at the control spool
- Exact adjustment is possible externally
- Long service life
- Very reliable as no dynamic seals are used
- The reaction time of the switch when actuated is approx. 15 ms.
- The switching times as stated on page 4 to ISO 6403 do **not** relate to the reaction time of the limit switches (the time for the signal change at the solenoid until the signal changes at the limit switch).

Time sensing mechanisms should be set to a minimum of 80 to 100 ms.



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Ordering details

Z4WE	6	-3X / E			K4			*
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Nominal size 6

= 6

Symbol e.g. E68; E63; ...
for possible designs see page 3

Series 30 to 39

= 3X

(30 to 39: unchanged installation and connection dimensions)

High performance solenoid (wet pin)

= E

24 V DC

= G24

230 V AC 50/60 Hz

= W230

205 V DC

= G205 ¹⁾

With protected hand override (standard)

= N9

With hand override

= N

Without hand override

= No code

AC supply (permissible voltage tolerance ± 10%)	Nominal voltage of the DC solenoid when used with an AC supply	Ordering details
110 V - 50/60 Hz	96 V	G96
230 V - 50/60 Hz	205 V	G205

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

Further details in clear text

No code = Without locating pin hole
.../60 ⁴⁾ = **With** locating pin hole

No code =

NBR seals

V =

FKM seals

(other seals on request)

⚠ Attention!

The compatibility of the seals and pressure fluid has to be taken into account!

Accessories ³⁾

Inductive limit switch, see page 8 and catalogue sheet RE 24 830

No code =

Without limit switch

QMAG24 = Switched position „a“ monitored

QMBG24 = Switched position „b“ monitored

Electrical connection

K4 ²⁾ =

Without plug-in connector

with component plug DIN EN 175 301-803

¹⁾ When connecting to an AC supply a DC solenoid **must** be used which is controlled via a rectifier (see table left).

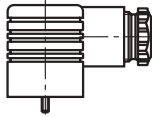
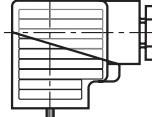
The electrical control is via a plug-in connector with built-in rectifier (separate order, see below).

²⁾ Plug-in connector must be ordered separately (see below).

³⁾ Limit switch only available on valve side A (with the exception of symbol "E53").

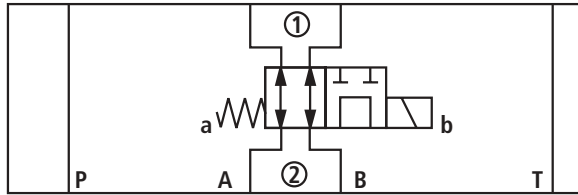
⁴⁾ Locating pin 3 x 8 DIN EN ISO 8752, Material No. **00005694** (separate order)

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

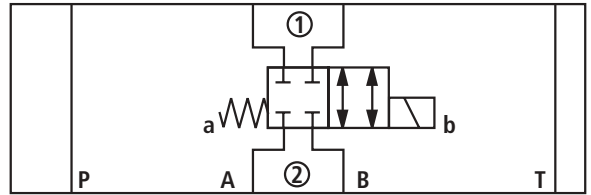
For further plug-in connectors see RE 08 006				Material No.	
Valve side	Colour	Without circuitry	With indicator light 12 ... 240 V	With rectifier 12 ... 240 V	With indicator light and Z-diode protective circuit 24 V
a	Grey	00074683	–	–	–
b	Black	00074684	–	–	–
a/b	Black	–	00057292	00313933	00310995

Symbols (① = component side, ② = subplate side)

