



**Electric rotary single-revolution  
actuators for ball and flap  
valves**

**MODACT MOKED**

**Type numbers 52 325 - 52 329**



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ZPA Pečky, a.s. is certified company in accordance with ISO 90001 as amended.

# 1. APPLICATION

The actuators **MODACT MOKED** are designed for shifting control elements by a reversible rotary motion with the turning angle of the output part 90°, including cases when tight closure in end positions is required. Typical example of using is control of ball and flap valves in similar installations in the regime of remote control as well as automatic regulation. The electric actuators **MODACT MOKED** are mounted directly on the controlled element.

# 2. OPERATING CONDITIONS, OPERATING POSITION

## Operating conditions

The actuators **MODACT MOKED** are resistant against effect of operating conditions and external effects of classes AC1, AD5, AD7, AE5, AE6, AF2, AG2, AH2, AK2, AL2, AM-2-2, AN2, AP3, BA4 and BC3 according to ČSN 33 2000-5-51 ed. 3.

When the actuator is installed on a free area it is recommended to fit it with a light shelter against direct impact of atmospheric effects. The shelter should overlap the actuator contour by at least 10 cm at the height of 20 – 30 cm.

When actuators are to be installed in the working environment with temperature below +10 °C and in the environment with relative humidity above 80 %, it is always necessary to use an anti-condensation heater fitted to the actuator.

The electric actuators can be installed in areas with non-flammable and non-conductive dust, provided that this does not adversely influence their function. Here, it is necessary to strictly observe ČSN 34 3205. It is recommended to remove dust as soon as its layer is about 1 mm thick.

### Notes:

*The area under a shelter means the one where falling of atmospheric precipitations under and angle up to 60° from the vertical is prevented.*

*The electric actuator must be installed in a place where cooling air has a free access. Minimum distance from a wall for access of air is 40 mm. Therefore, the area where the electric actuator is installed must be sufficiently large, clean and ventilated.*

## Surrounding temperature

Operating temperature for the **MODACT MOKED** is from -40 °C to +60 °C.

## Classes of external effects – excerpt from ČSN 33 2000-5-51 ed. 3.

### Class:

- 1) AC1 – elevation above sea level  $\leq 2000$  m
- 2) AD5 – spouting water; water can spout in any direction  
AD7 – water occurrence – shallow dipping
- 3) AE5 – medium dustiness  
AE6 – strong dustiness
- 4) AF2 – occurrence of corrosive or polluting substances from atmosphere. Presence of corrosive polluting substances is significant.
- 5) AG2 – medium mechanical stress by impacts – common industrial processes
- 6) AH2 – medium mechanical stress by vibrations – common industrial processes
- 7) AK2 – serious risk of growth of vegetation and moulds
- 8) AL2 – serious danger of the occurrence of animals (*insects, birds, small animals*)
- 9) AM-2-2 – normal level of the signal voltage. No additional requirements
- 10) AN2 – medium solar radiation with intensities  $> 500 \text{ W/m}^2$  and  $\leq 700 \text{ W/m}^2$
- 11) AP3 – medium seismic effects; acceleration  $> 300 \text{ Gal}$   $\leq 600 \text{ Gal}$
- 12) BA4 – personal abilities. Instructed people.
- 13) BC3 – frequent contact with the earth potential. Persons coming frequently into contact with “live” parts or standing on a conducting base.

## Corrosion protection

Actuators are standardly delivered with surface treatment corresponding to category of corrosion aggressiveness C1, C2 and C3 according to ČSN EN ISO 12944-2.

On customer's request is possible to do surface treatment corresponding to category of corrosion aggressiveness C4, C5-I and C5-M.

In following table is provided and overview of environment for each categories of corrosion aggressiveness according to ČSN EN ISO 12944-2.

Corrosion aggressiveness level	Example of typical environment	
	Outdoor	Indoor
<b>C1</b> (very low)		Heated buildings with clean atmosphere e.g. offices, shops, schools, hotels.
<b>C2</b> (low)	Atmosphere with low level of pollution. Mostly outdoor areas.	Unheated buildings, in which may occur condensation, e.g. stocks, sports halls.
<b>C3</b> (middle)	Urban industrial atmospheres, mild pollution of sulfur dioxide. Seaside areas with middle salinity.	Production areas with high humidity and low air pollution, e.g. food industry, processing factories, breweries.
<b>C4</b> (high)	Industrial areas and seaside areas with middle salinity.	Chemical plants, swimming pools, seaside shipyard.
<b>C5-I</b> (very high – industrial)	Industrial areas with high humidity and aggressive atmosphere.	Buildings or areas with predominantly continuous condensation and high air pollution.
<b>C5-M</b> (very high – seaside)	Seaside areas with high salinity.	Buildings or areas with predominantly continuous condensation and high air pollution.

## Operating position

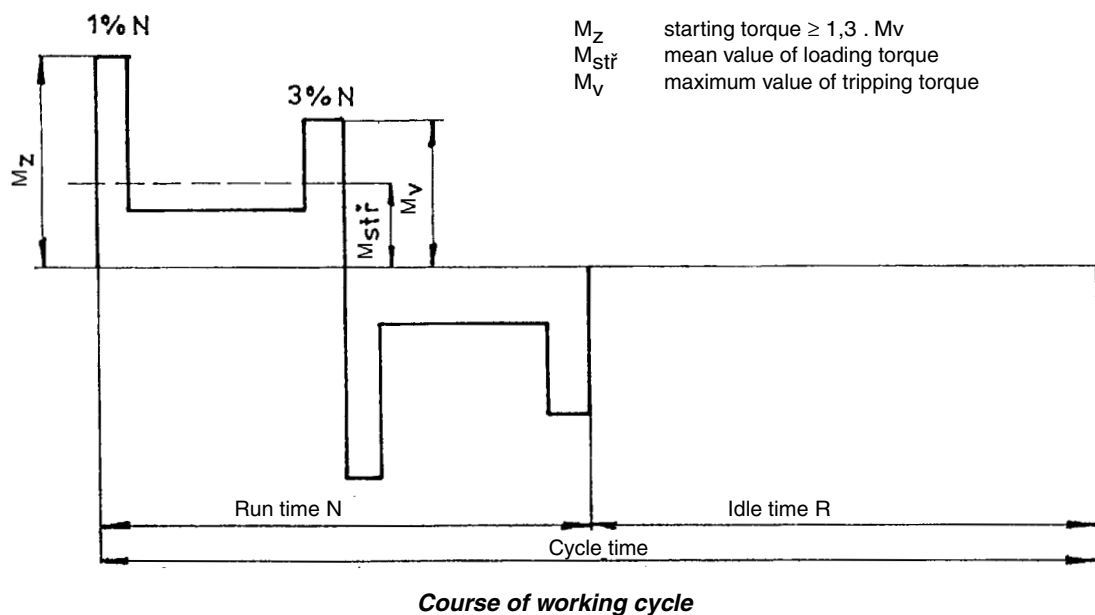
The actuators can be operated in any operating position.

## 3. OPERATION MODE, SERVICE LIFE OF ACTUATORS

### Operation mode

The actuators can be operated with the type of loading S2 according to ČSN EN 60 034-1. The run period at temperature +50 °C is 10 minutes; the mean value of loading torque should not exceed 60 % of the value of maximum tripping torque  $M_V$ . The actuators can also work in the regime S4 (*interrupted run with start-up*) according to ČSN EN 60 034-1. Load factor  $N/N+R$  is max. 25 %; the longest working cycle ( $N+R$ ) is 10 minutes (*course of working cycle is shown in the figure*). The highest number of closing operations in automatic regulation is 1200 cycles per hour. Mean value of loading torque with load factor 25 % and surrounding temperature +50 °C is not higher than 40 % of maximum tripping torque  $M_V$ .

The highest mean value of loading torque is equal to rated torque of the actuator.



## Service life of actuators

The actuator intended for shut-off valves must be able to perform at least 10,000 operating cycles (C - O - C).

The actuator intended for regulating purposes must be able to perform at least 1 million cycles with operation time (*during which the output shaft is moving*) at least 250 hours. Service life in operating hours (*h*) depends on load and number of switching. Not always, high frequency of switching influences positively accuracy of regulation. For attaining the longest possible faultless period and service life, frequency of switching is recommended to be set to the lowest number of switching necessary for the given process. Orientation data of service life derived from the set regulation parameters are shown in the following table.

Service life of actuators for 1 million starts

Service life [h]	830	1 000	2 000	4 000
Number of starts [1/h]	Max. number of starts 1200	1 000	500	250

## 4. TECHNICAL DATA

### Supply voltage of electric motor:

According to Table 1

1 x 230 V, +10 %, -15 %, 50 Hz  $\pm$ 2 %  
3 x 230/400V, +10 %, -15 %, 50 Hz  $\pm$ 2 %  
(*or as shown on the motor rating plate*)

Other supply voltage for electric actuators should be discussed with the manufacturer.

### Protective enclosure

Protective enclosure of actuators: **MODACT MOKED** – IP 67 according to ČSN EN 60529.

### Noise

Level of acoustic pressure A max. 85 dB (A)  
Level of acoustic output A max. 95 dB (A)

### Tripping torque

Tripping torque is set at the manufacturer according to the customer's requirements within the range given in Table No. 1. If setting of tripping torque is not required maximum tripping torque of the required type number of the electric actuator is set.

### Self-locking

The actuators are self-locking. Self-locking of the electric actuators is ensured by a mechanical or electromagnetic brake of the electric motor.

### Sense of rotation

When looking at the output shaft in the direction towards the control box, the CLOSE direction of rotation is identical with the clockwise sense.

### Working stroke

Rated working stroke of electric actuator is 90°.

### Manual control

Manual control is performed directly by a handwheel (*without clutch*). It can be used even when the electric motor is running (*the resulting motion of the output shaft is determined by the function of the differential gear*). When the handwheel is rotated clockwise the output shaft of the actuator also rotates clockwise (*when looking at the shaft towards the control box*). On condition that the valve nut is provided with left-hand thread, the actuator closes the valve.

**Torque-limit switches in the actuator are set and work when the actuator is under voltage.**

**When using the manual control, ie. actuator is controlled mechanically, the torque-limit switches doesn't work and the valve can be damaged.**

## 5. ACTUATOR OUTFIT

### Position indicator

The actuator can be fitted with a display as an option for **DMS2 ED** electronic system. Actuator with **DMS2** electronic system is equipped with two-line display. **MOKED** actuator is fitted with a mechanical local position indicator.

