Technical Data Electrical Actuator TPS60.1 - 60 Nm



Fig. 1 Actuator 60 Nm

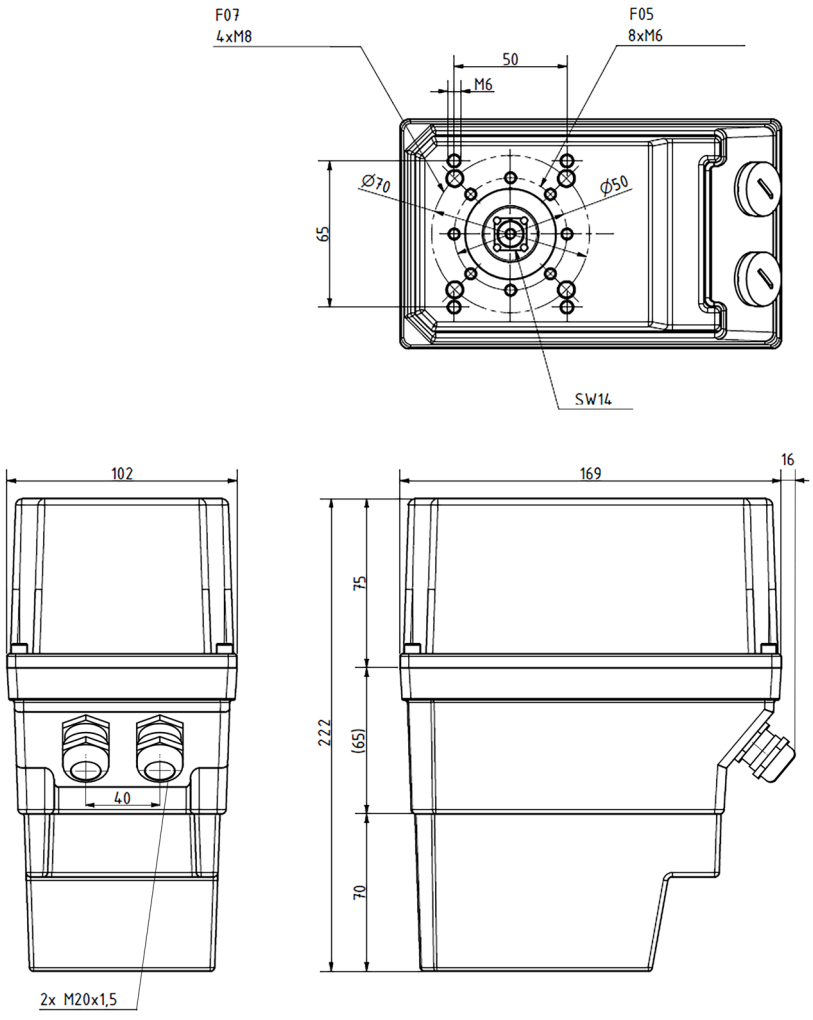


Fig. 2 Dimensional drawing 60 Nm actuator with cable entry point and screwed cable gland (dimensions in mm)

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Dimensions	
Dimensions (H x W x D)	169 x 102 x 222 mm | 6.65 x 4.02 x 8.74" in
Weight	4 kg | 8.82 lb (the weight may differ depending on the configuration)
Material cover	Die-cast aluminium

Technical conditions		
Motor insulation class	E	
Operating mode according to IEC 34-1	S1 – 100 %	
Motor protection	Standard	blocking resistant
Limit position switch-off	for OPEN and CLOSE position	
Control	Standard	3-point step control

Input Data 668M2060-1 - 60 Nm		
		Optional:
Power supply (A15)	230 VAC	120 VAC
Power consumption	31 mA	65 mA
Capacitor	0,27 µF / 600 V	1,5 µF / 400 V
Input power synchronous motor	7 W	7,8 W
Output power	5,1 W	5,7 W