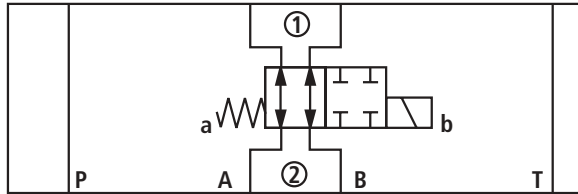
D24



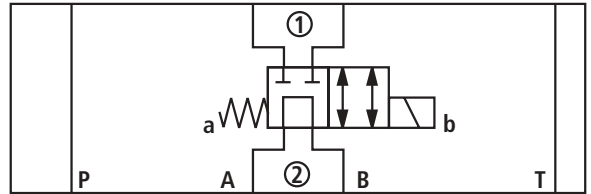
E63



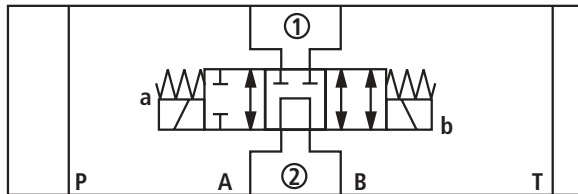
E51



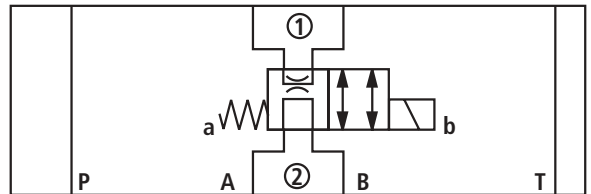
E68



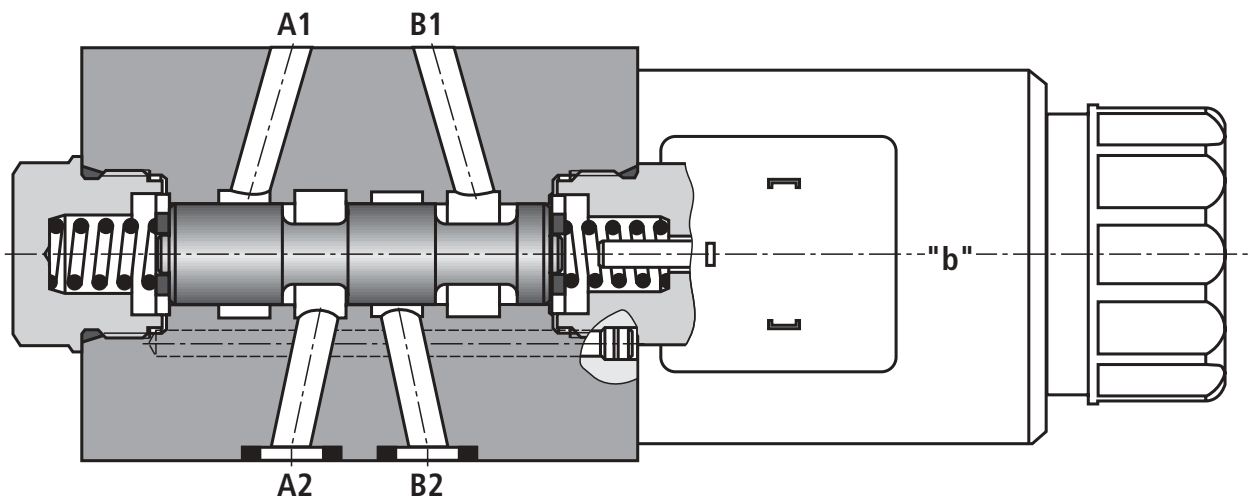
E53



E137



Section



Type Z4WE 6 E63-3X/EG24N9K4

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	1.6

Hydraulic

Max. operating pressure	Ports P, A, B	bar	315
	Port T	bar	210 for DC voltages; 160 for AC voltages
Max. flow		L/min	40
Pressure fluid			Mineral oil (HL, HLP) to DIN 51 524 ¹⁾ ; Fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil) ¹⁾ ; HEPG (polyglycols) ²⁾ ; HEES (synthetic ester) ²⁾ ; 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 ² /s	2.8 to 500
Degree of contamination			Maximum permissible degree of contamination of the pressure fluid is to NAS 1638, class 9. We therefore recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.

