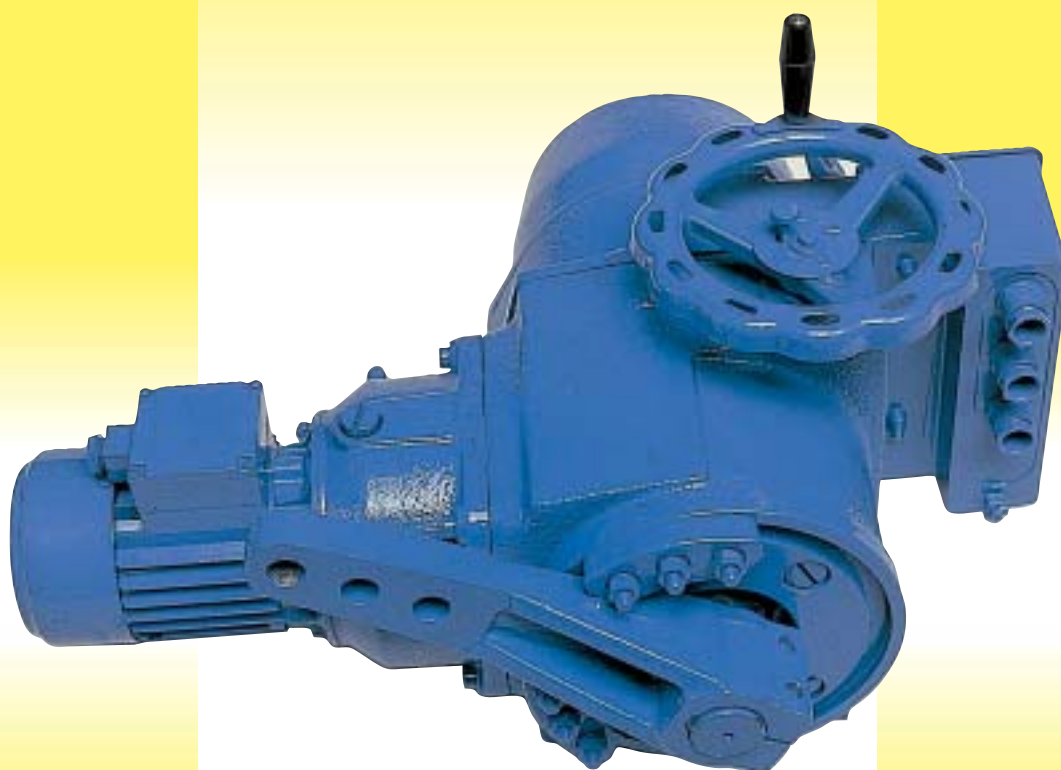


ZPA PEČKY, a.s.



**Electric Part-turn Lever Actuators
with a Constant Output Speed**

**MODACT MPS
MODACT MPS CONTROL**

Type No. 52 260 - 52 266



EN ISO 9001:2000
Certificate No. 041005161/000-E01



CERTIFICATE

The TÜV CERT Certification Body
for QM systems of RWTÜV Systems GmbH

hereby certifies in accordance with TÜV CERT
procedure that

ZPA Pečky, a.s.
Třída 5. května 166
289 11 Pečky
Czech republic

has established and applies a quality system for

**Development and production of electric actuators,
enclosures and sheet metal production**

An audit was performed, Report No. 624362

Proof has been furnished that the requirements according to

ISO 9001 : 2000 / EN ISO 9001 : 2000

are fulfilled. The certificate is valid until **11. November 2006**

Certificate Registration No. 041005161/000-E01

The company has been certified since **1995**



Essen, 14.11.2003



TÜV CERT Certification Body
of RWTÜV Systems GmbH

APPLICATION

The **MODACT MPS** electric lever actuators are used for remote and automatic control of flaps and louver locks, brush displacement of electric motors and actuation of control elements of heating and air-conditioning systems and other equipment for which they are in respect of their properties suitable. **The MODACT MPS Control** actuators are designed for use in automatic control systems employing a continuous control signal. Both the MODACT MPS and MODACT MPS Control electric lever actuators consist of an electric motor, a countershaft box, power gearing, a control box and a lever system.

OPERATING CONDITIONS

The MODACT MPS (MODACT MPS Control) actuators should withstand the effect of operating conditions and external influences, Classes AA7, AB7, AC1, AD5, AE5, AF2, AG2, AH2, AK2, AL2, AM2, AN2, AP3, BA4 and BC3, according to ČSN Standard 33 2000-3 (mod. IEC 364-3:1993).

When installed on a free area, the electric actuator should be fitted with a light shelter against direct action of atmospheric effects.

If the actuator is used at a location with an ambient temperature under $-10\text{ }^{\circ}\text{C}$ and/or relative humidity above 80%, at a sheltered location, or in the tropical atmosphere, the anti-condensation heater which has been built in all actuators, should be always used. One or two heater elements should be connected, as required.

Installation of the actuators at a location with incombustible and non-conducting dust is possible only if this has no adverse effect on their function. It is advisable to remove dust whenever the layer of dust becomes as thick as about 1 mm.

Notes:

A sheltered location is considered a space where atmospheric precipitations are prevented from falling at an angle of up to 60° from the vertical.

The location of the electric motor should be such that cooling air has free access to the motor and no heated-up blown-out air is drawn in the motor again. For air inlet, the minimum distance from the wall is 40 mm. Therefore, the space in which the motor is located should be sufficiently large, clean and ventilated.

Classes of external influences

Basic characteristics - as extracted from ČSN 33 2000-3 Standard (mod. IEC 364-3:1993).

- 1) AA7 - Simultaneous effect of ambient temperature of $-25\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$ with relative humidity from 10 % upwards
- 2) AB7 - Ambient temperature to Point 1); minimum relative humidity 10%, maximum relative humidity 100% with condensation
- 3) AC1 - Altitude $\leq 2,000$ m above sea level
- 4) AD5 - Splashing water in all directions
- 5) AE5 - Small dust content of air; mean layers of dust; daily dust fall more than 35 mg/m^2 , but not exceeding 350 mg/m^2
- 6) AF2 - Corroding atmosphere and pollutants; the presence of corroding pollutants is significant.
- 7) AG2 - Average mechanical stress; in current industrial plants
- 8) AH2 - Medium vibrations; in current industrial plants
- 9) AK2 - Serious risk of growth of vegetation and moulds
- 10) AL2 - Serious danger of the occurrence of animals (insects, birds, small animals)
- 11) AM2 - Harmful effect of escaping vagabond currents
- 12) AN2 - Medium solar radiation with intensities $> 500\text{ W/m}^2$ and $\leq 700\text{ W/m}^2$
- 13) AP3 - Medium seismic effects; acceleration $> 300\text{ Gal}$ $\leq 600\text{ Gal}$
- 14) BA4 - Personal abilities; instructed people
- 15) BC3 - Frequent contact with the earth potential; persons coming frequently into contact with „live“ parts or standing on a conducting base

The arctic version (type no. 52 261-6.6xx0; 52 261-6.6xx9; 52 261-8xx0; 52 261-6.8xx9) for surrounding temperature from $-40\text{ }^{\circ}\text{C}$ to $+40\text{ }^{\circ}\text{C}$. The actuators in the arctic version should be resistant against impacts of operating conditions characterized by temperature in ranging from $-40\text{ }^{\circ}\text{C}$ to $+40\text{ }^{\circ}\text{C}$ and relative humidity from 5 % to 95 % at temperature $+33\text{ }^{\circ}\text{C}$. These actuators will be designated with the letter F on the last place of the supplementary type number (e.g. 52 261-6xx0F).

DESCRIPTION AND FUNCTION

The lever actuators MODACT MPS and MODACT MPS Control are assembled of electric motor, countershaft box, power gearing, control box, and lever mechanism. The actuators include three-phase asynchronous motors attached to the countershaft box. The actuators, Type No. 52 260, include one-phase electric motors of 20 W and 60 W.

The countershaft box reduces the number of revolutions of the electric motor, self-locking of the whole actuator being provided by means of a self-locking worm gear drive. An advantage of this solution is that electric motors with an electromagnetic brake are not required.

The gears are centrally fitted on the output shaft, thus constituting an independent assembly group. The epicyclic gearing consists of a sun gear and three satellite gears in mesh with the internal gearing of a double gear set. In its upper part, this double gear set has external teeth for the manual control worm. The worm shaft is spring-loaded, the

axial force induced by the torque of the actuator output shaft moving the worm axially against the spring tension. The magnitude of torque is directly proportional to the length of worm advance motion.

The torque sensor acts depending on the length of worm stroke. The magnitude of torque is transmitted to the control box by means of a lever and a pin. The handwheel does not limit the axial movement of the worm and allows the actuator to be controlled in any operating condition, even if the motor is running.

Situated in the upper part of the actuator, the control box forms an independent assembly group. At its upper end, the output shaft of the actuator is extended to the control box.

The control box encloses the following functional units:

- a) Torque-switching unit
- b) Position-switching unit
- c) Resistance transmitter of $2 \times 100 \Omega$, or inductance transmitter of 0(4) to 20 mA (with 0[4] mA in CLOSE position) or 0 to 5 mA, or the CPT 1/A current transmitter of 4 to 20 mA with or without power supply
- d) Anti-condensation heater

The units listed in Point c) are supplied, according to the customer's order (only one transmitter being always required).

In addition, the **MODACT MPS Control** actuators are fitted with an electronic box housing the following instruments:

- a) Position regulator ZP2
- b) Reversing contactors of electric motor
- c) Electronic brake BAM for reducing the time of motor running-down
- d) Power supply transformer of 230 V/24 V
- e) Alternatively, the electronic box can be fitted with a local control unit with the LOCAL-REMOTE switch and the OPEN-CLOSE-STOP switch
- f) Actuator terminal box

The individual design variants of the **MODACT MPS Control** actuators are shown in the accompanying table.

The **MODACT MPS Control** actuator, together with the controlled device, form a position servo-loop. The operating conditions, the mechanical parameters and the electrical equipment of the control box are identical to those used by **MODACT MPS** actuators.

A built-in position regulator, Type ZP2, provides for automatic position adjustment of the output shaft, depending on the input signal of the regulator. The regulator output is formed by two relays that control the operation of the electric motor by means of two reversing contactors. Apart from its basic function, the regulator performs two auxiliary emergency functions whose activation can be selected by rearranging the switches on the regulator boards, as required. One of the functions permits the regulator to bring the output shaft into the OPEN or CLOSE position if the input or feedback signal has been lost. In this case, the actuator remains in the position in which the loss of either signal occurred.

The other function enables the same effect to be obtained by interconnecting the regulator terminals 11 and 12 via an external contact. When the external contact has been broken the actuator operates again in a normal way. If this function is not required, no external contact is connected.

The auxiliary functions can be effective only at the input signals of 0 to 10 V or 4 to 20 mA.

The lever assembly is formed by a flange provided with a slot for fixing screws with stops. The flange is attached to the power gear unit. At its end, the output shaft has a put-on lever.

TECHNICAL REQUIREMENTS

Supply voltage

The rated value of the AC supply voltage of the three-phase motor used in the actuator should be $3 \times 230/400 \text{ V} \pm 6\%$ at 50 Hz. If the actuator is required to operate at another supply voltage this should be agreed upon beforehand with the manufacturer. However, for the MODACT MPS Control actuators, the rated supply voltage of the electric motor should be $3 \times 230/400 \text{ V} \pm 6\%$ at 50 Hz. The electric motors of 20 W and 60 W operate at a voltage of $1 \times 230 \text{ V}$ at 50 Hz.

Protection

The control board should be connected to a protective terminal mounted on the terminal box. During installation, the protective terminal should be wired, according to HD GENELEC 384.4.41 (mod. IEC 364-4-41:1992). The MODACT MPS Control actuators have an internal protective terminal built in the electronic box.

To secure the electrical parts of the actuator against the ingress of water and foreign matters, their protective enclosure should correspond to Type IP 55, according to ČSN EN 6529 Standard.

Minimum dwell time between two switching cycles during reversing	50 ms
Minimum switching-on pulse width	150 ms

Noise

Acoustic pressure level A 85 dB(A) max.
Acoustic power level A 95 dB (A) max.

Protective enclosure

The type of protective of the electronic actuators MODACT MPS is IP 55 according to EN 60 529:1991 - IEC 529:1989.

