STANDARD
SO 2

STANDARD EQUIPMENT

- Voltage 230 V AC, 3x400 V AC
- Connection to terminal board
- 2 torque switches
- 2 position switches
- 2 additional position switches
- Mechanical connection - flange F10 (ISO 5210)
- Space heater
- Thermal switch for space heater
- Local position indicator
- Manual control
- Protection code IP 67

Specification table SO 2

Order code **062. X - X X X X X / X X**

Climate resistance	Ambient temperature	Corrosivity category [10]	Enclosure	
Standard	-25°C ... +55°C	C3	IP 67	1
	-25°C ... +55°C	C3	IP 68 [11]	5
Tropics and Wet	-25°C ... +55°C	C4	IP 67	2
Cold	-50°C ... +40°C	C3	IP 67	3
Tropical dry and Dry	-25°C ... +55°C	C3	IP 67	6
Sea	-50°C ... +40°C	C4	IP 67	7
Arctic	-60°C ... +40°C	C3	IP 67	8

Electric connection	Voltage and frequency [25]		Wiring diagram	
To terminal board	230 V AC	50 Hz	Z404w	0
	220 V AC	50 Hz		L
	3x400 V AC	50 Hz	Z78t	1
	3x380 V AC	50 Hz		M
	3x400 V AC [28]	50 Hz	Z303m	2
	3x380 V AC [28]	50 Hz	Z303m	N
	24 V AC	50 Hz	Z626f, Z626m	A
	24 V DC	-		
To connector [21]	230 V AC	60 Hz	ZK404w	5
	220 V AC	60 Hz		P
	3x400 V AC	60 Hz	ZK78t	7
	3x380 V AC	60 Hz		R
	24 V AC	60 Hz	ZK626f, ZK626m	C
	24 V DC	-		

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Notes:
10) Climate resistance according to ISO 9223/ EN ISO 12944-2.
11) IP 68 -10 m / 48 hours
21) The version with connector in -40° C only.
25) Different voltages after agreement with producer (110 / 120 V AC 60 Hz).

Order code **062. X - X X X X X / X X**

Electric motor						Operating speed [34]	
24 V AC/DC • 65 W		230 (220) V AC • 60 W		3x400 (3x380) V AC • 90 W			
Switching-off torque [32]	Max. load torque [33]	Switching-off torque [32]	Max. load torque [33]	Switching-off torque [32]	Max. load torque [33]		
-	-	-	-	7.5 ÷ 12 Nm	10 Nm	40 min^{-1}	U
						20 min^{-1}	V
						12.5 min^{-1}	W
						10 min^{-1}	Y
7.5 ÷ 12 Nm	10 Nm	7.5 ÷ 12 Nm	10 Nm	12 ÷ 20 Nm	17 Nm	40 min^{-1}	A
						20 min^{-1}	5
						12.5 min^{-1}	6
						10 min^{-1}	7
15 ÷ 25 Nm	21 Nm	15 ÷ 25 Nm	21 Nm	24 ÷ 40 Nm	34 Nm	20 min^{-1}	B
						12.5 min^{-1}	8
						10 min^{-1}	9
24 ÷ 40 Nm	34 Nm	24 ÷ 40 Nm	34 Nm	36 ÷ 60 Nm	50 Nm	12.5 min^{-1}	C
						10 min^{-1}	Z
30 ÷ 50 Nm	42 Nm	30 ÷ 50 Nm	42 Nm	48 ÷ 80 Nm	68 Nm	10 min^{-1}	D
		230 (220) V AC - 120 W					
-	-	24 ÷ 40 Nm	34 Nm	-	-	20 min^{-1}	L
-	-	36 ÷ 60 Nm	50 Nm	-	-	12.5 min^{-1}	M
-	-	48 ÷ 80 Nm	68 Nm	-	-	10 min^{-1}	N
				"Open-Close" mode [35]			
				3x400 (3x380) V AC - 250 W			
				36 ÷ 60 Nm	50 Nm	40 min^{-1}	R
				3x400 (3x380) V AC - 370 W			
				48 ÷ 80 Nm	68 Nm	40 min^{-1}	P

Only for "Open - Close"duty, S2-10 min., or S4-25%, 6 - 90 cycles/hour.						Operating speed [34]	
24 V AC/DC - 120 W		230 (220) V AC - 120 W		3x400 (3x380) V AC - 180 W			
Switching-off torque [32]	Max. load torque	Switching-off torque [32]	Max. load torque	Switching-off torque [32]	Max. load torque		
-	-	-	-	24 ÷ 40 Nm	34 Nm	40 min^{-1}	S
-	-	-	-	36 ÷ 60 Nm	50 Nm	20 min^{-1}	E
-	-	-	-	48 ÷ 80 Nm	68 Nm	12.5 min^{-1}	K
-	-	-	-	60 ÷ 100 Nm	85 Nm	10 min^{-1}	F
30 ÷ 45 Nm	38 Nm	30 ÷ 45 Nm	38 Nm	-	-	20 min^{-1}	H
48 ÷ 72 Nm	61 Nm	48 ÷ 72 Nm	61 Nm	-	-	12.5 min^{-1}	J
60 ÷ 90 Nm	76 Nm	60 ÷ 90 Nm	76 Nm	-	-	10 min^{-1}	G

Control board version	Switches	Revolutions [44]		Wiring diagram	
		Without transmitter	With potentiometer		
Electromechanical control board with step counter unit without local controls	S1/S2, S3/S4, S5/S6	0.5 ÷ 330	0.84; 1.5; 2.8; 5; 9; 16; 30; 55; 100; 180; 330 [49]	Z403p/ZK403p, Z626f/ZK626f	1
	S1/S2, S3/S4,with tandem switches S13/S14 [47]	0.5 ÷ 330	0.84; 1.5; 2.8; 5; 9; 16; 30; 55; 100; 180; 330 [49]	Z461a/ZK461a, Z626m/ZK626m	K
Electromechanical control board with step counter unit with local controls [46]	S1/S2, S3/S4, S5/S6	0.5 ÷ 330	0.84;1.5; 2.8; 5; 9; 16; 30; 55; 100; 180; 330 [49]	Z635f/ZK635f, Z634h/ZK634h	5
	S1/S2, S3/S4,with tandem switches S13/S14 [47]	0.5 ÷ 330	0.84; 1.5; 2.8; 5; 9; 16; 30; 55; 100; 180; 330 [49]	Z636c/ZK626c, Z634k/ZK634k	U

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Notes:

32) Specify the switching-off torque in your order by words. If not stated, it is adjusted to the maximum value of the chosen range.

33) The maximum load torque equals:
- according to table - for ON/OFF - duty cycle S2-10min, or S4-25%, 6 - 90 cycles per hour
- switching-off torque multiplied by 0.7 for duty cycle S4-25%, 90 - 1200 cycles perhour

34) Deviation of operating speed for the DC electric motor is from -50% up to +30% depending on load. For other voltages the deviation is ± 10%

35) Only for "Open-Close" duty, S2-10 min, or S4-25%, 6–90 cycles/hour. Dimensions on request.