### Anti-condensation heater

The actuators are fitted with an anti-condensation heater preventing condensation of water vapour. Connects to net with voltage of 230 V mains and is connected to a thermostat.

### Local control

The local control is used to control the actuator from the installation site.

Local control, when equipped with an actuator, consists of two switches. One chooses between LOCAL mode – 0 – REMOTE and the other between OPEN – STOP – CLOSE.

## 6. ELECTRIC PARAMETERS

### External electric connection

The terminal board of the actuator is fitted with terminals allowing one copper or aluminium conductor with a maximum cross-section of 2.5 mm<sup>2</sup> or two conductors with the same cross-sectional area up to 1 mm<sup>2</sup> to be connected.

Connecting of actuators with connector – on special request.

### Actuator internal wiring

The internal wiring diagrams of the **MODACT MOKED** actuators with terminal designation are shown in this Catalogue.

Each actuator is provided with its internal wiring diagram on the inner side of the actuator cover. The terminals are marked on a self-adhesive label attached to a carrying strip under the terminal block.

### Isolation resistance

Isolation resistance of electric control circuits against the frame and against each other is min. 20 MΩ. After a dump test, isolation resistance of control circuits is min. 2 MΩ. See Technical specifications for more details.

### Overheating protection of electric motor

All electric motors have thermal fuses in their winding. They serve as an additional protection; they do not substitute the overcurrent protection or circuit breaking.

The fuses of single-phase electric motors are internally interconnected with the winding and, in case of overheating, they cut out the electric motor; after cooling down, they cut it in automatically.

The fuses of three-phase electric motors are separately led out and they can be connected into control or signalling circuits. They are connected to the actuator terminal board as a standard for MOKED 63 (*type no. 52 325*) only.

Load-bearing capacity is 250 V AC / 2.5 A.

### Electric strength of electric circuits isolation

Circuits of anti-condensation heater		1 500 V, 50 Hz
Electric motor	Un = 1 x 230 V	1 500 V, 50 Hz
	Un = 3 x 230/400 V	1 800 V, 50 Hz

### Deviations of basic parameters

Tripping torque		±15 % of max. tripping torque
Shifting time of output shaft		+10 % of rated value - 15 %
Setting of working stroke		±1°
Clearance at output part	type no. 52 325, 52 326, 52 328	max. 1,5°
	type no. 52 327, 52 329	max. 2,5°

## Protection

The electric actuators are fitted with external and internal protecting terminal for securing protection against dangerous shock voltage.

The protecting terminals are marked according to ČSN IEC 417 (34 5555).

**The actuator must be properly secured against both overload and short circuit.**

## 7. ELECTRONIC OUTFIT

Electro-mechanical control board is replaced with the electronic system **DMS2** or **DMS2 ED**. Both systems scan position of the output shaft and torque of the electric actuator by contact-free magnetic sensors. Long service life is guaranteed for the contact-free sensors that do not get mechanically worn.

The sensor of the output shaft position is absolute and does not require any backup power supply in case supply voltage is disconnected during operation of the electric actuator. Both systems can be set and monitored by a computer with controlling program (*set parameter can be backed up on a computer*) or manually without a computer (*for the electronics **DMS2**, parameters can be manually set and it can be checked without computer only if the system is equipped with a display and local control*). They contain diagnostic functions - error messages on the display, memory of recent failures and number of occurrences of respective failures.

The more simple system **DMS2 ED** substitutes the electro-mechanical board and/or provides for controlling the electric actuator by input analog signal as in the version Control.

The system **DMS2** enables the electric actuator to be used for two-position and three-position regulation or to be connected to the industrial bus bar Profibus.

### DMS2 ED

#### Basic outfit:

Control unit	main part of the system DMS2.ED - includes microcomputer, position sensor, 3 signal lamps LED, 4 push-buttons for simple setting and checking the actuator, connectors for connecting the torque sensor, source board, and interface RS 232 ( <i>connection of computer for setting and diagnostics</i> ).
Torque unit	
Source unit	electronic power supply, user's terminal board ( <i>connection of power supply and control signals</i> ), 2 torque relays, 2 position relays, 2 signalling relays, 1 relay for signalling errors ( <i>READY</i> ), switch of resistance anti-condensation heater, connectors for connecting electronic brake, resistance heater of analog module, and connector for interconnection with the control unit.

#### Optional outfit:

Analog module	output of feed-back signal 4 – 20 mA, in version CONTROL input of control signal 0/4 – 20 mA
Position indicator	LED display
Local control	
Contactors	
Phase failure monitoring module	This module is connected to all three power phases. If any outage occurs phase, the module stops the actuator. Outwardly, this stop will appear as an impulse thermal protection.

#### Parameters:

Scanning of position	contact-less, magnetic
Scanning of torque	contact-less, magnetic
Working stroke	see Tables 1, 2
Torque blocking	0 – 20 s at reversing in limit positions
Input signal	0(4) – 20 mA with switched on regulator function Local/Remote control, Local open/close
Output signal	7 x relay 250 V AC, 3 A ( <i>MO, MZ, PO, PZ, SO, SZ, READY</i> ) Position signal 4 – 20 mA max. 500 Ω, active/passive, galvanic-isolated, LED display
Power supply of electronic	230 V AC, 50 Hz, 4 W, over-voltage category II

**Realization:**

**Replacement of electric-mechanical board**

the provided relay contacts substitute position, torque and signalling micro-switches; current feed-back signal 4 – 20 mA can also be brought out; the actuator is controlled by the superior control system with signals “*open*” and “*close*”.

**CONTROL**

The electronics covers also function of the regulator; the output shaft position is controlled by analog input signal.

**DMS2**

**Basic outfit:**

Control unit

It also includes a sensor of the output shaft position, 2 signal LED.

Torque-limit unit

Source unit

It contains:

**2 relays** for electric motor control;

**Relay Ready** with change-over contact connected to the terminal board;

**Signalling relays 1 – 4** with one pole of the switching contact connected to the terminal board;

Second poles of the switching contacts of relays 1 – 4 are interconnected and brought out to the terminal COM.

Heating resistor switched by a thermostat is connected to the unit.

The unit controls power switches of the electric motor (*contactor or contact-less switching*).

Unit of display

Two-row display, 2 x 12 alpha-numeric characters.

Unit of push-buttons

Sensors of push-buttons “*Open*”, “*Close*”, “*Stop*” and selector switch “*Local*”, “*Remote*”, “*Stop*”.

**Optional outfit** (*the electric actuator must be fitted with one of these units*):

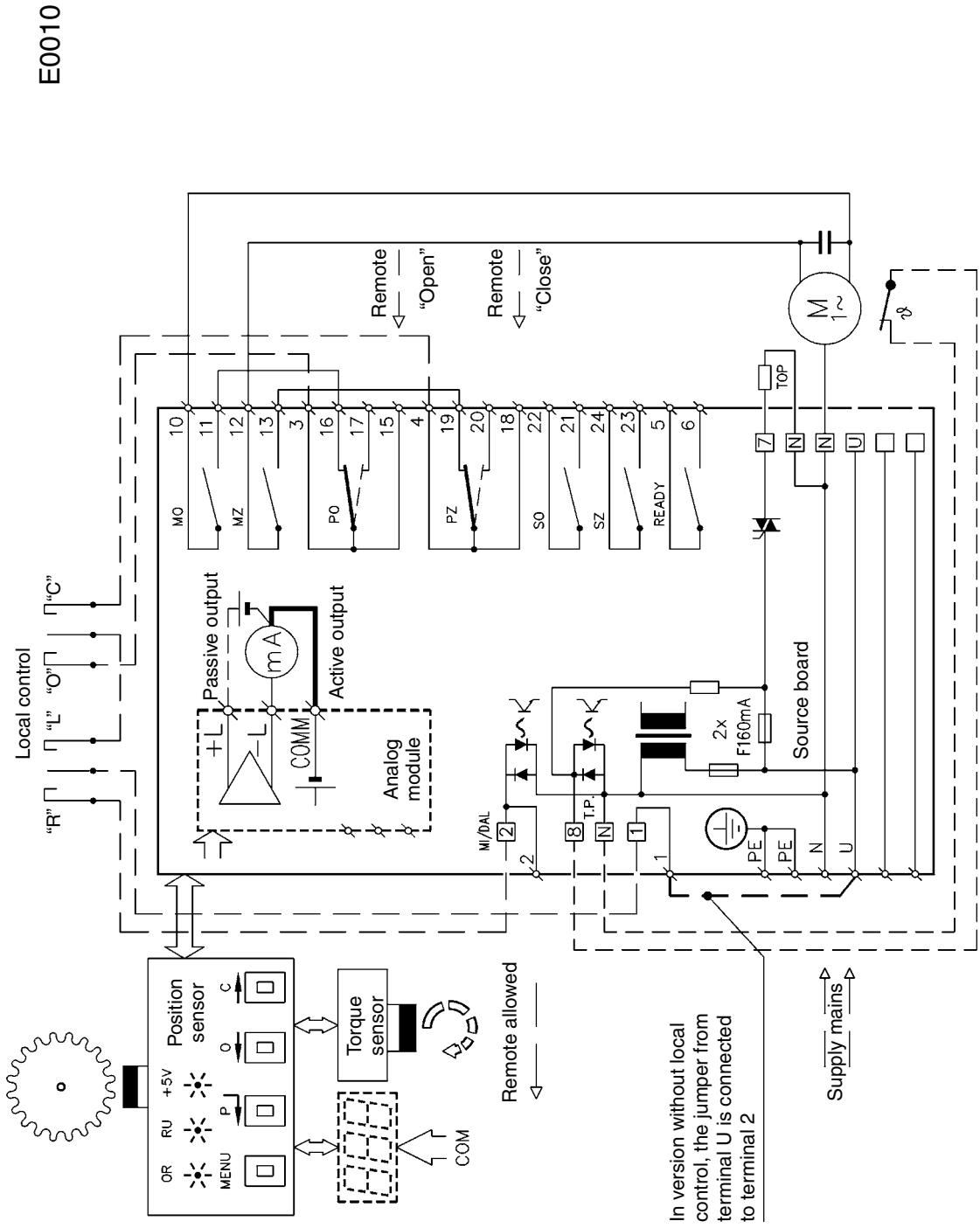
**Unit of two-position and three-position control** – control of the electric actuator by shifting to position “*Open*” and “*Close*”, or by analog signal 0(4) – 20 mA.

