

## *Electric actuators - Valve gearboxes*





## *Solutions for a world in motion*

### **AUMA automates valves**

No industrial process without automation, no automation without actuators - or vice versa: Actuators are nerve centres - their reliability is crucial to the safety and economic efficiency of whole industrial plants.

But there is no such thing as the industrial process. Each branch has its specific peculiarities, many actuator applications require individual solutions. Whether OPEN - CLOSE or modulating duty, with high enclosure protection or even for explosion-proof applications - to make a general automation possible, great flexibility is demanded from an actuator manufacturer.

For this reason, AUMA has a wide modular product range with electric multi-turn, part-turn, linear and lever actuators, as well as several different valve gearboxes. AUMA actuator controls, on request micro-processor con-

trolled and available with a variety of fieldbus interfaces, enable an ideal connection of the MOVs to the process control. This makes it possible to find the suitable automation solution for almost every valve.

AUMA has been developing and building electric actuators and valve gearboxes for over 45 years. Therefore, AUMA has acquired a know-how which can hardly be surpassed. AUMA is one of the leading electric actuator manufacturers world wide.

This brochure provides an overview on AUMA products and services. Detailed information can be requested from AUMA or can be found on the Internet at [www.auma.com](http://www.auma.com).



AUMA electric actuators are employed wherever the automation of a valve requires rotation, swivel movement, linear movement or actuation via a lever.

2011.10.24



### *Power*

- : Conventional power plants (coal, gas, oil)
- : Nuclear power plants
- : Hydroelectric power plants
- : Geothermal power plants
- : Solar power plants
- : Biogas power plants



### *Water*

- : Sewage treatment plants
- : Water treatment plants
- : Drinking water distribution
- : Sea water desalination
- : Steel construction for water resources



### *Oil & gas*

- : Exploration, offshore plants
- : Refineries
- : Distribution
- : Gas tanks
- : Tank farms



### *Industrial and special solutions*

- : Air conditioning
- : Food industry
- : Chemical/pharmaceutical industry
- : Vessel and submarine shipbuilding
- : Steel mills
- : Paper industry
- : Cement industry
- : Mining industry



## Multi-turn actuators

*e.g. for gate valves and globe valves*



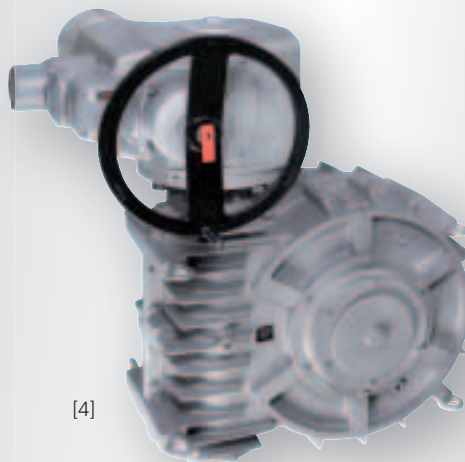
[1]



[2]



[3]



[4]

[1] Multi-turn actuators  
SA 07.2 – SA 16.2/SA 25.1 – SA 48.1  
Torques from 10 Nm – 32,000 Nm  
Speeds from 4 rpm – 180 rpm

[2] Actuator/bevel gearbox  
combinations SA/GK  
Torques up to 16,000 Nm

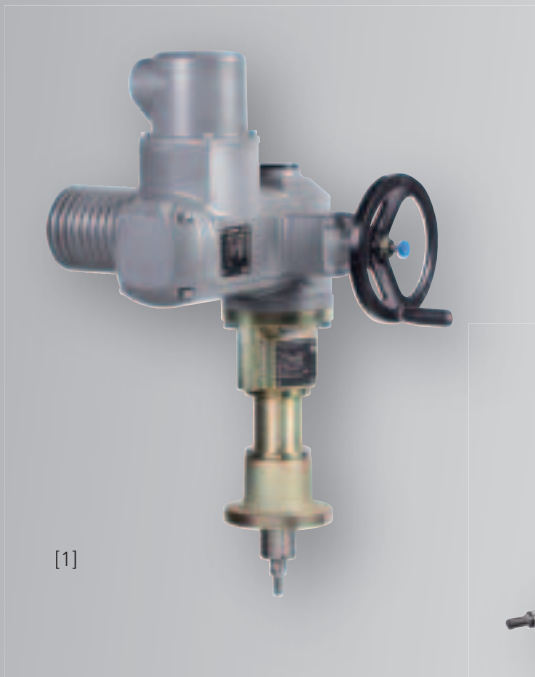
[3] Actuator/spur gearbox  
combinations SA/GST  
Torques up to 16,000 Nm