44) Position switches S3, S4 are being set to specified number of revolutions. If it is not stated in the order, they will be set to 16 operating revolutions. When required settings are out of values listed in table, ohmic value of potentiometer will be reduced accordingly. If less then 75% of revolutions is required, value of output signals from electronic transmitter will be reduced accordingly as well.

46) Local controls module only till -40° C. Dimensional drawing P-2148/G.

Order code

062. X - X X X X X / X X

Transmitter		Connection	Connection	Wiring diagram	
Without transmitter		-	-	-	A
Potentiometer	Single	-	1 x 100 Ω	Z5c/ZK5c	B
			1 x 2 000 Ω		F
	Double [22]	-	2 x 100 Ω	Z6c/ZK6c	K
			2 x 2 000 Ω		P
Electronic position transmitter [51) 52)]	Passive	2-wire	4 - 20 mA	Z10g/ZK10g	S
		3-wire	0 - 20 mA	Z257j/ZK257j	T
			4 - 20 mA		V
			0 - 5 mA		Y
	Active [59)]	2-wire	4 - 20 mA	Z269r/ZK269r	Q
		3-wire	0 - 20 mA	Z260h/ZK260h	U
			4 - 20 mA		W
			0 - 5 mA		Z
Current [51) 52)] CPT	Passive	2-wire	4 - 20 mA	Z10g/ZK10g	I
	Active [59)]			Z269r/ZK269r	J
Current [51) 52)] DCPT 3M	Passive	2-wire	4 - 20 mA	Z10g/ZK10g	2
	Active [59)]			Z269r/ZK269r	3

Mechanical connection	Operating stroke	Connecting height		Dimensional drawing	
Flange ISO 5210 (DIN 3210)	F07	B3	Ø16	P-1377	A
		B4	Ø25		B
	F10	B3	Ø20	P-1378/A	C
		B1	Ø42	P-2030a	Y
	F07/F10 [61) 65)] (G0) With adapter for raising spindle	A	Ø10 [66)]	ISO 5210, F10-A P-1380/A ISO 5210, F07-A P-1380/B neštandard G0 P-1380/C	D
			Tr20x4 LH		E
			Tr24x4 LH		F
			Tr24x5 LH		G
			Tr25x5 LH		H
			Tr26x5 LH		J
Flange - Non-standard	F10	C	14/Ø28/Ø42	P-1378/A	M
	G0	E	Ø20	P-1378/B	K
	G0	C	14/Ø28/Ø42		L
	F07	-	Ø20	P-1379	N
		-	Ø30		P
	F10	-	Ø20		Q
		-	Ø30		R
ГОСТ Р 55510	64x30/4xM6	MČ	11x11	P-1420	S
		MK	35°/37°/; Ø32/Ø25	P-1453 [67)]	T
		AČ	19x19	P-1454	U
	Ø104/4xØ15	AK	35°/37° Ø46/Ø32	P-1452/A [68)]	V
				P-1452/B [69)]	W

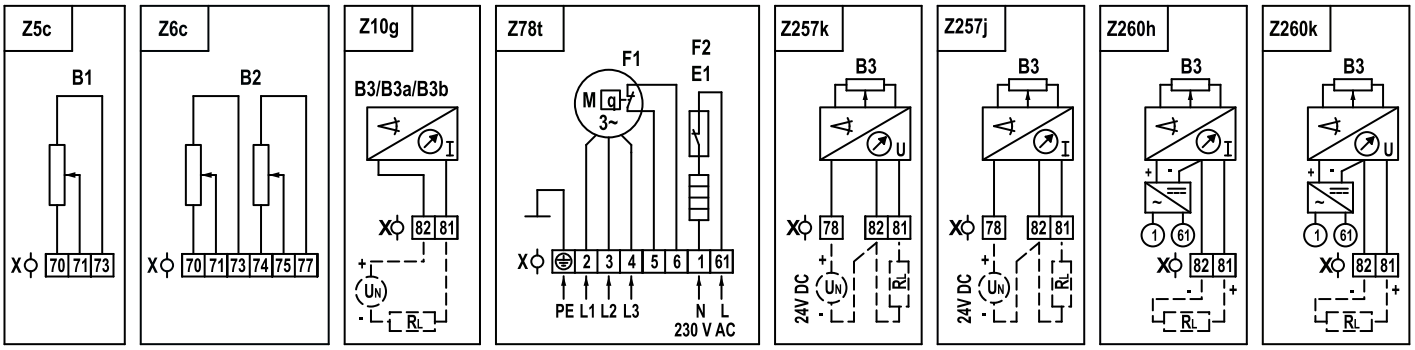
Additional equipment		Wiring diagrams		
	No additional equipment; Adjusted to max. switching-off torque of chosen range and stroke 16 revolutions	-	0	1
B	Adjustment of switch-off torque to required value	-	0	3
C	Adjustment of revolutions to required value	-	0	4
H	Gold coated contacts of microswitches, details after consultation with producer	-	4	0
Allowed combination and code: B+C=06				

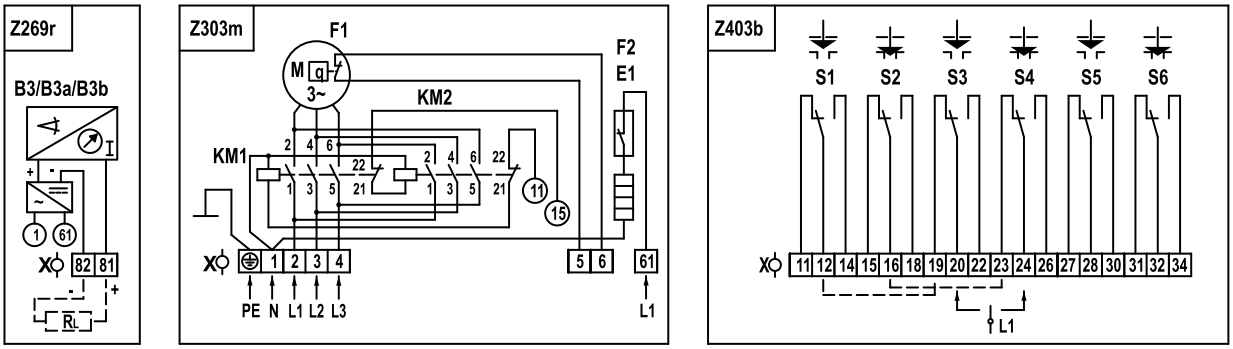
Notes:

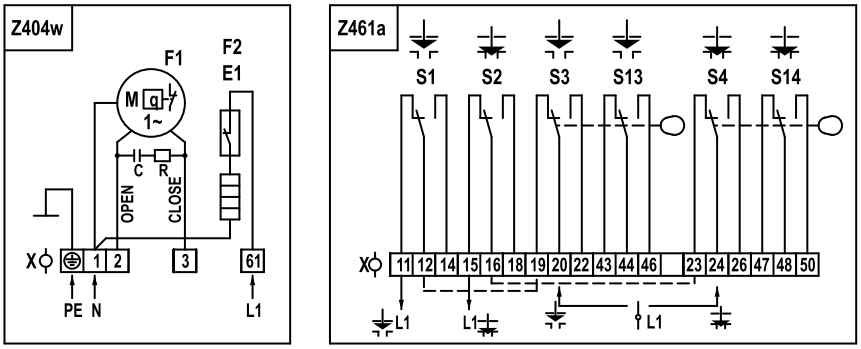
47) Tandem switches S13, S14 for 24 V DC version in agreement with the manufacturer.
49) For ON-OFF duty when choosing number of operating revolutions more than 100, please consider appropriate operating speed, so that actuator does not exceed duty cycle S2-10 min.
51) Not valid for tempereture - 60 °C.
52) CPT - capacitive transmitter, DCPT 3M - electronic contactless transmitter.
53) Double potentiometer for 3-phase versions available upon agreement with the producer.
59) Active position transmitterfor version 24 V AC/DC only after agreement with producer.
61) Flange F07-A up to switch-off torque of 40 Nm.
65) Diameter Ø60 can be reached by turning the centring ring over.
66) Bore without a thread. Max. thread diameter for the rising spindle is Ø26.
67) Max. raising spindle 50 mm.
68) Max. raising spindle 100 mm.
69) Max. raising spindle 150 mm.