Electrical

Voltage type		DC	AC 50/60 Hz
Available voltages ³⁾	V	12, 24, 96, 205	110, 230
Power consumption (DC)	W	30	–
Holding power (AC)	VA	–	50
Switch-on power (AC)	VA	–	220
Voltage tolerance (nominal voltage)	%	±10	±10
Duty		Continuous	Continuous
Switching time	ON	ms	20 to 45
	OFF	ms	10 to 25
Max. coil temperature ⁴⁾	°C	150	180
Switching frequency	1/h	Up to 15000	Up to 7200
Protection to DIN 40 050 ⁵⁾		IP 65	IP 65

¹⁾ Suitable for NBR **and** FKM seals

²⁾ **Only** suitable for FKM seals

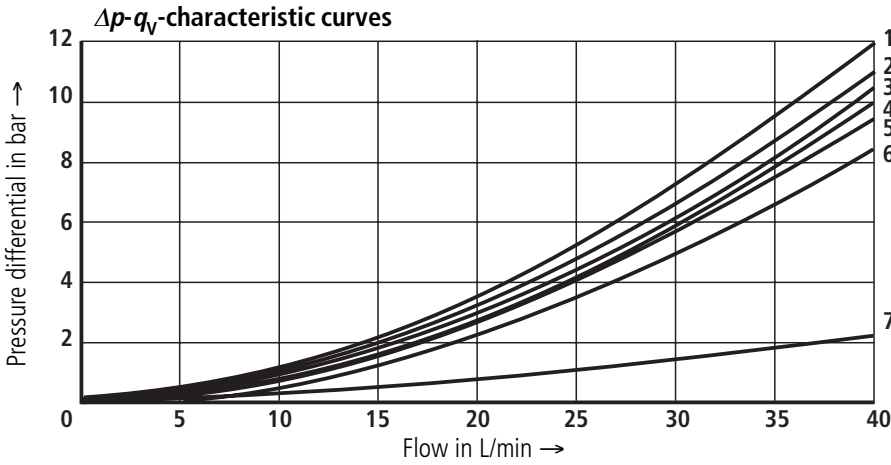
³⁾ Other voltages on request

⁴⁾ Due to the surface temperatures which occur on the solenoid coil, the European standards EN563 and EN982 must be taken into account!

⁵⁾ With fitted and locked plug-in connector

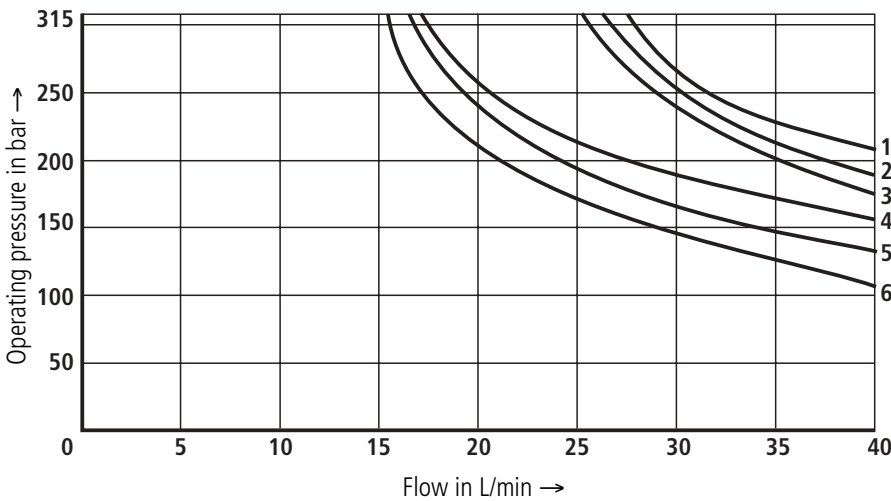
When connecting the electrics, the protective conductor (PE $\frac{1}{2}$) must be corrected according to the relevant regulations.

