

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⁾		No. of starts	Pulse duration ³⁾	Backlash	Valve attachment ⁴⁾			Handwheel		Weight ⁵⁾
	50 Hz	60 Hz	Min. [Nm]	S4-25% S5-25% Max. [Nm]	S4-50% Max. [Nm]	S4-25% Max. [Nm]	S4-50% Max. [Nm]				Starts Max. [1/h]	Min. [ms]	Max. [ms]	Stand-ard EN ISO 5210	Option DIN 3210	
SAR 07.2	4	4.8	15	30	20	15	10	1,500	50	260	F07	-	26	160	11: 1	19
	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	
	32	38								75					11: 1	
	45	54								70					8: 1	
	63	75								65					11: 1	
90	108	60	8: 1													
SAR 07.6	4	4.8	30	60	40	30	20	1,500	50	260	F07	-	26	160	11: 1	20
	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	
	32	38								75					11: 1	
	45	54								70					8: 1	
	63	75								65					11: 1	
90	108	60	8: 1													
SAR 10.2	4	4.8	60	120	90	60	45	1,500	50	260	F10	G0	40	200	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	
	32	38								75					11: 1	
	45	54								70					8: 1	
	63	75								65					11: 1	
90	108	60	8: 1													
SAR 14.2	4	4.8	120	250	180	120	90	1,200	70	280	F14	G1/2	57	315	11: 1	44
	5.6	6.7						220		8: 1						
	8	9.6						175		11: 1						
	11	13						150		8: 1						
	16	19						120		11: 1						
	22	26						110		8: 1						
	32	38						100		11: 1						
	45	54						90		8: 1						
	63	75						85		11: 1						
90	108	80	8: 1													
SAR 14.6	4	4.8	250	500	360	200	180	1,200	70	280	F14	G1/2	57	400	11: 1	46
	5.6	6.7						220		8: 1						
	8	9.6						175		11: 1						
	11	13						150		8: 1						
	16	19						120		11: 1						
	22	26						110		8: 1						
	32	38						100		11: 1						
	45	54						90		8: 1						
	63	75						85		11: 1						
90	108	80	8: 1													
SAR 16.2	4	4.8	500	1,000	710	400	350	900	100	300	F16	G3	75	500	11: 1	67
	5.6	6.7						250		8: 1						
	8	9.6						200		11: 1						
	11	13						175		8: 1						
	16	19						150		11: 1						
	22	26						140		8: 1						
	32	38						130		11: 1						
	45	54						120		8: 1						
	63	75						115		11: 1						
90	108	110	8: 1													

1) – 5) Refer to notes on page 2.

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General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SAR 07.2 – SAR 16.2, AUMA offer AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table 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 torque for modulating duty
3) Pulse duration	For identical direction of rotation
4) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to dimension sheets for further output drive types.
5) 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.

Features and functions

Type of duty	Standard:	Intermittent duty S4 - 25 %, class C according to EN 15714-2
	Option:	Intermittent duty S4 - 50 %, class C according to EN 15714-2 Intermittent duty S4 - 25 % (insulation class H required), class C according to EN 15714-2
	For nominal voltage and 40 °C ambient temperature and at average modulating torque load.	
Motors	3-ph AC asynchronous motor, type IM B9 according to IEC 60034	
Mains voltage, mains frequency	Standard voltages:	
	3-phase AC current 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 current Voltages/frequencies		
Volt	525 575 660 690	
Hz	50 50 50 50	
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	Standard:	Thermoswitches (NC)
	Option:	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the 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 – 400 V AC (externally supplied)
	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	
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm
	Indication whether manual operation is active/not active via single switch (1 change-over contact)	
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Terminal plan	TPA00R1AA-001-000 (basic version)	

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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

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
	Options:	Tandem switches (2 NC and 2 NO) for each direction, switches galvanically isolated
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 AM or AC actuator controls.	

Electronic control unit (only in combination with AC 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, on request
Ambient temperature	Standard: –40 °C to +60 °C
	Option: –60 °C to +60 °C
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection according to EN 60529	Standard: IP68 with AUMA 3-phase AC motor For special motors differing enclosure protection: refer to name plate
	Option: DS Terminal compartment additionally sealed against interior (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.

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Pollution degree according to EN 60664-1	Pollution degree 4 (when closed)		
Vibration resistance according to IEC 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 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)
Finish coating	Powder paint 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 even exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2004/108/EC) Low Voltage Directive: (2006/95/EC) Machinery Directive: (2006/42/EC)		
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2 Electrical data SAR 07.2 – SAR 16.2 with 3-phase AC motors Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Output speeds motors, reduction ratios and blinker transmitters		