

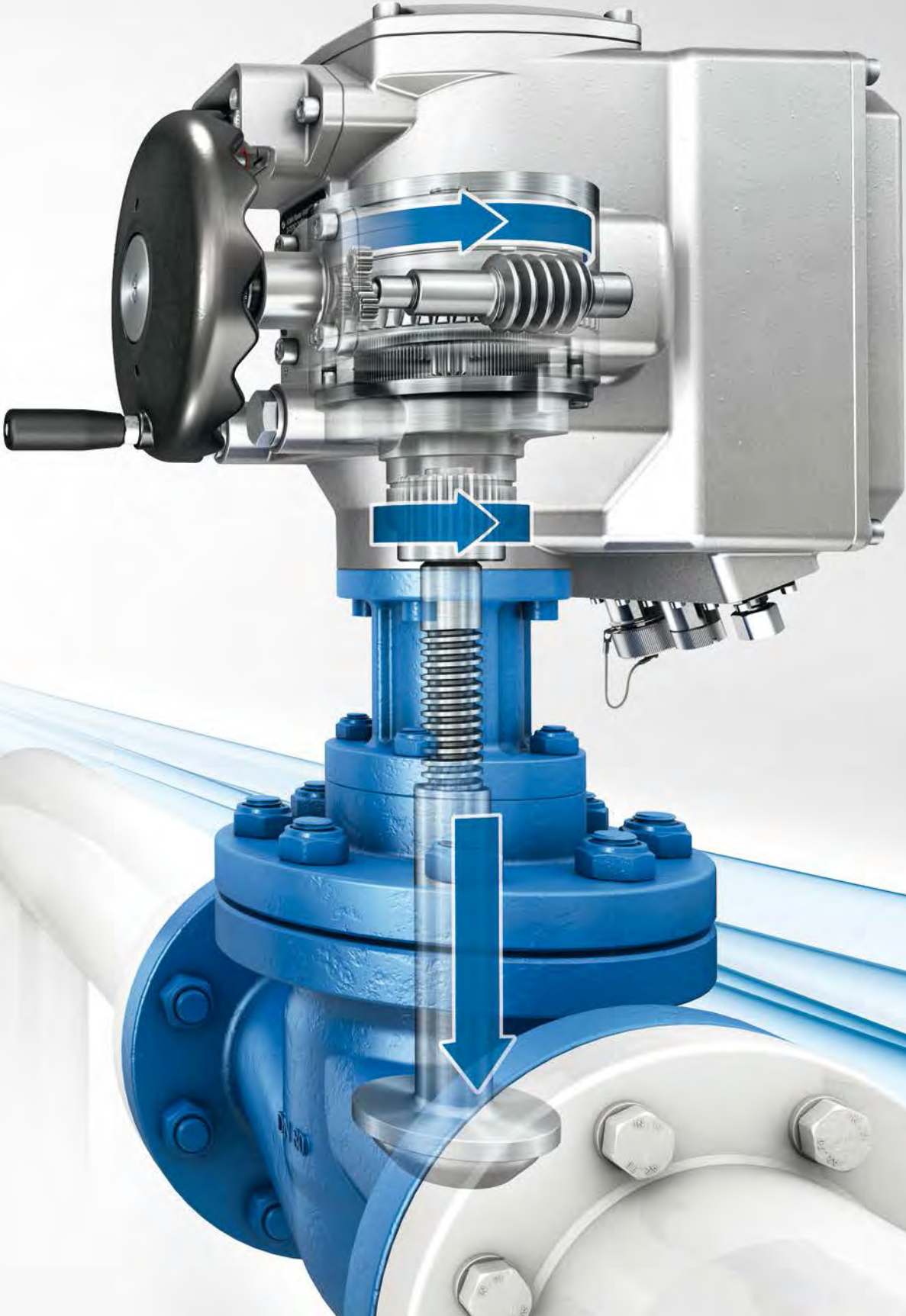


ELECTRIC ACTUATORS

Compact devices for the automation of globe valves, ball valves and butterfly valves







SGC part-turn actuators and SVC globe valve actuators excel by their compact design. Whenever high torques or operating forces in combination with high operating speeds are required, these actuators are the perfect choice. Variable speed provides excellent positioning accuracy.

Both actuator types are based on the same design principle, while commissioning, integration into the DCS and operation follow a uniform concept. This facilitates joint operation of both type ranges within a single installation.

SGC and SVC are suitable for open-close duty, SGCR and SVCR versions for modulating duty.

