

General information

AUMA NORM part-turn actuators require external controls. For the SQ type range, AUMA offers AM and AC actuator controls. These can also easily be mounted to the actuator at a later date.

Type	Operating times for 90° in seconds		Torque range ¹⁾		Number of starts	Valve attachment		Valve shaft			Handwheel		Weight
	50 Hz	60 Hz	Min. [Nm]	Max. [Nm]	Starts Max. [1/h]	Standard EN ISO 5211	Option EN ISO 5211	Cyl- indrical Max. [mm]	Square Max. [mm]	Two-flat Max. [mm]	Ø [mm]	Turns for 90°	approx. [kg]
SQ 05.2	4	3	50	150	60	F05/F07	F10	25.4	22	22	160	11	21 ²⁾ 27 ³⁾
	5.6	4.5										16	
	8	6										11	
	11	9										16	
	16	12										11	
	22	17										16	
	32	25										11	
	63	50										11	
SQ 07.2	4	3	100	300	60	F05/F07	F10	25.4	22	22	160	11	21 ²⁾ 27 ³⁾
	5.6	4.5										16	
	8	6										11	
	11	9										16	
	16	12										11	
	22	17										16	
	32	25										11	
	63	50										11	
SQ 10.2	8	6	200	450	60	F10	F12	38	30	27	200	11	26 ²⁾ 31 ³⁾
	11	9		600								15	
	16	12										11	
	22	17										15	
	32	25										11	
	42	35										15	
	63	50										11	
SQ 12.2	11	9	400	900	60	F12	F14	50	36	41	200	30	35 ²⁾ 43 ³⁾
	16	12		1,200								22	
	22	17										30	
	32	25										22	
	45	35										30	
	63	50										22	
	84	70										30	
	125	108										22	
SQ 14.2	24	20	800	1,800	60	F14	F16	60	46	46	200	70	44 ²⁾ 55 ³⁾
	36	30		2,400								51	
	48	40										70	
	72	60										51	
	100	85										70	

- 1) The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
- 2) Indicated weight includes AUMA NORM part-turn actuator with 3-phase AC motor, electrical connection in standard version, unbored coupling and handwheel
- 3) Indicated weight includes AUMA NORM part-turn actuator with 3-phase AC motor electrical connection in standard version, unbored coupling and handwheel, including base and lever.

Features and functions

Type of duty	Short-time duty S2 - 15 min, classes A and B according to EN ISO 22153
	For nominal voltage, +40 °C ambient temperature and at load with 35 % of the max. torque.
Motors	3-phase AC asynchronous squirrel-cage motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6

Features and functions	
Mains voltage, mains frequency	Standard voltages: Refer to table: 3-phase AC standard voltages [► 2] Special voltages: Refer to table: 3-phase AC special voltages [► 2] 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 60364-4-44
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 (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 12.5 W
Swing angle	Standard: Adjustable between 75° and $< 105^\circ$ Options: 15° to $< 45^\circ$, 45° to $< 75^\circ$, 105° to $< 135^\circ$, 135° to $< 165^\circ$, 165° to $< 195^\circ$, 195° to $< 225^\circ$
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-type connection Gold-plated control plug (sockets and pins)
Threads for cable entries	Standard: Metric threads Option: Pg threads, NPT threads, G threads
Wiring diagram	TPA00R1AA-101-000 (basic version)
Splined coupling for connection to the valve shaft	Standard: Coupling without bore Options: Machined coupling with bore and keyway, square bore or bore with two-flats according to EN ISO 5211
Valve attachment	Dimensions according to EN ISO 5211 without spigot

Table 1: 3-phase AC standard voltages

Voltages/frequencies											
Volt [3~]	220	230	380	380	400	400	415	440	460	480	500
Hz	60	50	50	60	50	60	50	60	60	60	50

Table 2: 3-phase AC special voltages

Voltages/frequencies							
Volt [3~]	220	440	525	575	600	660	690
Hz	50	50	50	50	60	50	50

With base and lever (option)

Swing lever	Made of spheroidal cast iron with two or three bores for fixing a lever arrangement. Considering the installation conditions, the lever may be mounted to the output shaft in any desired position.
Ball joints (option)	Two ball joints matching the lever, including lock nuts and two welding nuts, suitable for pipe according to dimension sheet.
Fixing	Base and four holes for fastening screws

Electromechanical control unit

Limit switching	Counter gear mechanism for end positions OPEN and CLOSED
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

Electromechanical control unit	
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 – 20mA (electronic position transmitter)
Mechanical position indication	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 AM or AC actuator controls.
Electronic control unit (option, only in combination with AC actuator controls)	
Non-intrusive settings	Magnetic limit and torque transmitter (MWG)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator	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 Options: –40 °C to +80 °C –60 °C to +60 °C 0 °C to +120 °C
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection in accordance with IEC 60529	Standard: IP68 with AUMA 3-phase AC motor 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 • Continuous immersion in water: maximal 96 hours • Up to 10 operations during 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 actuator controls) Resistant to vibration during start-up or for failures of the plant. Valid for part-turn actuators in version AUMA NORM and in version with 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
Colour	Standard: AUMA silver-grey (similar to RAL 7037) Option: Available colours on request
Lifetime	AUMA part-turn actuators meet or exceed the lifetime requirements of EN ISO 22153. Detailed information can be provided on request.
Sound pressure level	< 72 dB (A)

Further information

EU Directives

Machinery Directive 2006/42/EC
Low Voltage Directive 2014/35/EU
EMC Directive 2014/30/EU
RoHS Directive 2011/65/EU

Reference documents

Dimensions SQ 05.2 – SQ 14.2/SQR 05.2 – SQR 14.2
Electrical data SQ 05.2 – SQ 14.2