



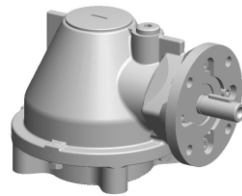
AUMA Norm
SA 3 - SA 100
SAR 3 - SAR 100
Output Torque from
30 Nm to 1000 Nm



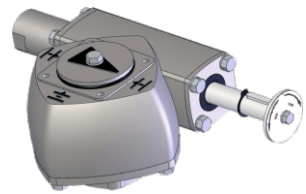
AUMA e-pac
SA 3 - SA 100
SAR 3 - SAR 100
Output Torque from
30 Nm to 1000 Nm



AUMA High Torque
SA 25.1 - SA 40.1
SAR 25.1 - SAR 30.1
Output Torque from
2000 Nm to 16000 Nm



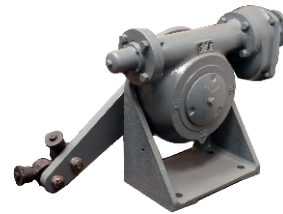
AUMA Bevel Gearboxes
ABG 10.2 - ABG 35.2
Output Torque from
375 Nm to 10000 Nm



AUMA Worm Gearboxes
GS 40.2 - GS 125.2
Output Torque from
300 Nm to 5600 Nm



AUMA Worm Gearboxes
GS 160 - GS 500
Output Torque from
8000 Nm to 360000 Nm



AUMA Worm Gearboxes
GF 63 - GF 315
Output Torque from
300 Nm to 90000 Nm



AUMA Bevel Gearboxes
GK 10.1 - GK 40.1
Output Torque from
120 Nm to 16000 Nm



AUMA India Gearboxes

GS 40.2 - GS 500
GF 63.2 - GF 315
GSD 40.2 - GSD 500
GK 10.1 - GK 40.1
ABG 10.2 - ABG 35.2

AUMA India Private Limited (CIN No: U74999KA1983PTC005412)

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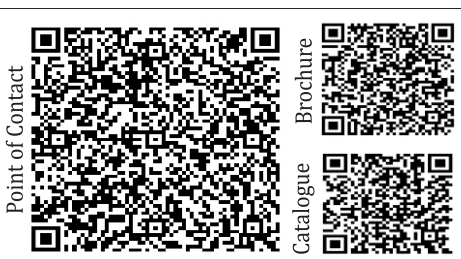
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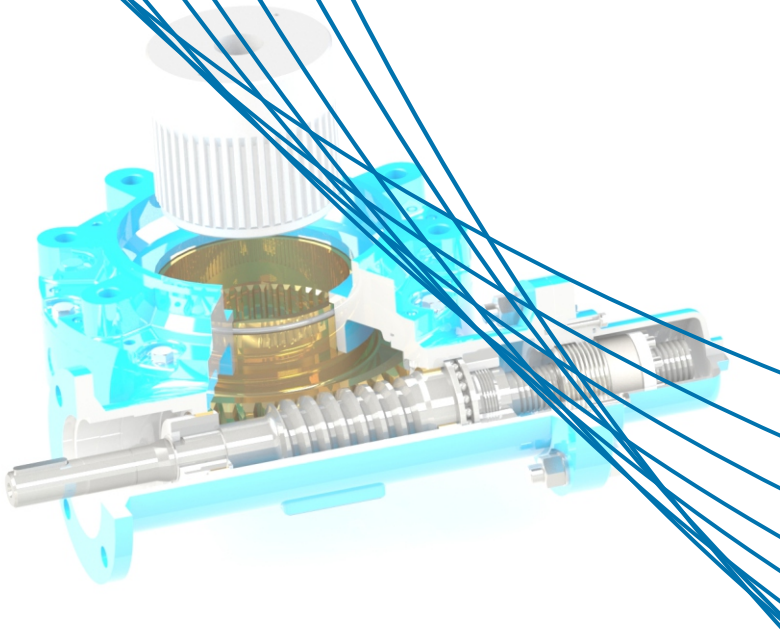
We reserve the right to alter the data according to changes made. The product features and technical data provided do not express or imply any warranty.

For latest information on AUMA products, please visit www.auma.co.in



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Note: There are various features and options that are available other than what is listed in the catalogue.
For special needs, please contact AUMA India.