Soft start and soft stop

Operations out of an end position start at zero speed. By means of a ramp function, speed is increased until the predefined setpoint value is reached. Soft stop is the exact opposite: Prior to reaching the end position, the speed is linearly decreased. The advantage is gentle service for all valve and actuator components subject to wear.

Higher positioning accuracy

Like for operation into the end position, the actuator decreases the operating speed when approaching the setpoint valve position down to zero speed. This allows for more accurate actuator positioning to the setpoint compared to the sudden tripping of a fixed speed actuator. This ability is particularly crucial for the SGCR and SVCR modulating duty models.

External impact on speed

The variable actuator speed is an additional control variable to optimise a control process within the control system. To this end, the actuator speed can be adjusted by an external input.

Extremely robust

Not only is AUMA spearheading technology with regard to ambient temperatures, corrosion protection and enclosure protection, the SGC and SVC type ranges are also resistant to vibration. This is due to the compact design and was particularly noted during tests proving the suitability of the devices for use on military vessels. The actuators are the optimum solution for applications with difficult service conditions.

TAILORED TO CUSTOMER REQUIREMENTS



Just like the larger type ranges, both SGC and SVC actuators can also be configured via the AUMA Commissioning & Diagnostic Tool (CDT).

1 Integral actuator controls

The integral controls contain switchgear units, power supply unit, interface to the DCS and are designed to process commands from the DCS and supply feedback signals. The component automatically switches the actuator off once either the valve end position or the specified tripping torque has been reached.

Connection to the control system is either made via parallel interface or fieldbus. Profibus DP and Modbus RTU are available as fieldbus interfaces.

2 Local controls

The local controls allow local actuator operation. A push button is used to select the control mode, i.e. the operator defines whether the actuator is operated via local controls or via DCS. A padlock protects the local controls against unauthorised use.

If the actuator is mounted in inaccessible places or space constraints, it is possible to mount the local controls separately from the actuator as an option. The connection is then made via cable.

3 Position indicator

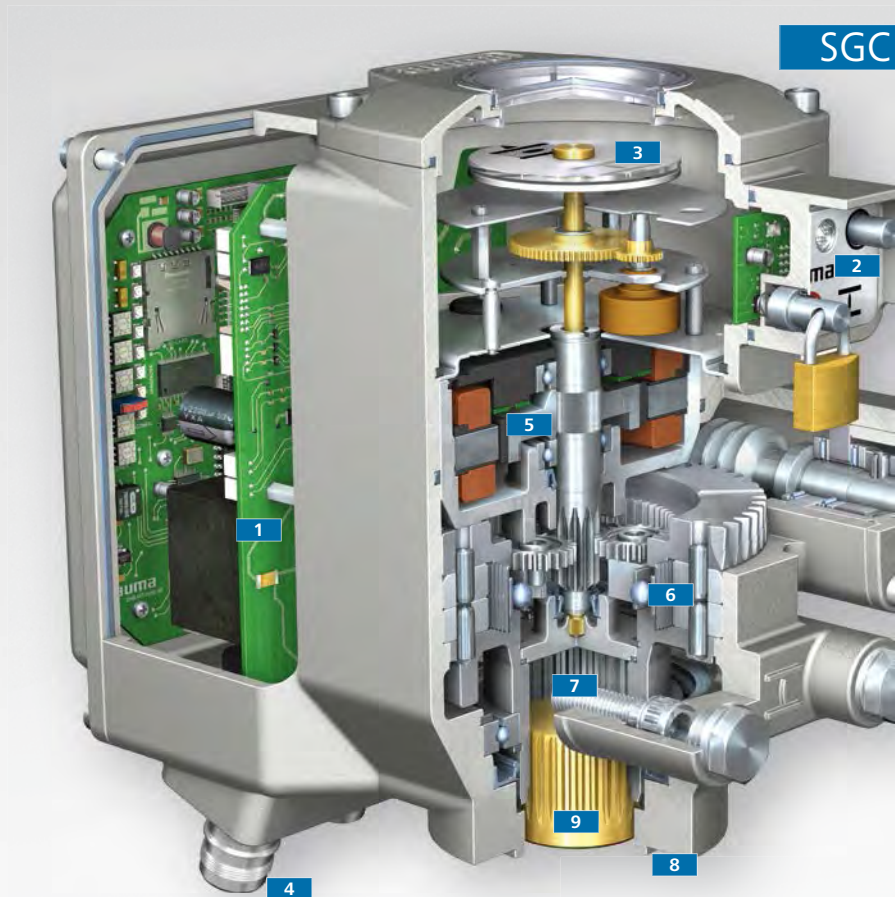
Position indication provides local information on the current valve position.