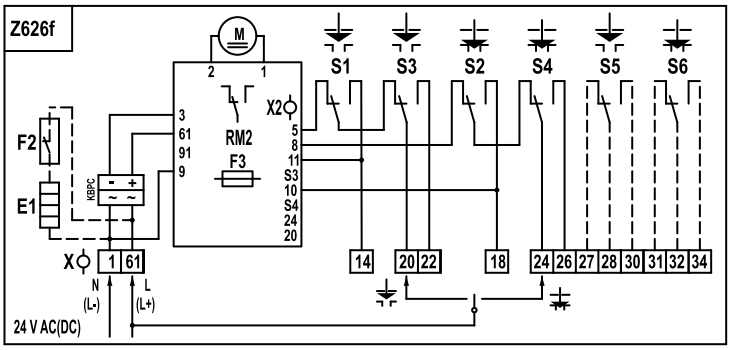
Wiring diagrams

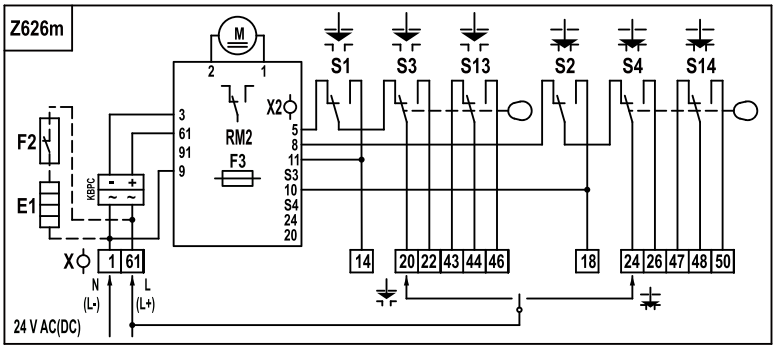
Terminal board connection

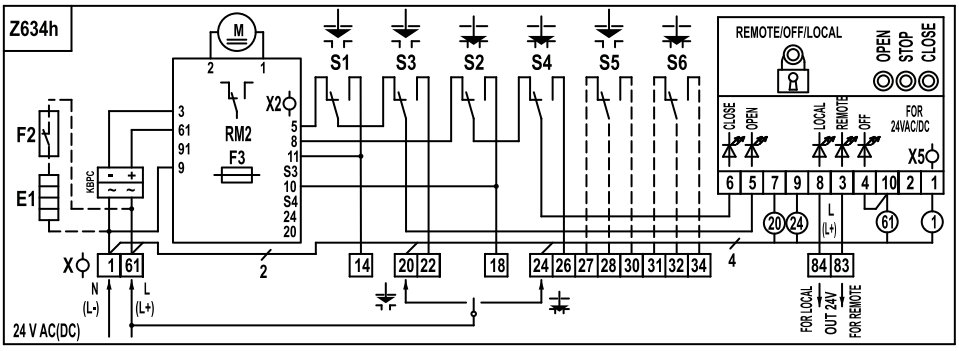


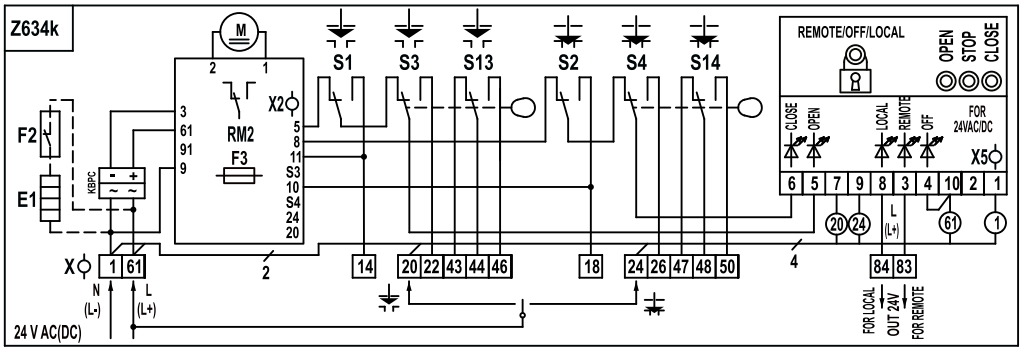


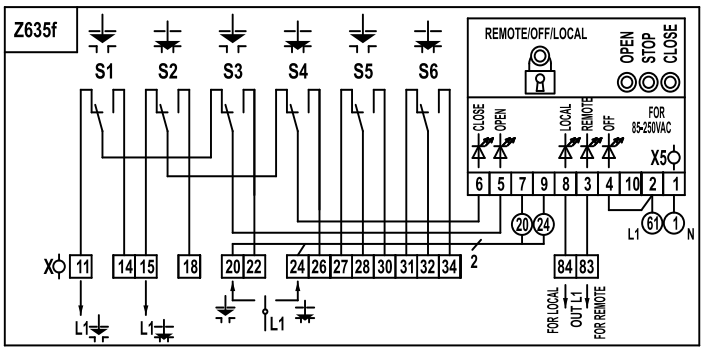


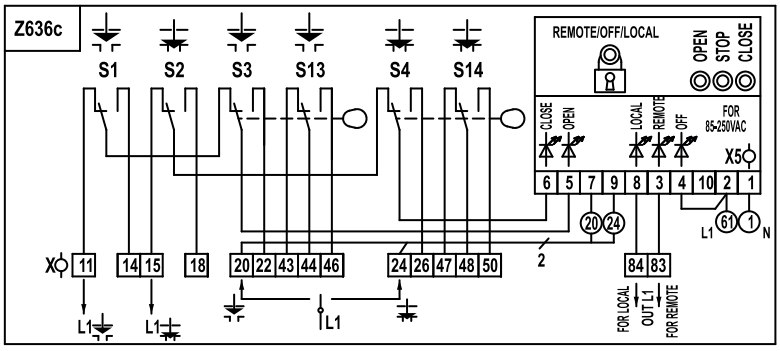





Z634h
REMOTE/OFF/LOCAL
OPEN STOP CLOSE
S1 S3 S2 S4 S5 S6
F2
E1
RM2
F3
X2
X5
24 V AC(DC)
FOR LOCAL OUT 24V FOR REMOTE

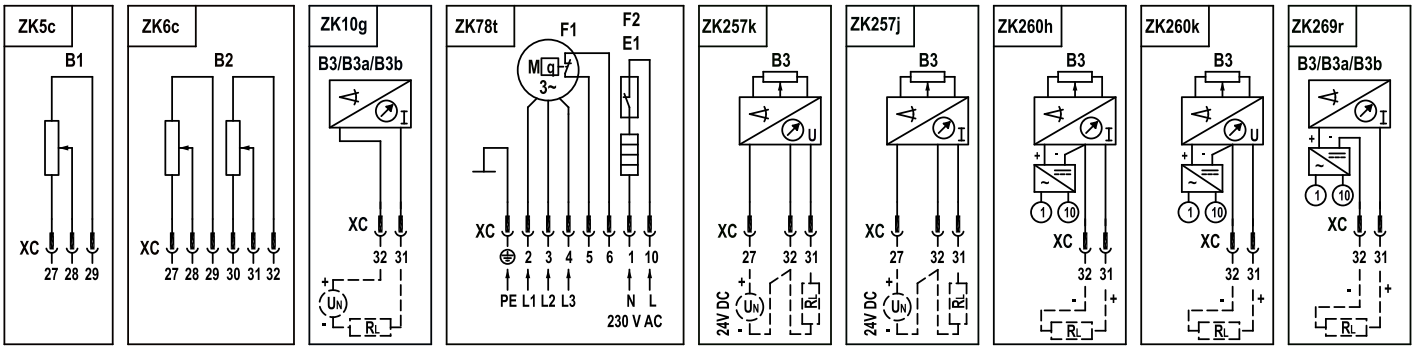

Z634k
REMOTE/OFF/LOCAL
OPEN STOP CLOSE
S1 S3 S13 S2 S4 S14
F2
E1
RM2
F3
X2
X5
24 V AC(DC)
FOR LOCAL OUT 24V FOR REMOTE

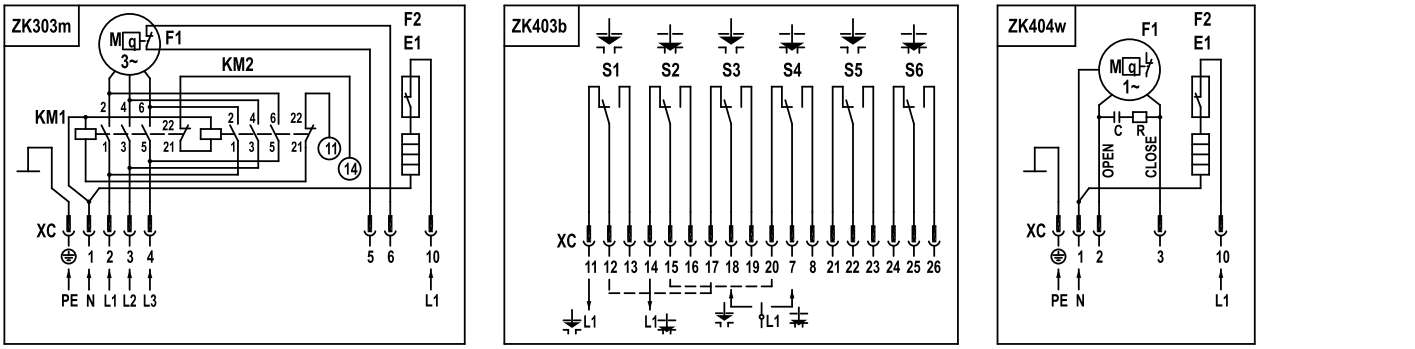

Z635f
REMOTE/OFF/LOCAL
OPEN STOP CLOSE
S1 S2 S3 S4 S5 S6
X5
FOR LOCAL OUT L1 FOR REMOTE

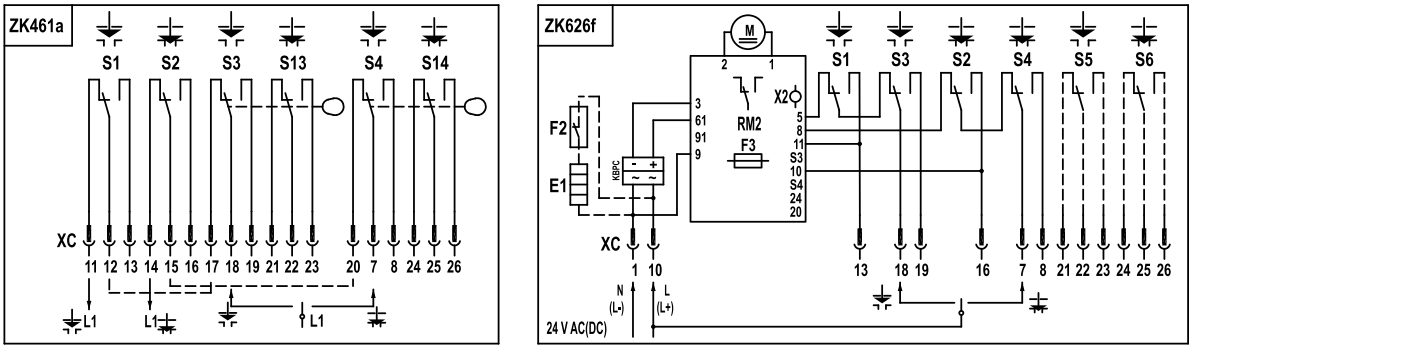

Z636c
REMOTE/OFF/LOCAL
OPEN STOP CLOSE
S1 S2 S3 S13 S4 S14
X5
FOR LOCAL OUT L1 FOR REMOTE

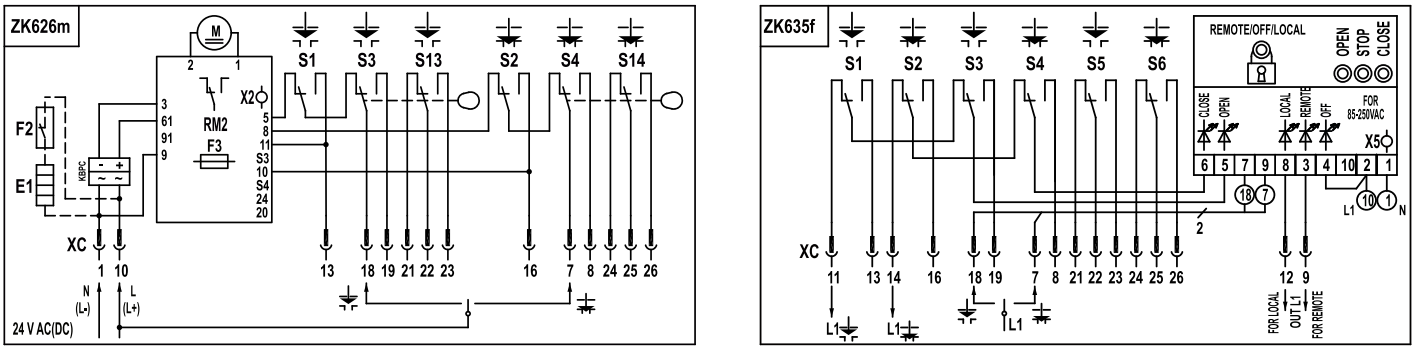
Wiring diagrams