AUMA India Head Office at Bangalore

AUMA is the world's leading manufacturer of electric actuators, actuator controls and valve gearboxes for the automation of industrial valves / gates / dampers. AUMA has more than 50 years of experience in research & development and manufacturing electric actuators.

AUMA India, a subsidiary of AUMA Germany has established itself as the leading brand name in the Indian actuator market, since 1986. AUMA India offers the widest range of solutions for torque requirements from 10 Nm to 16000 Nm with or without integral starter for direct actuation and up to 360000 Nm in combination with gearboxes.

AUMA India has state-of-the-art manufacturing facility at Bangalore. It sells its products through the sales offices in Bangalore, Pune, Noida, Chennai and with its Residential Representatives in Kolkata, Hyderabad, Vadodara, Coimbatore and Mumbai.

AUMA India has a number of service centers and service representatives across India to ensure prompt after-sales service.

This brochure provides an overview of the functions and applications of AUMA India multi-turn actuators and actuator controls, for potential users. It can be used as the basis to determine the suitability of a device for the chosen application. For latest information on AUMA products, visit www.auma.co.in or contact our sales team.

AUMA India gearboxes combine with AUMA India actuators to complete the valve automation service. There are basically two major types of gearboxes:

- Worm gearboxes (GS, GF, GSD & GSQ series)
- Bevel gearboxes (GK & ABG series) and

Due to the availability of wide torque range, modular design and potential for use with electric multi-turn actuators, these gearboxes can be used for varied applications.



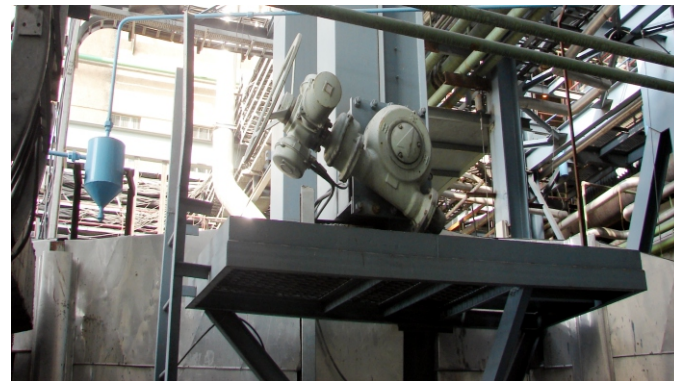
Power Sector

- Conventional power plants (coal, gas, oil)
- Co-generation power plants
- Hydroelectric power plants
- Biogas power plants
- Solar thermal power plants
- Nuclear power plants



Oil & Gas

- Exploration, offshore plants
- Refineries
- Distribution
- Tank farms
- Petrochemical complexes



Water Sector

- Sewage treatment plants
- Water treatment plants
- Drinking water distribution
- Seawater desalination



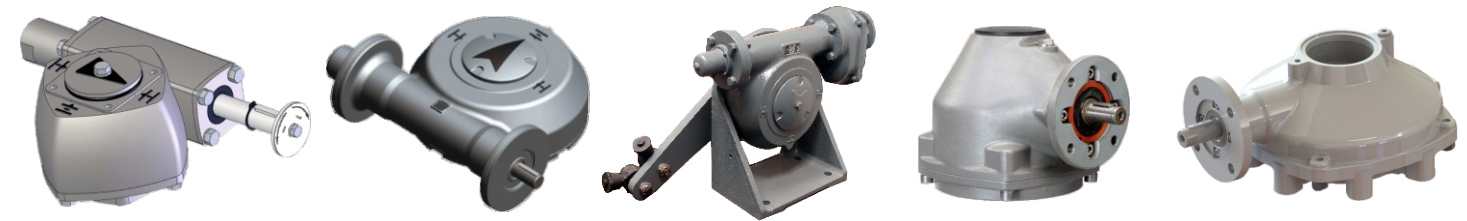
Industry & Marine - Others

- Cement works, Steel mills
- Air conditioning
- Chemical industry
- Paper & pulp, Food industry
- Pharmaceutical industry
- Shipbuilding industry



Please Note: Explosion proof actuators and actuators for use in nuclear applications are described in separate catalogues.

