

AUMA NORM

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

Type	Output speed rpm		Torque range ¹⁾			Modulating torque ²⁾		Number of starts	Pulse duration ³⁾	Pulse duration on reversal ⁴⁾	Valve attachment ⁵⁾			Handwheel		Weight ⁶⁾		
	50 Hz	60 Hz	Min. [Nm]	S4-25% Max. [Nm]	S4-50% Max. [Nm]	S4-25% Max. [Nm]	S4-50% Max. [Nm]				Max. [1/h]	Min. [ms]	Max. [ms]	Standard EN ISO 5210	Option DIN 3210		Max. Ø rising stem [mm]	Ø [mm]
SAREx 07.2	4	4.8	15	30	20	15	8	1,200	50	260	F07 F10	– G0	26 34 ⁷⁾	160	11 : 1	22		
	5.6	6.7								200					8 : 1			
	8	9.6								155					11 : 1			
	11	13								130					8 : 1			
	16	19								100					11 : 1			
	22	26								90					8 : 1	23		
	32	38								75					11 : 1			
	45	54								70					8 : 1			
	63	75						65		11 : 1								
	90	108						60		8 : 1								
SAREx 07.6	4	4.8	30	60	40	30	15	1,200	50	260	F07 F10	– G0	26 34 ⁷⁾	160	11 : 1	22		
	5.6	6.7								200					8 : 1			
	8	9.6								155					11 : 1			
	11	13								130					8 : 1			
	16	19								100					11 : 1			
	22	26								90					8 : 1	24		
	32	38								75					11 : 1			
	45	54								70					8 : 1			
	63	75				65	11 : 1											
	90	108				60	8 : 1											
SAREx 10.2	4	4.8	60	120	90	60	30	1,000	50	260	F10	G0	40	200	11 : 1	26		
	5.6	6.7								200					8 : 1			
	8	9.6								155					11 : 1			
	11	13								130					8 : 1			
	16	19								100					11 : 1	28		
	22	26								90					8 : 1			
	32	38								75					11 : 1			
	45	54								70					8 : 1			
	63	75				65	11 : 1											
	90	108				60	8 : 1											
SAREx 14.2	4	4.8	120	250	180	120	60	900	70	280	F14	G1/2	58	315	11 : 1	48		
	5.6	6.7								220					8 : 1			
	8	9.6								175					11 : 1			
	11	13								150					8 : 1			
	16	19						600		120					11 : 1	52		
	22	26								110					8 : 1			
	32	38						300		100					11 : 1			
	45	54								90					8 : 1			
	63	75				100	50	200		85					11 : 1			
	90	108								80					8 : 1			
SAREx 14.6	4	4.8	250	500	360	200	100	900	70	280	F14	G1/2	58	400	11 : 1	50		
	5.6	6.7								220					8 : 1			
	8	9.6								175					11 : 1			
	11	13								150					8 : 1			
	16	19						600		120					11 : 1	56		
	22	26								110					8 : 1			
	32	38				150	75	300		100					11 : 1			
	45	54								90					8 : 1			
	63	75				120	60	200		85					11 : 1			
	90	108								80					8 : 1			
SAREx 16.2	4	4.8	500	1,000	710	400	200	600	100	300	F16	G3	77	500	11 : 1	72		
	5.6	6.7								250					8 : 1			
	8	9.6								200					11 : 1			
	11	13								175					8 : 1			
	16	19				300		150		11 : 1					83			
	22	26						140		8 : 1								
	32	38				250	125	200		130						11 : 1		
	45	54								120						8 : 1		
	63	75				200	100	150		115						11 : 1	88	
	90	108								110						8 : 1		

1) – 7) Refer to notes on page 2.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SAREx 07.2 – SAREx 16.2, AUMA offers AMExC or ACExC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on tables on page 1

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Modulating torque	Maximum permissible torque for modulating duty
3) Pulse duration	For identical direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
4) Pulse duration on reversal	For reversal of direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
5) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
6) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 3-phase AC motor, electrical connection in standard version, output drive type B1 and handwheel.
7) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions

Explosion protection	Standard:	II2G Ex de IIC T4 or T3 Gb II2G c IIC T4 or T3 II2D Ex tb IIIC T130 °C or T190 °C Db IP6x										
	Options:	II2G Ex d IIC T4 or T3 Gb II2G c IIC T4 or T3										
EC type test certificate	DEKRA 11 ATEX 0008 X											
Type of duty	Standard:	Intermittent duty S4 - 25 %, class C according to EN 15714-2										
	Options:	Intermittent duty S4 - 50 %, class C according to EN 15714-2 Intermittent duty S5 - 25 % (insulation class H required), class C according to EN 15714-2										
	For nominal voltage and +40 °C ambient temperature and at modulating torque load.											
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6											
Mains voltage, mains frequency	Standard voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	230	380	380	400	400	415	440	460	480	500
	Hz	60	50	50	60	50	60	50	60	60	60	50
	Special voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	440	525	575	600	660	690				
	Hz	50	50	50	60	60	50	50				
	Further voltages on request											
	Permissible variation of mains voltage: ±10 %											
	Permissible variation of mains frequency: ±5 %											
Overvoltage category	Category III according to IEC 60364-4-443											
Insulation class	Standard:	F, tropicalized										
	Option:	H, tropicalized										
Motor protection	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the actuator controls.											
Self-locking	Yes, 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 or 380 – 480 V AC										
	Power depending on the size 12.5 – 25 W											

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Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation	
	Options:	Handwheel lockable Handwheel stem extension Power tool 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 change-over contact)	
Electrical connection	Standard:	AUMA Ex plug/socket connector with screw-type terminals (KP), max. 38 control terminals / max. supply voltage 525 V AC
	Options:	AUMA Ex plug/socket connector with terminal blocks (KES) AUMA Ex plug/socket connector (KT); screw-type motor terminals; push-in type control terminals
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4, C, D according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem	

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 switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication (option)	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 (option, only in combination with ACExC actuator controls)

Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator 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 on request		
Ambient temperature	Standard:	−30 °C to +40 °C/+60 °C	
	Options:	−40 °C to +40 °C/+60 °C	
		−60 °C to +40 °C/+60 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range		
Enclosure protection according to EN 60529	IP68 with AUMA 3-phase AC motor		
	Terminal compartment additionally sealed against interior of actuator (double sealed)		
	According to AUMA definition, enclosure protection IP68 meets the following requirements: <ul style="list-style-type: none">• Depth of water: maximum 8 m head of water• Duration of continuous immersion in water: Max. 96 hours• Up to 10 operations during continuous immersion• Modulating duty is not possible during continuous immersion.		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz (AUMA NORM), 1 g, 10 to 200 Hz (for actuators with AMExC or ACExC integral controls) 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 and in version with integral actuator controls, each with AUMA plug/socket connector. Not valid in combination with gearboxes.		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Options:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
		KX-G	Same as KX, however aluminium-free version (outer parts)
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Sound pressure level	< 72 dB (A)		

Further information	
EU Directives	ATEX Directive: (2014/34/EU) Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for the automation of valves in the oil and gas industry Dimensions SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2 Electrical data SAREx 07.2 – SAREx 16.2 with 3-phase AC motors Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual forces at handwheel at multi-turn actuators SA 07.2 – 16.2, SAR 07.2 – 16.2, SAEx 07.2 – 16.2, SAREx 07.2 – 16.2