

Technical data Globe valve actuators for open-close and modulating duty

General information

AUMA SVM/SVMR globe valve actuators are equipped with integral controls.

Type	Output speed rpm (adjustable in 9 steps)	Torque range ¹⁾	Run torque ^{2)/} modulating torque ³⁾	Valve attach- ment	Valve shaft		
	50 Hz/60 Hz	Max. [Nm]	Max. [Nm]	Standard EN ISO 5211	Cylindrical Max. [mm]	Square Max. [mm]	Two-flat Max. [mm]
SVM/SVMR 05.1	3.2 – 22	10 – 25	13	F07	20	17	17
SVM/SVMR 07.1	3.2 – 22	20 – 50	25	F07	25.4	22	22
SVM/SVMR 07.5	1.1 – 8.0	40 – 100	50	F07	25.4	22	22

- 1) The set torque can be increased to 127 % using the “excessive torque” function (can be activated). This increase only applies during actuator startup for an adjustable time period, allowing to unseat blocked valves.
- 2) Maximum permissible torque for 15 min. running time.
- 3) Maximum permissible torque for modulating duty.

Type	Output speed rpm (adjustable in 9 steps)	Handwheel/crank handle according to VG 85081 ¹⁾		Weight Bronze ²⁾	Weight Aluminium ²⁾
	50 Hz/60 Hz	Ø [mm]	Reduction ratio	approx. [kg]	approx. [kg]
SVM/SVMR 05.1	3.2 – 22	125	13 : 1	11	7.5
SVM/SVMR 07.1	3.2 – 22	125	13 : 1	19.5	11
SVM/SVMR 07.5	1.1 – 8.0	125	13 : 1	19.5	11

- 1) Hub does not correspond to VG 85081. Other versions on request.
- 2) Indicated weight includes multi-turn actuator with integral controls, electrical connection in standard version, unbored coupling and hand-wheel/crank handle.

These weights apply to versions with I/O interface, Profibus DP and Modbus RTU.

For version with Profinet and plug/socket connector in configuration “straight” = additional weight of approx. 0,2 kg.

For version with Profinet and plug/socket connector in configuration “angular” = additional weight of approx. 0,5 kg.

Features and functions of actuator

Type of duty	Open-close duty:	Short-time duty S2 - 15 min	
	Modulating duty:	Intermittent duty S4 - 40 % with maximum number of starts of 1,800 starts per hour (option)	
	For nominal voltage and +40 °C ambient temperature and at average running or modulating torque load. The type of duty must not be exceeded.		
Motor	Variable speed, brushless motor Soft start/soft stop		
Insulation class	F, tropicalized		
Motor protection	PTC thermistors (according to DIN 44081)		
Housing material	Options:	Bronze Aluminium	
Self-locking	Yes		
Limit switching	• Via position transmitter potentiometer. Status signals for directions OPEN and CLOSE. • Turns per stroke: Available in subranges out of a total range between 1 – 40 (heed max. stem stroke). However, the turns per stroke can only be set within the subrange ordered. Turns per stroke > 40 on request.		
Torque switching	Via electronic current measurement. Status signals for directions OPEN and CLOSE adjustable in 8 steps.		
Mechanical position indicator	Continuous indication. Adjustable indicator disc with symbols OPEN and CLOSED.		
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation.		
Coupling	Standard:	Coupling without bore	
	Options:	• Extended coupling without bore • Finish machining of coupling (standard or extended) – Bore according to ISO 5211 with 1 keyway according to DIN 6885-1 – Square bore according to ISO 5211 – Two-flat according to ISO 5211	
Valve attachment	Dimensions according to ISO 5211		