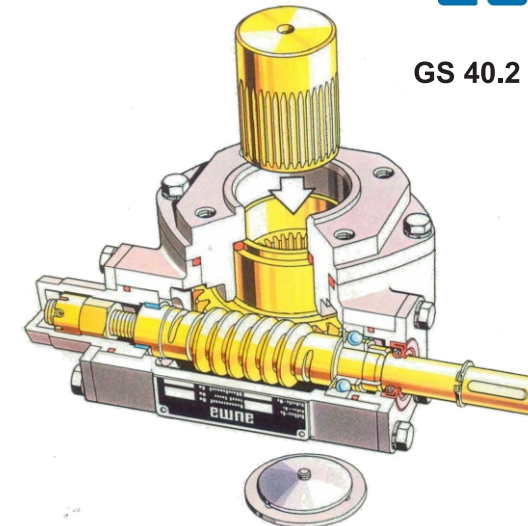
All AUMA India gearboxes are manufactured to comply with all market requirements as per AUMA Germany specifications. The housings are designed for high rigidity to absorb high torsional and thrust loads. The gearbox enclosure conforms to IP 67 class. IP 68 enclosures can also be supplied on request. All gearboxes are lubricated with special grease for life.



Part-turn Worm Gearboxes (GS 40.2 - GS 500) - Flange Mounted

AUMA India GS type gearboxes are designed for rotation upto 360° without end stop or 135° with end stop for operation of ball valves, butterfly valves, plug valves, dampers etc. The extremely rugged construction feature with positive adjustable end stop on input shaft provides precise valve positioning.

auma®
GS 40.2 - GS 125.2



auma®
GS 160 - GS 500



The gearboxes are designed for permissible valve torque up to 360,000 Nm for motor operation. The main feature of GS gearboxes are:

- Full 360° worm wheel design; make the gearboxes suitable either for multi-turn or part-turn operation.
- In case of part-turn operation, additional three segments are available for repositioning, thus extending the life of worm wheel by three times.
- A separate coupling with involute splines is provided for no orientation hassles while mounting to the valve. The coupling is removable for machining the bore to suit valve shaft. The orientation of the gearbox while mounting on valve is made simple due to involute splines on the coupling.
- Unique design of end stops on input shaft with traveling nut mechanism allow precise and positive setting up to 135° operation.
- All the gearboxes are designed for both electrical and manual operations.
- To reduce the input torque, for a given output of worm gearbox, a primary reduction gearbox can be easily attached at input of the gearboxes. For this purpose, GS 100.2 & GS 125.2 gearboxes are fitted with Planetary reduction gearboxes (VZ 4) and higher series are fitted with Spur reduction gearboxes (GZ) of various ratios. This feature enables selection of smaller actuators for economic sizing.
- AUMA GS series gearboxes are suitable for open-close and regulating duty valves.
- All the gears are specially heat treated to ensure longer life in service.

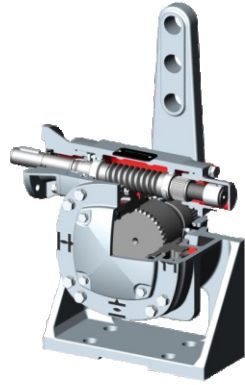
Part-turn Worm Gearboxes (GF 63.2 - GF 315) - Foot Mounted

GF series gearboxes are specially used for actuation of fan dampers, which require part-turn actuation.

The gear operator is a worm gear of GS series with a built-in floor stand and a lever. The lever is provided with a pair of mounting ball and socket joints at varying moment arms to suit given damper application. All other features of GF series are same as GS gearboxes. GF gearboxes in sizes higher than GF 315 can be supplied on request.

- GF series gearboxes can be coupled to primary reduction gearboxes to reduce input torque for a given output of worm gearbox.
- GF gearboxes can be easily used with electrical actuators for motorized operation.
- They are suitable for both open - close and regulating duty valves.

auma®
GF 63.2 - GF 315



Part-turn Worm Gearboxes with Limit Switch Assembly

AUMA India GS type worm gearboxes with limit switch assembly are designed for part-turn applications. Limit switch assembly is provided for either indication of end positions of valves or for generation of an end position signal for swivel movements for transmission to the control room.