Duty cycle

The actuators can operate at a short-time loading with the loading type S2 according to ČSN 35 0000. The operation time at temperature + 55°C is 10 minutes. Average value of loading moment is 60 % at most of the magnitude of maximum tripping moment. The actuators can also operate in the regime of interrupted run with starting-up S4 according to ČSN 35 0000 up to 1200 switching operations per hour. The longest duty cycle is 10 minutes. Average value of loading moment at load factor 25 % is 40 % at most of the magnitude of maximum tripping moment (rated moment).

Resistance transmitter 2 x 100 Ω

Slideway resistance	100 Ω + max. 12 Ω
Minimum resistance in the „closed“ position	93 Ω
Maximum resistance in the „open“ position	5 Ω
Transmitter working stroke	160°
Service load	100 mA max.
Rated voltage	48 V DC

KBNS connector

Number of poles	32
Maximum voltage between adjacent poles	400 V/50 Hz, 440 V DC
Maximum current	2.5 A AC, DC
Insulation resistance	20 MΩ (under dry condition)
Electric strength	2 kV/50 Hz
Maximum connecting conductor cross section	0.75 mm ²
Cable O.D. - bushing	P 16 11.5 to 24 mm
- bushing P 21	15.5 to 18 mm

Current transmitter CPT 1/A

Nominal output signal	4 - 20 mA or 20-4 mA
Rated working stroke	0° - 60° to 0° - 120° (continuously adjustable)
Linearity	± 1% (for a minimum stroke of 60°)
Hysteresis	0.5 % max. (for a minimum stroke of 60°)
<i>The linearity and hysteresis are related to a signal value of</i>	<i>20 mA.</i>
Load resistance R_{load}	0 to 500 Ω
Supply voltage for $R_{load} = 0 - 100 \Omega$	12 to 20 V DC
for $R_{load} = 400 - 500 \Omega$	18 to 28 V DC
Maximum supply voltage ripple	5%
Maximum transmitter power demand	560 mW
Insulation resistance	20 MΩ at 50 V DC
Insulation strength	50 V DC
Ambient temperature	- 25 °C to + 60 °C
Ambient temperature - extended range	- 25 °C to + 70 °C

For the extended range, R_{load} should be increased to 500 Ω and the supply voltage should not exceed 25 V. The limit supply voltage is 30 V. Should this value be exceeded a permanent damage to the transmitter may be caused.

The voltage between the transmitter casing and the signal conductors should not exceed 50 V.

For the transmitter, a two-wire connection is used, i.e., the transmitter, the power supply and the load are connected in series. The user should secure that the two-wire circuit of the current transmitter is connected to the electric earth of the associated regulator, computer, etc.

This connection should be made at a single point in any section of the circuit, outside the actuator.

Microswitches

- a) Torque-limit switches, Type DB1G-A1LC (2x) : 250 V AC/2 A or 250 V DC/0.2 A
- b) Position signalling switches, Type B 611 (2x) : 250 V AC/2 A or 250 V DC/0.1 A
- c) In the case of actuators, Type No. 52 260, actuators with a current transmitter or without transmitter:
Position-limit and signalling switches, Type DB1G-A1LC (4x) : 250 V AC/2 A or 250 V DC/0.2 A

POSITION REGULATOR

A built-in position regulator allows automatic positioning of the actuator output shaft to be performed, depending on the analog input signal. At the regulator input, the input control signal is compared with the feedback signal of the position transmitter. The resulting control deviation, if any, is used for actuator run control, the actuator output shaft being brought into the position corresponding to the input control signal value.

This regulator uses the high performance of the RISC processors MICROCHIP for performing all its functions, while at the same time enabling continuous system self-diagnosis to be effected and error messages to be displayed whenever a failure occurs. Due to this facility, the user need not make complicated adjustment as in the case of a current analog regulator. For this purpose, it is sufficient to start the initializing program to make the regulator perform all necessary functions.

REGULATOR SOFTWARE

1) The regulator can be programmed to perform the required functions in the following two ways:

- By a PC after the RS 232 interface.
- By means of the functional keys and LEDs on the regulator.

The following parameters can be programmed:

- Control signal
- Regulator response to the TEST signal and the error state (depending on the programmed requirements)
- Mirroring (ascending or descending characteristic of the control signal)
- Regulator insensitivity
- Way of regulation - narrow to a moment, narrow to a position, wide to a moment, wide to a position

2) All operating states of the regulator can be monitored by a PC after the RS 232 interface. In this case, the regulator issues error messages by means of LEDs or PC.

- Presence of the TEST signal
- Control signal is missing
- Limit switches (faulty connection)
- Failure of position sensor
- Failure of thermal protection

TECHNICAL PARAMETERS OF THE REGULATOR

Alternative supply voltages:	A. 230 V +10%, -15%; 50 - 60 Hz B. 120 V +10%, -15%; 50 - 60 Hz C. 24 V +10%, -15%; 50 - 60 Hz
Control signal	0 to 20 mA, 4 to 20 mA, 0 to 10 V
Position sensor	Potentiometer of 100 to 10,000 Ω Current transmitter of 4 to 20 mA
Regulator linearity	0.5%
Regulator insensitivity	1 to 10% (adjustable)
Operating temperature range	- 25 °C to + 75 °C
LED error messages	- TEST mode - Control signal is missing - Reversed position switches - Failure of position sensor - Failure of thermal protection
Response to failure:	Failure of sensor - Actuator in the TEST position, LED error message Control signal is missing - Actuator in the TEST position, LED error message TEST mode - Actuator in the TEST position, LED error message
Output signal:	Power outputs - 2x relay of 5 A, 230 V Central failure - Switching contact of 24 V, 2 W 5x LED (power supply, failure, adjustment, opens, closes) Brake - Control signal of 2 mA (signal for additional module)
Actuator position	- I2C bus (signal for additional module)
Adjusting devices:	- 2x calibrating and parameter adjusting push-button - Communication connector
Dimensions:	- 75 x 75 x 25 mm

Electronic brake BAM

After the power supply to the electric motor has been switched off the time of actuator running-down is reduced from 0.5 - 1.3 s to 40 - 60 ms under the influence of the BAM electronic brake. This enables control accuracy to be enhanced.

Reversing contactor combinations and thermal relay

The contactors used feature a long mechanical lifetime and a large margin of switching capacity so that even the electrical lifetime is sufficient in the given application. The thermal relay has been selected for dependable overload protection of the motor. Due to their simple arrangement and outfit, the actuators can be connected to power supply and control circuits in a simple way.

Common power supply circuits can be used for a group of actuators to effect a saving in the amount of cabling.

Ordering information

When ordering, please specify the following:

- Number of actuators required
- Actuator designation
- Type number
- Working stroke (maximum angle of lever displacement)
- Adjusting time of the output section in seconds
- Supply voltage of electric motor
- Special requirements (without transmitter, with potentiometer of 2 x 100 Ω or current transmitter)

Example:

When two MODACT MPS 32/32 electric lever actuators in standard design, with a terminal board, a 90° working stroke, the output section adjusting time of 32 s/90°, a supply voltage of 3 x 400 V at 50 Hz, a resistance transmitter of 2 x 100 Ω and an anti-condensation heater, this should be specified in the order as follows:

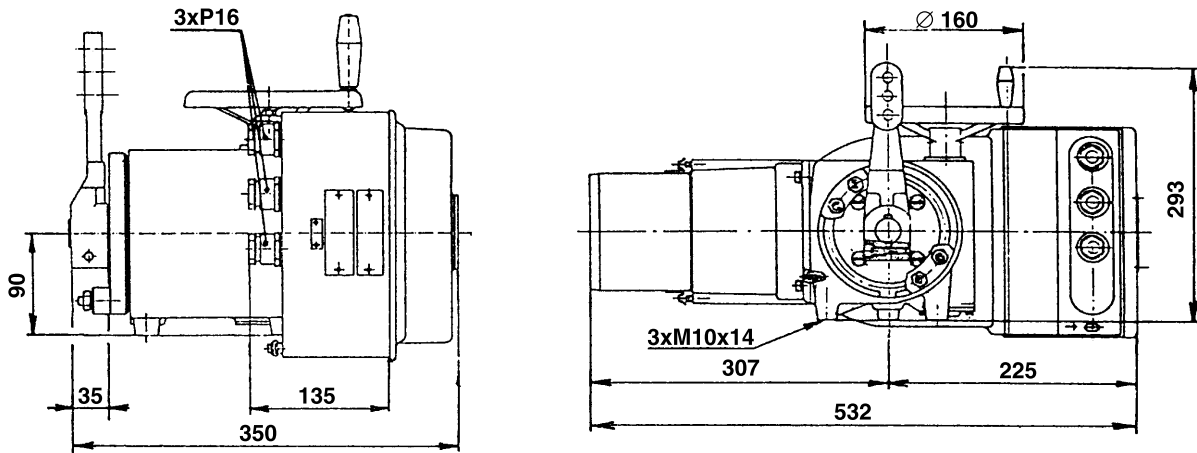
2 x MPS 32/32 actuator, Type No. 52 262.0221, supply voltage 3 x 400 V, 50 Hz.

MODACT MPS, MODACT MPS Control electric actuators - basic technical parameters and type table

BASIC OUTFIT 1 electric motor 2 Torque-limit switches (OPEN and CLOSE) 2 Position-limit switches (OPEN and CLOSE) 2 Signalling switches (OPEN and CLOSE) (In design with CPT 1/A transmitter and Type No. 52 260 only)		2 Anti-condensation heaters				Example of Type No.: 52 261.0117				Additional Type No.					
		Dimensional sketch Type No.													
		52 260	52 261,2	52 263,4	52 265,6										
Electrical connection	with terminal board	P-0743 P-0745	P-0573 P-0623	P-0575 P-0625	P-0774	6 x x x									
	with KBNS connector (MODACT MPS only)	P-0744 P-0746	P-0574 P-0624	P-0576 P-0626		7 x x x									
TECHNICAL PARAMETERS															
Type designation	Tripping torque range [Nm]	Operating time [s/90°]	Motor power [W]	Motor current I _n [A]	Starting motor current [A]	Volume of oil [l]	Weight [kg]	Type Number							
								basic	additional						
MPS 8/8	20 - 80	8	90	0,34	1	2	26	5 2 2 6 0	x x 1 x						
MPS 8/16		16							x x 2 x						
MPS 8/32		32							60 ¹⁾	0,53	1,15	x x 3 x			
MPS 8/63		63							20 ¹⁾	0,4	1,63	x x 4 x			
MPS 12,5/8	60 - 125	8	90	0,34	1				3,4	70	5 2 2 6 1	x x 5 x			
MPS 12,5/16		16										x x 6 x			
MPS 12,5/32		32										60 ¹⁾	0,53	1,15	x x 7 x
MPS 12,5/63		63										20 ¹⁾	0,4	0,63	x x 8 x
MPS 16/16	100 - 160	16	120	0,45	1,44	10	120	5 2 2 6 3				x x 1 x			
MPS 16/32		32										x x 2 x			
MPS 16/63		63										x x 3 x			
MPS 16/120		120										x x 4 x			
MPS 32/16	160 - 320	16	180	0,57	1,82				10	120	5 2 2 6 4	x x 1 x			
MPS 32/32		32										x x 2 x			
MPS 32/63		63										x x 3 x			
MPS 32/120		120										x x 4 x			
MPS 63/16	320 - 630	16	370	1,05	3,25	10	267	5 2 2 6 5				x x 1 x			
MPS 63/32		32										x x 2 x			
MPS 63/63		63										180	0,57	1,82	x x 3 x
MPS 63/120		120										x x 4 x			
MPS 125/16	630 - 1250	16	370	1,05	3,25				10	267	5 2 2 6 6	x x 1 x			
MPS 125/32		32										x x 2 x			
MPS 125/63		63										x x 3 x			
MPS 125/120		120										180	0,57	1,82	x x 4 x
MPS 200/45	1250 - 2000	45	370	1,05	3,25	10	267	5 2 2 6 6				x x 0 x			
MPS 400/45	2500 - 4000											x x 0 x			
NOTES: The parameter values apply under operating conditions, according to point 2. of mounting instructions; by nominal supply voltage. The permissible deviation of the operating time is within the range of -15% to +10 of the nominal value. Motor currents at U _n = 400 V, 50 Hz, U _n = 230 V, 50 Hz holds good. Voltage of 20 W and 60 W electric motors is 230 V; voltage of the others is 400 V. 1) Not available in Type No. 52 260 2) Not available in Type No. 52 265 and 52 266.					Working travel - mechanical connection with the controlled device	with lever and flange with stops flanged design without lever and flange with stops 2)	60°	x 1 x x							
							90°	x 2 x x							
							120°	x 3 x x							
							160°	x 4 x x							
							60°	x 5 x x							
							90°	x 6 x x							
					120°	x 7 x x									
					160°	x 8 x x									
ATTACHMENTS MODACT MPS actuators		Internal wiring diagram				Additional Type No.									
		with terminal board		with KBNS connector											
Potentiometer 2 x 100 Ω		P-0659, P-0711, P-0731		P-0634, P-0712		x x x 1									
Design without position transmitter		P-0701, P-0709, P-0729		P-0703, P-0710		x x x 0									
Current position transmitter CPT 1/A 4 ÷ 20 mA with built-in power supply unit		P-0702, P-0706, P-0726		P-0704, P-0708		x x x 7									
Current position transmitter CPT 1/A 4 ÷ 20 mA without built-in power supply unit		P-0701, P-0705, P-0725		P-0703, P-0707		x x x 9									
ATTACHMENTS MODACT CONTROL MPS actuators 1) Type No. 52 261 - 52 266 LCU - local control unit		Letter added in the last position of Type and diagram numbers													
		Actuator design													
		Complete with position regulator and BAM brake		Without position regulator, with BAM brake and reversing contactors		Without position regulator and BAM brake, with reversing contactors									
		with LCU	without LCU	with LCU	without LCU	with LCU	without LCU								
Without position transmitter		-	-	.xxxC P-0721	.xxxL P-0721	.xxxG P-0723	.xxxR P-0723								
Potentiometer 2 x 100 Ω		-	-	.xxxD P-0671	.xxxM P-0671	.xxxH P-0670	.xxxS P-0670								
Current position transmitter CPT 1/A 4 ÷ 20 mA with built-in power supply unit		-	-	.xxxE P-0720	.xxxN P-0720	.xxxJ P-0722	.xxxT P-0722								
Current position transmitter CPT 1/A 4 ÷ 20 mA without built-in power supply unit		.xxxA P-0788	.xxxB P-0788	.xxxF P-0721	.xxxP P-0721	.xxxK P-0723	.xxxU P-0723								