**Unit of connection Profibus** – control of the electric actuator by industrial bus bar Profibus.

Electronic control DMS2 – within its function, it checks sequence and fall-out of phases of supply voltage.



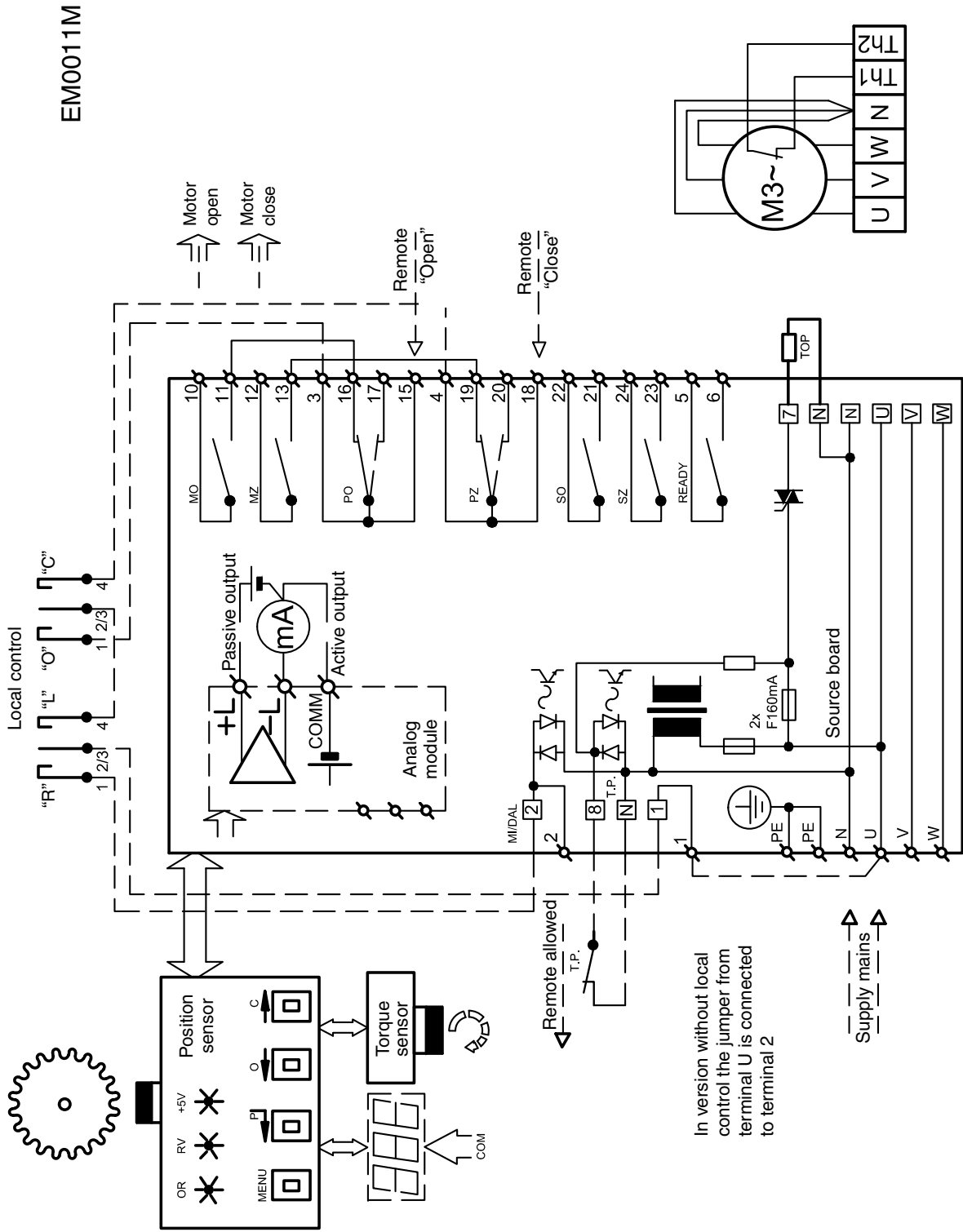
Example of wiring diagram of electronics **DMS2 ED** in version **Substitution of electro-mechanical board** with single-phase electric motor



E0010

**Note:** Here, contacts of relay MO, MZ, SO, SZ are shown with power supply switched off; with power supply switched off contacts PO, PZ are shifted to the position drawn in dashed line.

Example of wiring diagram of electronics **DMS2 ED** in version **Substitution of electro-mechanical board** with three-phase electric motor



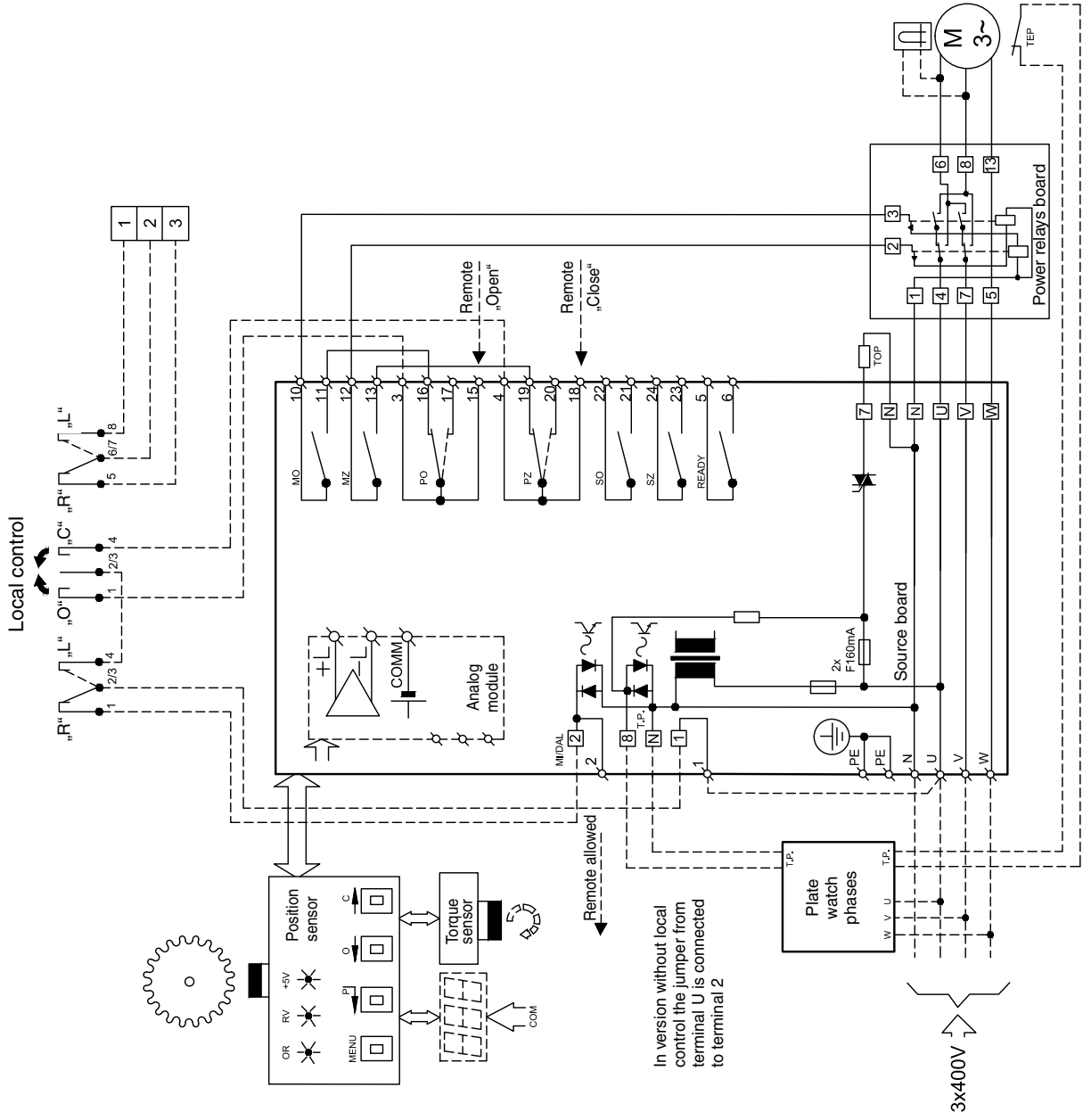
EM0011M

In version without local control the jumper from terminal U is connected to terminal 2

**Note:** Here, contacts of relay MO, MZ, SO, SZ are shown with power supply switched off; with power supply switched on, PO, PZ are shifted to the position drawn in dashed line.