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



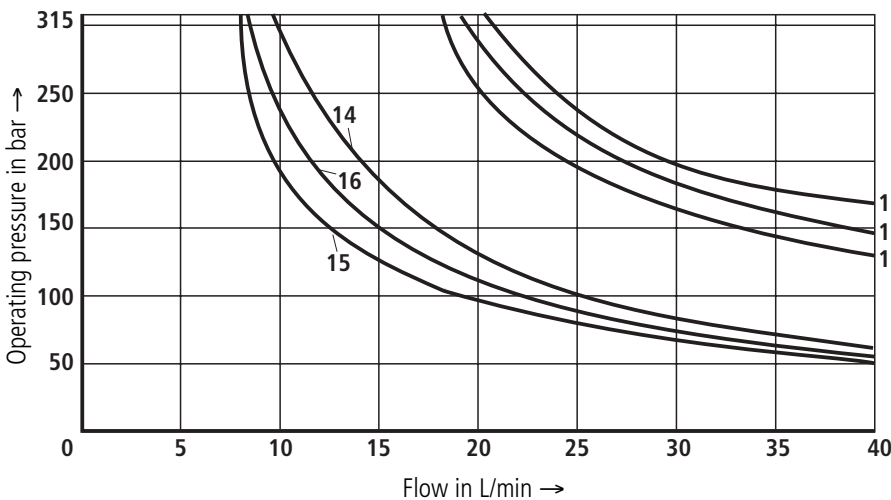
	A2-A1	A1-A2	B2-B1	B1-B2	A2-B2	B2-A2	T2-T1	P2-P1
D24	4	1	2	4	3	2	7	7
E51	3	1	1	3	-	-	7	7
E53	2	2	2	2	5	2	7	7
E63	2	5	5	3	-	-	7	7
E68	4	4	6	5	4	5	7	7
E137	1	4	3	2	5	6	7	7

Performance limits (measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ and 24 V DC)