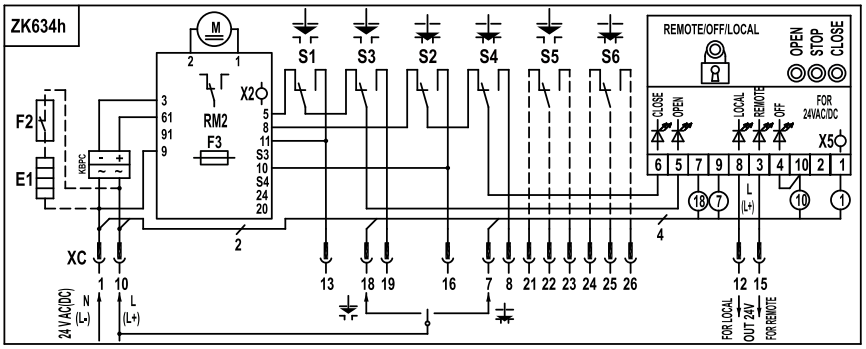
Connector connection

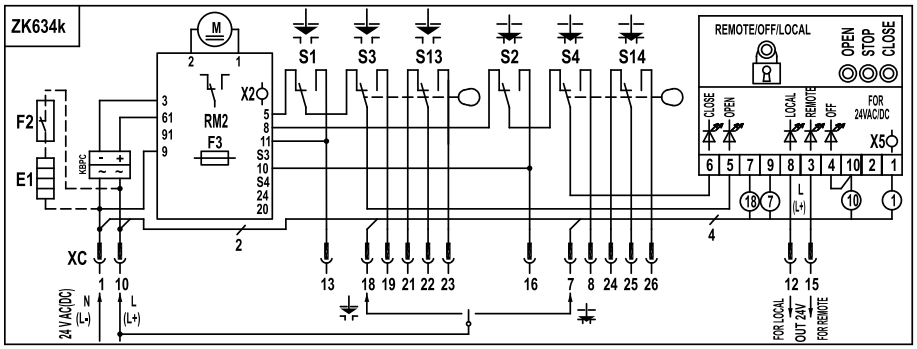


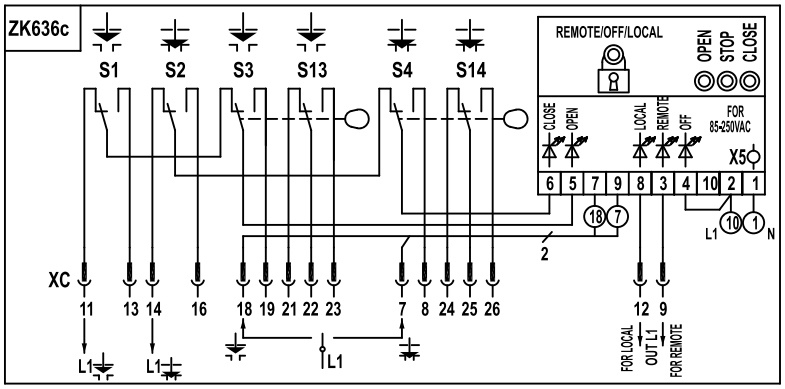









ZK634k
REMOTE/OFF/LOCAL
OPEN
STOP
CLOSE
S1
S3
S13
S2
S4
S14
X2
RM2
F2
F3
E1
XC
X5
FOR 24VAC/DC
LOCAL
REMOTE
OFF
24 V AC/DC
FOR LOCAL OUT 24V FOR REMOTE


ZK636c
REMOTE/OFF/LOCAL
OPEN
STOP
CLOSE
S1
S2
S3
S13
S4
S14
X5
FOR 85-250VAC
LOCAL
REMOTE
OFF
XC
L1
N
FOR LOCAL OUT L1 FOR REMOTE

Electric connection:

- to terminal board with 32 clamps, wire cross section 2.5 mm ^{2}
- through 3 cable glands: - M20x1,5 for cable diameter 8 až 14,5 mm (1 pes)
  - M16x1,5 for cable diameter 6 až 10,5 mm (2 pes)

Notes:

1. Wiring connection is limited by max. number of 32 terminals.
2. Electric motors are equipped with thermal protection as standard.
3. Different wirings of actuators than shown in the catalogue are possible after agreement with producer.

Legend:

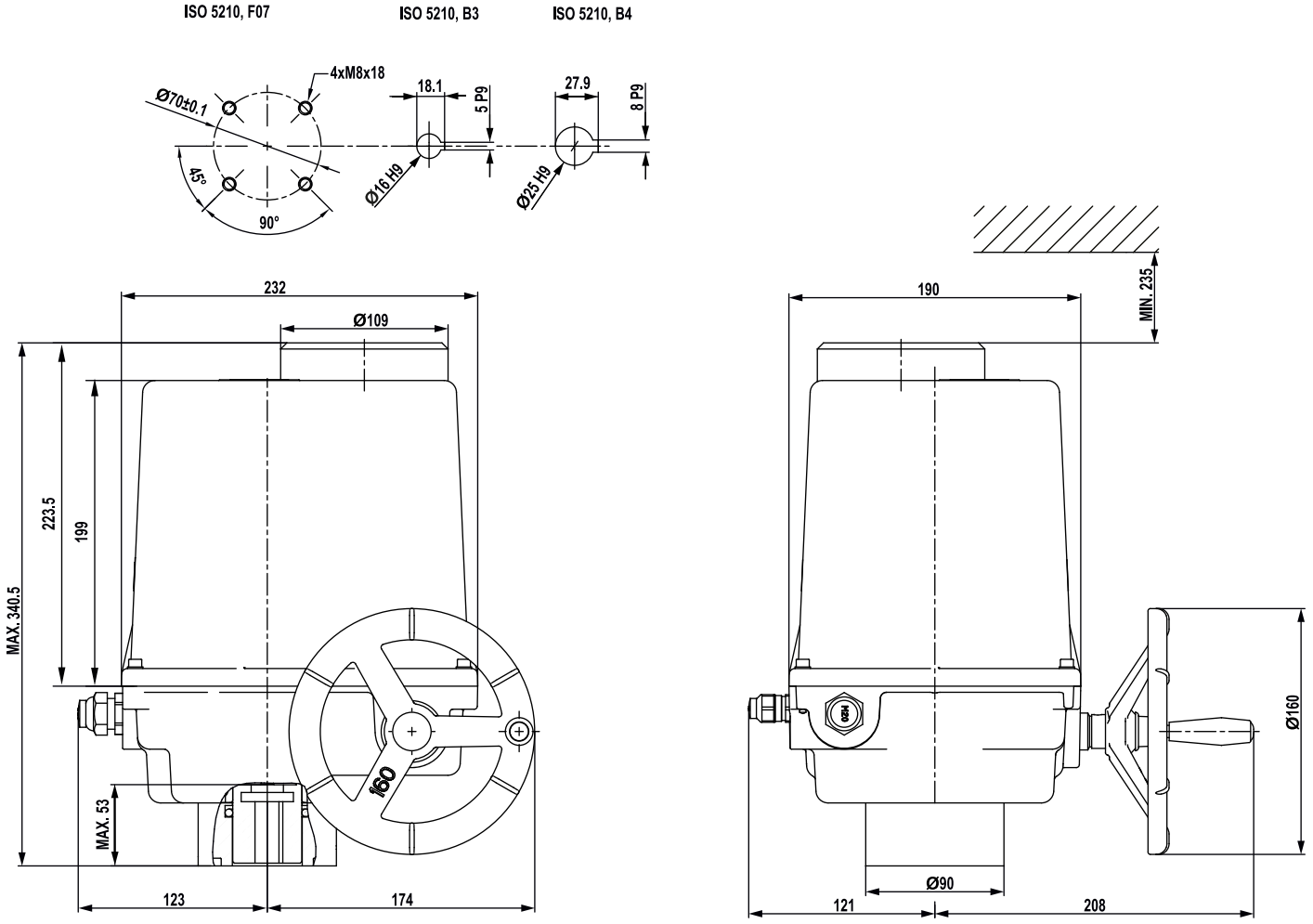
Z5c/ZK5c.....connection of single potentiometer
Z6c/ZK6c.....connection of double potentiometer
Z10g/ZK10g.....connection of CPT or electronic position transmitter - 2 - wire, passive
Z78t/ZK78t.....connection of 3-phase electric motor, heating resistor
Z257j/ZK257j.....connection of electronic position transmitter - 3 - wire, passive
Z257k/ZK257k.....connection of electronic position transmitter - 3 - wire, passive
Z260k/ZK260k.....connection of electronic position transmitter - 3 - wire, active
Z260h/ZK260h.....connection of electronic position transmitter - 3 - wire, active
Z269r/ZK269r.....connection of CPT or electronic position transmitter - 2 wire - active
Z303m/ZK303m.....connection of 3 -phase electric motor with reverse contactor
Z403b/ZK403b.....connection of torque and position switches
Z404w/ZK404w.....connection of 1-phase electric motor
Z461a/ZK461a.....connection of torque and tandem position switches
Z626f/ZK626f.....connection of 24 V AC/DC electric motor, torque switches, position switches, and additional position switches
Z626m/ZK626m.....connection of electromotor 24 V AC/DC, reverse board 24 V, space heater with thermal switch, torque switches, position switches and tandem position switches
Z634h/ZK634h.....connection of 24 V DC electric motor, reversing board, torque switches, position switches, additional position switches and local control unit
Z634k/ZK634k.....connection of electromotor 24 V AC/DC, reverse board 24 V, space heater with thermal switch, torque switches, position switches, additional position switches and local control unit
Z635f/ZK635f.....connection of torque switches, position switches, additional position switches and local control unit
Z636c/ZK636c.....connection of torque switches, position switches, tandem position switches and local control unit

Legend:

B1.....single potentiometer
B2.....double potentiometer
B3.....CPT or electronic position transmitter
B3a.....capacitive current transmitter (CPT)
B3b.....DCPT current transmitte
S1.....torque switch „open”
S2.....torque switch „closed”
S3.....position switch „open”
S4.....position switch „closed”
S5.....additional position switch „open”
S6.....additional position switch „closed”
S13.....tandem position switch ,,open”
S14.....tandem position switch ,,closed”
M.....electric motor
C.....capacitor
E1.....space heater
F1.....motor thermal protection
F2.....thermal switch of the space heater
F3.....reversing board fuse
X.....terminal board
X2.....reversing board terminal board
X5.....local control terminal board
R.....reducing resistor
R_L.....loading resistor
I.....output current signal
RM2.....24 V reversing board
U_N.....transmitter power supply voltage
Y.....motor brake
OPEN/STOP/CLOSE....local control buttons
REMOTE/OFF/LOCAL..local control selection button