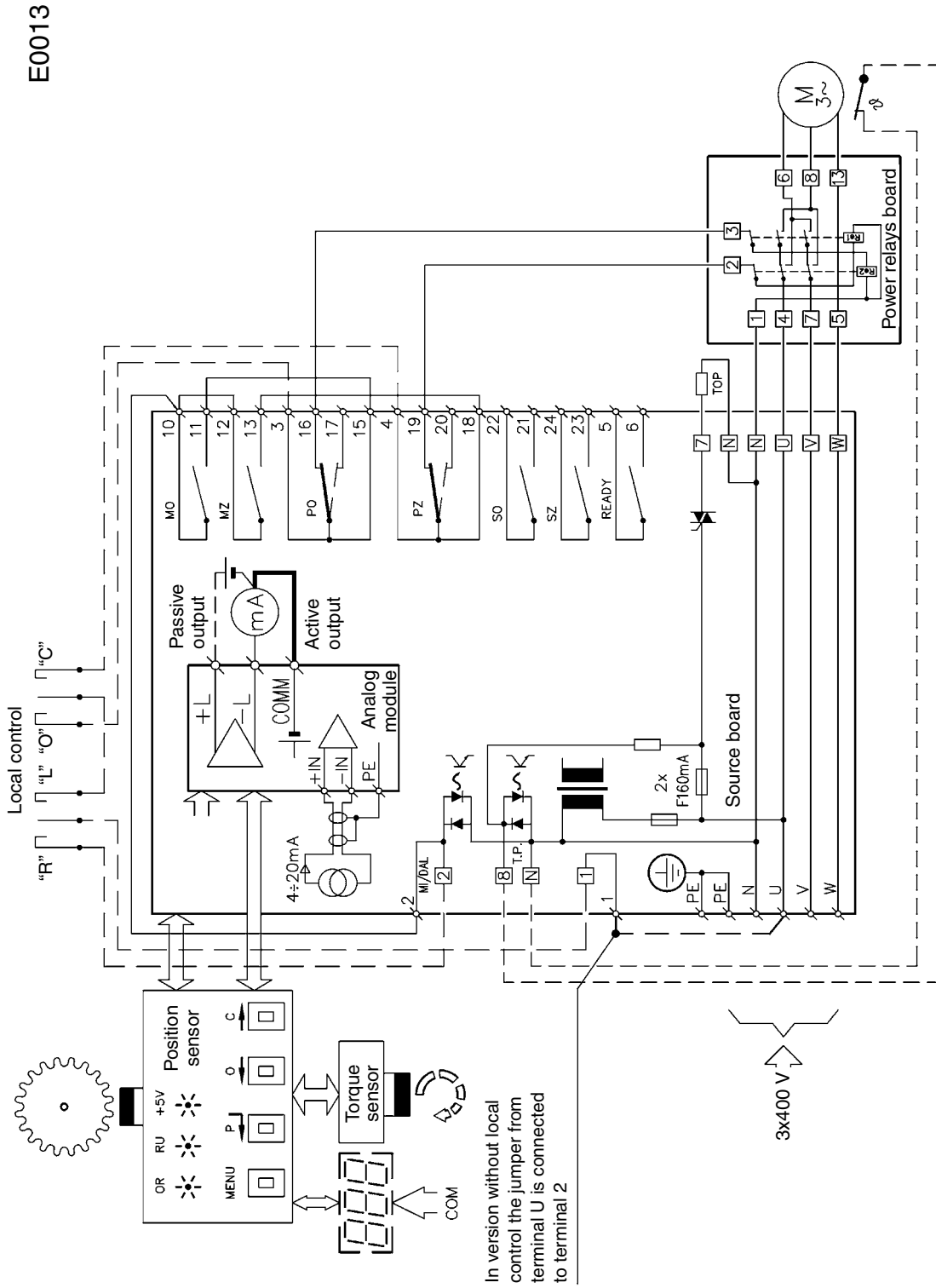
Example of DMS2ED electronics connection with phase failure monitoring module and dual local control switch

E0102





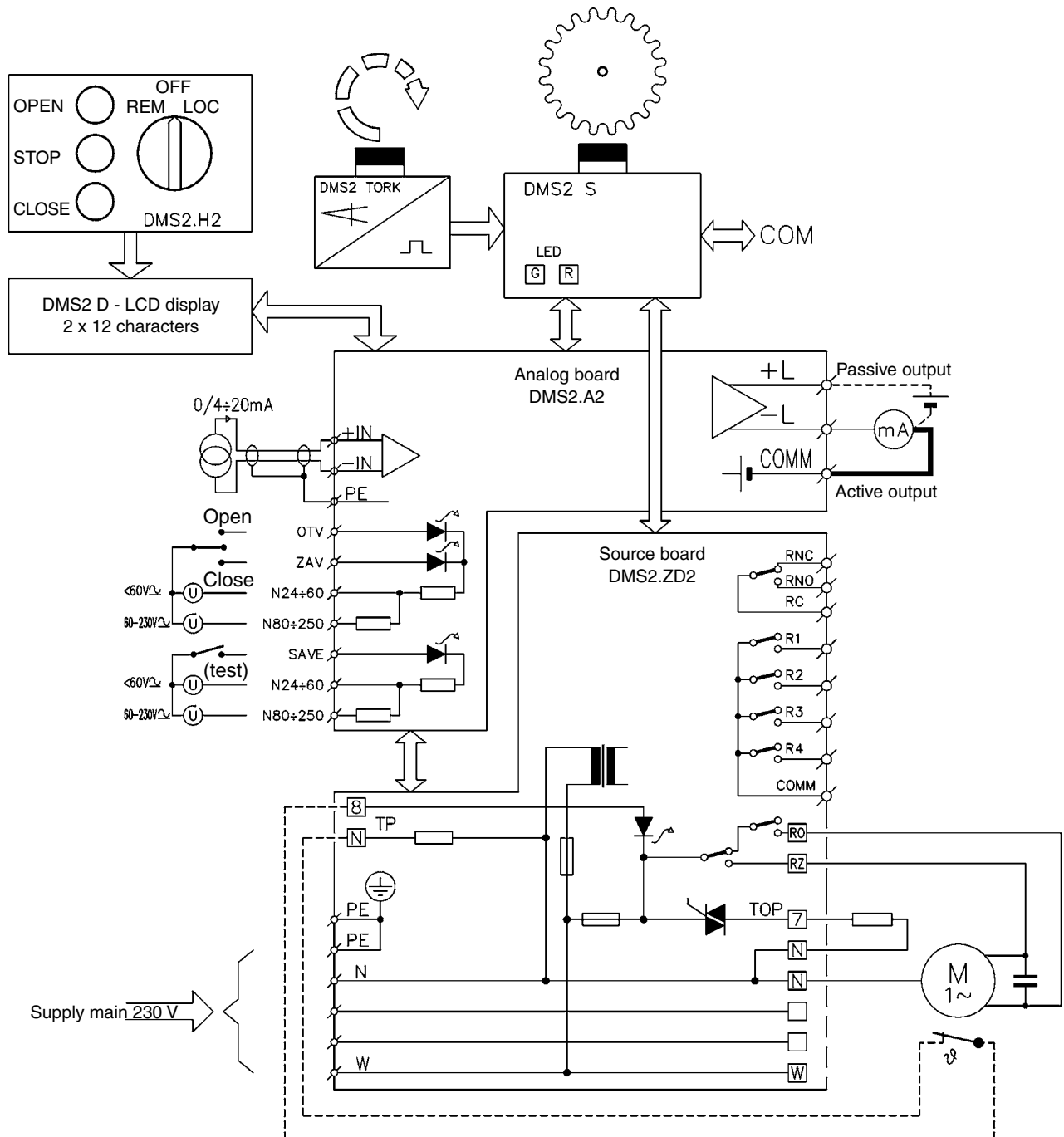
Example of wiring diagram of electronics **DMS2 ED** in version **Control** with three-phase electric motor



**Note:** Here, contacts of relay MO, MZ, SO, SZ are shown with power supply switched off; with power supply switched off contacts PO, PZ are shifted to the position drawn in dashed line.

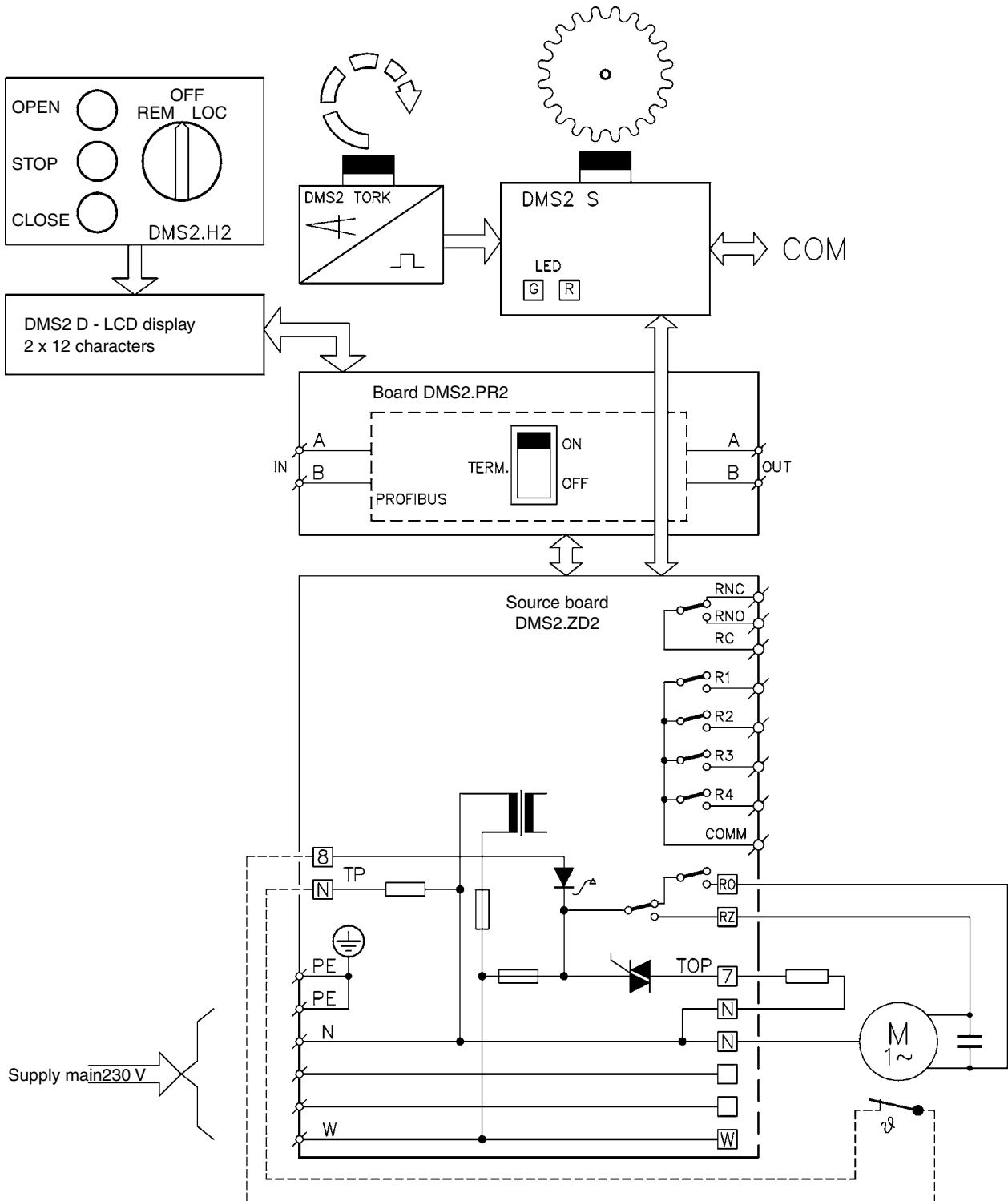
Example of wiring diagram of system **DMS2** in version for control with signals “open” and “close” or in version for control with analog current signal with single-phase electric motor