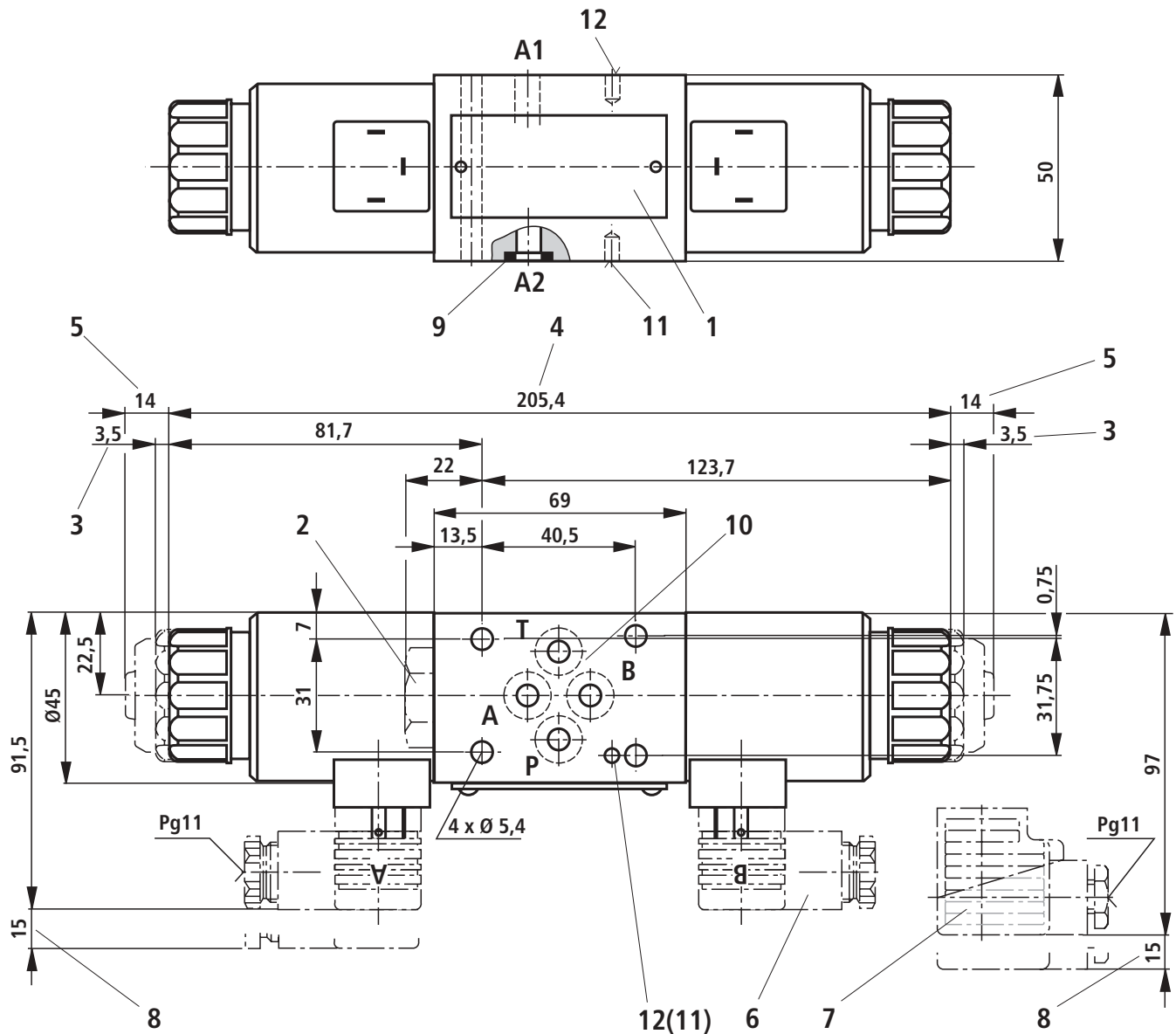


- 1 E63
- 2 E68
- 3 E53
- 4 E51
- 5 E137
- 6 D24

Performance limits (measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ and 230 V AC)



	W230-50Hz	W230-60Hz
E63	11	14
E68	12	16
E53	13	16
E137	15	15
E51	15	15
D24	15	15



- 1 Name plate
- 2 Plug for valves with one solenoid
- 3 Dim. for valves **without** hand override
- 4 Dim. for solenoid **with protected** hand override „N9“
– Actuation of the hand override is only possible up to a max. tank pressure of 50 bar!
Avoid damage to the hand override pin bore!
- 5 Dim. for valve **with** hand override „N“
- 6 Plug-in connector **without** circuitry¹⁾
- 7 Plug-in connector **with** circuitry¹⁾
- 8 Space required to remove the plug-in connector

- 9 Identical seal rings for A2, B2, P2, T2
- 10 Porting pattern to DIN 24 340 form A, **without** locating pin hole (standard)
- 11 Porting pattern to ISO 4401 and CETOP-RP 121 H **with** locating pin hole
- 12 Porting pattern to ISO 4401 and CETOP-RP 121 H **with** locating pin hole Ø 4 x 4 deep

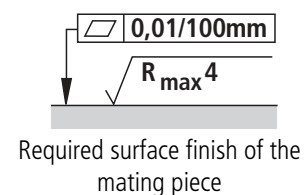
Subplates

(Without locating pin hole)	G 341/01 (G 1/4)
	G 342/01 (G 3/8)
	G 502/01 (G 1/2)
(With locating pin hole)	G 341/60 (G 1/4)
	G 342/60 (G 3/8)
	G 502/60 (G 1/2)