[4] Actuator-/worm gearbox-  
combinations SA/GHT  
Torques up to 80,000 Nm

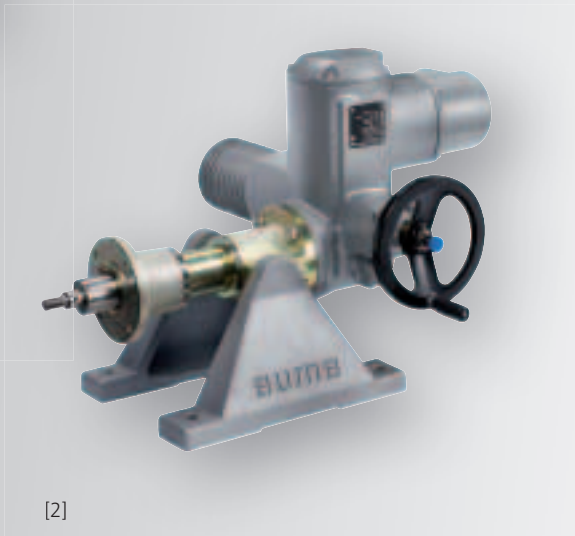


## Linear actuators

*e.g. for gate valves or butterfly valves with lever arrangement*



[1]



[2]

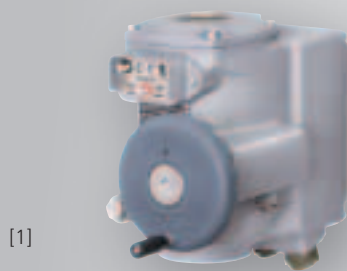
[1] Actuator/linear thrust unit combinations SA/LE  
Thrusts from 4 kN – 217 kN  
Strokes up to 500 mm  
Speeds from  
20 mm/min – 360 mm/min

[2] For the operation of lever arrangements, the LE can be mounted on a base



## Part-turn actuators

*e.g. for butterfly valves and ball valves*



[1]



[2]



[3]



[4]

[1] Part-turn actuators SGC 04.1 – SGC 10.1  
Torques from 25 Nm – 500 Nm  
Speeds for 90° from 4 s – 90 s

[2] Part-turn actuators SG 03.3 – SG 04.3  
Torques from 32 Nm – 63 Nm  
Speeds for 90° from 8 s – 32 s

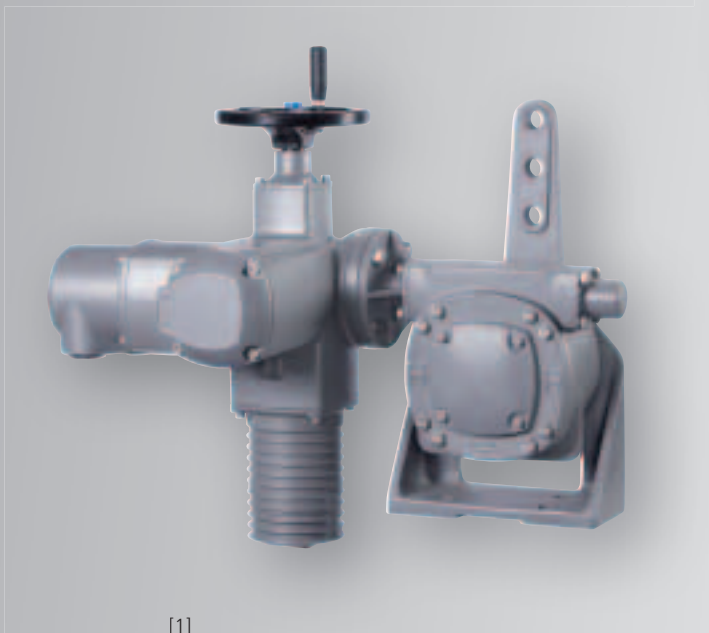
[3] Part-turn actuators SG 05.1 – SG 12.1  
Torques from 90 Nm – 1,200 Nm  
Speeds for 90° from 4 s – 63 s

