

## AUMA NORM

## Technical data Multi-turn actuators for open-close duty with 1-phase AC motors

Type	Speed rpm		Torque range <sup>1)</sup>		Running torque <sup>2)</sup>		Valve attachment <sup>3)</sup>			Handwheel		Weight <sup>4)</sup>			
	50 Hz	60 Hz	Min. [Nm]	S2-15 min Max. [Nm]	S2-15 min Max. [Nm]	S2-30 min Max. [Nm]	Standard EN ISO 5210	Option DIN 3210	Max. Ø rising. stem [mm]	Ø [mm]	Reduct. ratio	approx. [kg]			
SAEx 07.2	4	4.8	10	30	12	6	F07	—	26	160	11 : 1	28			
	5.6	6.7									8 : 1				
	8	9.6									11 : 1				
	11	13									8 : 1				
	16	19									11 : 1				
	22	26					F10	G0	34		8 : 1	31			
	32	38									11 : 1				
	45	54									8 : 1				
	63	75									11 : 1				
	90	108									8 : 1				
125	150	5.5 : 1	4 : 1												
180	216	25		10											
SAEx 07.6	4	4.8	20	60	24	12	F07	—	26	160	11 : 1	28			
	5.6	6.7									8 : 1				
	8	9.6									11 : 1				
	11	13									8 : 1				
	16	19									11 : 1				
	22	26					F10	G0	34		8 : 1	31			
	32	38									11 : 1				
	45	54									8 : 1				
	63	75									11 : 1				
	90	108									8 : 1				
125	150	5.5 : 1	4 : 1												
180	216	50		20	10										
SAEx 10.2	4	4.8	40	120	48	24	F10	G0	40	200	11 : 1	32			
	5.6	6.7									8 : 1				
	8	9.6									11 : 1				
	11	13									8 : 1				
	16	19									11 : 1				
	22	26									F10	G0	40	8 : 1	35
	32	38												11 : 1	
	45	54												8 : 1	
	63	75												11 : 1	
	90	108												8 : 1	
125	150	5.5 : 1	4 : 1												
180	216	100		40	20										
SAEx 14.2	4	4.8	100	250	100	50	F14	G1/2	57	315	11 : 1	63			
	5.6	6.7									8 : 1				
	8	9.6									11 : 1				
	11	13									8 : 1	65			
	16	19									11 : 1				
	22	26									8 : 1				
	32	38									11 : 1				
45	54	8 : 1	67												
SAEx 14.6	4	4.8		200	500	175	90	F14	G1/2	57	400	11 : 1			
	5.6	6.7	8 : 1												
	8	9.6	11 : 1												
	11	13	8 : 1			70									
	16	19	11 : 1												
22	26	150	75	8 : 1											

## General information

AUMA NORM multi-turn actuators require electric controls. For sizes SAEx 07.2 – SAEx 14.6, AUMA offer AMExC or ACExC actuator controls. These can also easily be mounted to the actuator at a later date.

## Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Running torque	Permissible average torque for 15 min or 30 min running time at an ambient temperature of +40 °C.
3) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to dimension sheets for further output drive types.
4) Weight	Indicated weight includes for AUMA NORM multi-turn actuator with 1-phase AC motor, standard electrical connection, output drive type B1 and handwheel.

Features and functions															
Explosion protection	Standard:	II2G Ex de IIB T4 or T3 II2G c IIB T4 or T3 II2D Ex tb IIIC T130 °C or T190 °C Db IP6x													
	Options:	II2G Ex d IIB T4 or T3 II2G c IIB 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 (refer to page 1).														
Motors	1-phase AC motor, type IM B9 according to IEC 60034														
Mains voltage, mains frequency	Standard voltages:														
	<table><tr><th colspan="4">1-phase AC current voltages/frequencies</th></tr><tr><td>Volt</td><td>110 – 120</td><td>220 – 240</td><td>220 – 240</td></tr><tr><td>Hz</td><td>60</td><td>50</td><td>60</td></tr></table>			1-phase AC current voltages/frequencies				Volt	110 – 120	220 – 240	220 – 240	Hz	60	50	60
	1-phase AC current voltages/frequencies														
	Volt	110 – 120	220 – 240	220 – 240											
	Hz	60	50	60											
Permissible variation of mains voltage: ±10 %															
Permissible variation of mains frequency: ±5 %															
Overvoltage category	Category III according to IEC 60364-4-443														
Insulation class	F, tropicalized														
Motor protection	Standard:	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the controls.													
	Option:	Thermoswitches (NC) 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.													
Self-locking	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 – 120 V AC, 220 – 240 V AC													
	Power depending on the size 12.5 – 25 W														
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation														
	Option:	Handwheel lockable													
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change over contact)														
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 plans (basic version)	TPA01R1AA-101-000 TPA02R1AA-101-000 TPA03R1AA-101-000														
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														

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Electromechanical control unit		
Limit switching	Counter gear mechanism for end positions OPEN and CLOSED 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, 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, not galvanically isolated
	Option:	Tandem switches (2 NC and 2 NO) for each direction, switches galvanically isolated
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (RWG)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinker transmitter	
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 of 5 W, 24 V AC is installed in the actuator in combination with AMExC or ACExC actuator controls.	

Electronic control unit (only in combination with ACExC actuator controls)		
Non-intrusive setting (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 (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinking signal via controls	
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC	

Service conditions		
Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level, please contact AUMA	
Ambient temperature	Standard:	–40 °C to +40 °C/+60 °C
	Option:	–50 °C to +40 °C/+60 °C
Enclosure protection according to EN 60529	IP 68 with 1-phase AC motors of types AE..., VE..., AC..., VC... Terminal compartment additionally sealed against interior (double sealed) According to AUMA definition, enclosure protection IP 68 meets the following requirements: <ul style="list-style-type: none"> <li>• Depth of water: maximum 8 m head of water</li> <li>• Duration of continuous immersion in water: Max. 96 hours</li> <li>• Up to 10 operations during continuous immersion</li> </ul>	
Pollution degree	Pollution degree 4 (when closed) according to EN 50178	
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. wastewater treatments plants, chemical industry)
	Option:	KX Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration
Finish coating	Standard:	Powder paint Two-component iron-mica combination

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Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Other colours are possible on request.
Lifetime	AUMA multi-turn actuators meet or even exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.	

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
	Electrical data	SAEx 07.2 – SAEx 14.6 with 1-phase AC motors
	Technical data	for switches
	Technical data	Electronic position transmitter/potentiometer
	Technical data	Output speeds, motors, reduction ratios and blinker transmitters