to catalogue sheet RE 45 052 and

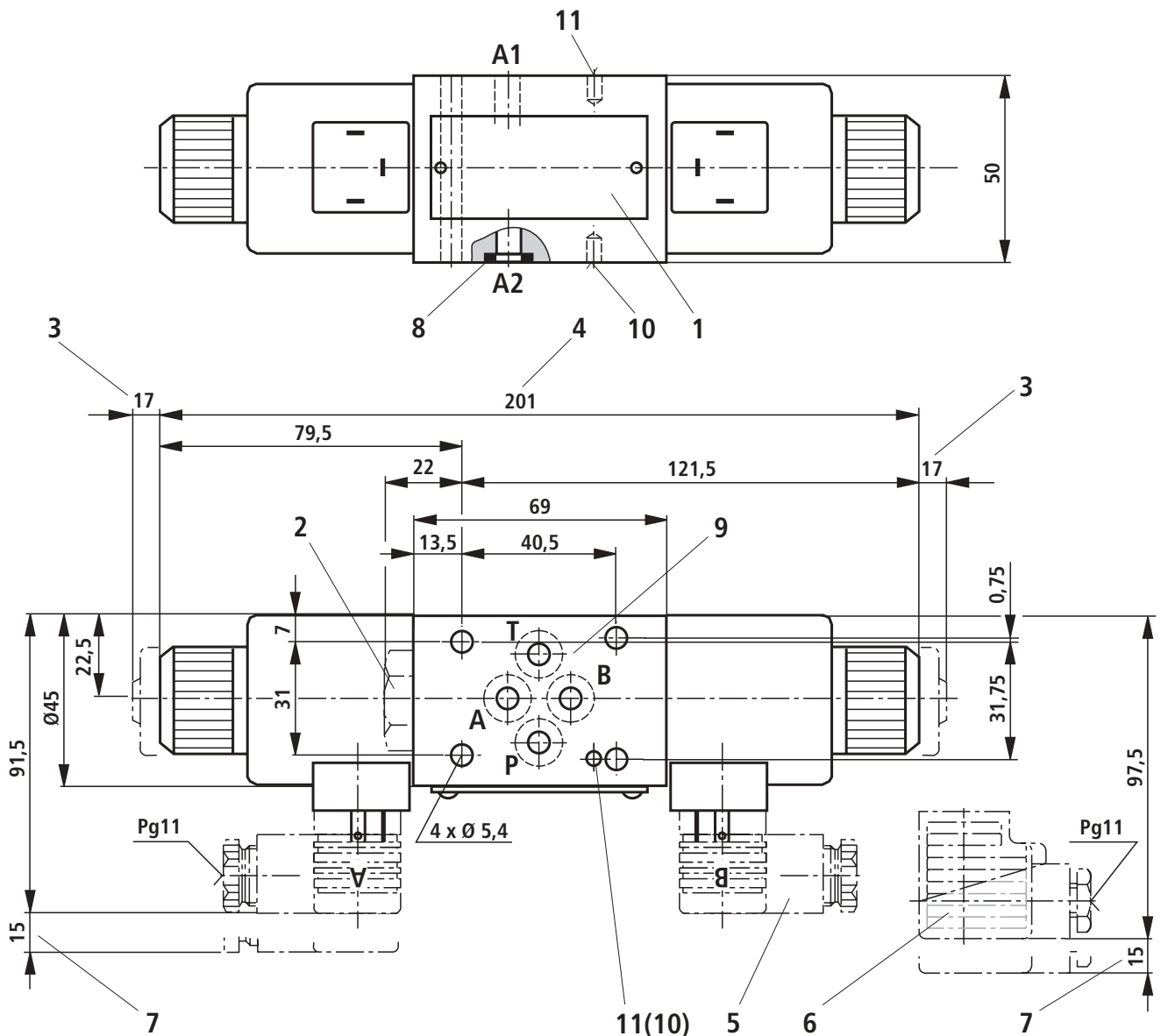
Valve fixing screws

M5 DIN 912–10.9, $M_A = 8.9$ Nm
must be ordered separately.



¹⁾ Must be ordered separately, see page 2.