E0014

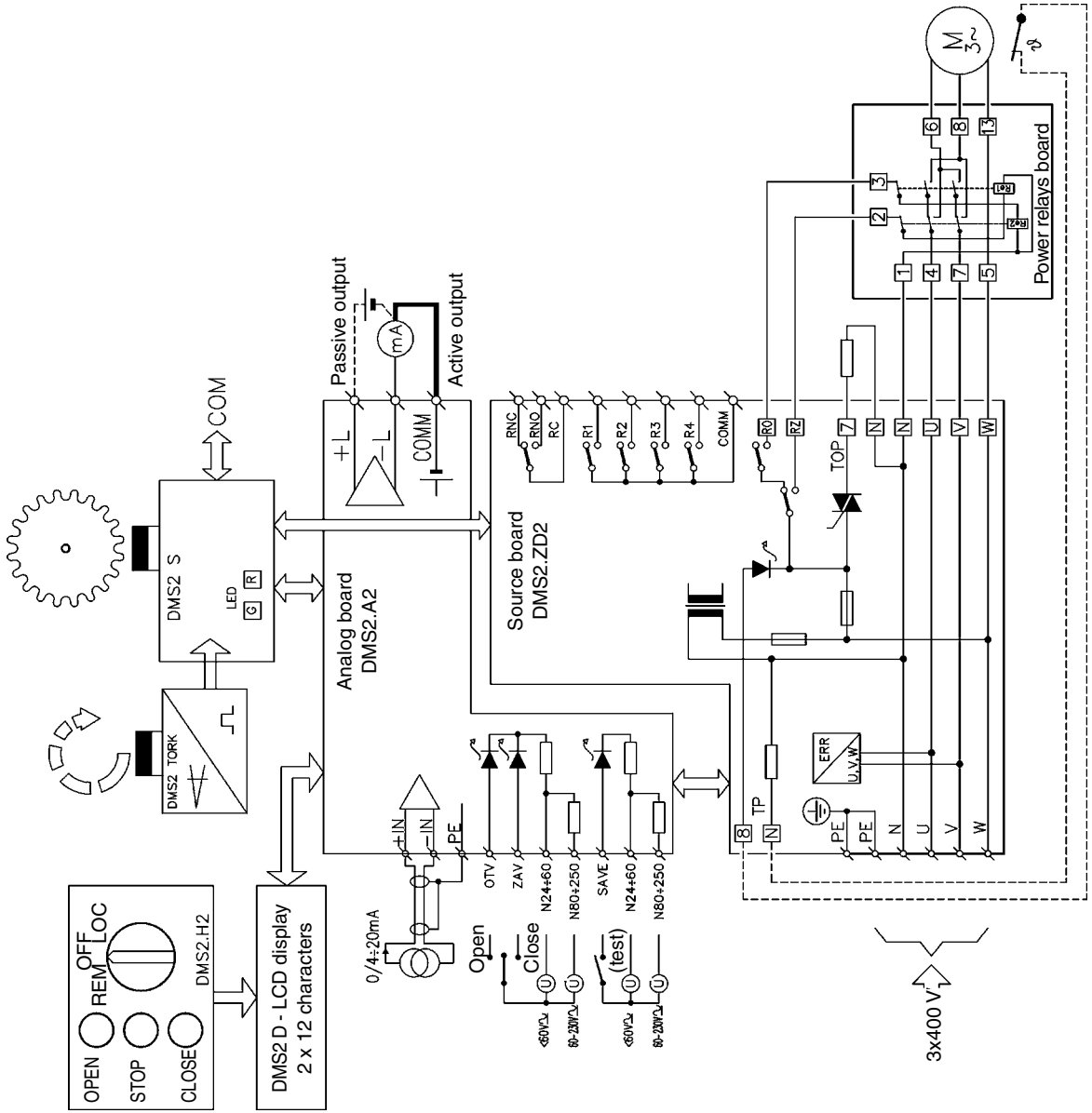


Example of wiring diagram of system **DMS2** in version Profibus with single-phase electric motor

E0015



Example of wiring diagram of system **DMS2** in version for control with signals "open" and "close" or in version for control with analog current signal with three-phase electric motor

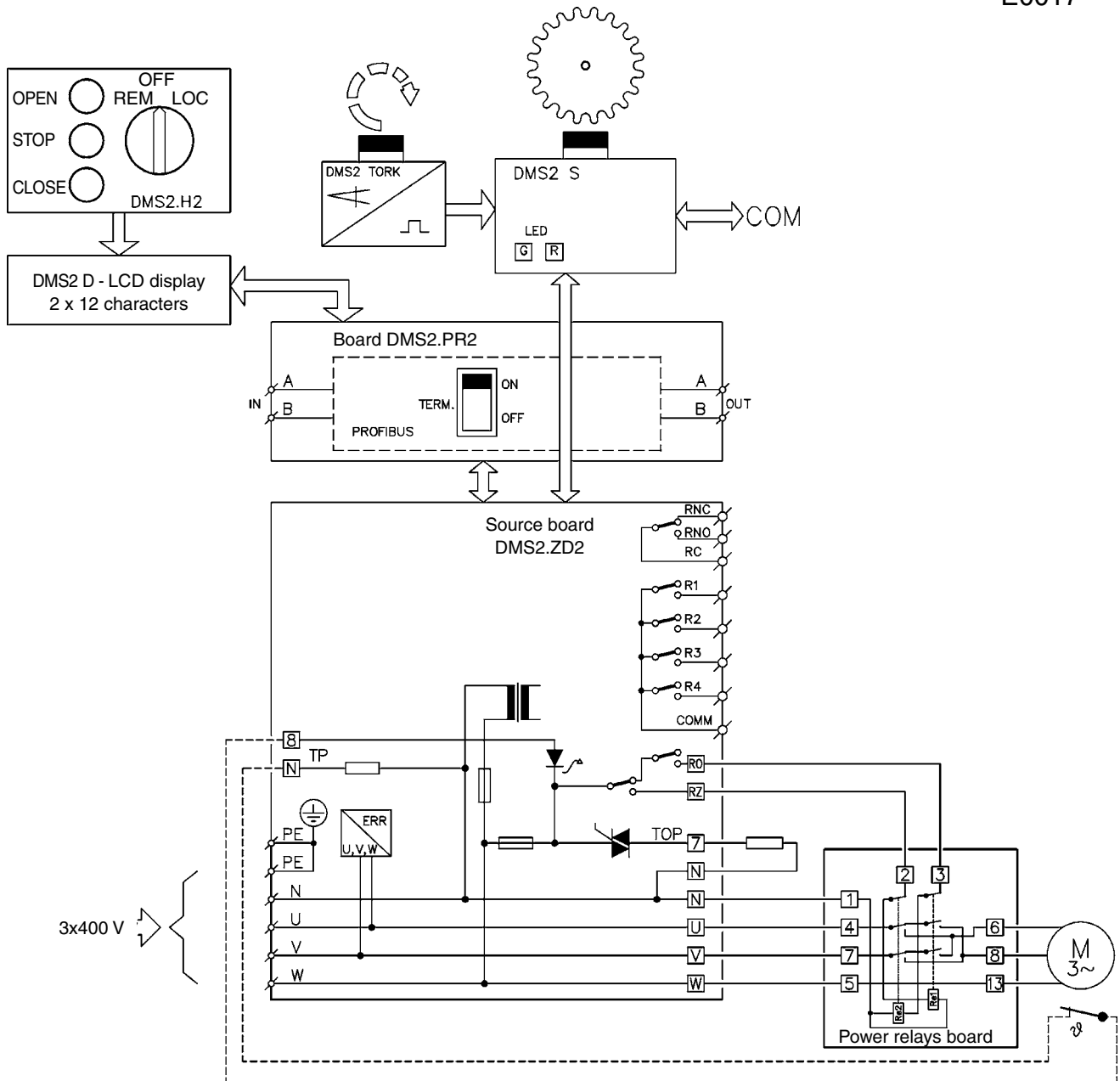


E0016



Example of wiring diagram of system **DMS2** in version Profibus  
with tree-phase electric motor

E0017



**Table 1 – Electric actuators MODACT MOKED - basic technical parameters**

Type	Type number		Shifting time [s/90°]	Tripping torque [Nm]	Electric motor					Weight [kg]	
	basic 1 2 3 4 5	supplem 6 7 8 9 10			Type	Output [W]	Speed [min <sup>-1</sup> ]	Voltage [V]	Current [A]		
MOKED 63	52 325	xx1xED	10	16 – 32	FCJ2B52D	15	2780	1 x 230	0,37	7,4	
		xx2xED	20	25 – 80*		15	2780	1 x 230	0,37	7,4	
		xx3xED	40			15	2780	1 x 230	0,37	7,4	
		xx4xED	80	25 – 45	FCT2B54D	4	1270	1 x 230	0,25	7,4	
		xx5xED	10	16 – 32	FT2B52D	15	2680	3 x 400	0,10	7,4	
		xx6xED	20	25 – 80		15	2680	3 x 400	0,10	7,4	
		xx7xED	40			15	2680	3 x 400	0,10	7,4	
		xxCxED	40			55 – 110	FCJ2B52D	15	2780	1 x 230	0,37
MOKED 125	52 326	xx1xED	10	63 – 125	FCJ4C52N	60	2770	1 x 230	0,53	12,7	
		xx2xED	20			60	2770	1 x 230	0,53	12,7	
		xxAxED	20			80 – 160	60	2770	1 x 230	0,53	12,7
		xx3xED	40	63 – 125	FCT4C54N	20	1350	1 x 230	0,4	12,3	
		xx4xED	80			20	1350	1 x 230	0,4	12,3	
		xx5xED	10		FT4C52NA	90	2770	3 x 400	0,34	12,7	
		xx6xED	20			90	2770	3 x 400	0,34	12,7	
		xx7xED	40		EAMR56N04A	20	1440	3 x 400	0,20	12,7	
		xx8xED	80			20	1440	3 x 400	0,20	12,7	
MOKED 250	52 327	xx2xED	20		125 – 250	FCJ4C52N	60	2770	1 x 230	0,53	21
		xx3xED	40		160 – 320		60	2770	1 x 230	0,53	21
		xxAxED	40	60			2770	1 x 230	0,53	21	
		xx4xED	80	125 – 250	FCT4C54N	20	1350	1 x 230	0,4	20,5	
		xx5xED	160			20	1350	1 x 230	0,4	20,5	
		xx6xED	20		FT4C52NA	90	2770	3 x 400	0,34	21	
		xx7xED	40			90	2770	3 x 400	0,34	21	
		xx8xED	80		EAMR56N04A	20	1440	3 x 400	0,20	21	
		xx9xED	160			20	1440	3 x 400	0,20	21	
MOKED 500	52 328	xx2xED	20		250 – 500	1 PK 7060-4AB	120	1350	3 x 400	0,42	27
		xx3xED	40				120	1350	3 x 400	0,42	26
		xx4xED	80	120			1350	3 x 400	0,42	26,3	
		xxCxED	40	EAMRB63L02		90	2780	1 x 230	0,90	27	
MOKED 1000	52 329	xx3xED	40	500 – 1000	1 PK 7060-4AB	120	1350	3 x 400	0,42	45	
		xx4xED	80			120	1350	3 x 400	0,42	43	
		xx5xED	160			120	1350	3 x 400	0,42	43,3	
		xxCxED	80		EAMRB63L02	90	2780	1 x 230	0,90	45	