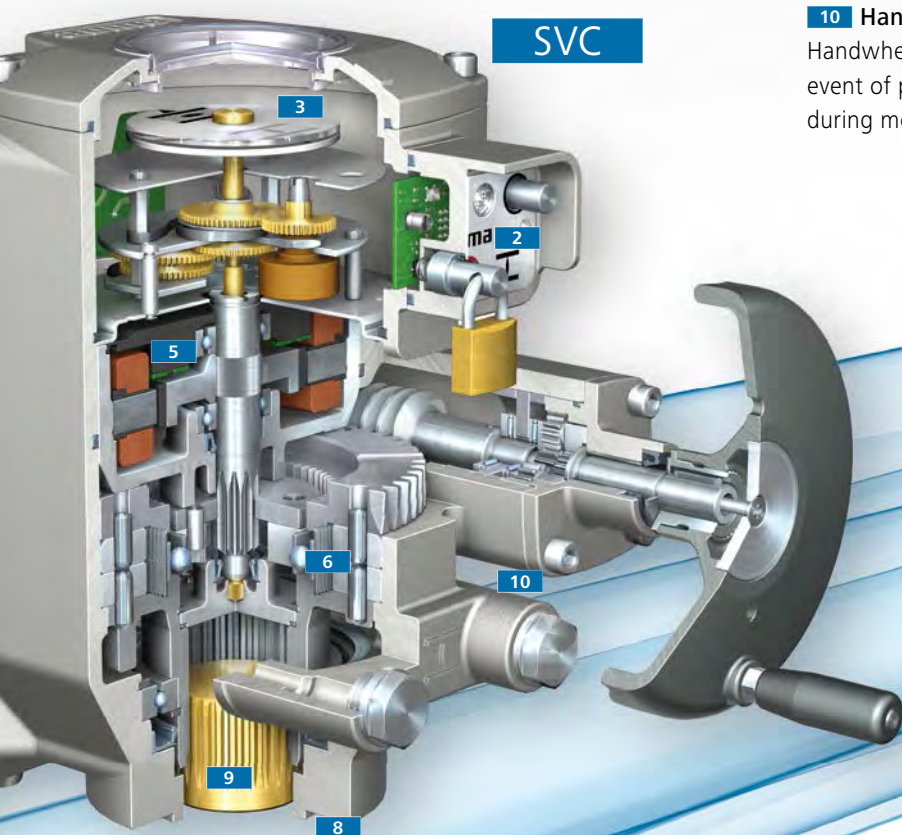
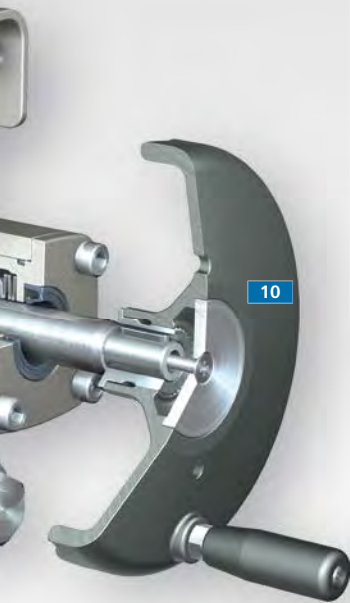
4 Electrical connection

The electrical connection of power supply and power cables is made via compact plug/socket connectors with crimp type connection as standard. As an option, the actuators can be supplied with AUMA plug/socket connectors. [4 a](#). This connection is identical to that of the larger AUMA type ranges, SA and SQ.

5 Motor

The electronically commutated variable-speed motor requires approximately one-third of the height of an equivalent, conventional motor, thus contributing to the compact design of the actuator.





6 Gearing

The patented and highly efficient ellipto-centric gearing enables a reduction ratio of 80:1 in one stage all housed within a small area.

7 End stops (SGC only)

During manual operation of part-turn valves without internal end stops such as multi-turn butterfly valves and ball valves, end stops integrated within the actuator enable precise approaching of end positions.