auma®
GS with Limit Switches



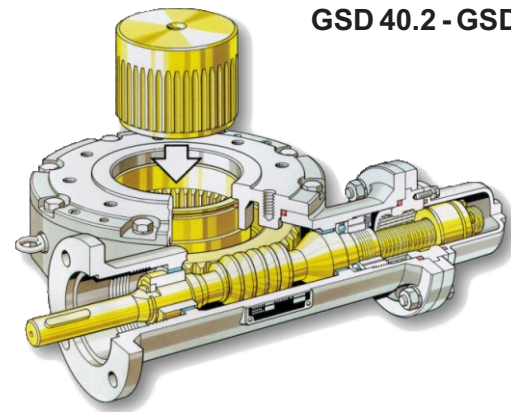
Multi-turn Worm Gearboxes (GSD 40.2 - GSD 500)

AUMA India GSD type worm gearboxes without end stops are designed for multi-turn applications.

The gear operator is a worm gear of GS series without end stops for 360° swing angles. All other features of GSD series are same as GS gearboxes.

GSD series gearboxes can be coupled to primary reduction gearboxes and also to AUMA India actuators to obtain on-off or regulating control.

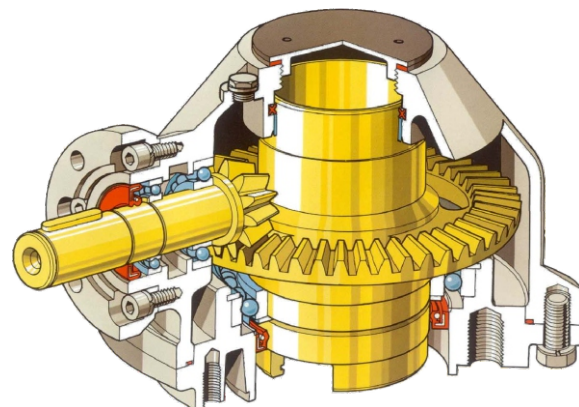
auma®
GSD 40.2 - GSD 500



Multi-turn Bevel Gearboxes (GK 10.1 - GK 40.1)

AUMA India bevel gearboxes are designed to operate all types of rising or non-rising stem valves, where thrust may or may not be taken by the gearbox. The bore of the output drive allows valve stem to pass through it to reach its full travel.

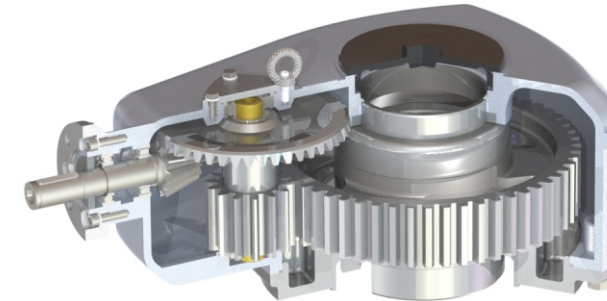
auma®
GK 10.1 - GK 35.1



Multi-turn Bevel Gearboxes (GK 10.1 - GK 40.1)

Bevel gearboxes are available for wide range of torque and thrust load capacity ranging from 120 Nm torque x 60 kN thrust (GK 10.1) to 16000 Nm torque x 1375 kN thrust (GK 40.1). Various types of output drives (Type A to Type E) are available, depending upon applications.

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GK 40.1

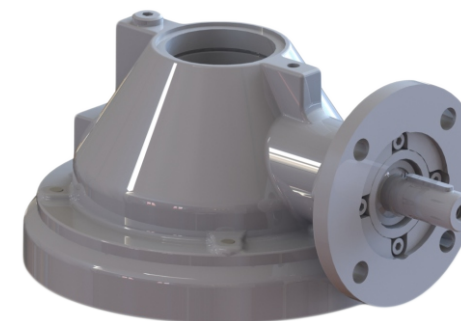


GK gearboxes are designed considering power operation and are suitable for electrical applications with electrical actuators for MOV's.

Multi-turn Bevel Gearboxes (ABG 10.2 - 35.2)

A different series of multi-turn bevel gearboxes ABG.2 series with most advanced design is available at AUMA India. The new design allows for integrating the output drive within the gearbox, thus minimizing the manufactured parts and optimizing the gearbox sizes. These bevel gearboxes find application in the operation of rising or non-rising stem gate valves to cater to higher torque requirements. This ABG.2 range gearboxes are suitable for both electrical and manual operation.

