

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⁾	Backlash ⁴⁾	Valve attachment ⁵⁾			Handwheel		Weight ⁶⁾
	50 Hz	60 Hz	Min. [Nm]	S4-25% S5-25% 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	
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	1,200	F10	G0	34	160	11:1	20						
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	20	15	1,200	F10	G0	34	160	11:1	21				
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	50	35	1,200	F10	G0	40	200	11:1	25				
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	100	70	400	F14	G1/2	57	315	11:1	48				
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	175	125	600	F14	G1/2	57	400	11:1	53				
SAR 16.2	4	4.8	500	1,000	710	400	280	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	250	175	200	F16	G3	75	500	11:1	79				
															83	

1) – 5) 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.

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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 permissible torque for modulating duty
3) Pulse duration	Minimum pulse duration for identical direction of rotation
4) Backlash	Minimum pulse duration for reversal of rotation direction
5) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to 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.

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 modulating torque load.							
Motors	3-ph 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	380	400	415	440	460	480	500
	Hz	50	50	50	60	60	60	50
	Special voltages:							
3-phase AC current Voltages/frequencies								
Volt	220	230	240	525	575	600	660	690
Hz	50	50	50	50	60	60	50	50
Further voltages on request Permissible variation of mains voltage: $\pm 10\%$ Permissible variation of mains frequency: $\pm 5\%$								
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 – 480 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							
	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 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)						

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Threads for cable entries	Standard:	Metric threads
	Options:	PG-threads, NPT-threads, G-threads
Terminal plan	TPA00R1AA-001-000 (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 valve attachment: AF, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem	

Electromechanical control unit

Limit switching device	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) silver contact (Ag) 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 each direction of operation Gold plated contacts (Au), recommended for low voltage actuator controls
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switches (1 NC and 1 NO) silver contact (Ag) for each direction, not galvanically isolated
	Options:	Tandem switches (2 NC and 2 NO) for each direction, switches galvanically isolated Gold plated contacts (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 AM or AC actuator controls.	

Electronic control unit (only in combination with AC actuator controls)

Non-intrusive setting (option)	MWG magnetic limit and torque transmitter Turn 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 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:	–30 °C to +70 °C
	Option:	–40 °C to +70 °C
		–60 °C to +60 °C
		Temperatures exceeding +70 °C on request
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	

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Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 3-phase AC motor For special motors, differing enclosure protection is possible	
	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. 		
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 actuator), 1g, 10 to 200 Hz (for actuators with AM or AC 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 (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)
Top coat	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.		
Noise level	< 72 dB (A)		

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