

Technical data Part-turn actuators for open-close duty with 1-phase AC motors

Type	Operating time for 90° in seconds		Torque range ¹⁾		Valve attachment		Valve shaft			Handwheel		Weight
	50 Hz	60 Hz	Min. [Nm]	Max. [Nm]	Standard EN ISO 5211	Option EN ISO 5211	Cylindrical max. [mm]	Square max. [mm]	Two-flat max. [mm]	Ø mm	Turns for 90°	approx. [kg]
SQ 05.2	4	3	50	150	F05/F07	F10	25.4	22	22	160	11	23 ²⁾ 29 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	F05/F07	F10	25.4	22	22	160	11	23 ²⁾ 29 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	F10	F12	38	30	27	200	11	28 ²⁾ 32 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	F12	F14	50	36	41	200	30	37 ²⁾ 45 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	F14	F16	60	46	46	200	70	46 ²⁾ 57 ³⁾
	36	30		2,400							51	
	48	40									70	
	72	60									51	
	100	85									70	

General information

Part-turn actuators AUMA NORM require external controls.

For sizes SQ 05.2 – SQ 14.2, AUMA offer AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

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

Features and functions

Type of duty	Short-time duty S2 - 10 min, classes A and B according to EN 15714-2 For nominal voltage, +40 °C ambient temperature and at load with 35 % of the max. torque
Motors	1-phase AC motor with integral permanent split capacitor (PSC), type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6

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Mains voltage, mains frequency	Standard voltages:			
	1-phase AC current			
	Voltages/frequencies			
	Volt	110 – 120	110 – 120	220 – 240
Hz	50	60	50	60
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.		
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC		
	Power:	12.5 W		
Swing angle	Standard:	Adjustable between 75° and < 105°		
	Options:	15° to < 45°, 45° bis < 75°, 105° to < 135°, 135° to < 165°, 165° to < 195°, 195° to < 225°		
Self-locking	Yes (Part-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.)			
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) For further information refer to separate data sheet Technical data for switches.			
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		
	Options:	Pg-threads, NPT-threads, G-threads		
Terminal plan	TPA01R1AA-101-000, 1-phase AC motor with permanent split capacitor			
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			

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 with four holes for fastening screws

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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 – 20mA (electronic position transmitter)
Mechanical position indicator	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 DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with the AM or AC actuator controls.

Electronic control unit (option, only in combination with AC actuator controls)	
Non-Intrusive setting	Magnetic limit and torque transmitter (MWG)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator	Continuous indication, adjustable indicator disc 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 +70 °C
	–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 1-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: <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
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 part-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.

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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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 part-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		

Further information	
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 Electrical data Part-turn actuators SQ 05.2 – SQ 14.2 with 1-phase AC motor Technical data Electronic position transmitter/potentiometer Technical data for switches Technical data Sizing of reduction gearings