Technical data Globe valve actuators for open-close and modulating duty

Features and functions of integral controls	
Mains voltage, mains frequency	Standard voltages: Refer to table: 1-phase AC standard voltages [► 3] Permissible variation of mains voltage: $\pm 10\%$ Permissible variation of mains frequency: $\pm 5\%$ For current consumption, refer to Electrical data SVM/SVMR
External supply of the electronics (option)	24 V DC $\pm 20\%$ / -15% Current consumption: With options up to 200 mA The external power supply must have an enhanced isolation against mains power voltage in compliance with IEC 61800-5-1 and the maximum permissible apparent power must be limited to 150 VA according to IEC 61800-5-1.
Overvoltage category	Category III according to IEC 60364-4-44
Power electronics	Power electronics with integral motor controller
Rated power	The integral controls are designed for the rated motor power, refer to separate Electrical data.
I/O interface control (input signals)	4 digital inputs (via opto-isolator, with one common) - Control voltage 24 V DC, current consumption: approx. 15 mA per input - Minimum pulse duration for shortest operation pulse: 100 ms - All digital inputs must be supplied with the same potential Assignment for open-close actuators: - OPEN, STOP, CLOSE (standard) - OPEN, STOP, CLOSE, EMERGENCY (option) - OPEN, STOP, CLOSE, MODE in combination with positioner (option) - OPEN, EMERGENCY, CLOSE, MODE in combination with positioner (option) Assignment for modulating actuators: - OPEN, STOP, CLOSE, MODE (standard) - OPEN, EMERGENCY, CLOSE, MODE - Analogue input 0/4 – 20 mA (galvanically isolated) Used as input signal for position setpoint E1 (positioner option) or as input signal for motor speed E3.
Status signals (output signals)	- Relay outputs: 4 programmable semi-conductor output contacts, per contact max. 24 V DC, 1 A (resistive load) 2 potential-free NO contacts with one common Default configuration: End position OPEN, end position CLOSED 1 potential-free NO contact for collective fault signal Default configuration: Torque fault, motor protection tripped 1 potential-free NO contact Default configuration: Push button FERN - Analogue output: Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)
Voltage output	Auxiliary voltage 24 V DC: max. 40 mA for supply of control inputs, galvanically isolated from internal voltage supply. Not available for "external electronics supply" option
Local controls	Standard: - Push buttons OPEN, STOP (LOCAL - REMOTE), CLOSE 2 multi-colour indication lights: - End position CLOSED (yellow), fault/failure (red), end position OPEN (green), operation mode LOCAL (blue)
	Option: Local controls mounted separately on wall bracket

Technical data Globe valve actuators for open-close and modulating duty

Features and functions of integral controls	
Functions Actuators with I/O interface	- Switch-off mode adjustable: - Limit or torque seating for end positions OPEN and CLOSED - Torque monitoring across the whole travel - Torque bypass - Programmable EMERGENCY behaviour: - Digital input low active - Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN - Positioner (for modulating actuators): - Position setpoint via analogue input E1 = 0/4 – 20 mA - Programmable behaviour on loss of signal - Automatic adaptation of dead band (adaptive behaviour selectable) - Change-over between OPEN - CLOSE control (digital inputs OPEN/ CLOSE) and setpoint control (analogue input 0/4 – 20 mA) via digital MODE input
Electrical connection	Plug/socket connector with crimp connection
Wiring diagram (basic version)	TPC B-0E6-2C7-0510 TPA 50R200-0A0-000, open-close duty TPC B-1H6-2C7-0510 TPA 50R200-0A0-000, modulating duty

Table 1: 1-phase AC standard voltages

Voltages/frequencies		
Volt [1~]	115	230
Hz	50/60	50/60
Service conditions		
Mounting position	Any position	
Ambient temperature	-25 °C to +70 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Enclosure protection in accordance with IEC 60529	IP68 According to AUMA definition, enclosure protection IP68 meets the following requirements: - Depth of water: maximum 8 m head of water - Continuous immersion in water: maximum 96 hours - Up to 10 operations during immersion - Modulating duty is not possible during immersion.	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Vibration resistance	In accordance with IEC 60068-2-6 2 g, for 10 to 200 Hz Resistant to vibration during start-up or plant failures. However, a fatigue strength may not be derived from this. According to MIL-STD-167-1A	
Shock resistance	Standard:	Without
	Options:	(S01) WTD: in accordance with BV 0430[2] for surface vessels (180 g) (S02) WTD: in accordance with BV 0430[2] for submarines (400 g) (S03) in accordance with MIL-DTL-901D (NAVY) (S04) in accordance with EN 60068-2-27 (up to 70 g) (S05) in accordance with MIL-DTL-901E (NAVY)
Classification according to DNV (option)	Type approval according to Det Norske Veritas (DNV). Valid for versions with I/O interface, Profibus DP and Modbus RTU.	
Classification according to Bureau Veritas (BV) (option)	Type approval according to Bureau Veritas NR467 Steel Ships and NR483 Naval Ships. Restrictions for the following characteristics: - Version with Profinet and I/O interface - Mains voltage: 230 V AC/60 Hz - Ambient temperature: +5 °C to +70 °C - Housing material: Version made of aluminium	
Corrosion protection for version made of bronze	Seawater resistant bronze housing.	
Corrosion protection for version made of aluminium	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution due to double layer powder coating. This complies with category C5-M.	

Technical data Globe valve actuators for open-close and modulating duty

Service conditions		
Colour	Standard:	Version made of bronze: Bronze Version made of aluminium: AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Lifetime	Open-close duty:	20,000 operating cycles OPEN - CLOSE - OPEN An operating cycle is based on an operation from CLOSED to OPEN and back to CLOSED.
	Modulating duty:	5 million modulating steps
	The lifetime depends on the load and the number of starts. A high starting frequency will rarely improve the modulating accuracy. To reach the longest possible maintenance and fault-free operating time, the number of starts per hour chosen should be as low as permissible for the process.	
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 SVM 05.1 – SVM 07.5/SVMR 05.1 – SVMR 07.5 Electrical data SVM 05.1 – SVM 07.5/SVMR 05.1 – SVMR 07.5	