Dimensional drawing SO 2

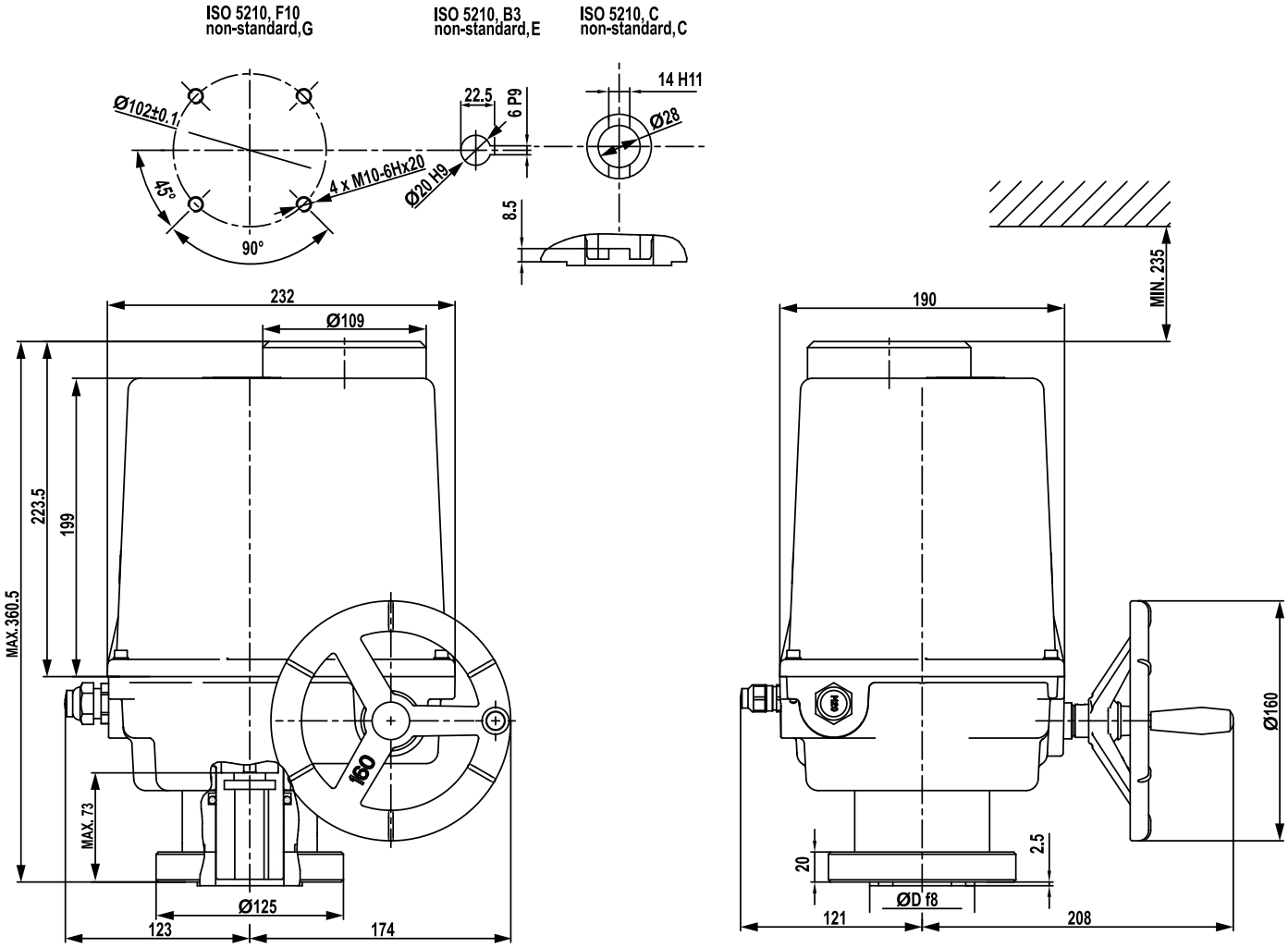
Shape **B3, B4**



P-1377

Dimensional drawing SO 2

Shape **B3 (E), C**

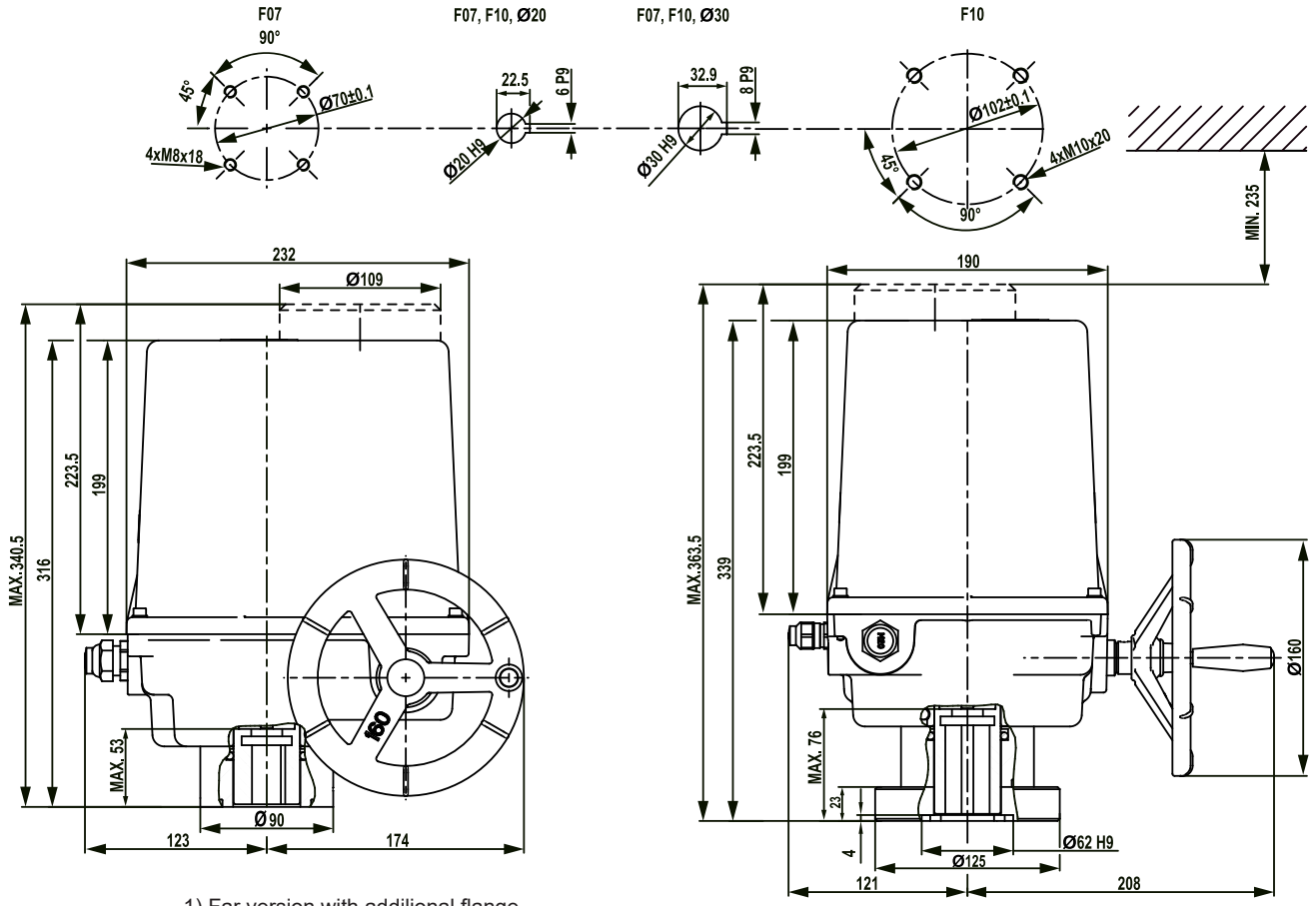


P-1378/B	60	non-stand., E	non-stand., C
P-1378/A	70	ISO 5210, F10-B3, F10-C	
Version	D	According to standard	

P-1378

Dimensional drawing SO 2

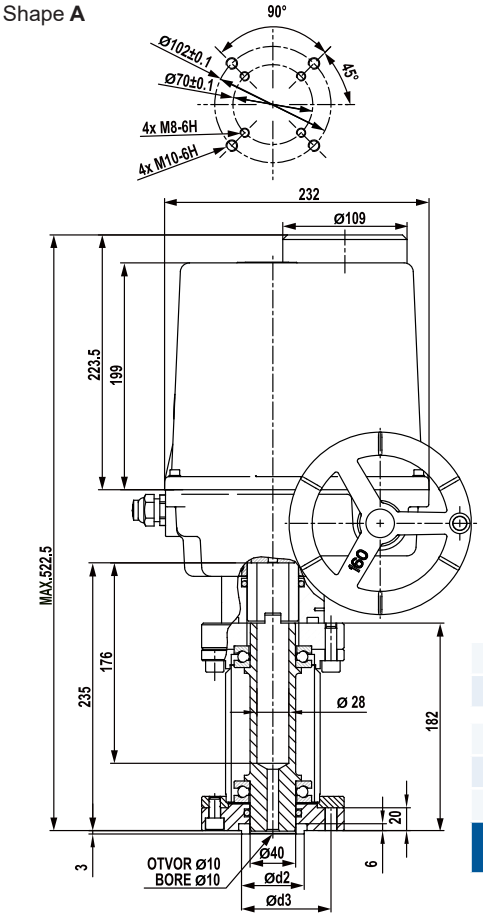
Non-standard mechanical connection



1) Far version with addilional flange

P-1379a

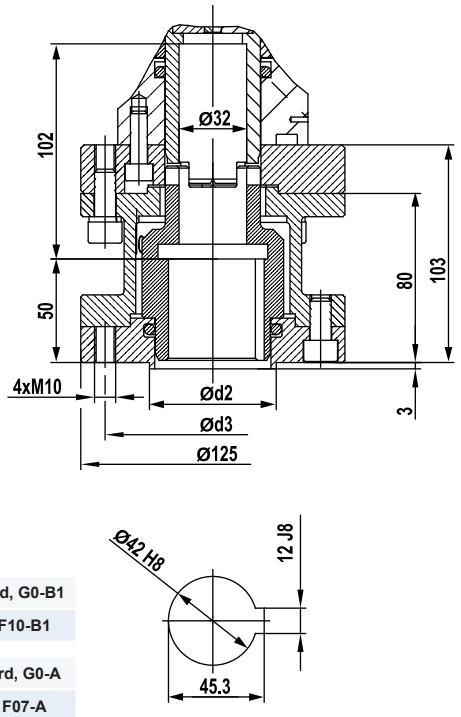
Shape **A**



P-2030a/B	60	102	non-standard, G0-B1
P-2030a/A	70	102	ISO 5210, F10-B1
P-1380/C	60	102	non-standard, G0-A
P-1380/B	55	70	ISO 5210, F07-A
P-1380/A	70	102	ISO 5210, F10-A
Version	**Ød2**	**Ød3**	**Mechanical connection**