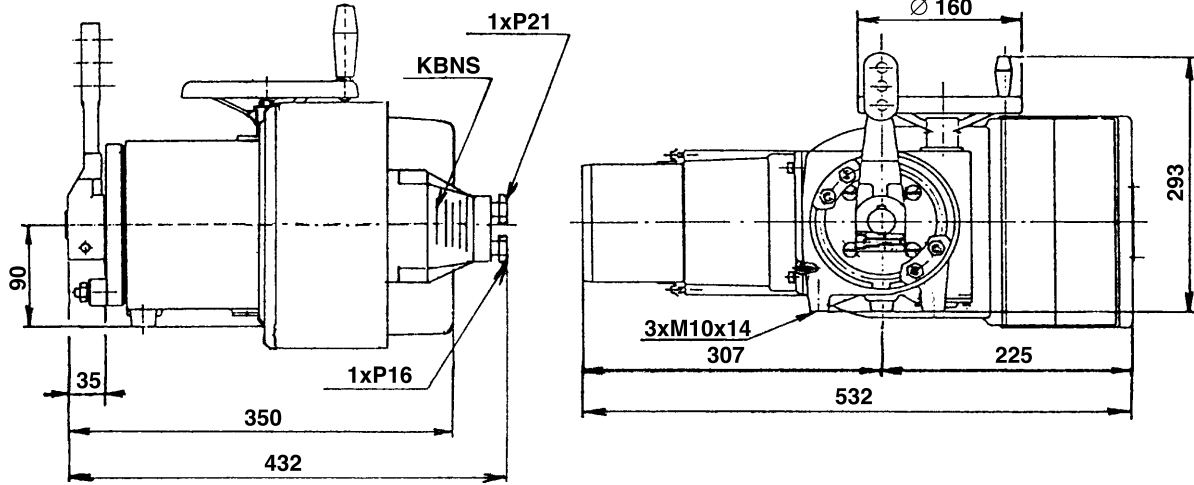
MODACT MPS electric part-turn actuator, Type No. 52 260

Design: with terminal board



P-0743

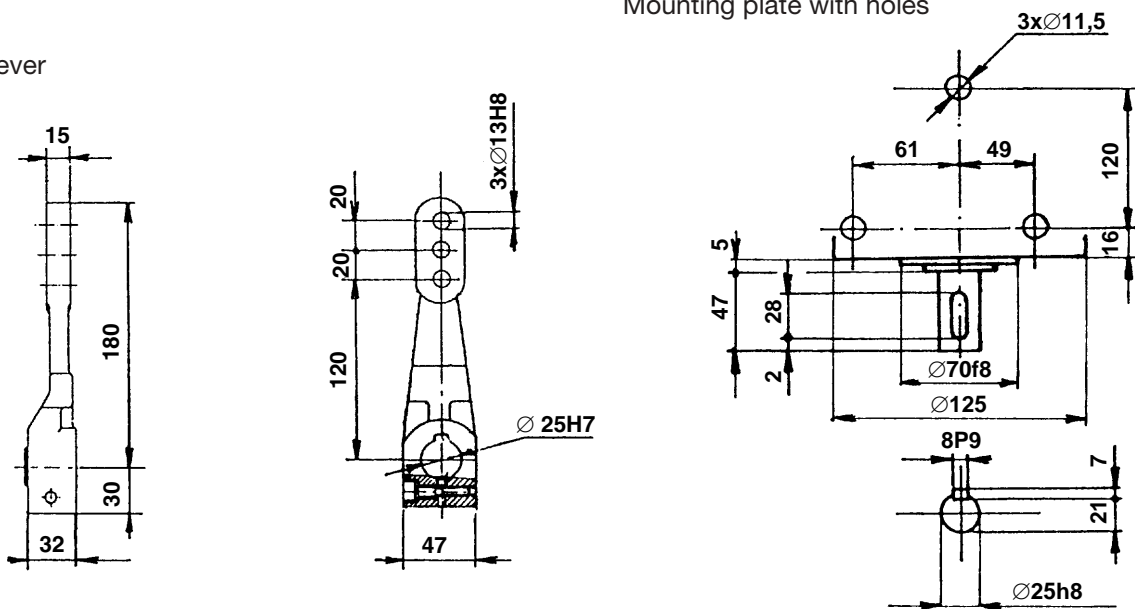
Design: with KBNS connector



P-0744

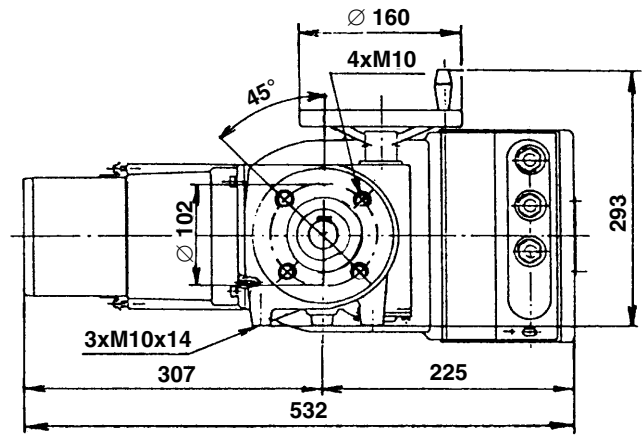
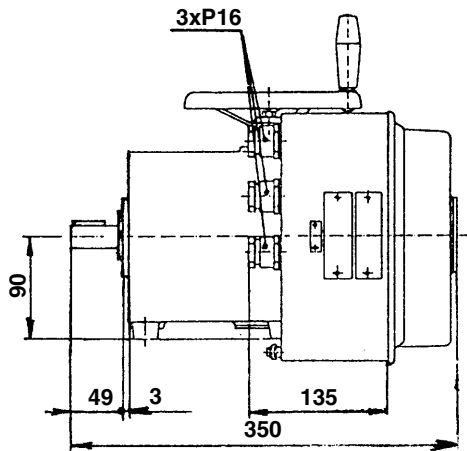
Mounting plate with holes

Lever



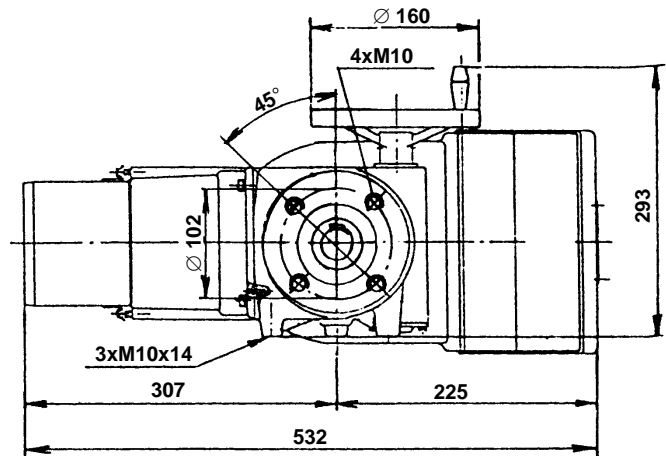
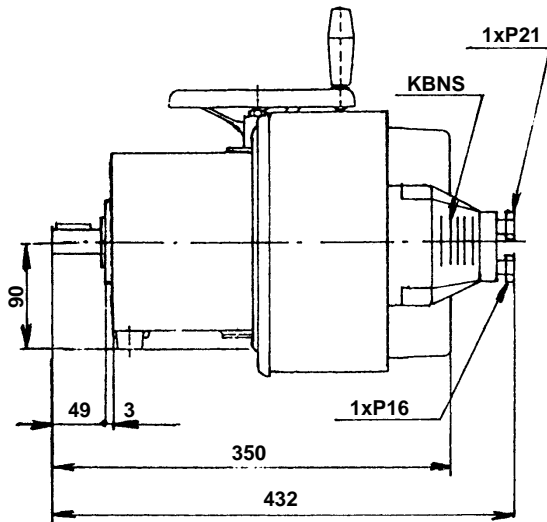
MODACT MPS electric part-turn actuator, Type No. 52 260