[4] Actuator/worm gearbox combinations SA/GS  
Torques up to 675,000 Nm

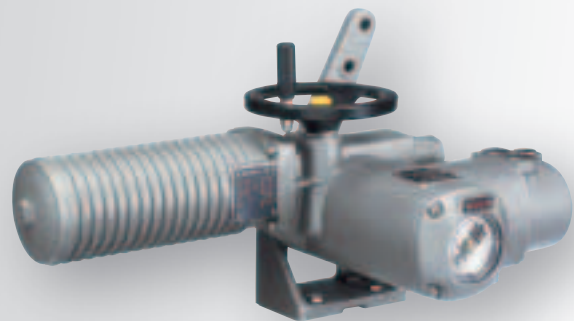


## Lever actuators

*e.g. for butterfly valves with lever arrangement*



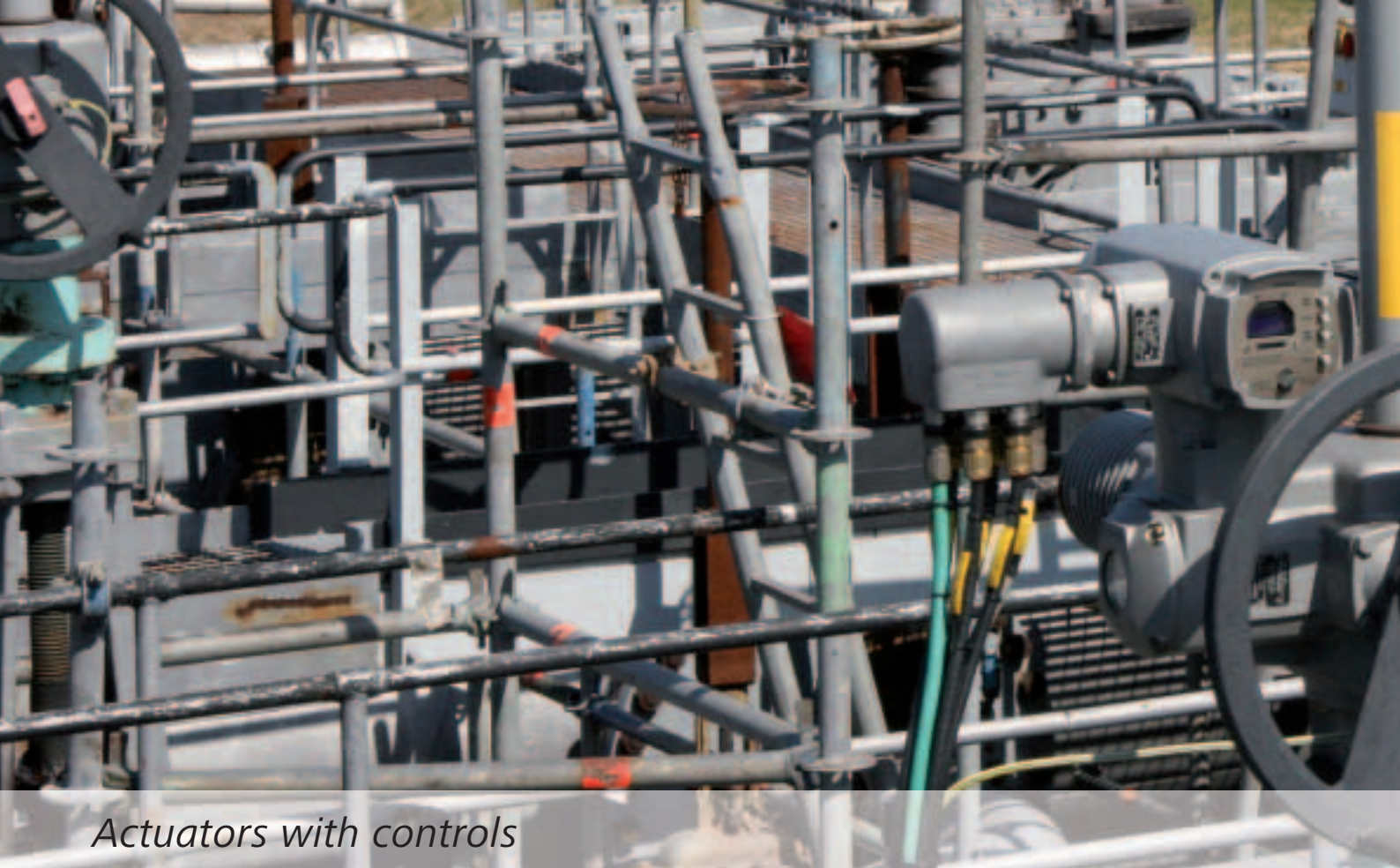
[1]