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ABG 10.2 - ABG 35.2



Note: For any other technical query, Please contact AUMA India.

1. FLANGE MOUNTED SECONDARY WORM GEARBOX - GS

- 1.1 The secondary worm gearbox shall be so selected that in combination with Electrical actuator, it shall meet specified torque and operating time.
- 1.2 Secondary gearbox shall be flange mounted.
- 1.3 The secondary gearbox shall be self-locking, having 360° full worm wheel. It shall be possible to position and use extra 3 quadrants of worm wheel available.
- 1.4 Gearbox shall be provided with adjustable mechanical stoppers (traveling nut arrangement) on the input shaft so that only the input torque is sensed, ensuring safety and to have positive feeling when end position is reached while operating manually.
- 1.5 The gearbox shall be provided with adjustable mechanical stopper arrangement adjustable from 80° to 120° angle of travel.
- 1.6 The secondary gearbox shall have minimum IP 67 protection class.
- 1.7 The gearbox housing shall be grease filled and suitable for any position mounting. (Refer page 7 for more information)
- 1.8 A separate splined coupling shall be provided for fixing the gearbox on to valve to avoid orientation problems while mounting.
- 1.9 It shall be possible to change the version of the gearbox for the following operation:
 - a. Clockwise rotation at the input shaft of gearbox, resulting in clockwise rotation of the valve shaft.
 - b. Clockwise rotation at the input shaft of gearbox, resulting in anti-clockwise rotation of the valve shaft.This shall be an inherent feature of the gearbox, to have maximum flexibility at site.
- 1.10 An adjustable mechanical pointer cover to show valve position shall be available.
- 1.11 The gearbox shall be painted with corrosion proof epoxy resin paint. Paint shade shall be manufacturer's standard.
- 1.12 Gearboxes shall be suitable for an ambient temperature range of -20°C to +80°C. Other temperatures on request.

2. FOOT MOUNTED SECONDARY WORM GEARBOX - GF

- 2.1 The secondary Worm gearbox shall be so selected that in combination with electrical actuator, it shall meet specified torque and operating time.
- 2.2 Secondary gearbox shall be foot mounted with lever arrangement design.
- 2.3 The secondary gearbox shall be self-locking having 360° full worm wheel. It shall be possible to position and use extra 3 quadrants of worm wheel available.
- 2.4 Gearbox shall be provided with adjustable mechanical stoppers (traveling nut arrangement) on the input shaft so that only the input torque is sensed, ensuring safety and to have positive feeling when end position is reached while operating manually.
- 2.5 The gearbox shall be provided with adjustable mechanical stopper arrangement adjustable from 80° to 120° angle of travel.
- 2.6 The secondary gearbox shall have minimum IP 67 protection class.
- 2.7 The gearbox housing shall be grease filled and suitable for any position mounting. (Refer page 7 for more information)
- 2.8 It shall be possible to change the version of the gearbox for the following operation:
 - a. Clockwise rotation at the input shaft of gearbox, resulting in clockwise rotation of the valve shaft.
 - b. Clockwise rotation at the input shaft of gearbox, resulting in anti-clockwise rotation of the valve shaft.This shall be an inherent feature of the gearbox, to have maximum flexibility at site.
- 2.9 An adjustable mechanical pointer cover to show valve position shall be available.
- 2.10 The gearbox shall be painted with corrosion proof epoxy resin paint. Paint shade shall be manufacturer's standard.
- 2.11 Gearboxes shall be suitable for an ambient temperature range of -20°C to +80°C. Other temperatures can be provided on request.