Unit dimensions: AC (dimensions in mm)



- 1 Name plate
- 2 Plug for valves with one solenoid
- 3 Dim. for valves **with** hand override, „N“
- 4 Dim. for solenoid **with protected** hand override „N9“ and **without** hand override
 - Actuation of the hand override is only possible up to a max. tank pressure of 50 bar!

Avoid damage to the hand override pin bore!

- 5 Plug-in connector **without** circuitry ¹⁾
- 6 Plug-in connector **with** circuitry ¹⁾
- 7 Space required to remove the plug-in connector

- 8 Identical seal rings for A2, B2, P2, T2
- 9 Porting pattern to DIN 24 340 form A, **without** locating pin hole (standard)
- 10 Porting pattern to ISO 4401 and CETOP-RP 121 H **with** locating pin hole
- 11 Porting pattern to ISO 4401 and CETOP-RP 121 H **with** locating pin hole $\varnothing 4 \times 4$ deep

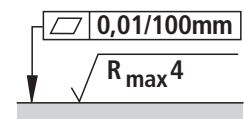
Subplates

(Without	G 341/01 (G 1/4)
locating pin hole)	G 342/01 (G 3/8)
	G 502/01 (G 1/2)
(With	G 341/60 (G 1/4)
locating pin hole)	G 342/60 (G 3/8)
	G 502/60 (G 1/2)

to catalogue sheet RE 45 052 and

Valve fixing screws

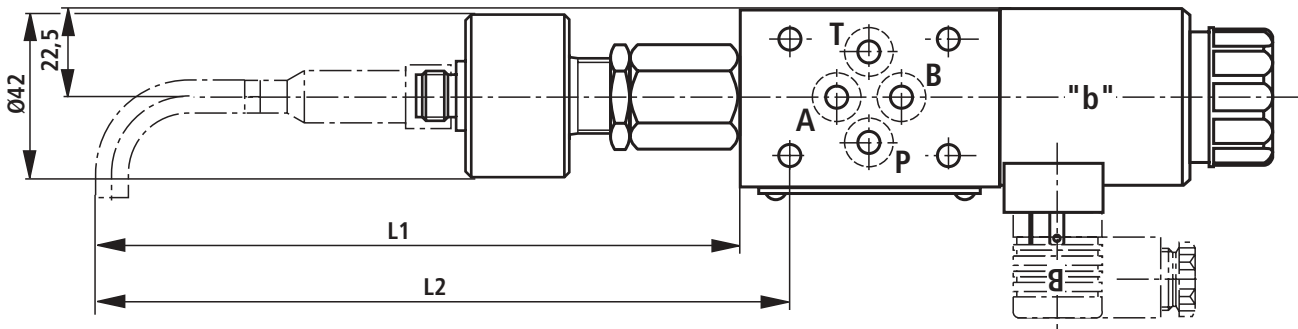
M5 DIN 912–10.9, $M_A = 8.9$ Nm must be ordered separately.



Required surface finish of the mating piece

¹⁾ Must be ordered separately, see page 2.

Accessories: inductive limit switch type QM, mounting possibilities (dimensions in mm)



Not available for spool symbol „E53“!

Dim. L1 (with plug-in connector, 10 mm withdrawal space and min. bend radius for the connection cable). For plug-in connectors see RE 08 006.

	L1	L2
Plug-in connector straight Material No. 00031155	186	200
Plug-in connector angled Material No. 00082899	117	131
Plug-in connector moulded onto the cable Material No. 00064381	156	170

Inductive limit switch type QM, electrical connection

The electrical connection is via a 4-pin plug-in connector with a M12 x 1 connection thread.

The plug-in connector must be ordered separately (see below).