[2]

[1] Actuator/lever gearbox combinations SA/GF  
Torques up to 32,000 Nm

[2] Lever actuators SGF 05.1 – SGF 12.1  
Torques from 90 Nm – 1,200 Nm  
Speeds for 90° from 4 s – 63 s

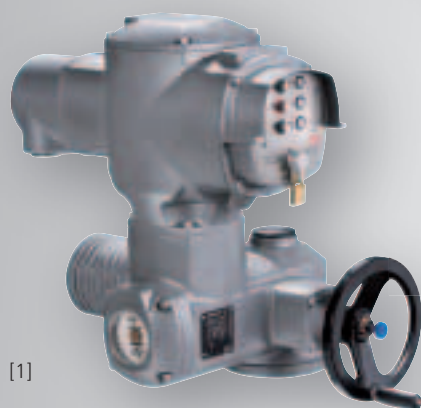


## Actuators with controls

Actuator controls with integral local controls are available for the actuators SA up to size 16.2 and all part-turn actuators SG. They form the optimal interface between process control and actuator.

The controls can be supplied in a variety of versions. Whether parallel control or via fieldbus, whether simple OPEN-CLOSE functionality or an integral PID control - almost every process integration imaginable is possible.

In planning, commissioning, and operation, AUMA actuator controls have a clear advantage over a separate external control wiring. The economical improvements resulting from this have a positive effect on the competitiveness of whole plants.



[1]



[2]

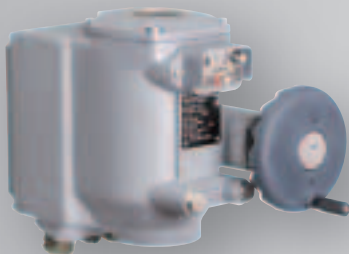
[1] Multi-turn actuator SA with integral controls AUMA MATIC  
The AUMA MATIC is the ideal controls for OPEN - CLOSE applications.

[2] Multi-turn actuator SA with integral controls AUMATIC  
The microcontroller controlled AUMATIC offers a variety of functions - from positioning to operating data logging Fieldbus control is possible.



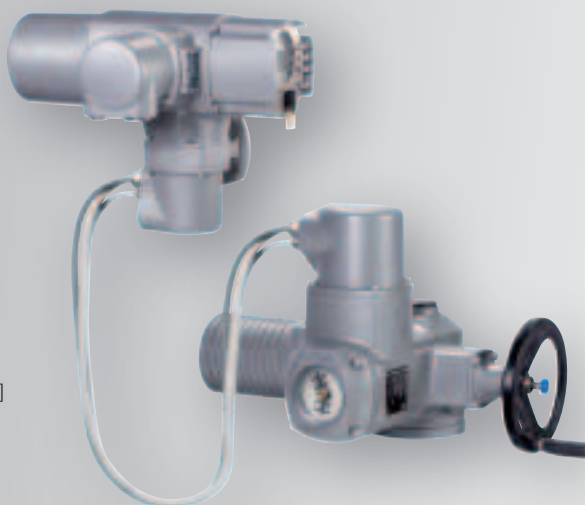


[3]



[3] Part-turn actuator SGC are always equipped with integral controls. The controls are integrated into the actuator housing. Like all AUMA actuators, the SGC type range is available with parallel and field-bus interface.

[4]



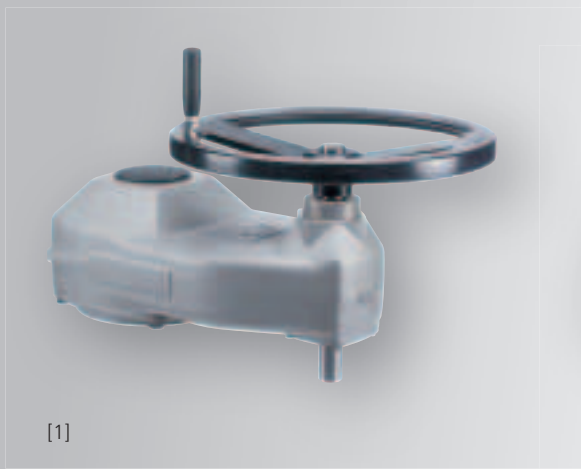
[4] The controls can not only be mounted directly to the actuators, but also separately on a wall bracket. This is recommended when:

- the controls and therefore also the local controls would be difficult to access,
- heavy vibrations or high temperatures within the vicinity of the valve could disturb the electronics.