**The type number shall include:**

6th place: letter "U" if the letter C, P, R or S is 7th (the DMS2 electronics are equipped with the actuator) – with the terminal block  
 letter "V" if the letter C, P, R or S is on the 7th position (the actuator is equipped with DMS2) – with the connector  
 letter "T" if the letter C or R is in the 7th position and the actuator will not be equipped with a display and a local control.  
**the character in Table 2**, if the letter E (DMS2 ED electronics) is on the 7th position – with the terminal block  
**K (DMS2 ED electronics) – with connector**

Table 2		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	H	J	K	L	M	N	P	R
Local control			x		x		x		x		x		x		x		x		x		x		x		x
Display				x	x			x	x			x	x			x	x			x	x			x	x
Power relays						x	x	x	x					x	x	x	x					x	x	x	x
Analog module	transmitter									x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	regulator																	x	x	x	x	x	x	x	x

7th place: **E** – electric actuator is fitted with electronics DMS2 ED – with terminal board  
**K** – electric actuator is fitted with electronics DMS2 ED – with connector ECTA  
**P** – electric actuator is fitted with electronics DMS2 for connection to Profibus, power relays  
**S** – electric actuator is fitted with electronics DMS2 for connection to Profibus  
**R** – electric actuator is fitted with electronics DMS2 for two- or three-position control \*\*), power relays  
**C** – electric actuator is fitted with electronics DMS2 for two- or three-position control \*\*)

\*\*) Two- or three-position regulation of the actuator is set at the manufacturer. Unless otherwise specified in the order, the actuator will be set for three-position regulation (control by signal 4 – 20 mA).

9th place: the numeral or letter according to Table no. 3 is written.

11th place:

For environment temperature from -25 °C do +70 °C	without marking
For environment temperature from -40 °C do +60 °C	F1

**Table 3 – Connection of electric actuators MODACT MOKED**  
 – designation of the 9th place of the type number

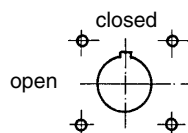
Flange size	Connection	Square size s [mm]	Square position	Marking of the 9th position in the type number
<b>Type Number 52 325</b>				
F05	keyway	∅ 22		0
F05	square	14	basic	1
F04	keyway	∅ 18		2
F04	square	11	basic	3
F05		14	positioned at a 45°	4
F04		11	positioned at a 45°	5
F04		12	basic	6
F04		12	positioned at a 45°	7
F05		16	basic	8
F05		16	positioned at a 45°	9
<b>Type Number 52 326</b>				
F07	keyway	∅ 28		0
F07	square	17	basic	1
F05	keyway	∅ 22		2
F05	square	14	basic	3
F07		17	positioned at a 45°	4
F05		14	positioned at a 45°	5
F05		16	basic	6
F05		16	positioned at a 45°	7
F07		19	basic	8
F07		19	positioned at a 45°	9
<b>Type Number 52 327</b>				
F10	keyway	∅ 42		0
F10	square	22	basic	1
F07	keyway	∅ 28		2
F07	square	17	basic	3
F10		22	positioned at a 45°	4
F07		17	positioned at a 45°	5
F07		19	basic	6
F07		19	positioned at a 45°	7
F10		24	basic	8
F10		24	positioned at a 45°	9
F10		27	basic	A
F10		27	positioned at a 45°	B
<b>Type Number 52 328</b>				
F12	keyway	∅ 50		0
F12	square	27	basic	1
F10	keyway	∅ 42		2
F10	square	22	basic	3
F12		27	positioned at a 45°	4
F10		22	positioned at a 45°	5
F10		24	basic	6
F10		24	positioned at a 45°	7
F10		27	basic	8
F10		27	positioned at a 45°	9
F12		32	basic	A
F12		32	positioned at a 45°	B
<b>Type Number 52 329</b>				
F12	keyway	∅ 50		0
F12	square	27	basic	1
F12		27	positioned at a 45°	4
F12		32	basic	5
F12		32	positioned at a 45°	6

**Actuator output shaft**

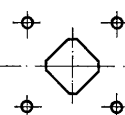
(when viewing towards the local position indicator).

The handwheel tallies with the CLOSED position

**Keyway connection**

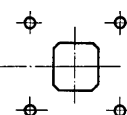


basic position (to DIN 3337)



**Square**

positioned at a 45° (to ISO 5211)



Other connection of the actuator upon special request.

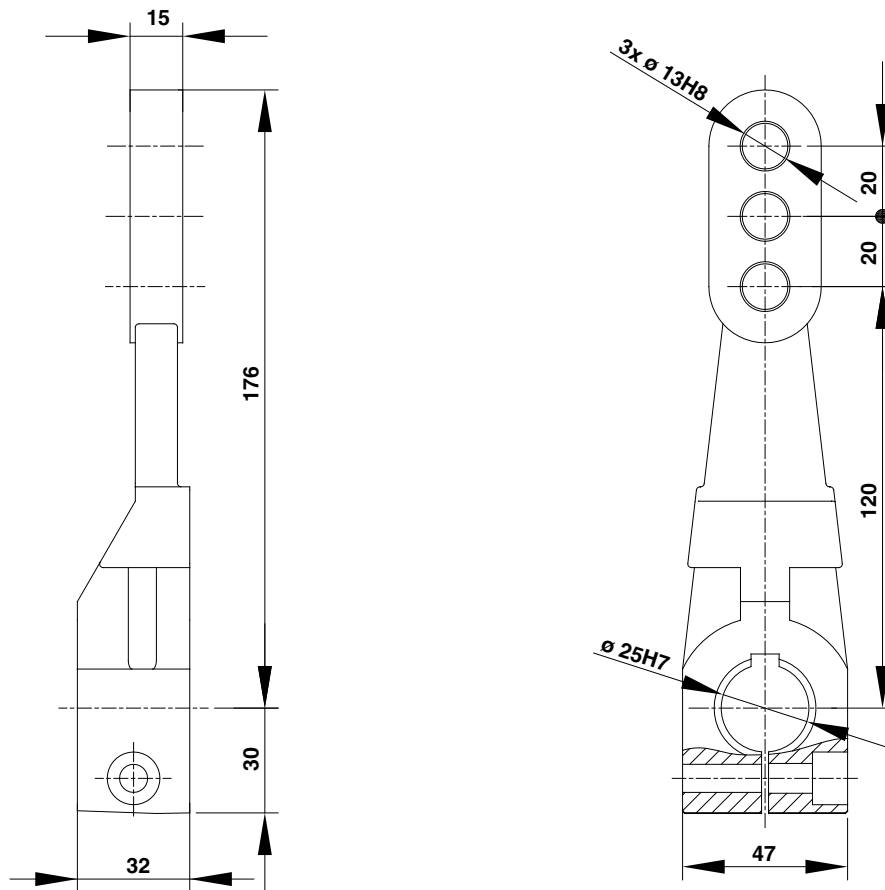
**Addition to table 2 – MODACT MOKED electric actuators with lever adapter**

– mechanical connection (designation of the 9th place of the type number)

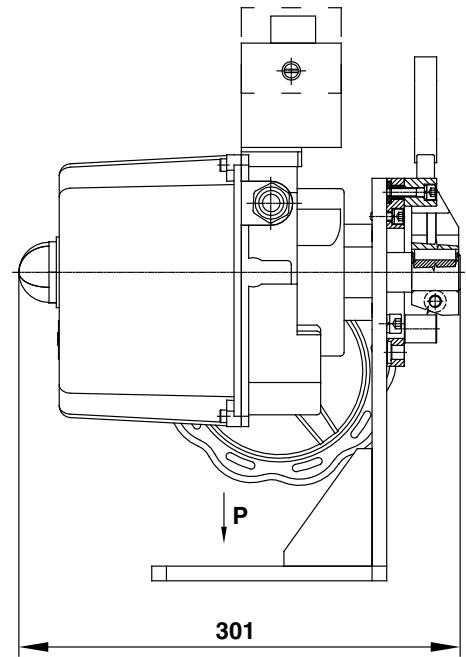
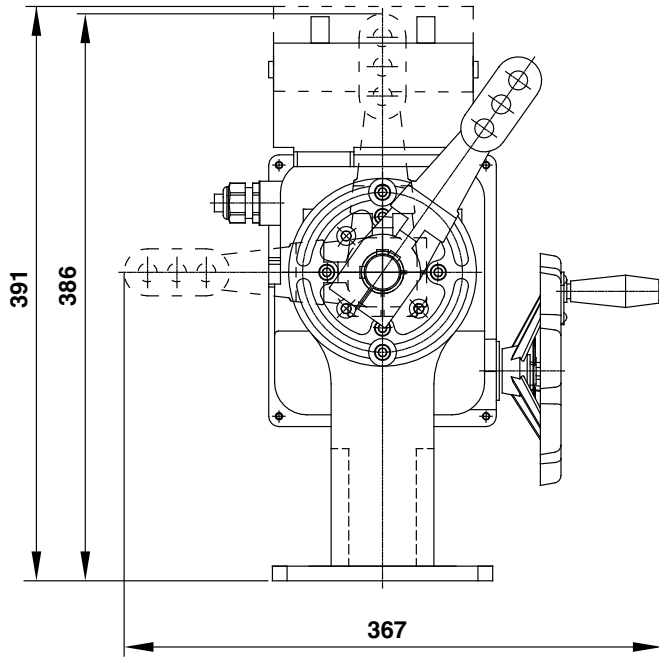
Flange size	Connection	Square size s [mm]	Square position	Marking of the 9th position in the type number	Structural design of output
Type number 52 325					
F05	keyway	∅ 22		0	collar
F05	square	14	basic	1	exchangeable inserts
F04	keyway	∅ 18		2	
F04	square	11	basic	3	
F05		14	positioned at a 45°	4	
F04		11	positioned at a 45°	5	
F04		12	basic	6	
F04		12	ppositioned at a 45°	7	
F05		16	basic	8	
F05		16	positioned at a 45°	9	
Actuator with lever adapter				W	
Type number 52 326					
F07	keyway	∅ 28		0	not available
F07	square	17	basic	1	exchangeable inserts
F05	keyway	∅ 22		2	
F05	square	14	basic	3	
F07		17	positioned at a 45°	4	
F05		14	positioned at a 45°	5	
F05		16	basic	6	
F05		16	positioned at a 45°	7	
F07		19	basic	8	
F07		19	positioned at a 45°	9	
Actuator with lever adapter				W	