Flanged design with terminal board



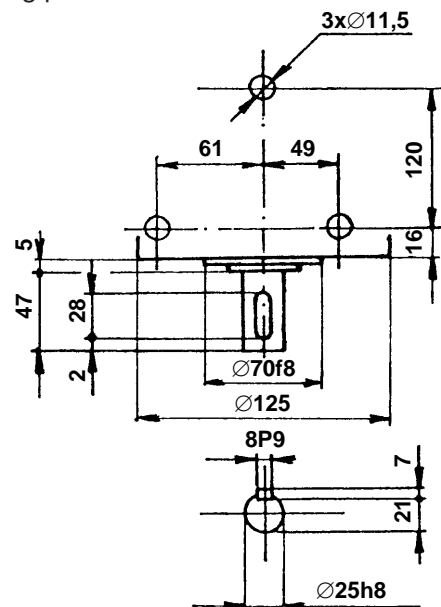
P-0745

Flanged design with KBNS connector



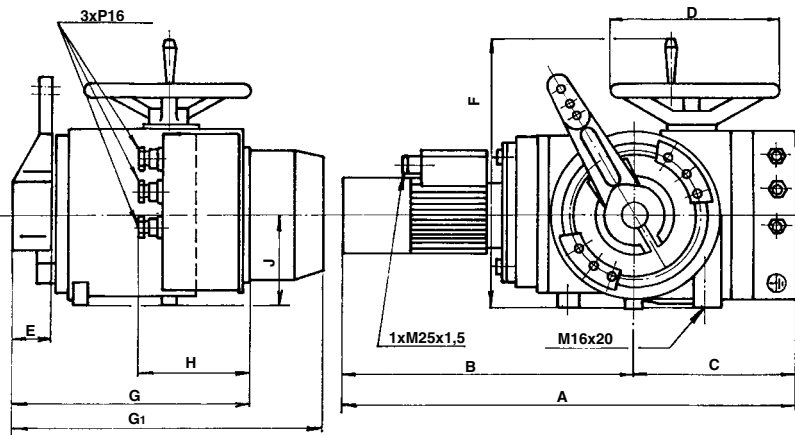
P-0746

Mounting plate with holes



MODACT MPS electric part-turn actuators, Type 52 261, 52 262

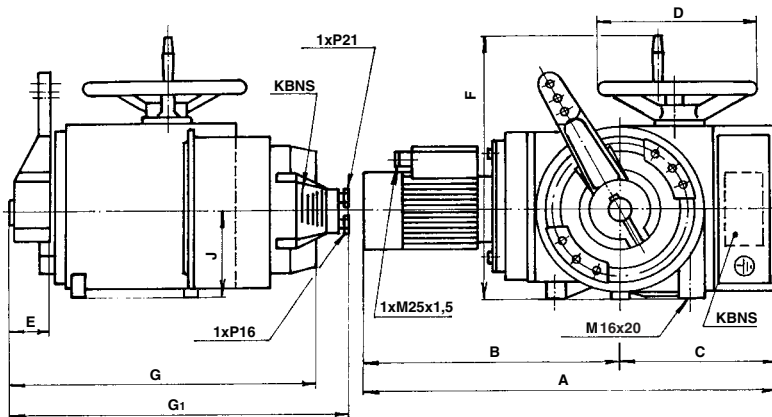
Design: with terminal board



P-0573

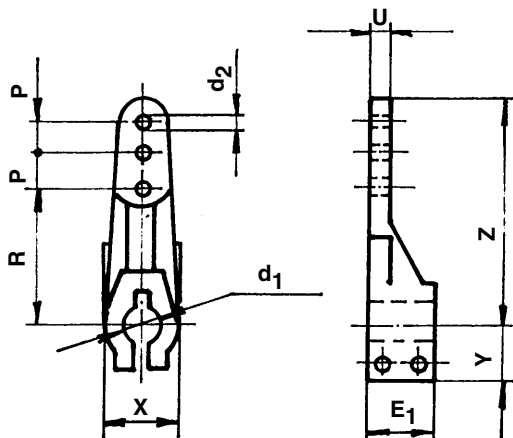
	Design	
	terminal board	KBNS
A	620	
B	386	
C	234	
D	∅ 200	
E	62	
E ₁	60	
F	346	
G	340	456
G ₁	456	480
J	120	
H	140	-
K	70	
L	90	
M	140	
N	41	
O	∅ 14	
P	40	
R	170	
S	56	
T	4	
U	25	
X	65	
Y	41	
Z	273	
d	∅ 40 h 8	
d ₁	∅ 40 H 7	
d ₂	3 x ∅ 20 H 8	
b	12 P9	
h	8	
e	35	

Design: with KBNS connector

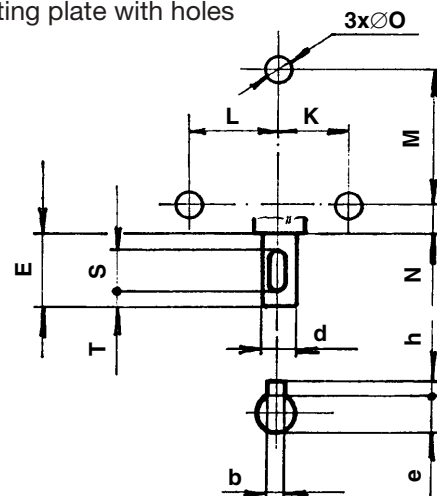


P-0574

Lever

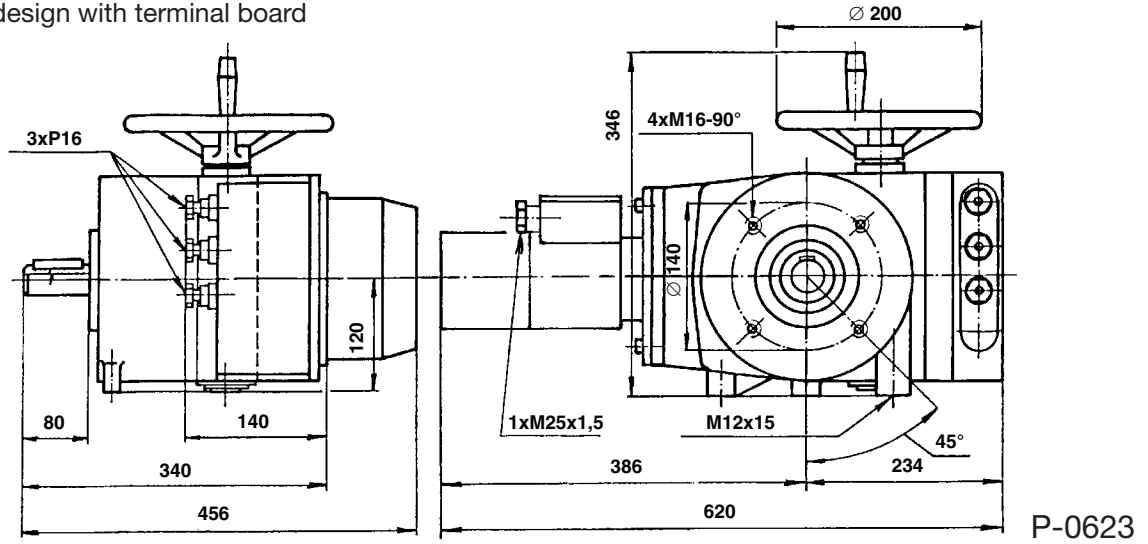


Mounting plate with holes



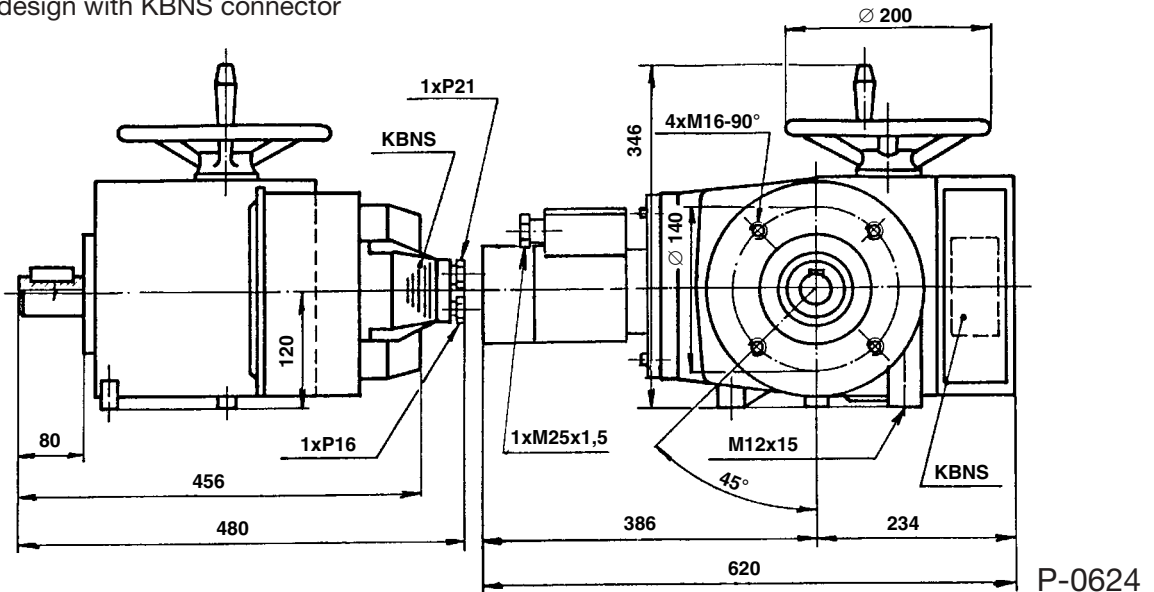
MODACT MPS electric part-turn actuators, Type No. 52 261, 52 262

Flanged design with terminal board



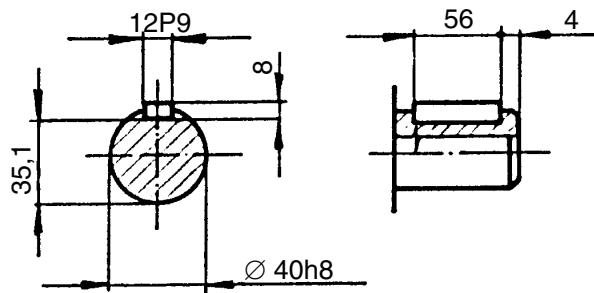
P-0623

Flanged design with KBNS connector

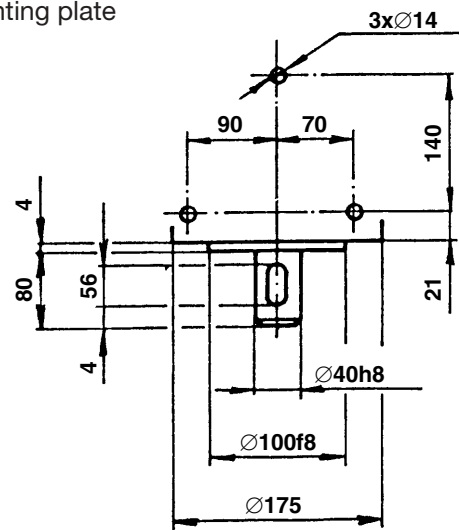


P-0624

Output shaft

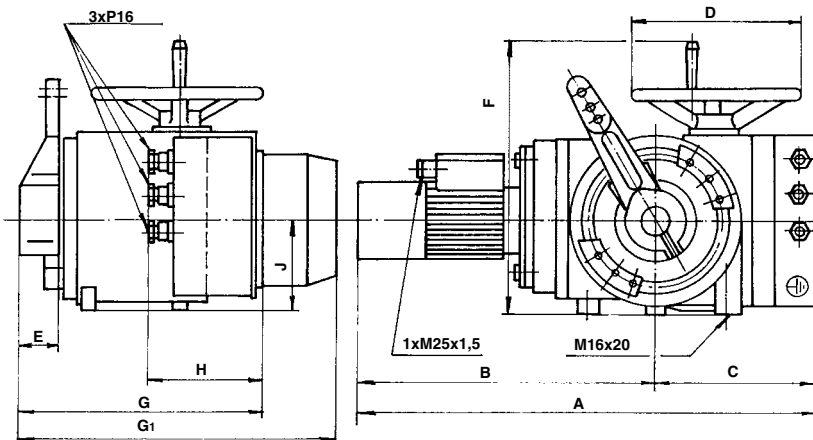


Mounting plate



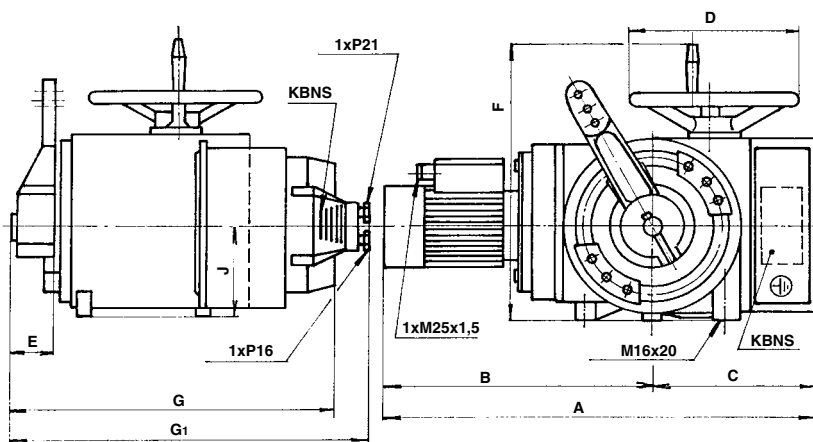
MODACT MPS electric part-turn actuators, Type No. 52 263, 52 264