8 Valve attachment

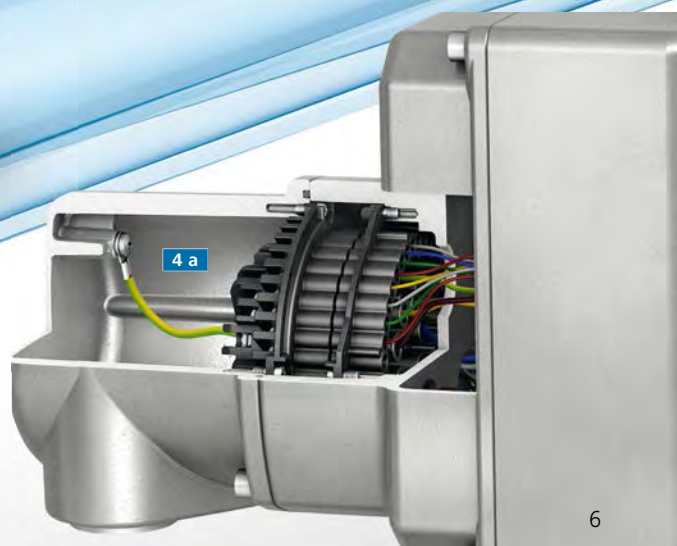
The valve attachment for mounting on the valve is designed according to EN ISO 5211.

9 Coupling

The separate coupling transmits the torque applied to the valve shaft. During assembly, it is simply pushed onto the valve shaft and secured against axial movement. In the next step, the actuator or the gearing is placed onto the coupling and screwed to the valve flange. Upon request, the coupling is supplied with a suitable hole in accordance with the valve drive coupling.

10 Handwheel

Handwheel for emergency actuator operation in the event of power failure. The handwheel does not rotate during motor operation.



APPLICATION CONDITIONS FOR SGC/SGCR AND SVC/SVCR ACTUATORS

Corrosion protection

The AUMA corrosion protection system is based on a chemical preliminary treatment, followed by a two-layer powder coating of the individual components. In compliance with the corrosivity categories according to EN ISO 12944-2, various AUMA corrosion protection levels are provided to suit the different applications.

AUMA has been certified for achieving corrosion protection of the highest classes, C5-I and C5-M, as specified in the standard.

Ambient temperatures

The products are suitable for operation without restrictions at temperatures from -25 °C to $+70\text{ °C}$.

Enclosure protection

The actuators are supplied with enhanced enclosure protection IP68 according to IEC 60529. IP68 means protection against continuous immersion up to 8 m head of water for max. 96 hours. During continuous immersion, up to 10 operations are permissible.

Special approvals

- > GL
Germanische Lloyd certifies the suitability of the products for use in environmental categories D, G, EMC2.
- > RMR (Russian Marine Register)
This certification proves the suitability of the products for use on civil ships and in offshore plants

SGC/SGCR PART-TURN ACTUATORS

Type	Operating time for 90° – adjustable in 9 steps	Setting range for tripping torque	Maximum running torque of SGC (open-close duty) Maximum modulating torque SGCR (modulating duty)	Number of starts Max. starts	Output mounting flange	Adjustable swing angle range
	[s]	[Nm]	[Nm]	[1/h]	EN ISO 5211	
SGC/SGCR 04.1	4 – 63	25 – 63	32	1,800	F05/F07	82° – 98°
SGC/SGCR 05.1	4 – 63	50 – 125	63	1,800	F05/F07	82° – 98°
SGC/SGCR 07.1	4 – 63	100 – 250	125	1,800	F07	82° – 98°
SGC/SGCR 10.1	5.6 – 90	200 – 500	250	1,800	F10	82° – 98°
SGC/SGCR 12.1	20 – 275	400 – 1,000	500	1,800	F12	75° – 105°

SVC/SVCR GLOBE VALVE ACTUATORS

Type	Speed – adjustable in 9 steps	Setting range for tripping torque	Maximum running torque of SGC (open-close duty) Maximum modulating torque SGCR (modulating duty)	Number of starts Max. starts	Output mounting flange	Turns per stroke	Max. stem stroke for rising stem
	[rpm]	[Nm]	[Nm]	[1/h]	EN ISO 5211		[mm]
SVC/SVCR 05.1	1.6 – 22	10 – 25	13	1,800	F05/F07	1 – 100	60
SVC/SVCR 07.1	1.6 – 22	20 – 50	25	1,800	F07	1 – 100	70
SVC/SVCR 07.5	0.6 – 8.0	40 – 100	50	1,800	F07	1 – 100	70

POWER SUPPLY

The actuators are operated with 1-phase AC current.

Voltage	Frequency
[V]	[Hz]
115	50/60
230	50/60

The operating times above apply to both 50 Hz and 60 Hz.

INTERFACES TO THE DISTRIBUTED CONTROL SYSTEM (DCS)

Parallel interface

- > Four digital inputs
- > One analogue input 0/4 – 20 mA for setpoint definition
- > Four output contacts
- > One analogue output 0 – 20 mA or 4 – 20 mA for position feedback

Fieldbus interfaces

- > Profibus DP-V0
- > Profibus DP-V0/V1
- > Modbus RTU (line topology)
- > Modbus RTU loop redundancy (loop topology)

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