Technical specifications	
Overload protection	none
Running time / angel of rotation (A20-6090)	60 s/90° at 50 Hz (48 s/90° at 60 Hz)
Running time / angel of rotation (A20-90135)	optional 90 s/135° at 50 Hz (72 s/135° at 60 Hz)
Running time / angel of rotation (A20-120180)	optional 120 s/180° at 50 Hz (96 s/180° at 60 Hz)
Position feedback (A25-1PO)	Potentiometer 5 kΩ CONTELEC, conductive plastic according to EN12067-2: 2004 annex C Connection to output shaft positive and free of backlash according to EN12067-2: 2004 paragraph 6.2.2) Max. angle of rotation angle 180°
Position feedback (A25-2PO)	optional Additional position feedback Potentiometer 5 kΩ CONTELEC, conductive plastic according to EN12067-2: 2004 annex C Connection to output shaft positive and free of backlash according to EN12067-2: 2004 paragraph 6.2.2) Max. angle of rotation angle 180°
Direction of rotation (A30-R)	rotation to the right (clockwise 12.00 to 3.00 o'clock with view onto the shaft).
Direction of rotation (A30-L)	optional rotation to the left (anti-clockwise 12.00 to 9.00 o'clock with view onto the shaft)

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Technical specifications	
Option Position indicator (A55-POS1)	optional Position indicator in housing cover (Only possible with CONTELEC potentiometer and for safe area)
Repeatability	0,2°
Radial bearing force	400 N
Damage pattern by mech. overload	Gear unit defect
Board gear	
Gear wheels/backlash	Spur toothed /max. 1°
Bearing	plain bearing/ball bearing, free of maintenance

Housing Heating	
Option housing heating (A60-HEAT1)	optional housing heating 230 VAC, down to -30 °C | -22 °F ambient temperature
Option housing heating (A60-HEAT2)	optional housing heating 120 VAC, down to -30 °C | -22 °F ambient temperature

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Cable Entry	
Cable entry (A70-M20) [1]	2x cable gland M20 x 1,5, metal, cable Ø min. 8,0 mm,| 0.31" in, max. 13,0 mm | 0.51" in
Cable entry (A70-M20KS) [2]	optional 2x cable gland M20 x 1,5, plastic cable Ø min. 6,0 mm | 0.24", max. 12,0 mm | 0.47" in
Cable entry (A70-M25) [1]	optional 2x cable gland M25 x 1,5, metal, cable Ø min. 14,0 mm | 0.55" in, max. 20,0 mm | 0.79" in
Cable entry (A70-M16) [1]	optional 2x cable gland M16 x 1,5, metal, cable Ø min. 5,0 mm | 0.20" in, max. 9,0 mm | 0.35" in
Connecting cable for position feedback	3-pins, shielded 0.52 … 1.52 (AWG20 … 14) stripping length 7.5 … 8.5 mm, 0.5 mm^2 ... 1.5 mm^2 0.30 ... 0.14" in, 21 ... 16 AWG
Connecting cable for line voltage Controlling without manual adjusting	4-pins (3+PE) 0.52 … 2.52 (PE / N / AUF / ZU) length 10 mm, 0.5 mm^2 ... 2.5 mm^2 0.39" in, 21 ... 14 AWG
Connecting cable for line voltage Controlling with manual adjusting	5-pins (4+PE) 0.52 … 2.52 (PE / N / L / AUF / ZU) stripping length 10 mm, 0.5 mm^2 ... 2.5 mm^2 0.39" in, 21 ... 14 AWG
Connecting cable for line voltage, controlling, case heating, with/without manual adjusting	5-pins (4+PE) 0.52 … 2.52 (PE / N / L / AUF / ZU) stripping length 10 mm, 0.5 mm^2 ... 2.5 mm^2 0.39" in, 21 ... 14 AWG

1) Recommended tightening torque for the connection thread and the cap nut = **3,5 Nm**
To achieve the degree of protection and provide strain relief.

2) Recommended tightening torque for the connection thread and the cap nut = **4 Nm**
To achieve the degree of protection and provide strain relief.

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Operating Condition	
Life time	The actuators exceed the service life requirements of EN 15714-2 Class C 'Modulation'. 250'000 starts in OPEN/CLOSED direction. (Detailed information on request).
Mounting position	any, but not hanging downwards
Positioning accuracy	< 1 %
Installation height	≤ 2,000 m | 6,561.68 ft above sea level > 2,000 m | 6,561.68 ft above sea level on request

Environmental conditions		
Storage		In according to DIN EN 60721-3-1, class IE12
	relative temperature range	-25 °C ... +55 °C | -13 °F ... 131 °F
	relative air humidity	< 95 %
Transport		In according to DIN EN 60721-3-2, class IE23
	relative temperature range	-25 °C ... +60 °C | -13 °F ... 140 °F
	relative air humidity	< 95 %
Operation		Class IE36 in according to DIN EN 60721-3-2
	relative temperature range	-20 °C ... +60 °C | -4 °F ... 140 °F with additional case heating -30 °C ... +60 °C | -22 °F ... 140 °F
	relative air humidity	< 95 %
Degree of protection	according to DIN EN 60529	IP65

NOTICE

The limits of the technical data must be strictly adhered to.