## Multi-turn gearboxes

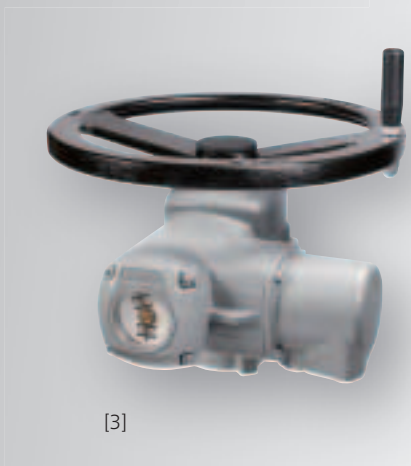
for manually operated valves



[1]



[2]



[3]

[1] Spur gearboxes GST 10.1 – GST 40.1  
Torques up to 16 000 Nm  
Reduction ratios from 1:1 to 22:1

[2] Bevel gearboxes GK 10.2 – GK 40.2  
Torques up to 16 000 Nm  
Reduction ratios from 1:1 to 22:1

[3] Limit switching WSH 10.2 – WSH 14.2  
Torques up to 800 Nm  
Reduction ratio 1:1  
The limit switching WSH is designed for the remote indication of the end positions and the valve position in a control room. The valve position can be read from a position indicator on the device.



## Part-turn gearboxes







for manually operated valves



[1] Worm gearboxes GS 50.3 – GS 250.3, GS 160 – GS 500, GS 630.3  
Torques up to 675 000 Nm  
Reduction ratios from 39:1 to 6 939:1  
The worm gearboxes can also be supplied without end stops for multi-turn applications.

[2] Valve position indicators WSG und WGD for indication of the valve position in a control room. The valve position indicators are mounted directly onto the worm gearboxes GS.

## The AUMA products - in a nutshell

							
For motor driven valves			Gate valves, globe valve	Butterfly valves, ball valves	Globe valves, butterfly valves with lever arrangement	Butterfly valves with lever arrangement	Remarks
Multi-turn actuators SA 07.2 – SA 16.2/SA 25.1 – SA 48.1	10 Nm – 32,000 Nm	4 rpm – 180 rpm	■				Versions for OPEN - CLOSE duty, modulating duty and explosion-proof applications
Multi-turn actuators SA 07.2 – SA 16.2 with bevel gearboxes GK 10.2 – GK 40.2	up to 16,000 Nm	depending on reduction	■				Displaces direction by 90°
Multi-turn actuators SA 07.2 – SA 16.2 with spur gearboxes GST 10.1 – GST 40.1	up to 16,000 Nm	depending on reduction	■				Combinations of a smaller actuator and a gearbox are often less expensive than a large actuator
Multi-turn actuators SA 30.1 – SA 40.1 with worm gearboxes GHT 360.1	up to 80,000 Nm	2 rpm – 16 rpm	■				e.g. for high pressure gate and ball valves with high torque requirement
Part-turn actuators SG 05.1 – SG 12.1	90 Nm – 1,200 Nm	4 s – 63 s for 90°		■			Versions for OPEN - CLOSE duty, modulating duty and explosion-proof applications
Part-turn actuators SG 03.3 – SG 04.3	32 Nm – 63 Nm	8 s – 32 s for 90°		■			Small, lightweight and inexpensive actuator for the automation of small OPEN-CLOSE part-turn valves
Part-turn actuators SGC 04.1 – SGC 10.1	25 Nm – 500 Nm	4 s – 90 s for 90°		■			Very compact actuator design. Actuator controls are integrated into the actuator housing.
Multi-turn actuators SA 07.2 – SA 16.2/SA 25.1 – SA 48.1 with worm gearboxes GS 50 – GS 630	up to 675,000 Nm	9 s – 392 s for 90°		■			Suitable for part-turn applications up to highest torque requirements
Multi-turn actuators SA 07.2 – SA 16.2 with linear thrust units LE 12.1 – LE 200.1	4 kN – 217 kN	20 mm/min – 360 mm/min			■		Strokes up to 500 mm possible
Lever actuators SGF 05.1 – SGF 12.1	90 Nm – 1,200 Nm	4 s – 63 s for 90°				■	Based on part-turn actuators SG
Multi-turn actuators SA 07.2 – SA 16.2/SA 25.1 with lever gearboxes GF 50.3 – GF 250.3	up to 32,000 Nm	17 s – 392 s for 90°				■	Lever gearboxes based on worm gearboxes GS
For manually operated valves			Reductions				Remarks
Bevel gearboxes GK 10.2 – GK 40.2	up to 16,000 Nm	1:1 – 22:1	■				Displaces direction by 90°
Spur gearboxes GST 10.1 – GST 40.1	up to 16,000 Nm	1:1 – 22:1	■				Is equipped with second shaft coupling at gearbox input side
Limit switching WSH 10.2 – WSH 14.2	up to 800 Nm	1:1	■				Makes position indication for manually operated valves possible
Worm gearboxes GS 50.3 – GS 250.3, GS 160 – GS 500 and GS 630.3	up to 675,000 Nm	39:1 – 6,939:1		■			High mechanical safety through special end stop technology
Valve position indicators WSG/WGD				■			Accessory for worm gearboxes GS for remote position indication