1. All gearboxes shall have bevel gear transmission with completely enclosed construction. The gear casing shall be designed adequately to withstand shock and vibration of the pipeline. The design shall be compact and of light weight and shall not cause any trouble during operation at sites.
2. The gearbox shall be filled with grease. The specification of lubricant i.e., grease, shall be furnished. There shall be no leakage of lubricant from the gearbox.
3. The gearbox shall be suitable for mounting in any position to suit the site requirements.
4. It shall be possible to use the same gearbox for different applications (rising and non-rising stem) by changing only the output drive of the gearbox.
5. The gearbox shall have a base suitable to take the thrust with needle roller bearing. A blank high tensile brass or aluminum bronze drive sleeve shall be provided as a standard supply.
6. The assembly of all gears, shafts etc., shall be done properly to have smooth, noise free operation.
7. The flange for connecting the valve shall have dimensions as per DIN 3210 / ISO 5210 standards.
8. Wherever gearboxes are required to be assembled with electrical actuators, gearboxes are to be supplied with input flanges to suit the keyed shaft of the actuator. The design should be suitable for both manual as well as electrical operation.
9. The bevel pinion shall be of case hardened steel and gear of alloy steel EN19 / SG Iron 600/3 with suitable heat treatment.
10. All gearboxes shall have stem protection covers for rising stem application.
11. The gearbox shall be painted with corrosion protection epoxy based paint.
12. The gearbox shall be enclosed to a minimum of IP 67 protection class.
13. Gearboxes shall be suitable for an ambient temperature range of -20°C to +80°C. Other temperatures on request.
14. Supplier will furnish the general arrangement drawing of the gearbox incorporating the material specification for all critical components and overall dimensional details for approval.
15. The gearbox shall be tested to the design requirement of torque / thrust wherever applicable and type test certificates shall be furnished.

FEATURES	BENEFITS
Rigid Casting	<ul style="list-style-type: none"> Strong and Reliable
Manufactured according to AUMA Germany Drawings	<ul style="list-style-type: none"> Reliable, proven design, German know-how
360° Worm wheel	<ul style="list-style-type: none"> Enhanced life since 3 extra segments are available for future use
Removable Splined coupling	<ul style="list-style-type: none"> No orientation hassles
Enclosure protection : IP 67	<ul style="list-style-type: none"> Safe for outdoor applications
Grease lubrication	<ul style="list-style-type: none"> Ensures smooth operation Freedom of “any position mounting”
Mechanical end stoppers at the gearbox input	<ul style="list-style-type: none"> Allows easy setting for the desired output travel Imparts a positive feeling when end positions are reached, during manual operation
Only input torque is sensed by the mechanical stoppers (and not the output torque which is very high)	<ul style="list-style-type: none"> No chance of damage to gearbox housing
Available with various reduction ratios	<ul style="list-style-type: none"> Meets different operating time requirement and optimizes electrical actuator selection
High mechanical advantage	<ul style="list-style-type: none"> Results in lesser input torque requirement, thus optimizing electrical actuator selection
Different versions	<ul style="list-style-type: none"> Provides “choice of selection” to meet plant requirement

LINEAR OR MULTI-TURN VALVES (Eg: GATE, GLOBE, DIAPHRAGM TYPE ETC.)

For output thrust up to 190 kN and output torque up to 100 kgm, AUMA multi-turn actuators can be directly selected and mounted on the valve. However, AUMA also offers bevel gearboxes type “GK” and spur gearboxes type “GST” for up to and higher torque / thrust requirements.

Data required for proper sizing:

- Type of valve
- Max. thrust incase of rising stem valves
- Max. torque incase of rotating stem valves
- Type of service / duty
- No. of turns of stem per stroke or stroke and stem thread details
- Operating time
- Stem diameter
- Mounting details

Sizing Examples:

Minimum data:

- Max. thrust = 300 kN = 30000kgf
- No. of turns / stroke = 20
- Operating time = 60 secs.
- Open-Close duty

Step 1 : Selection of Gearbox

- Refer “Technical Data” and “Output Drive Types” of gearboxes (GK 10.1 - 40.1) in catalogue
- For rising stem valves, always select output drive ‘type A’
- Select gearbox type whose max. thrust permissible is more than or equal to required thrust

In this case, gearbox type is GK 25.1, whose maximum thrust permissible is 320 kN.

Step 2 : Selection of Actuator

- Referring to the “Technical Data” of Gearbox catalogue (GK 10.1 - 40.1), suitable actuator model given in the table is to be selected.
- The required output rpm of the actuator can be calculated as follows:

$$\text{Actuator output rpm} =$$

$$\frac{\text{No. of turns of valve / stroke} \times \text{reduction ratio of gearbox} \times 60}{\text{Operating time in secs.}}$$

In this case, suitable actuator model is SA 50 and

$$\begin{aligned} \text{Actuator output rpm} &= \frac{20 \times 6 \times 60}{60} \\ &= 120 \text{ rpm} \end{aligned}$$

Choose the nearest available actuator output speed (refer AUMA Actuator catalogue for details) i.e. 125 rpm.