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Order Information

NOTICE

All options marked with * correspond to the standard selection.

Electrical Actuator 60 Nm

Description/Type	Order no.
Electrical actuator 60 Nm, TPS, position feedback potentiometer 5 kΩ, conductive plastic, 2 end position switches to limit the actuator, electric hand feed, IP65	668M2060-1...

A05 “NOMINAL TORQUE”	Selection
NOMINAL TORQUE 60 Nm	60NM*

A10 “FORM OF OUTPUT SHAFT”	Selection
SQUARE HOLLOW SHAFT 14 x 14 mm | 0.55 x 0.55" in	IVK14*
Round shaft 20 x 50 mm | 0.79 x 1.97" in, with feather key 6 x 6 x 32 mm | 0.25 x 0.24 1.26" in	20x50
Round shaft 12 x 40 mm | 0.47 x 1.57" in, with feather key 4 x 4 x 20 mm | 0.16 x 0.16 0.79" in	12x40

A15 “POWER SUPPLY VOLTAGE”	Selection
120 VAC/50 Hz	120 V
230 VAC/50 Hz	230 VAC*

A20 “RUNNING TIME / ANGLE OF ROTATION”	Selection
60 SECONDS/90° (60 SEC./50 HZ/48 SEC./60 HZ)	6090*
90 SECONDS/135° (90 SEC./50 HZ/72 SEC./60 HZ)	90135
120 SECONDS/180° (120 SEC./50 HZ/96 SEC./60 HZ)	120180

A25 “POSITION FEEDBACK”	Selection
1 x POTENTIOMETER 5 kΩ CONTELEC, CONDUCTIVE PLASTIC, APPROVED IN ACCORDANCE TO EN12067-2, FORM CLOSURE CONSTRUCTION, FREE OF BACKLASH, Position feedback only for CMS	1PO*
2 x POTENTIOMETER 5 kΩ CONTELEC, CONDUCTIVE PLASTIC, APPROVED IN ACCORDANCE TO EN12067-2, FORM CLOSURE CONSTRUCTION, FREE OF BACKLASH, Position feedback only for CMS	2PO

A30 “DIRECTION OF ROTATION” (view onto the shaft, parallel key at 12.00 o’clock)	Selection
CLOCKWISE (12.00 TO 3.00 O’CLOCK)	R*
ANTI CLOCKWISE (12.00 TO 9.00 O’CLOCK)	L

A40 “ADAPTION”	Selection
FLANGE FIXINIG IN ACCORDANCE TO ISO5211 – F05 Ø50 mm | 1.97" in, 8x M6 – F07 Ø70 mm | 2.76" in, 4 x M8 – 65 x 50 mm | 2.56 x 1.97" in, 4 x M6	F05F07*
ADAPTION IN ACCORDANCE TO CUSTOMER SPECIFICATION	

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A45 “COLOUR”	Selection
COVER RED RAL3020	RT*
Further colours on request	

A50 “CUSTOMER“	Selection
LAMTEC TYPE	S*

A55 “POSITION INDICATOR”	Selection
WITHOUT	POS0*
POSITION INDICATOR IN THE COVER	POS1

A60 “HOUSING HEATING”	Selection
WITHOUT	HEAT00*
HOUSING HEATING 230 V, DOWN TO -30 °C	HEAT1
HOUSING HEATING 120 V, DOWN TO -30 °C	HEAT2

A70 “CABLE ENTRY”	Selection
2x CABLE GLAND M16 METAL	M16
2x CABLE GLAND M20 METAL	M20
2x CABLE GLAND M20 PLASTIC BLACK	M20KS*
2x CABLE GLAND M25 METAL	M25
CABLE GLAND IN ACCORDANCE TO CUSTOMER SPECIFICATION	

A99 “SPECIAL CONFIGURATION”	Selection
WITHOUT	SO0*

NOTICE

The limits of the technical data must be strictly adhered to.

The information in this publication is subject to technical changes.

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