Technical data Multi-turn actuators for open-close duty with 3-phase AC motors

SAEx 07.2 – SAEx 16.2 AUMA NORM

Type	Output speed rpm		Torque range[1]			Running torque[2]		Valve attachment		Valve stem diameter	Handwheel		Weight
				for type of duty		for type of duty							
	50 Hz	60 Hz	min. Nm	S2-15 min max. Nm	S2-30 min max. Nm	S2-15 min max. Nm	S2-30 min max. Nm	Standard EN ISO 5210	Option DIN 3210	for rising stem[3] max. mm	Ø mm	Reduction ratio	approx. kg[5]
SAEx 07.2	4	4.8	10	30	20	12	6	F07	G0	26	160	11 : 1	22
	5.6	6.7										8 : 1	
	8	9.6										11 : 1	
	11	13										8 : 1	
	16	19										11 : 1	
	22	26										8 : 1	
	32	38						F10		34		11 : 1	23
	45	54										8 : 1	
	63	75										11 : 1	
	90	108										8 : 1	
	125[4]	150[4]										5.5 : 1	
	180[4]	216[4]		25		10						4 : 1	
SAEx 07.6	4	4.8	20	60	40	24	12	F07	G0	26	160	11 : 1	22
	5.6	6.7										8 : 1	
	8	9.6										11 : 1	
	11	13										8 : 1	
	16	19										11 : 1	
	22	26										8 : 1	
	32	38						F10		34		11 : 1	24
	45	54										8 : 1	
	63	75										11 : 1	
	90	108										8 : 1	
	125[4]	150[4]										5.5 : 1	
	180[4]	216[4]		50	30	20	10					4 : 1	
SAEx 10.2	4	4.8	40	120	90	48	24	F10	G0	40	200	11 : 1	26
	5.6	6.7										8 : 1	
	8	9.6										11 : 1	
	11	13										8 : 1	
	16	19										11 : 1	
	22	26										8 : 1	
	32	38										11 : 1	28
	45	54										8 : 1	
	63	75										11 : 1	
	90	108										8 : 1	
	125[4]	150[4]										5.5 : 1	
	180[4]	216[4]		100	70	40	20					4 : 1	
SAEx 14.2	4	4.8	100	250	180	100	50	F14	G1/2	57	315	11 : 1	48
	5.6	6.7										8 : 1	
	8	9.6										11 : 1	
	11	13										8 : 1	
	16	19										11 : 1	
	22	26										8 : 1	
	32	38										11 : 1	52
	45	54										8 : 1	
	63	75										11 : 1	
	90	108										8 : 1	
	125[4]	150[4]										5.5 : 1	
	180[4]	216[4]		200	140	80	40					4 : 1	
SAEx 14.6	4	4.8	200	500	360	175	90	F14	G1/2	57	400	11 : 1	50
	5.6	6.7										8 : 1	
	8	9.6										11 : 1	
	11	13										8 : 1	
	16	19				130	70					11 : 1	
	22	26										8 : 1	
	32	38				110	60					11 : 1	56
	45	54										8 : 1	
	63	75										11 : 1	
	90	108										8 : 1	
	125[4]	150[4]										5.5 : 1	
	180[4]	216[4]		400	290	100	50					4 : 1	
SAEx 16.2	4	4.8	400	1,000	710	330	170	F16	G3	75	500	11 : 1	72
	5.6	6.7										8 : 1	
	8	9.6										11 : 1	
	11	13										8 : 1	
	16	19				250	130					11 : 1	
	22	26										8 : 1	
	32	38				200	110					11 : 1	83
	45	54										8 : 1	
	63	75										11 : 1	
	90	108										8 : 1	
	125[4]	150[4]										5.5 : 1	88
	180[4]	216[4]		800	570	200	100					4 : 1	

1) Tripping torque adjustable for directions OPEN and CLOSE
2) Permissible average torque for 15 min or 30 min running time at an ambient temperature of +40 °C
3) For output drive types A and B1
4) Not self-locking
5) Weight for multi-turn actuator AUMA NORM with 3-phase AC motor, standard electrical connection, output drive type B1 and handwheel

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General information

Multi-turn actuators AUMA NORM require electric controls. AUMA offers the actuator controls AUMA MATIC AMExC or AUMATIC ACExC for the sizes SA 07.2 – SA 16.2. These can also easily be mounted to the actuator at a later date.

Features and functions

Explosion protection	Standard: II2G Ex de IIC T4 or T3 II2G c IIC T4 or T3 II2D Ex tD A21 IP6x T130 °C or T190 °C Options: II2G Ex d IIC T4 or T3 II2G c IIC T4 or T3
EC type examination certificate	DEKRA 11 ATEX 0008 X
Type of duty	Standard: Short-time duty S2 - 15 min Option: Short-time duty S2 - 30 min For nominal voltage and 40 °C ambient temperature and at average running torque load (acc. to page 1)
Motors	3-ph AC asynchronous motor, type IM B9 according to IEC 60034
Mains voltage, mains frequency	Standard voltages: **3-phase AC** voltages/frequencies

Volt	220	230	240	380	400	415	440	460	480	500
Hz	50	50	50	50	50	50	60	60	60	50

Special voltages:

3-phase AC voltages/frequencies				
Volt	525	575	660	690
Hz	50	50	50	50

Permissible variation of the mains voltage: ±10 %
permissible variation of the mains frequency: ±5 %

Overvoltage category	Category III according to IEC 60364-4-443
Insulation class	Standard: F, tropicalized Option: H, tropicalized
Motor protection	Standard: PTC thermistors (according to DIN 44082)[6)] Option: Thermoswitches (NC)[7)]
Self-locking	Output speeds up to 90 rpm (50 Hz) or 108 rpm (60 Hz) NOT self-locking: Output speeds from 125 rpm (50 Hz) or 150 rpm (60 Hz) Multi-turn actuators are self-locking, if the valve position cannot be changed from standstill while torque acts upon the output drive.
Motor heater (option)	Voltages: 110 – 220 V AC, 220 – 240 V AC or 400 V AC (externally supplied) Power dependent on size 12.5 – 25 W
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation. Options: Handwheel lockable Handwheel spindle extension Power tool adapter for emergency operation with square 30 mm or 50 mm
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 NC and 1 NO) For further information, refer to separate data sheet
Electrical connection	Standard: Plug/socket connector with screw-type terminals (KP) Options: Plug socket connector with terminal blocks (KES)
Threads for cable entries	Standard: Metric threads Options: Pg-threads, NPT-threads, G-threads
Terminal plan	TPA00R1AA-101-000 (basic version)
Valve attachment	Standard: B1 according to EN ISO 5210 Options: A, B2, B3, B4 according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338 Special output drive types: AF, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem

6) PTC thermistors additionally require a suitable tripping device in the controls.

7) According to EN 60079-14, a thermal overcurrent protection device (e.g. motor protection switch) must be installed for explosion-proof actuators in addition to the thermoswitches.

Electromechanical control unit	
Limit switching	Counter gear mechanism for end positions CLOSED and OPEN Turns per stroke: 2 to 500 (standard), or 2 to 5,000 (option) Standard: Single switches (1 NC and 1 NO) for each end position, switches not galvanically isolated Options: Tandem switches (2 NC and 2 NO) for each end position, switches galvanically isolated Triple switches (3 NC and 3 NO) for each end position, switches galvanically isolated Intermediate position switch (DUO limit switching), adjustable for any position
Torque switching	Torque switching adjustable for directions OPEN and CLOSE Standard: Single switches (1 NC and 1 NO) for each direction, switches not galvanically isolated Options: Tandem switches (2 NC and 2 NO) for each direction, switches galvanically isolatedt
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (RWG)
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED
Running indication	Blinker transmitter For further information, refer to separate data sheet
Heater in switch compartment	Standard: Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC Options: 24 – 48 V AC/DC or 380 – 400 V AC A resistance type heater (5 W, 24 V AC) is installed in the actuator in combination with the actuator controls AUMA MATIC AMExC or AUMATIC ACExC.
Electronic control unit (only in combination with actuator controls AUMATIC ACExC 01.1/ACExC 01.2)	
Non-Intrusive settings (option)	Magnetic limit and torque transmitter (MWG) for 1 to 500 turns per stroke or 10 to 5,000 turns per stroke
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED
Running indication	Blinking signal via controls
Heater in switch compartment	Resistance type heater, 5 W, 24 V AC
Service conditions	
Application	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	Standard: ≤ 2,000 m above sea level Option: ≤ 2,000 m above sea level, please contact AUMA
Ambient temperature	Standard: –20 °C to +40 °C/+60 °C
Enclosure protection according to EN 60529	Standard: IP 68 with AUMA 3-ph AC motor According to AUMA definition, enclosure protection IP 68 meets the following requirements: Depth of water: maxium 8 m head of water Duration of flooding: maxium 96 hours Up to 10 operations during flooding
Pollution degree	Within multi-turn actuator: Pollution degree 2 Outside multi-turn actuator: Pollution degree 4
Vibration resistance according to EN 60068-2-6	2 g, from 10 Hz to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Valid for multi-turn actuators in version AUMA NORM (with AUMA plug/socket connector, without actuator controls). Not valid in combination with gearboxes.
Corrosion protection	Standard: KS Suitable for installation in industrial units, in water or power plants with a low pollutant concentration as well as for installation in occasionally or permanently aggressive atmosphere with a moderate pollutant concentration (e.g. in waste water treatment plants, chemical industry) Options: KX Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration KX-G same as KX, however aluminium-free version (outer parts)
Finish coating	Standard: Two-component iron mica combination Powder paint
Colour	Standard: AUMA silver-grey (similar to RAL 7037) Option: Other colours are possible on request

Lifetime	Operating cycles OPEN - CLOSE - OPEN with 30 turns per stroke SAEx 07.2 – SAEx 10.2: 25,000 SAEx 14.2 – SAEx 16.2: 20,000
Further information	
EU Directives	ATEX Directive: (94/9/EC) Electromagnetic Compatibility (EMC): (2004/108/EC) Low Voltage Directive: (2006/95/EC) Machinery Directive: (2006/42/EC)
Reference documents	Product description “Electric multi-turn actuators with integral controls for applications in the oil and gas industry” Dimension sheets SAEx .2 Electrical data SAEx .2 Technical data for switches Technical data Electronic position transmitter/potentiometer