**Dimensional sketch of MODACT MOKED electric actuator with lever adapter**

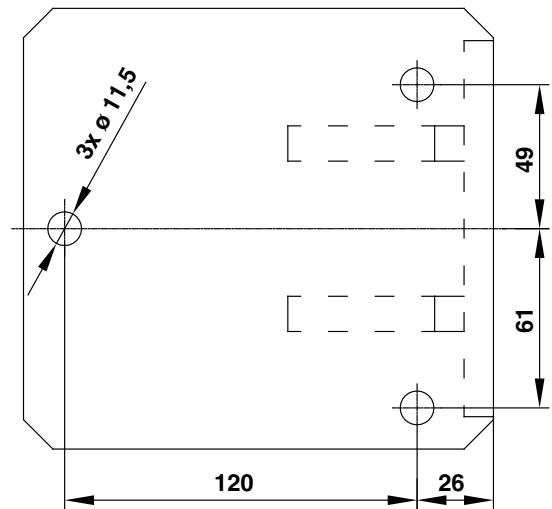
Lever



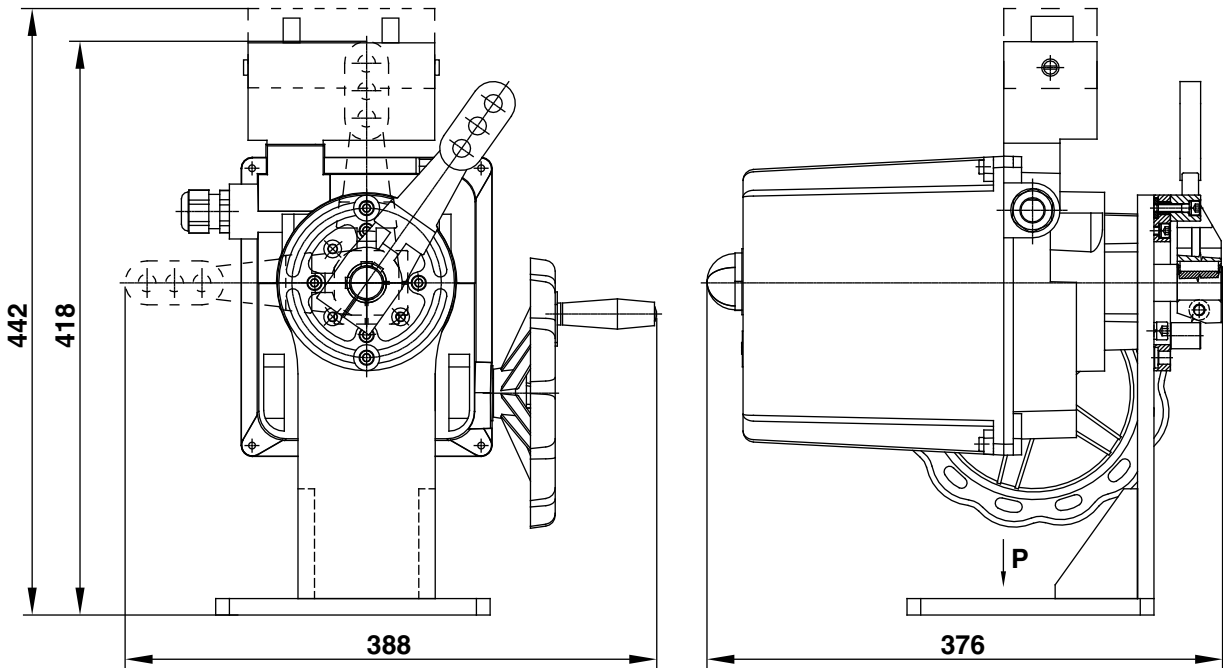
Lever adapter with **Type No. 52 325** actuator



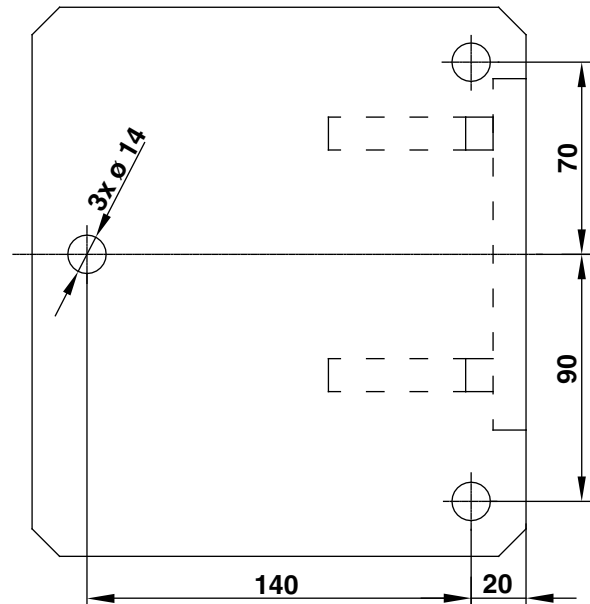
→ P  
M2:1  
(view of the base plate)



Lever adapter with **Type No. 52 326** actuator

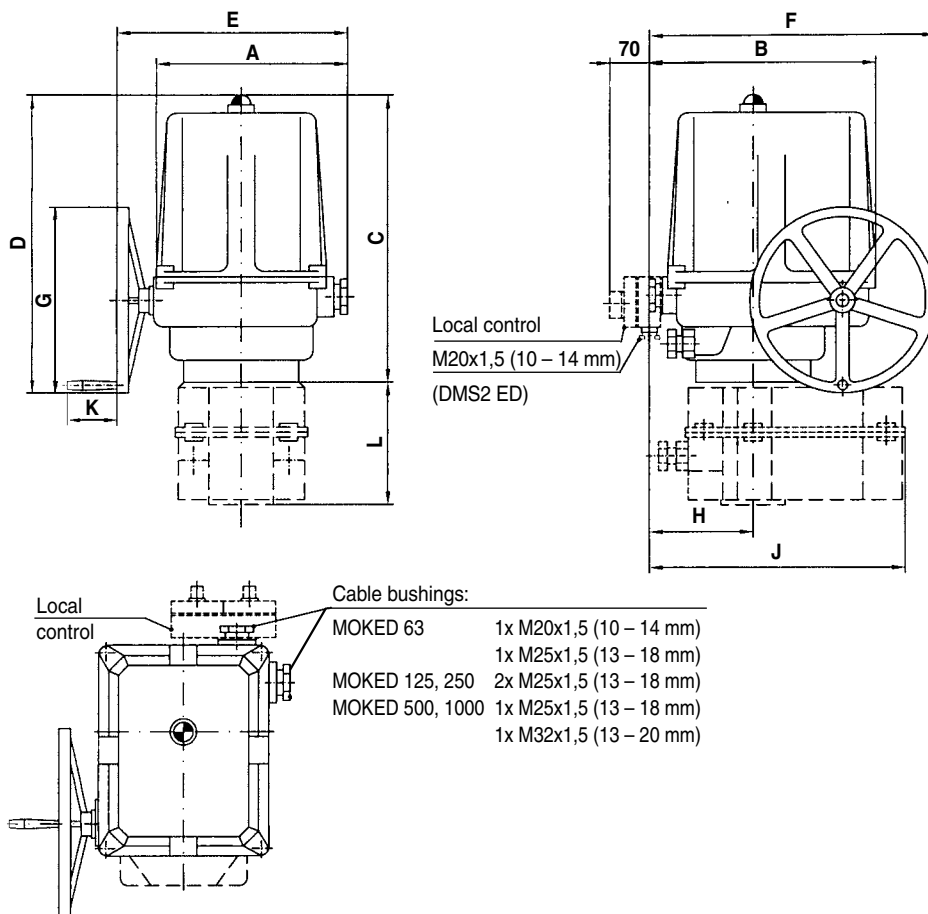


→ P  
M2:1  
*(view of the base plate)*



**Note:** Other dimensions are listed in the dimension table.

## Dimensional sketch of MODACT MOKED electric actuators



Typ	A	B	C	D	E	F	G	H	J	K	L	Flange
MOKED 63	173	203	247	244	213	245	160	98	-	73	-	F 05, F 04, F 07*
MOKED 125	204	237	325	347	252	290	200	111	-	73	-	F 07, F 05, F 10*
MOKED 250	204	237	325	347	252	290	200	111	263	73	128	F 10, F 07
MOKED 500	250	290	386	398	325	362	250	128	-	73	-	F 12, F 10
MOKED 1000	250	290	386	398	325	362	250	128	323	73	155	F 12