\* For multi-turn actuators output speed, for part-turn actuators operating time for 90° movement, for linear actuators stroke speed



## Service

The reliability of actuators is crucial to the safety of whole plants. Therefore, it is imperative to choose an appropriate configuration of actuators and to optimally integrate the actuator into the process control system.

Actuators are found in all industry sectors. The resulting variety of requirements makes extensive know-how necessary as from the planning stage. The careful selection of the devices is the prerequisite for smooth installation and commissioning. However, if a fault should occur during operation, it must be eliminated as soon as possible.

This is AUMA's definition of service and support. For this reason, AUMA offers a range of services.

### Advice via telephone/e-mail

At AUMA, engineers assist as competent partners in every phase of the project. This means that arising questions can be answered quickly and reliability in planning can be achieved at an early stage. If a dimensional drawing or a wiring diagram is required at short notice, AUMA can send these to you promptly via e-mail or fax.

### Internet

The AUMA website presentation ([www.auma.com](http://www.auma.com)) offers up-to-date and extensive information around the clock. Besides general information, comprehensive documentation is available, as well. Have a look. It is well worth a visit.

### Trouble shooting, commissioning and maintenance

To react quickly and competently to customer requirements around the globe, AUMA has established a world-wide network of subsidiaries and representatives. Ideally equipped with service units and special tools, the AUMA technicians can eliminate faults efficiently.

Apart from trouble shooting, several additional services are available. The commissioning service for actuators in installations ensures correct function right from the beginning. And with a maintenance contract, the long-term conservation of the value of AUMA products can be ensured.

### Automation/modernisation

Valves are often still fully functional after many decades; however, the actuator technology is then no longer compatible with the new process control system and needs to be replaced. The AUMA automation service includes everything necessary to modernise the actuator technology in an older plant - from the preparation of a quotation, the design, and production of special adapters to commissioning.

# AUMA - worldwide service

## Europe

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Solution Technique Contrôle Commande

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PROCONTIC Procesos y Control Automático

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DW Controls Co., Ltd.

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**AU-NSW 1570 Artarmon**

ZERTIFIKAT ♦ CERTIFICATE ♦ 證書 ♦ CERTIFICADO ♦ CERTIFICAT



# CERTIFICATE

The Certification Body  
of TÜV SÜD Management Service GmbH  
certifies that

**auma**

**AUMA Riester GmbH & Co. KG**  
Aumastr.1, D-79379 Müllheim

has established and applies a  
Quality and Environmental Management System  
for the following scope of application:

**Research and development, manufacture, sales and service of  
electric actuators, integral controls and gearboxes  
for valve automation as well as  
components for general actuation technology.**

Performance of audits (Report No. 70009378)  
has furnished proof that the requirements under:

**ISO 9001: 2008**  
**ISO 14001: 2004**

are fulfilled. The certificate is valid in combination  
with the main certificate until **2012-06-08**

Certificate Registration No. **12 100/104 4269/01 TMS**

Munich, 2009-06-25



QMS/EMS-TGA-ZM-07-92

**auma**®

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