SAR 07.2 – SAR 16.2
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 dur. on reversal[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	Max. Ø steig. Spindel [mm]	Ø [mm]	Reduct. ratio	approx. [kg]
SAR 07.2	4	4.8	15	30	20	15	10	1,500	50	260	F07 F10	– G0	26 34[7]	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	20
	45	54								70					8 : 1	
	63	75						1,200		65					11 : 1	
	90	108								60					8 : 1	
SAR 07.6	4	4.8	30	60	40	30	20	1,500	50	260	F07 F10	– G0	26 34[7]	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	21
	45	54								70					8 : 1	
	63	75				20	15	1,200		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	25
	45	54								70					8 : 1	
	63	75				50	35	1,200		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	58	315	11 : 1	44
	5.6	6.7								220					8 : 1	
	8	9.6								175					11 : 1	
	11	13								150					8 : 1	
	16	19						900		120					11 : 1	48
	22	26								110					8 : 1	
	32	38						600		100					11 : 1	
	45	54								90					8 : 1	
	63	75				100	70	400		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	58	400	11 : 1	46
	5.6	6.7								220					8 : 1	
	8	9.6								175					11 : 1	
	11	13								150					8 : 1	
	16	19						900		120					11 : 1	53
	22	26								110					8 : 1	
	32	38				175	125	600		100					11 : 1	
	45	54								90					8 : 1	
	63	75				150	105	400		85					11 : 1	
	90	108								80					8 : 1	
SAR 16.2	4	4.8	500	1,000	710	400	280	900	100	300	F16	G3	77	500	11 : 1	67
	5.6	6.7								250					8 : 1	
	8	9.6								200					11 : 1	
	11	13								175					8 : 1	
	16	19				350	250	600		150					11 : 1	
	22	26								140					8 : 1	
	32	38						300		130					11 : 1	79
	45	54								120					8 : 1	
	63	75				250	175	200		115					11 : 1	83
	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 SAR 07.2 – SAR 16.2, AUMA offers AM or AC 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		
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 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	Standard:	Thermoswitches (NC)
	Option:	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	
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 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)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4, C 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 AM or AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)	
Non-intrusive setting (option)	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 +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		
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 3-phase AC motor For special motors, differing enclosure protection is possible	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • 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 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 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.		
Noise level	< 72 dB (A)		

Others	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) 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 Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2