Design: with terminal board



P-0575

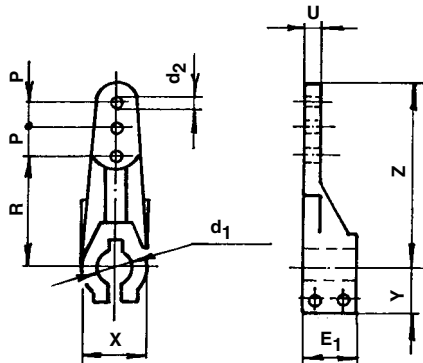
Design: with KBNS connector



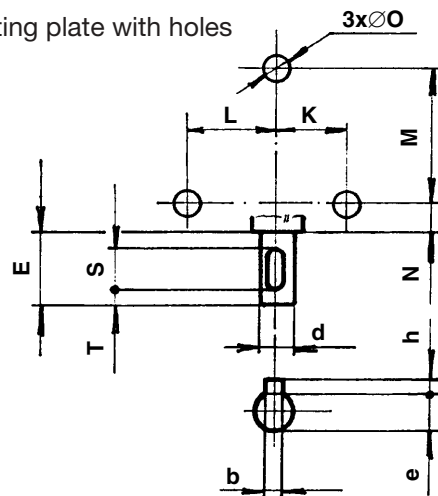
P-0576

	Design			
	Terminal board		KBNS	
	52 263	52 264	52 263	52 264
A	712	731	712	731
B	460	479	460	479
C	252			
D	Ø 250			
E	82			
E ₁	80			
F	420			
G	445		562	
G ₁	562		578	
J	145			
H	140		-	
K	100			
L	110			
M	200			
N	60			
O	Ø 18			
P	40			
R	170			
S	70			
T	7			
U	30			
X	80			
Y	55			
Z	278			
d	Ø 50 h 8			
d ₁	Ø 50 H 7			
d ₂	3 x Ø 25 H 8			
b	16 P9			
h	10			
e	43,8			

Lever

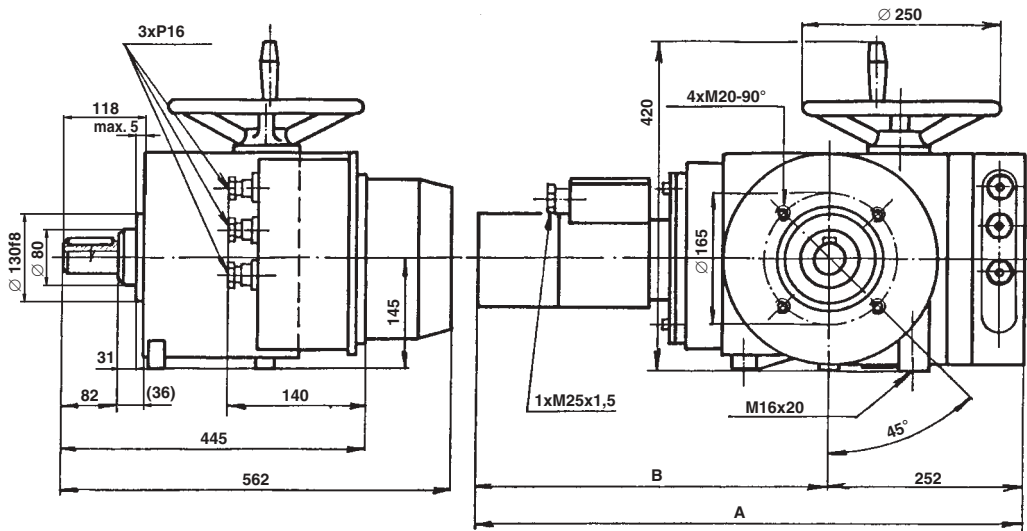


Mounting plate with holes



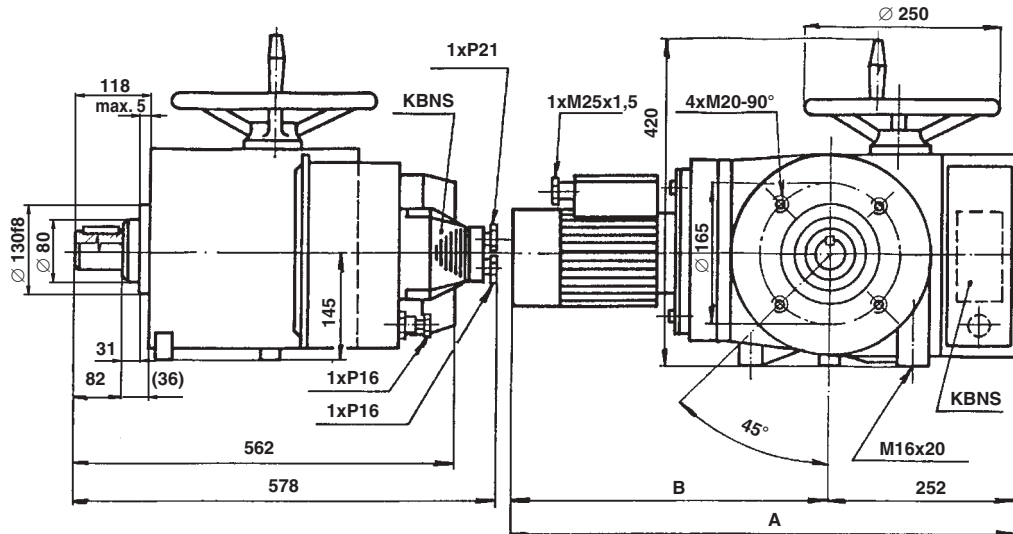
MODACT MPS electric part-turn actuators, Type No. 52 263, 52 264

Flanged design: with terminal board



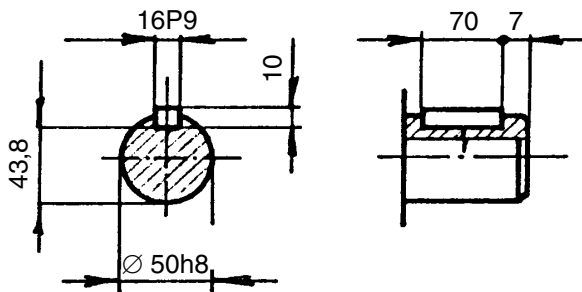
P-0625

Flanged design: with KBNS connector

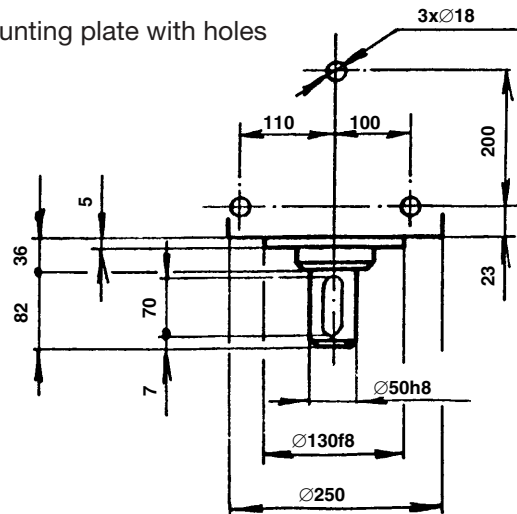


P-0626

Output shaft

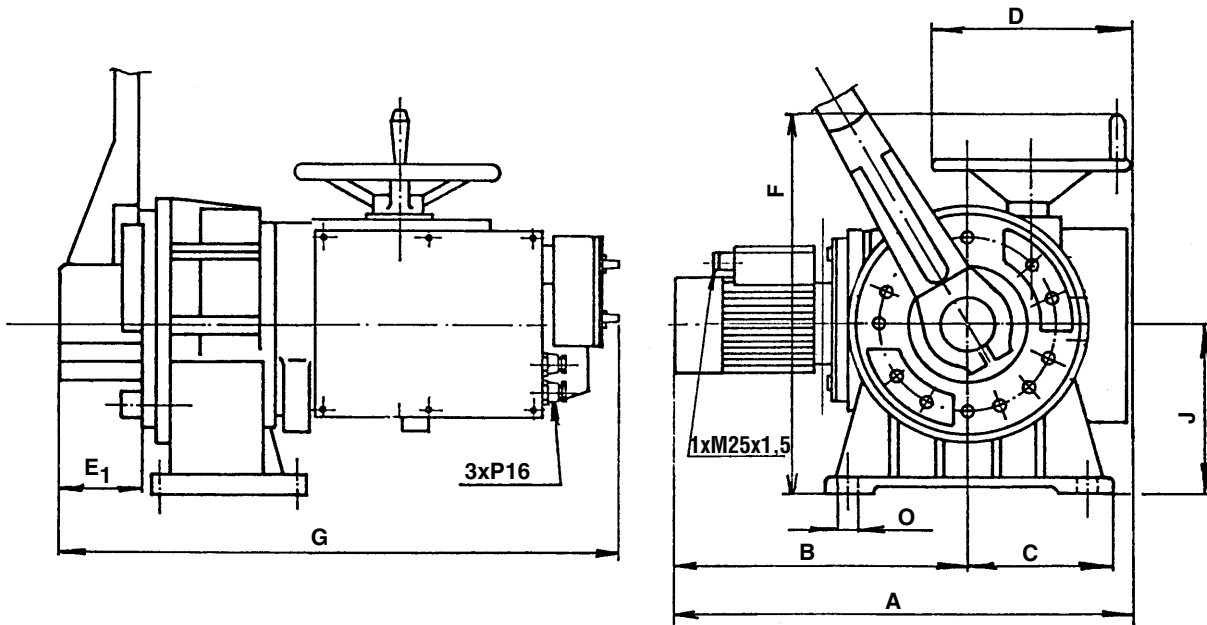


Mounting plate with holes

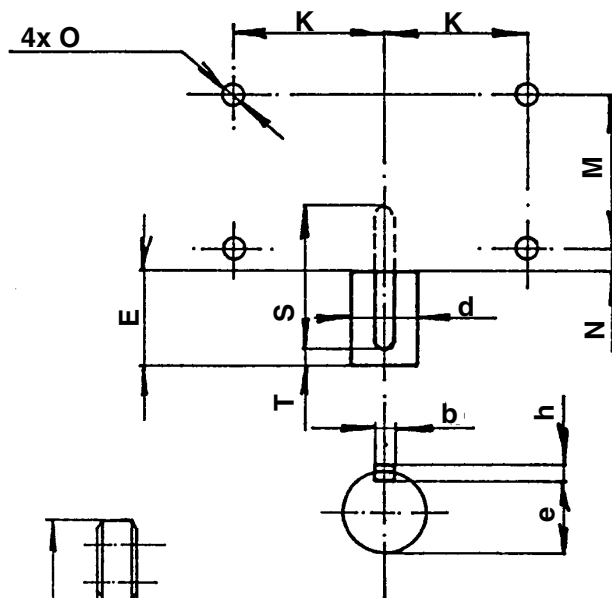


	52 263	52 264
A	712	731
B	460	479

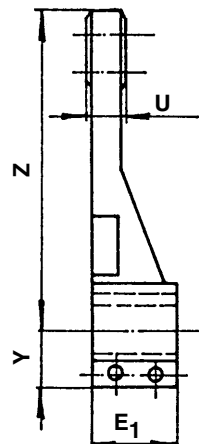
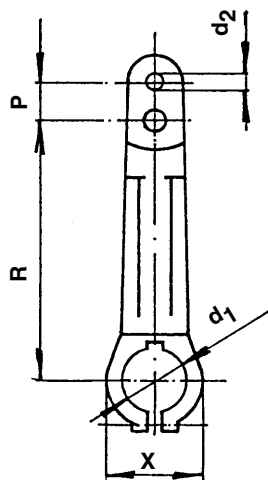
MODACT MPS electric part-turn actuators, Type No. 52 265, 52 266