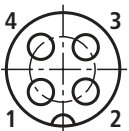
Operating voltage: 24 V DC + 20 %
- 10 %
(residual ripple ≤ 10%)

Power consumption: Max. 40 mA

Outputs: Pulse switching, load between the output and 0 V

Loading capacity of the outputs: Max. 400 mA (output at PNP 24 V ⇒)

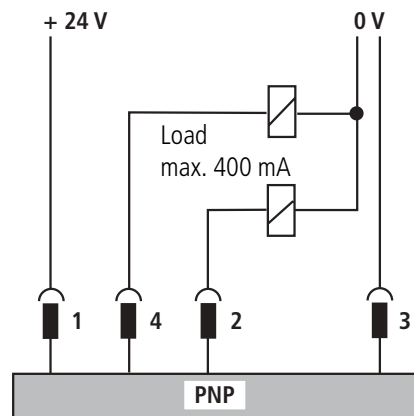
- Contact allocation:**
- 1: +24V
 - 2: Switch output X1:
The switch output X1 is opened during damping (high resistance condition) and closed when the damping is deactivated (low resistance condition)
 - 3: 0 V
 - 4: Switch output X2:
The switch output X2 is closed during damping (low resistance condition) and opened when the damping is deactivated (high resistance condition)



Plug contact on the limit switch

According to the switched position to be monitored the switching outputs X1 and X2 have the following functions:

Actuator on connection side	Monitored switched position	Limit switch damped	Limit switch un-damped	Switch output X1	Switch output X2
"b"	QMA		X	N/O	N/C
	QMB	X		N/C	N/O



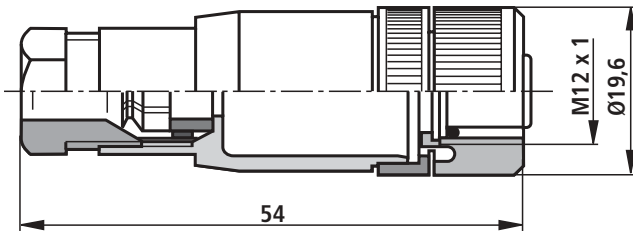
The inductive limit switch type QM may be connected as a normally open or normally closed contact.

The limit switch does not have an earth connection!

Plug-in connector for inductive limit switch type QM (dimensions in mm)

Plug-in connector suitable for K24 4-pin, M12 x 1 with screw connection, cable conduit fitted connection Pg 9.

Material No. 00031155



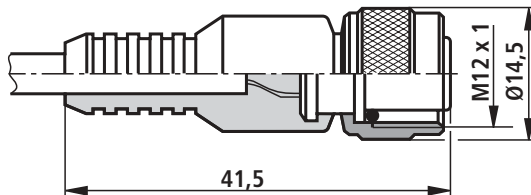
Plug-in connector suitable for K24-3m 4-pin, M12 x 1 moulded PVC cable, 3m long.

Wire cross-section: 4 x 0.34 mm²

Core marking:

- 1: Brown
- 2: White
- 3: Blue
- 4: Black

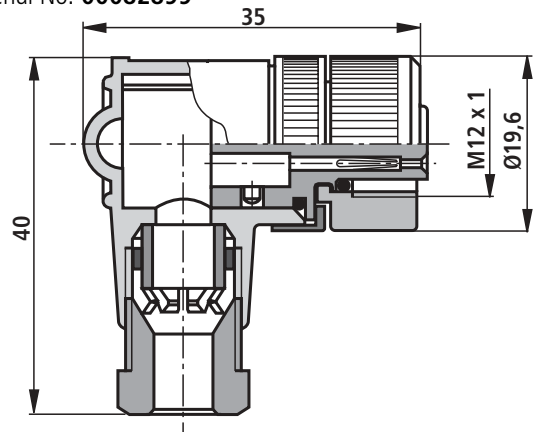
Material No. 00064381



Plug-in connector suitable for K24 4-pin, M12 x 1 with screw connection, cable conduit fitted connection Pg 9, angled.

Housing with relation to the contact set can be rotated through 4 x 90°.

Material No. 00082899



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