Hence, the selected combination is **GK25.1A/SA50E125** and the revised operating time ~ 52 secs.

Where actuator designation SA50E125 indicates open-close duty actuator SA50 with output drive type E having output rpm of 125.

Note: When coupling AUMA actuator with AUMA gearbox, always employ output drive type ‘E’.

After selecting the suitable model, the following points should be verified:

- Output torque values (refer “Technical Data” for details).
- Max. stem acceptance dia. (refer “Technical Data” and “Output Drive” for details)
- Mounting flange compatibility (refer “Technical Data” and “Output Drive” for details).

Note: 1. In case of multi-turn, non-rising (rotating) stem valves, same selection procedure should be followed except for the following:

- Output torque values are to be compared and evaluated
- Output drive types B, C, D or E should be selected, depending on type of coupling required (normally, the output drive type will be either ‘B’ or ‘E’)

PART-TURN VALVES (Eg: BUTTERFLY, BALL, PLUG, LOUVRE DAMPERS ETC.)

In part-turn valves, the final movement of valve shaft required is normally 90°. The electrical actuators are primarily multi-turn type and hence, it is necessary to employ an intermediate worm gearbox between the actuator and the valve so as to achieve 90° angle of rotation.

- AUMA offers the following two types of worm gearboxes:
 - Direct flange mounting type “GS”
 - Foot mounting type “GF”

Data required for proper sizing:

- Type of valve
- Max. valve torque *(unseating torque)
- Type of service / duty
- Angle of travel (normally 90°)
- Operating time required
- Shaft diameter
- Mounting flange details

*Note: In case of regulating / modulating service, max. (or unseating) torque and regulating (or running) torque are required for proper selection. Regulating torque should not exceed 50% of max. torque.

Sizing Examples: Minimum data:

- Max. valve torque = 7000 Nm (~700 kgm)
- Operating time = 30 secs.
- Open-Close duty

Step 1 : Selection of Gearbox

- Refer “Technical Data” of gearboxes (Part-turn worm gearboxes GS 40.2 - GS 500) in catalogue
- Select a gearbox type whose “Max. permissible valve torque ” is more than or equal to required “valve torque”
- In this case, gearbox type is GS 125.2, whose maximum torque capacity for motor operation is 8000Nm

Step 2 : Selection of Actuator

- Referring to the “Technical Data” of Gearbox catalogue, suitable actuator model given in the table is to be selected.
- Please note that economical sizing of actuator can be done by using higher reduction ratios considering operating time requirement. This is achieved by employing a primary reduction gearbox having different ratios.

- Refer to the “Technical Data” for different operating time in seconds for 90° at different actuator output speed.

In this case, two options are available for selection:

Option 1 : Referring to the Technical data of GS125.2
 Model : GS125.2 with SA50E32 actuator,
 Operating time = 24 sec. (for 90°)
 Actuator designation SA50E32 indicates open-close duty actuator SA50 with output drive type E, having output speed of 32.

Option 2 : Referring to Technical data of GS125.2
 Model : GS125.2 + VZ4 (204:1) with SA12E125 actuator.
 Operating time = 24 sec. (for 90°)
 Where VZ4 is the primary reduction gearbox and 204:1 is the total reduction ratio of the gearbox.

Note : Always select output drive type ‘E’ for Actuator when coupling AUMA actuator with AUMA Gearbox.

Out of the above two options, any one suitable combination can be selected, considering the operating time.

After selecting the suitable model, following important points should be checked:

- Max. stem / shaft dia. (refer “Technical Data” for details)
- Max. stem / shaft length acceptance (refer dimension ‘l max’ in Dimension Data sheet)
- Mounting flange compatibility (refer “Technical Data” for details).

Note :

The selection procedure is same for foot mounted type worm gearboxes “GF”.

In case of manually operated valves, select the gearbox model whose “Max Permissible valve torque” is more than or equal to required valve torque.

Enclosure Protection

AUMA gearboxes conform to enclosure protection IP 67 as per IS / IEC 60529. The definition of IP 67 as per standard is as follows :

IP : Ingress Protection

First Numeral 6 : Dust tight, prevents ingress of dust.