Mounting plate with holes

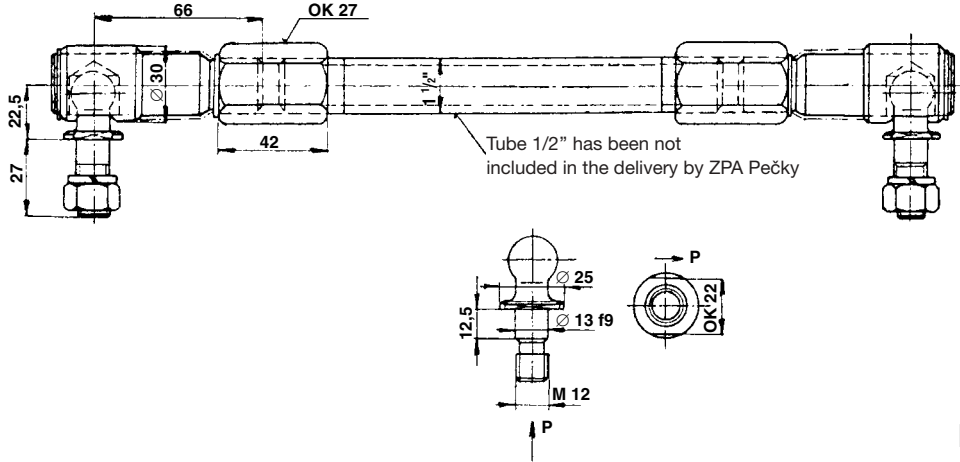


Lever



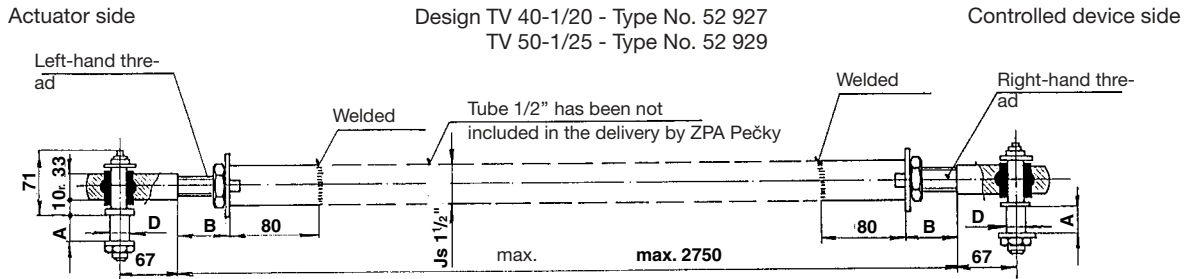
A	743
B	498
C	220
D	∅ 300
E	123
E ₁	120
F	560
G	760
J	260
K	185
M	200
N	33
O	∅ 22
P	55
R	400
S	180
T	11
U	36
X	130
Y	80
Z	490
d	∅ 90 h8
d ₁	∅ 90 H7
d ₂	∅ 40 H8
b	25 P9
h	14
e	81,3

Pull Rod TV 360, Type No. 52 933 for MODACT MPS actuators, Type No. 52 260

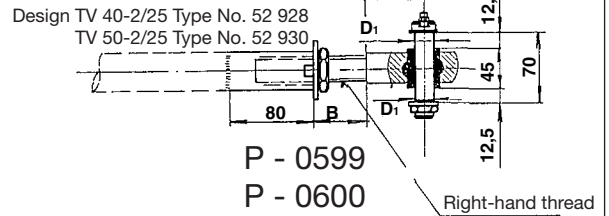


P - 0210

Pull Rods TV 40 and TV 50

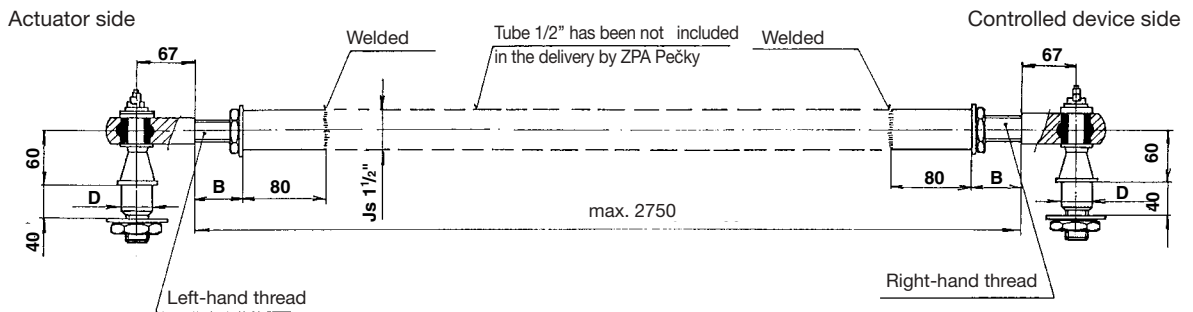


Type	Type No.	Dimensions				Designed for actuator, Type No.
		$\varnothing D j7$	$\varnothing D_1 j7$	A	B	
TV 40 - 1/20	52 927	20	25	23	min. 30 max. 50	52 261
TV 40 - 2/25	52 928			52 262		
TV 50 - 1/25	52 929	25	25	28	min. 30 max. 50	52 263
TV 50 - 2/25	52 930			52 264		

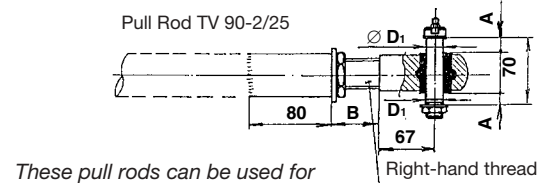


P - 0599
P - 0600

Pull Rod TV 90-1/40



Type	Type No.	Dimensions				Designed for actuator, Type No.
		$\varnothing D j7$	$\varnothing D_1 j7$	A	B	
TV 90 - 1/20	52 934	40	25	12,5	min. 20 max. 50	52 265
TV 90 - 2/25	52 935			52 266		

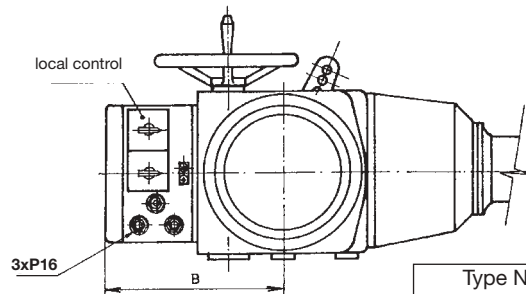
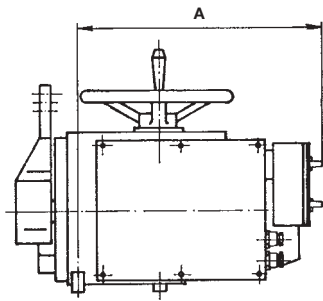


These pull rods can be used for MPR actuators, Type No. 52 223.

P - 0452

Designed for connecting the actuators to the controlled device, these pull rods provide for the transmission of movements of the output section of the actuators to the controlled device. Not included in the delivery, they should be ordered separately.

MODACT MPS Control part-turn electric actuators



Type Number	A	B
52 261, 52 262	370	250
52 263, 52 264	440	275

Internal wiring diagrams of **MODACT MPS** and **MODACT MPS Control** electric part-turn actuators

Legend:

SQ1 (MO)	- OPEN torque-limit switch	Z	- KBNS connector
SQ2 (MZ)	- CLOSE torque-limit switch	YB, M3~	- three-phase asynchronous motor with electromagnetic brake
SQ3 (PO)	- OPEN limit switch	YB	- electromagnetic brake
SQ4 (PZ)	- CLOSE limit switch	CPT1	- CPT 1/A current position transmitter
SQ5 (SO)	- OPEN signalling switch	GS	- 230 V AC/24 V DC power supply for current position transmitter
SQ6 (SZ)	- CLOSE signalling switch	T	- mains transformer
EH	- anti-condensation heater	ZP2	- three-position regulator
BQ1. BQ2	- potentiometer 1x 100 Ω (V1, V2)	BAM 001	- electromagnetic brake
SA1	- LOCAL/REMOTE control switch	KO	- directional relay for the OPEN direction
SA2	- OPEN/CLOSE switch	KZ	- directional relay for the CLOSE position
B	- blinker	F	- thermal relay
M1 ~	- one-phase asynchronous motor		
M3 ~	- three-phase asynchronous motor		

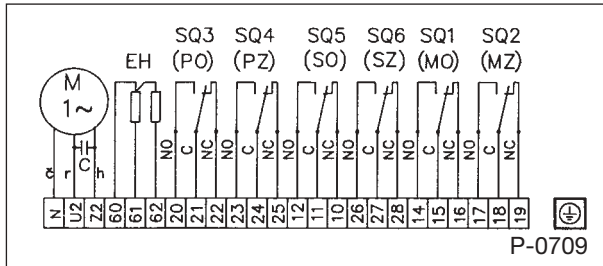
Positions of the LOCAL/REMOTE control switches:

„D“	- remote
„M“	- local
„O“	- open
„Z“	- close

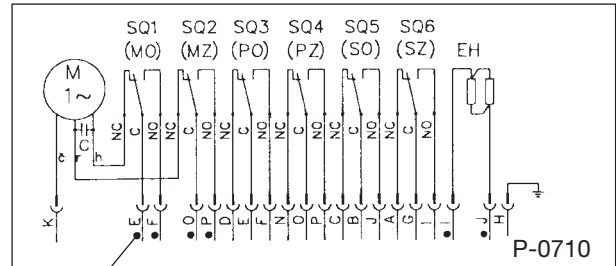
Internal wiring diagrams of **MODACT MPS** part-turn electric actuator, Type No. 52 260

- without transmitter

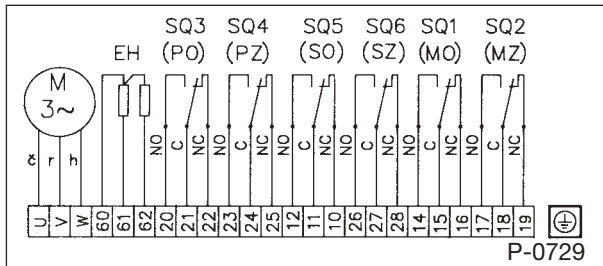
- with terminal board



- with KBNS connector

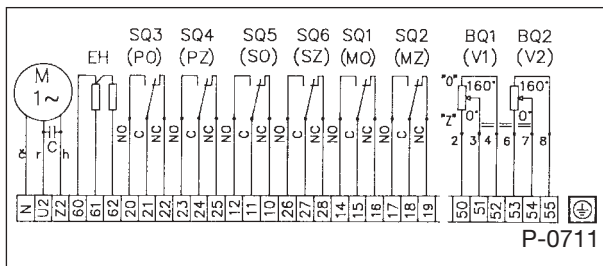


distinguishing mark

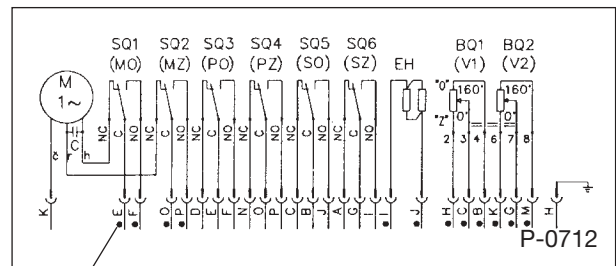


- potentiometer 2 x 100 Ω

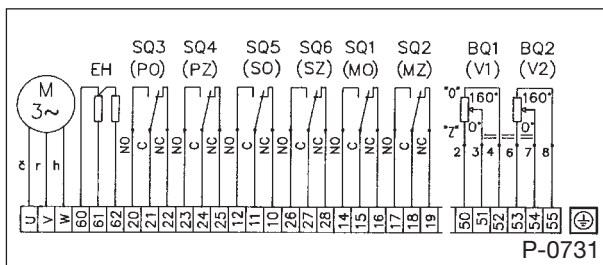
- with terminal board



- with KBNS connector



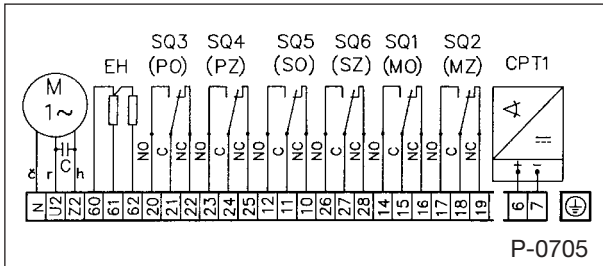
distinguishing mark



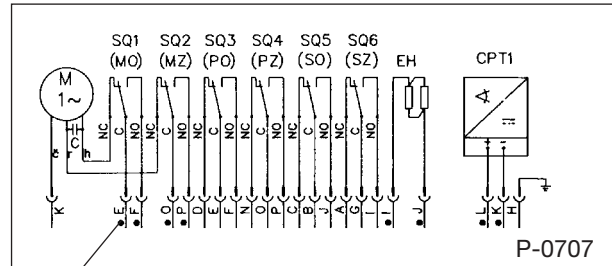
Internal wiring diagrams of **MODACT MPS** part-turn electric actuator, Type No. 52 260
with current transmitter CPT 1/A