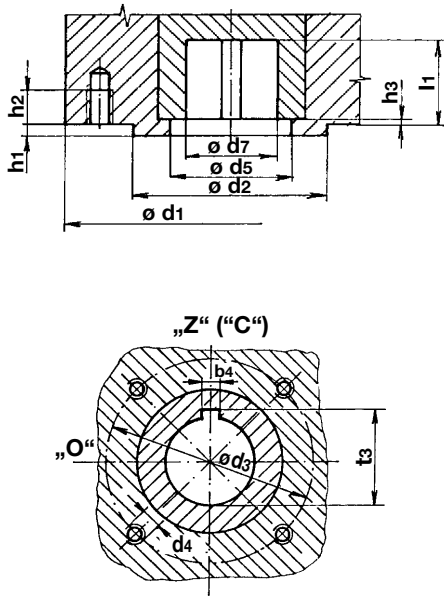
\*) on request

**Note:** Connecting of actuators with connector – on special request.



## Connection dimensions of MODACT MOKED actuators

– for valves and control devices with spindles that are provided with a tight-fit keyway



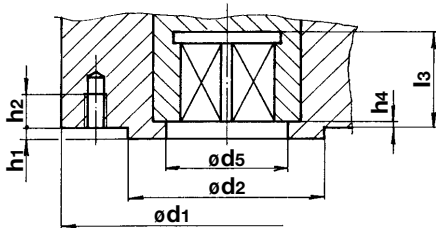
Position of the keyway, according to ISO 5211 and DIN 3337  
(The groove is in the CLOSE position whereas the OPEN position is on the left side when viewing the local position indicator)

Flange	$\varnothing d_1$	$\varnothing d_2$ f8	$\varnothing d_3$	$d_4$	$\varnothing d_7$ H9	$h_{3max}$	$h_{2min}$	$h_{1max}$	$l_{1min}$	$b_4$ Js9	$t_3^{+0,4}$ $+0,2$	$\varnothing d_5$
F04	65	30	42	M6	18	3	12	3	26	6	20,5	25
F05	65	35	50	M6	22	3	12	3	30	6	24,5	28
F07	90	55	70	M8	28	3	13	3	35	8	30,9	40
F10	125	70	102	M10	42	3	16	3	45	12	45,1	50
F12	150	85	125	M12	50	3	20	3	53	14	53,5	70

**Note:** The CLOSE position "Z" ("C") of the keyway is identical to the "Z" "C" position on the local position indicator.  
Dimension  $d_1$  is determined by a larger flange used by the actuator.

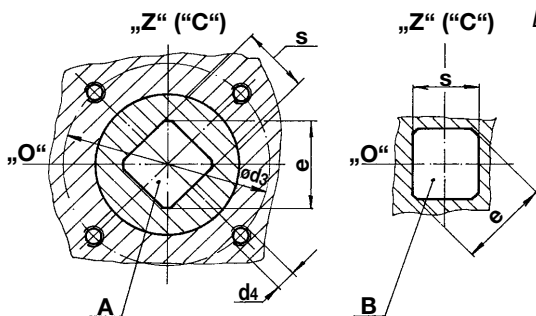
– for valves and control devices with spindles that are provided with a square hole

Position of the square hole in the end position of the actuator. The OPEN position is on the left of the CLOSE position, when viewing the local position indicator.  
The square hole corresponds to DIN 79.  
The connecting dimensions comply with DIN 3337 or ISO 5211.



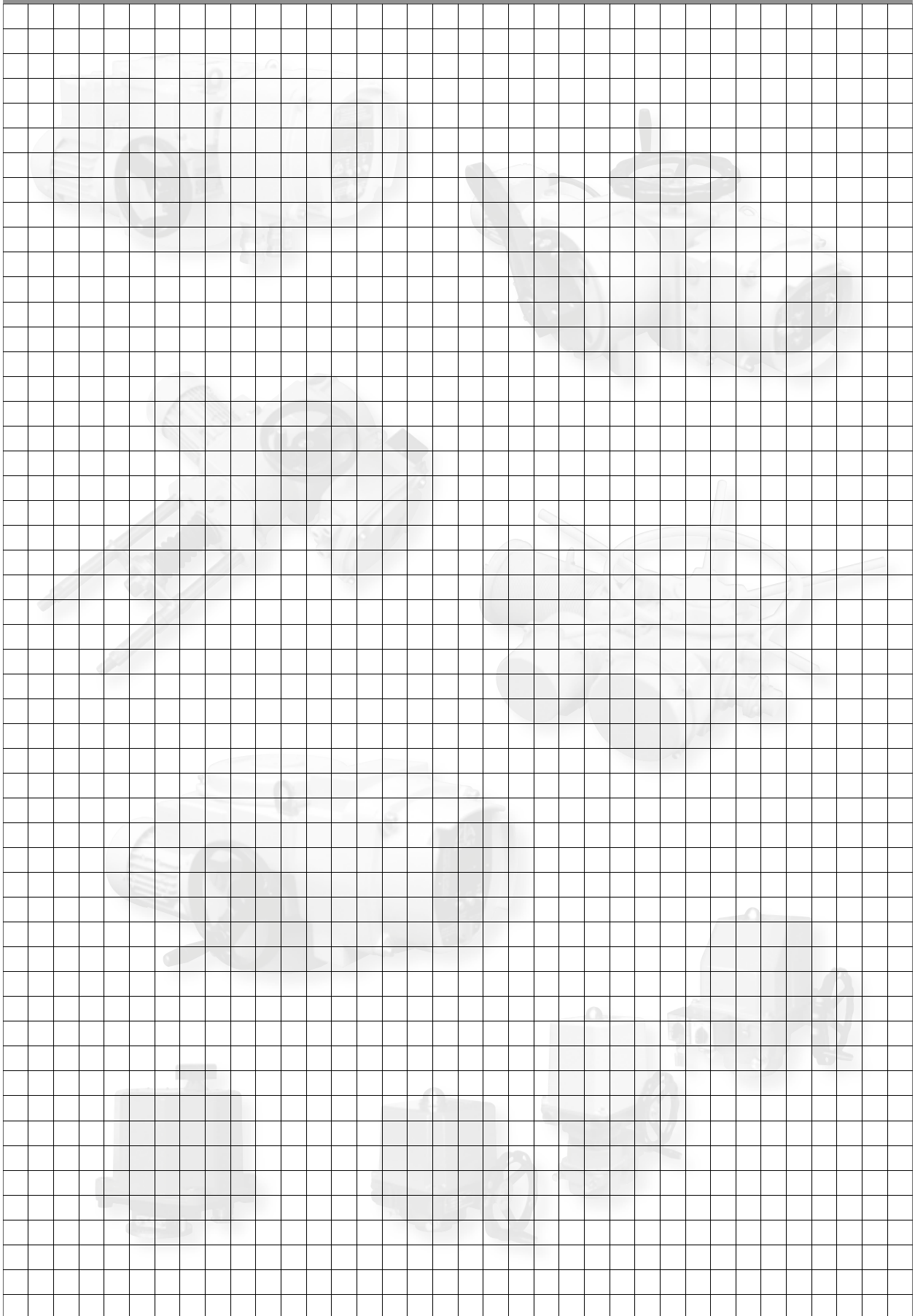
Flange	$\varnothing d_1$	$\varnothing d_2$ f8	$\varnothing d_3$	$d_4$	$h_4$		$h_{2min}$	$h_{1max}$	$l_{3min}$	$s$ H11	$e_{min}$	$\varnothing d_5$
					max	min						
F04	55	30	42	M6	1,5	0,5	12	3	15,1 16,1	11 12	14,1 16,1	25
F05	65	35	50	M6	3	0,5	12	3	19,1 22,1	14 16	18,1 21,2	28
F07	90	55	70	M8	3	0,5	13	3	23,1 26,1	17 19	22,2 25,2	40
F10	125	70	102	M10	3	1	16	3	30,1 33,1 37,1	22 24 27	28,2 32,2 36,2	50
F12	150	85	125	M12	3	1	20	3	37,1 44,1	27 32	36,2 42,2	70

**Note:** The CLOSE position "Z" ("C") of the square hole for the spindle is identical to the "Z" "C" position on the local position indicator.  
Dimension  $d_1$  is determined by a larger flange used by the actuator.



A – Square-end joint in the basic position

B – Square-end joint positioned at an angle of 45°





Development, production and services of electric actuators and switchboards.  
Top-quality sheet-metal processing (TRUMPF equipment), powder paint shop.

## SURVEY OF PRODUCED ACTUATORS

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### **MODACT MOKA**

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Electric rotary multi-turn actuators

### **MODACT MO EEX, MOED EEX**

Explosion proof electric multi-turn actuators

### **MODACT MOA**

Electric multi-turn actuators for nuclear power stations application outside containment

### **MODACT MOA OC**

Electric multi-turn actuators for nuclear power stations application inside containment

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Electric rotary (160°) lever actuators with a variable output speed

### **MODACT MPS, MPSP, MPSED, MPSPED**

Electric rotary (160°) lever actuators with a constant output speed

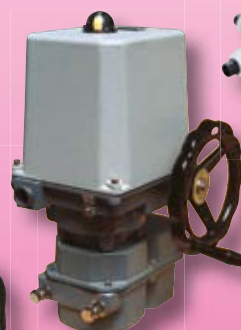
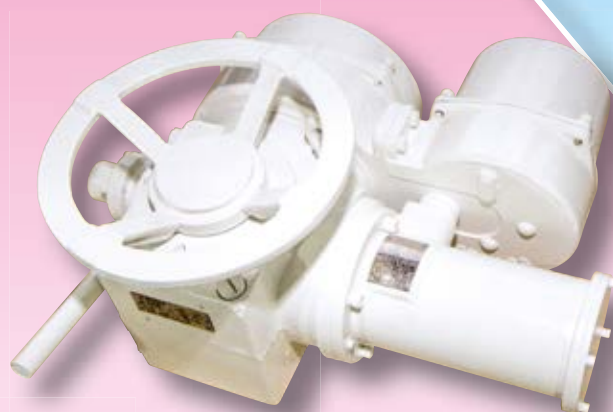
### **MODACT MTN, MTP, MTNED, MTPED**

Electric linear thrust actuators with a constant output speed

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Deliveries of assembled actuator + valve (or MASTERGEAR gearbox) combinations

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