P-1380

Shape **B1**

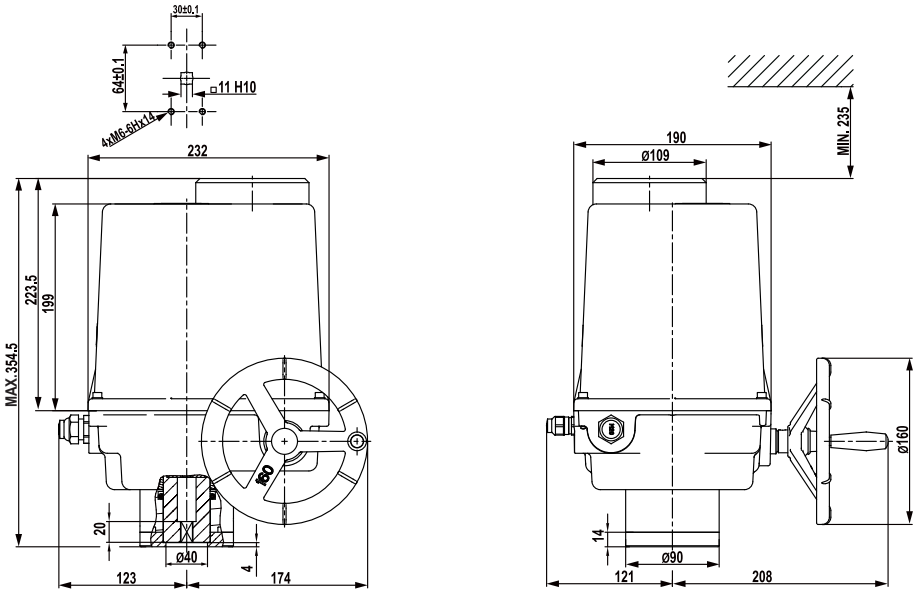


Actuator basic dimensions according to P-1377

P-2030a

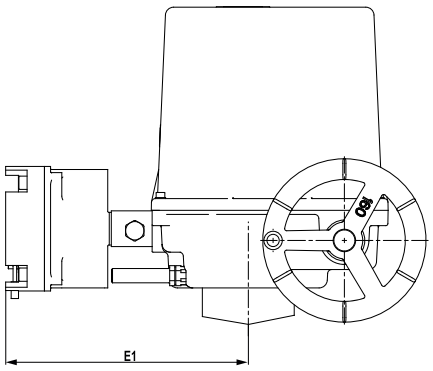
Dimensional drawing SO 2

Shape **MČ**



P-1420

Version of SO 2 actuator with electric local control

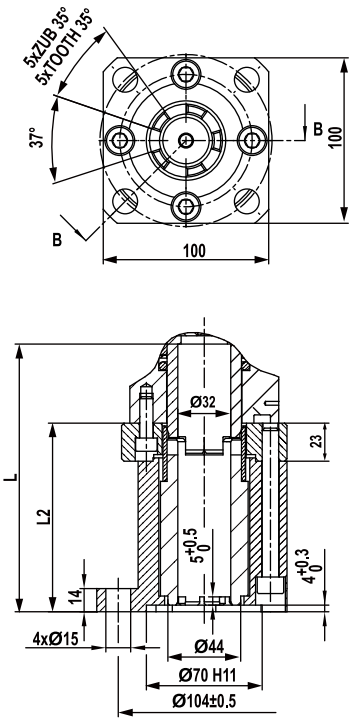


SO 2	-25 °C / -50 °C	198
Type	Temperature	E1

Other dimensions according to basic dimensiona drawings

P-2148/G

Shape **AK**

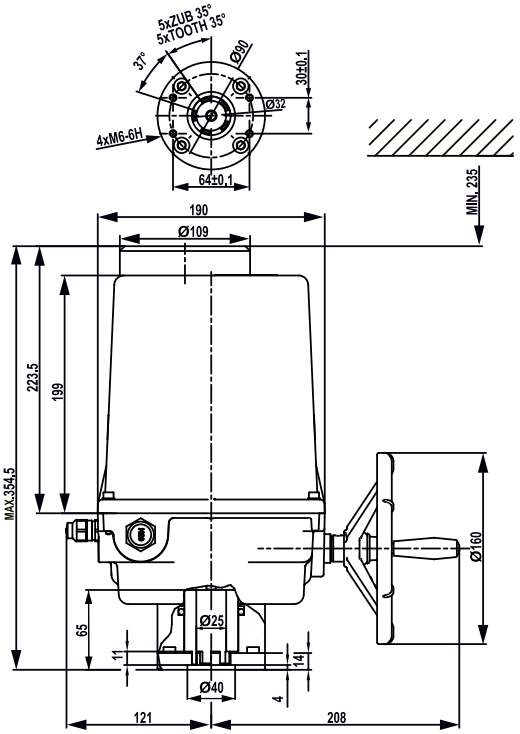


Actuator basic dimensions according to P-1377

P-1452/B	114	Max. 160
P-1452/A	64	Max.110
Version	L2	L

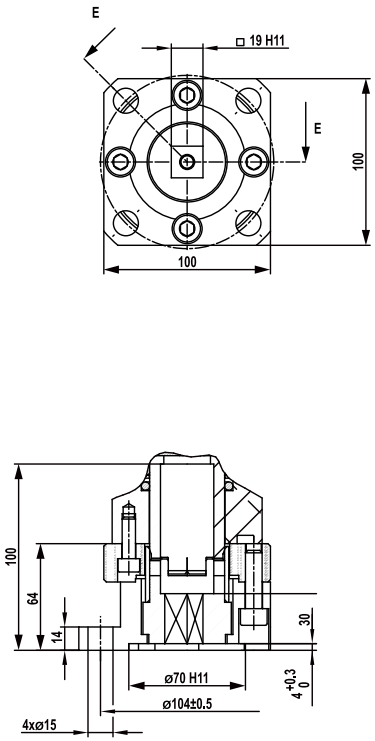
P-1452

Shape **MK**



P-1453

Shape **AČ**



Actuator basic dimensions according to P-1377

P-1454