Second Numeral 7 : Protected against the effects of immersion. Test is done by completely immersing the equipment in water so that:

- Surface of water is at least 150 mm above highest point of equipment.
- The lowest point of equipment is at least 1 m below the surface of water.
- Duration of test is 30 min.

Under above conditions, ingress of water in harmful quantity shall not be possible.

AUMA India gearboxes can also be offered with IP 68 enclosure protection on request.

Declaration of Incorporation

Declaration of incorporation in accordance with Machinery Directive

According to the EU directives, AUMA actuators, actuator controls and valve gearboxes are not machines. This means that a declaration of conformity in accordance with the Machinery Directive cannot be issued by AUMA . AUMA’s Declaration of Incorporation confirms that during the design stage of the devices, the standards mentioned in the Machinery Directive were applied, The declaration of Incorporation are included in the operation instruction of the devices.

Only by mounting the devices to other components (valves, pipelines, etc.) a ‘machine’ within the meaning of the directive is formed. Before commissioning this machine a certificate of conformity must be issued.

Compulsory marking with CE mark

AUMA products meet the requirements of the mentioned EU directives. The name plate therefore is marked with the CE mark.

Painting

C3 - EN ISO 12944-2

Type of Paint	Epoxy/ Polyurethane
Standard Color	Smoke Grey 692
Zinc Phosphate Epoxy Primer Thickness	50 microns
Epoxy Thickness (Finish)	60 microns

Other paints & color can be provided based on mutually agreed customer requirement.

Declaration of Conformity according to ISO/IEC 17050

Document No: AIPL/QC&QA/D&D/01/08-09

Issuer's Name: Auma (India) Pvt. Ltd
 Issuer's address: Plot No. 39-B, II Phase Peenya Industrial Area Bangalore-58

declares that, the

Auma gearbox of the type ranges

Worm gearboxes	GS 40.2-GS125.2 with/without primary reduction gearings VZ GS 160-GS 500 with/without primary reduction gearings GZ
Lever gearboxes	GF 63.2-GS125.2 with/without primary reduction gearings VZ GF 160-GF 315 with/without primary reduction gearings GZ
Bevel gearboxes	GK 10.1- GK40.1

are designed and produced, as actuating devices.

Messrs. AUMA (INDIA) Pvt. Ltd (manufacturer) declares herewith, that when designing the above mentioned AUMA gearboxes the following standards were applied as per the Machinery Directive 98/37/EC

EN ISO 12100-1 +CRGD- 04	Safety of machinery - Basic concepts, general principles for design basic terminology, methodology
EN ISO 12100-2 +CRGD- 04	Safety of machinery - Basic concepts general principles for design technical principles
EN ISO 5210 +CRGD- 03	Industrial Valves-Multi-turn valve actuators attachments
EN ISO 5211 +CRGD- 03	Industrial Valves-part turn-actuators-attachments
DIN EN 1050- 97	Safety of machinery – Principles for risk assessment

AUMA gearboxes covered by this Declaration must not be put into service until the entire machine, into which they are incorporated, has been declared in conformity with the provisions of the Directive

Place: Bangalore
 Date of issue: 14/08/08

Arvind K. Goel
 Managing Director

Auma (India) Pvt. Ltd
 Plot No.39-B II Phase
 Peenya Industrial Area
 Bangalore-560058
 India

CERTIFICATE



Management system as per
ISO 9001 : 2008

In accordance with TÜV NORD CERT procedures, it is hereby certified that

AUMA INDIA PRIVATE LIMITED
Plot No.39-B, II nd Phase,
Peenya Industrial Estate, Bangalore – 560 058,
India



applies a management system in line with the above standard for the following scope

**Design, Development, Manufacture, Sales and Service of Electric Actuators,
Gear Boxes & Components for Valve Automation as well as for General
Actuation**

Certificate Registration No. 04 100 950262
Audit Report No. 2.5-166/2002

Valid until 05.05.2017
Valid from 06.05.2014
Initial certification 1995

S.K.Kulka

Certification Body
at TÜV NORD CERT GmbH

Issue 25.03.2014
Place : Mumbai

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH Langemarckstrasse 20 45141 Essen www.tuev-nord-cert.com



TGA-ZM-07-06- 00

Legend:

- Head Office & Works
- Sales Branch Office
- Sales Resident Representative
- Service Representative