– one-phase electric motor

with terminal board
without built-in power supply

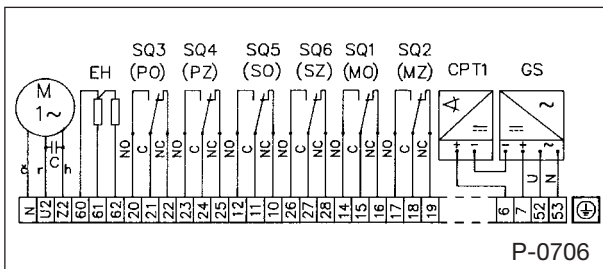


with KBNS connector
without built-in power supply

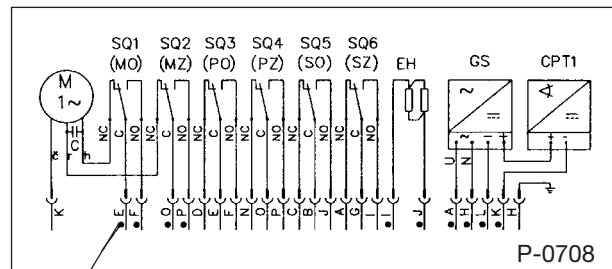


distinguishing mark

with built-in power supply



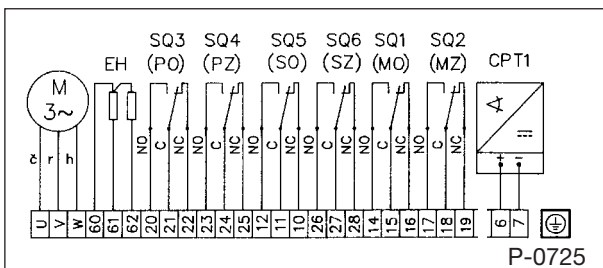
with built-in power supply



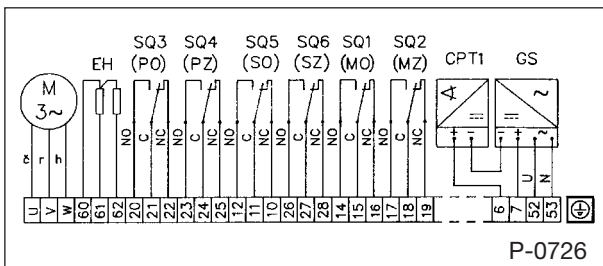
distinguishing mark

– three-phase electric motor

with terminal board
without built-in power supply

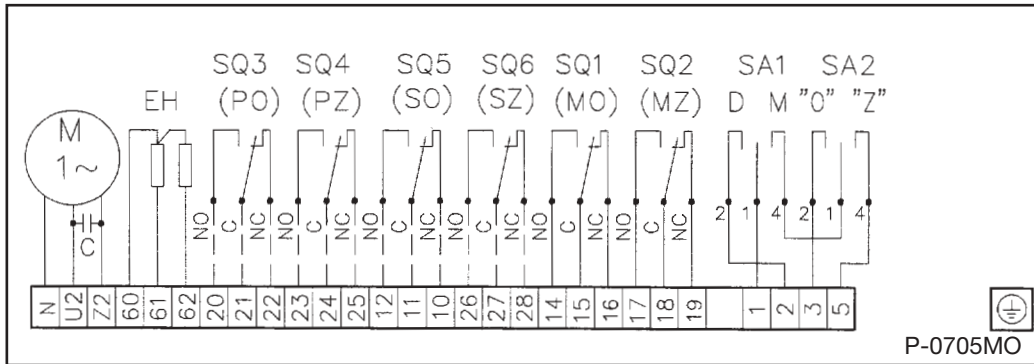


with built-in power supply

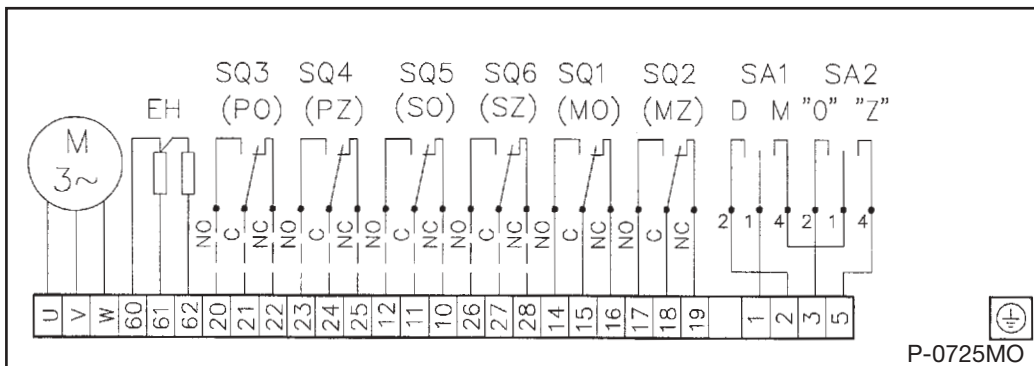


Internal wiring diagrams of **MODACT MPS** part-turn electric actuators,
Type No. 52 260.8xxx

- with one-phase electric motor

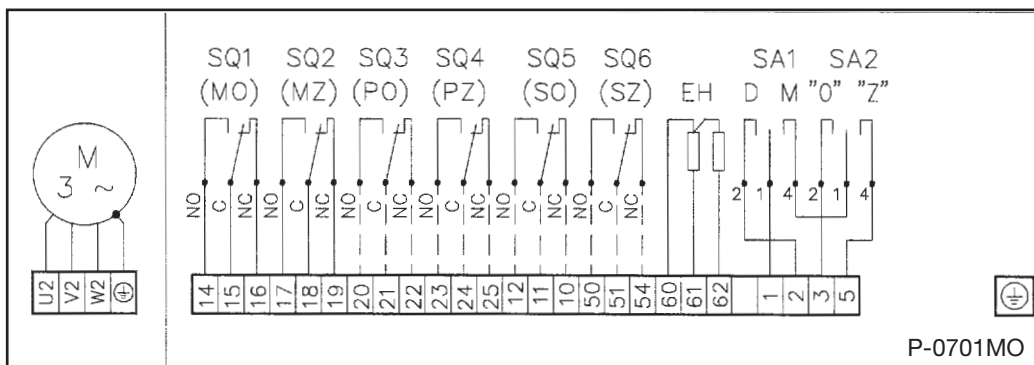


- with three-phase electric motor



Internal wiring diagrams of **MODACT MPS** part-turn electric actuators,
Type No. t.č. 52 261-6.8xxx

- with three-phase electric motor

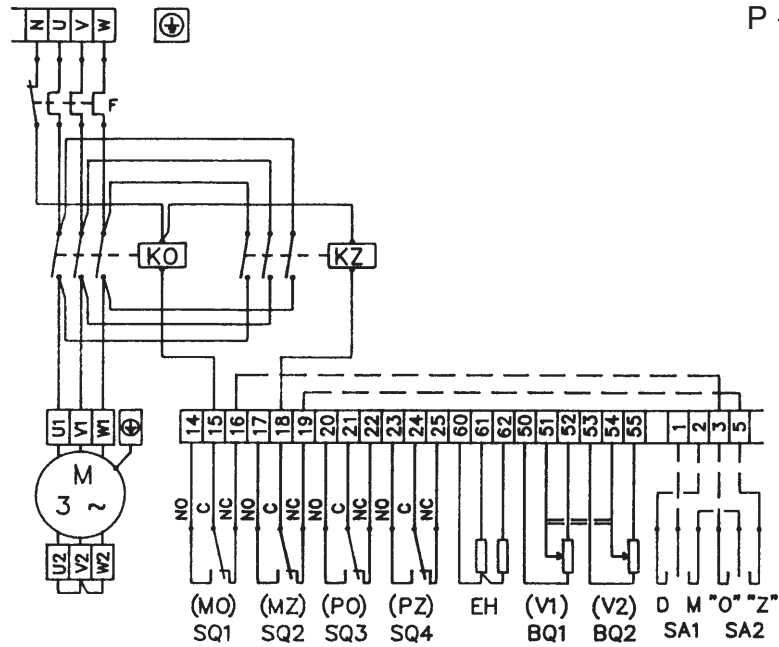


The designation 52 26x.8xxx is reserved for the version with the terminal board and the block of local control.

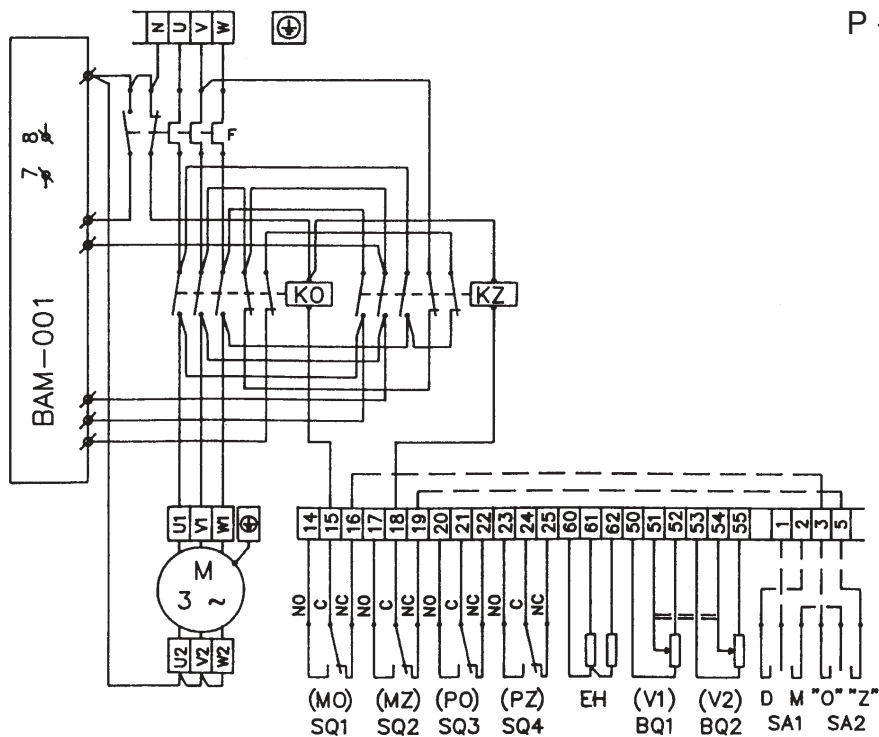
Internal wiring diagrams of **MODACT MPS Control** actuators

- with potentiometer 2 x 100 Ω

- with contactor box



- with contactor box and electronic brake BAM

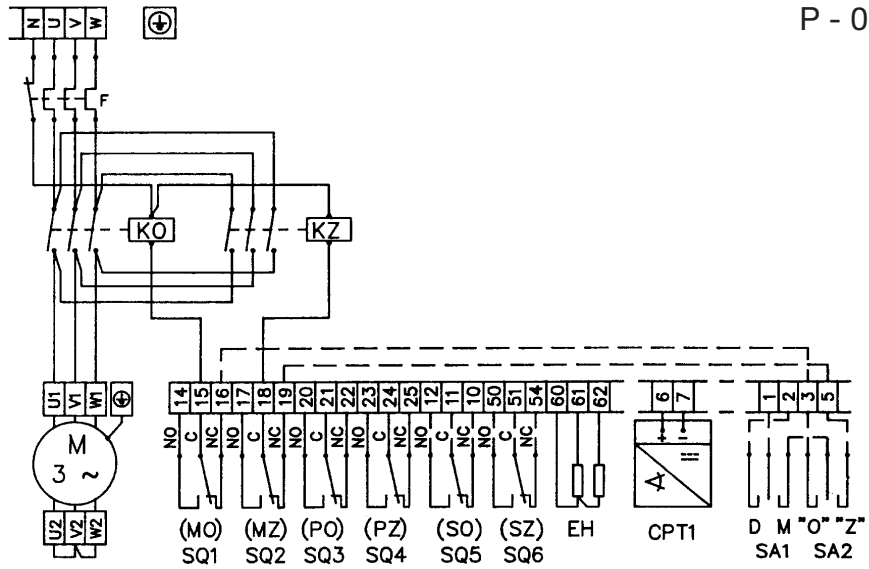


Notice:

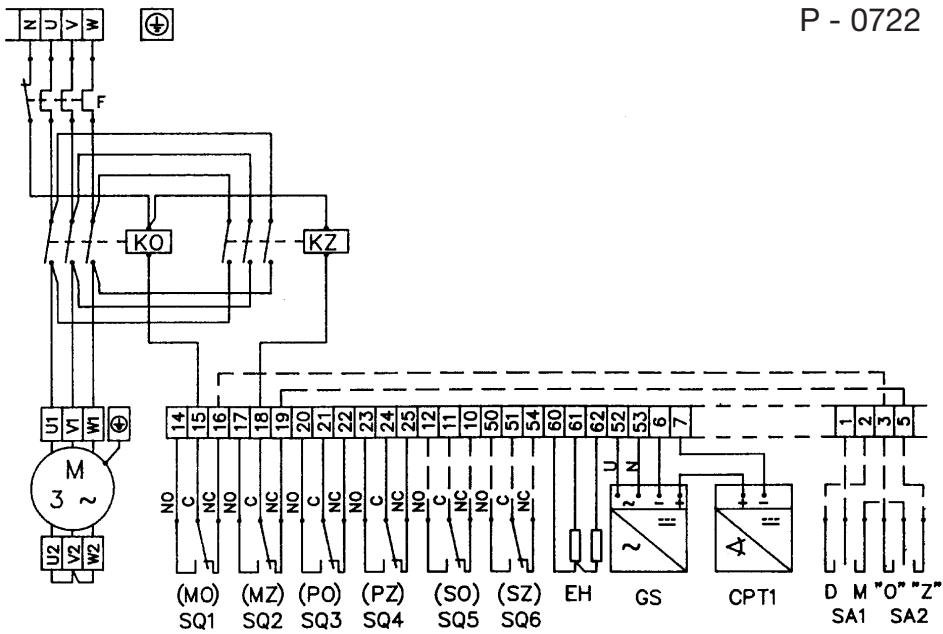
The user should provide for connection of the two-wire circuit of the CPT 1/A current transmitter to the electric earth of the associated regulator, computer, etc. The connection should be made only at a single point in any section of the circuit outside the electric actuator.

Internal wiring diagrams of **MODACT MPS Control** actuators
 – with current transmitter CPT1/A and contactor combination

– without built-in power supply for transmitter
 or without transmitter



– with built-in power supply



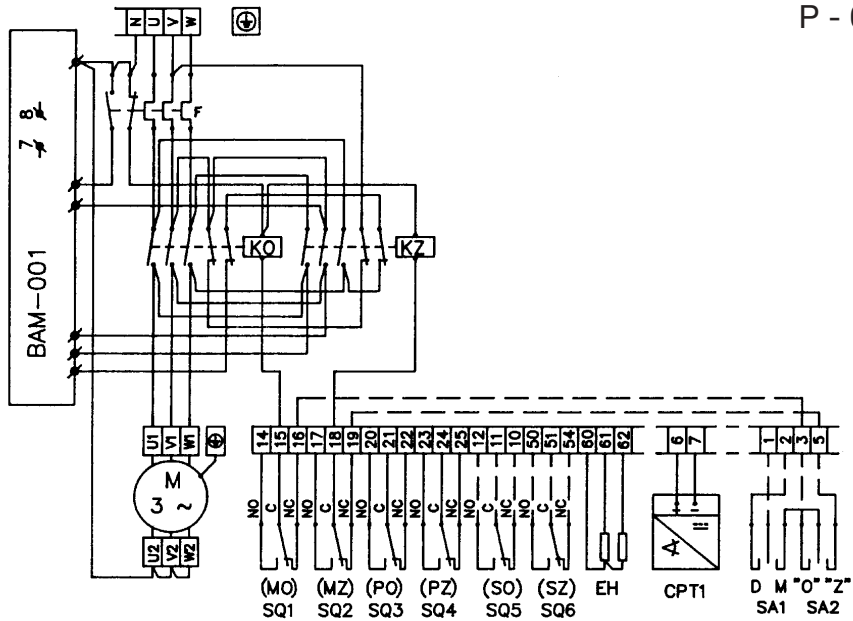
Notice:

The user should provide for connection of the two-wire circuit of the CPT 1/A current transmitter to the electric earth of the associated regulator, computer, etc. The connection should be made only at a single point in any section of the circuit outside the electric actuator.

Internal wiring diagrams of **MODACT MPS Control** actuators
 - with current transmitter CPT1/A, contactor combination and electronic brake BAM-001

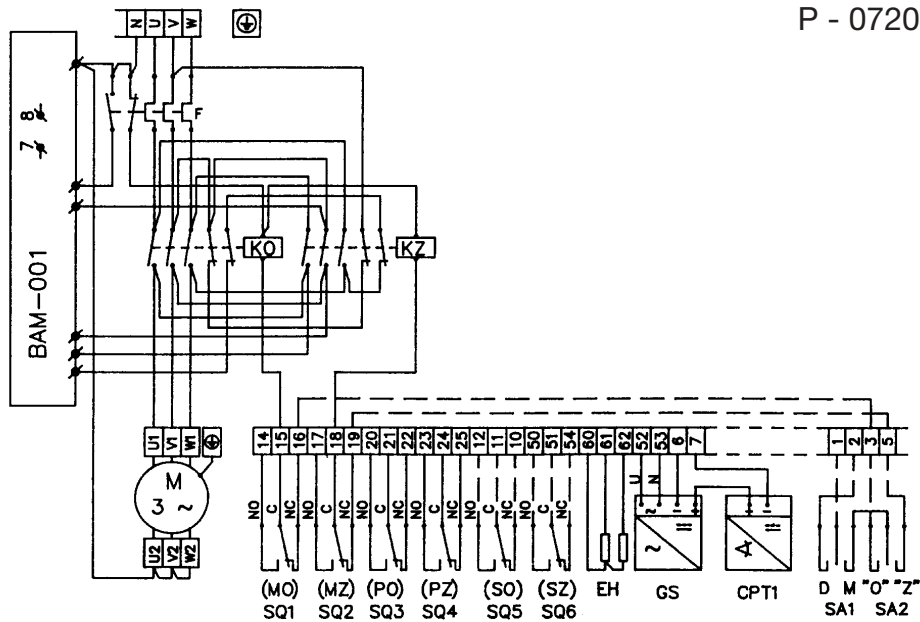
- without built-in power supply for transmitter
 or without transmitter

P - 0721



- with built-in power supply

P - 0720

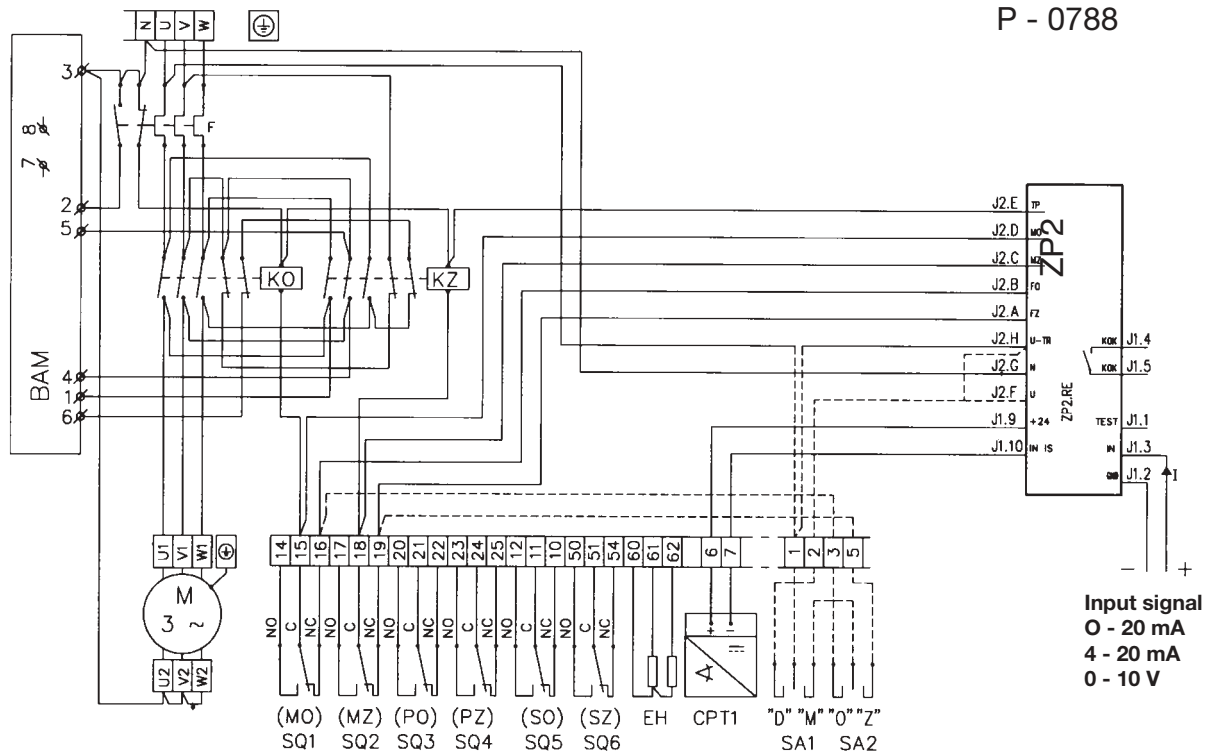


Notice:

The user should provide for connection of the two-wire circuit of the CPT 1/A current transmitter to the electric earth of the associated regulator, computer, etc. The connection should be made only at a single point in any section of the circuit outside the electric actuator.

Internal wiring diagram of **MODACT MPS Control** part-turn electric actuator
 - with current transmitter, built-in contactor combination, thermal relay,
 position regulator ZP2 and dynamic brake BAM-001

P - 0788



NOTES:

1. The input signal should be applied to the regulator terminals designated J1.3 - positive pole and J1.2 - negative pole.
2. The feedback signal can be brought out provided that its galvanic separation from the input signal has been ensured.
3. The TEST signal can be activated by an external make contact. This signal need not be connected.
4. From the terminals J1.4 and J1.5, a failure signal can be brought out. This signal is galvanically separated from the regulator circuits. The maximum voltage which can be applied to these terminals, is 24 V.
5. Link J2.F - J2.H has been provided by the actuator manufacturer on the understanding that no local control block has been incorporated. In this case, the J2.H terminal should be connected direct to terminal 2 of the thermal relay F.

NOTES:

In the design variant with the CPT 1/A current transmitter, the user should provide for connection of the two-wire circuit of the current transmitter to the electric earth of the associated regulator, computer, etc. The connection should be made only at a single point in any section of the circuit outside the electric actuator. The voltage between electronics and the current transmitter case should not exceed 50 V DC.

The CPT 1/A current transmitter circuits in the ZP2.RE regulator are connected with the input signal circuits and circuits connected to the TEST terminal of the regulator. Only one point in one of these three circuits can be connected to the electrical ground, other circuits must not be grounded.



Electric actuators and switchboards
Development, production, sales, services

SURVEY OF PRODUCED ACTUATORS

KP Mini

Electric part-turn actuators (up to 30 Nm)

Modact MOK, MOK-P, MOK-P EEx

Electric part-turn actuators for ball valves and flaps

Modact MON

Electric multi-turn actuators

Modact MO EEx

Explosion proof electric multi-turn actuators

Modact MOA

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

Modact MOA OC

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

Modact Variant MPR

Electric part-turn lever actuators with a variable output speed

Modact Konstant MPS

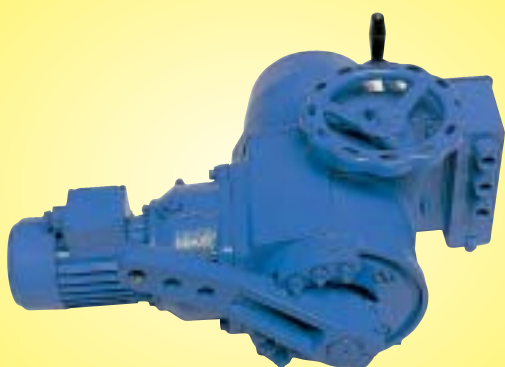
Electric part-turn lever actuators with a constant output speed

Modact MTN

Electric linear thrust actuators with a constant output speed



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