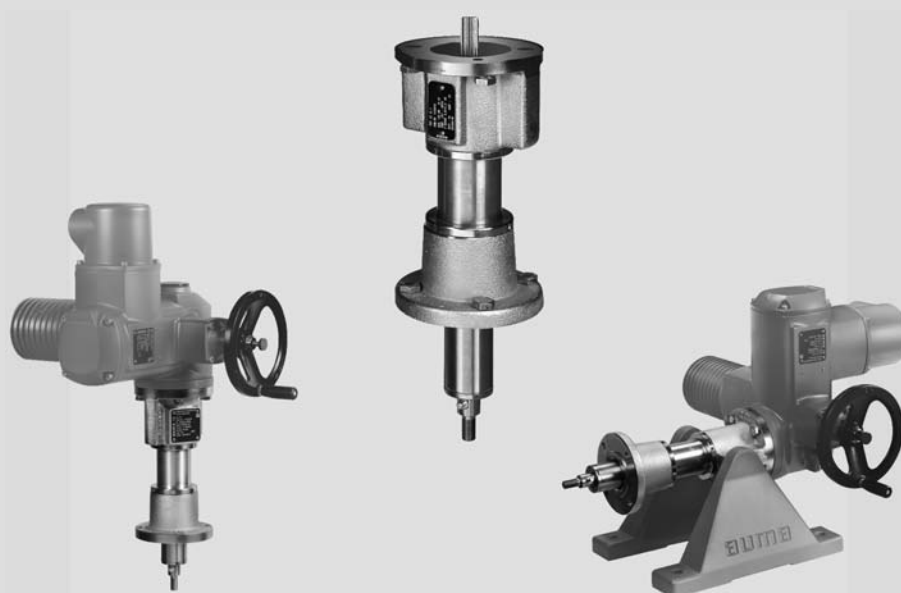




Linear thrust unit
LE 12.1 – LE 200.1



Read operation instructions first.

- Observe safety instructions.
- These operation instructions are part of the product.
- Retain operation instructions during product life.
- Pass on instructions to any subsequent user or owner of the product.

Purpose of the document:

This document contains information for installation, commissioning, operation and maintenance staff. It is intended to support device installation and commissioning.

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1. Safety instructions

1.1. Basic information on safety

Standards/directives Our products are designed and manufactured in compliance with recognised standards and directives. This is certified in a Declaration of Incorporation and an EC Declaration of Conformity.

The end user or the contractor must ensure that all legal requirements, directives, guidelines, national regulations and recommendations with respect to assembly, electrical connection, commissioning and operation are met at the place of installation.

Safety instructions/warnings All personnel working with this device must be familiar with the safety and warning instructions in this manual and observe the instructions given. Safety instructions and warning signs on the device must be observed to avoid personal injury or property damage.

Qualification of staff Assembly, electrical connection, commissioning, operation, and maintenance must be carried out exclusively by suitably qualified personnel having been authorised by the end user or contractor of the plant only.

Prior to working on this product, the staff must have thoroughly read and understood these instructions and, furthermore, know and observe officially recognised rules regarding occupational health and safety.

Work performed in potentially explosive atmospheres is subject to special regulations which have to be observed. The end user or contractor of the plant are responsible for respect and control of these regulations, standards, and laws.

Commissioning Prior to commissioning, it is important to check that all settings meet the requirements of the application. Incorrect settings might present a danger to the application, e.g. cause damage to the valve or the installation. The manufacturer will not be held liable for any consequential damage. Such risk lies entirely with the user.

Operation Prerequisites for safe and smooth operation:

- Correct transport, proper storage, mounting and installation, as well as careful commissioning.
- Only operate the device if it is in perfect condition while observing these instructions.
- Immediately report any faults and damage and allow for corrective measures.
- Observe recognised rules for occupational health and safety.
- Observe the national regulations.
- During operation, the device warms up and increased surface temperature may occur. To prevent possible burns, we recommend checking the surface temperature using an appropriate thermometer and wearing protective gloves, if required, prior to working on the device.

Protective measures The end user or the contractor are responsible for implementing required protective measures on site, such as enclosures, barriers, or personal protective equipment for the staff.

Maintenance To ensure safe device operation, the maintenance instructions included in this manual must be observed.

Any device modification requires prior consent of the manufacturer.

1.2. Range of application

AUMA linear thrust units are designed for the operation of industrial valves, e.g. globe valves.

Other applications require explicit (written) confirmation by the manufacturer.

The following applications are not permitted, e.g.:

- Industrial trucks according to EN ISO 3691

- Lifting appliances according to EN 14502
- Passenger lifts according to DIN 15306 and 15309
- Service lifts according to EN 81-1/A1
- Escalators
- Continuous duty
- Radiation exposed areas in nuclear power plants

No liability can be assumed for inappropriate or unintended use.

Observance of these operation instructions is considered as part of the device's designated use.

1.3. Warnings and notes

The following warnings draw special attention to safety-relevant procedures in these operation instructions, each marked by the appropriate signal word (DANGER, WARNING, CAUTION, NOTICE).



Indicates an imminently hazardous situation with a high level of risk. Failure to observe this warning could result in death or serious injury.



Indicates a potentially hazardous situation with a medium level of risk. Failure to observe this warning could result in death or serious injury.



Indicates a potentially hazardous situation with a low level of risk. Failure to observe this warning may result in minor or moderate injury. May also be used with property damage.



Potentially hazardous situation. Failure to observe this warning may result in property damage. Is not used for personal injury.


Arrangement and typographic structure of the warnings



Type of hazard and respective source!

Potential consequence(s) in case of non-observance (option)

- Measures to avoid the danger
- Further measure(s)

Safety alert symbol  warns of a potential personal injury hazard.

The signal word (here: DANGER) indicates the level of hazard.


1.4. References and symbols

The following references and symbols are used in these instructions:

Information The term **Information** preceding the text indicates important notes and information.

 Symbol for CLOSED (valve closed)

 Symbol for OPEN (valve open)

 Important information before the next step. This symbol indicates what is required for the next step or what has to be prepared or observed.

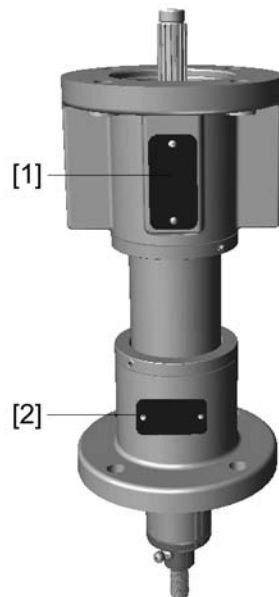
< > **Reference to other sections**

Terms in brackets shown above refer to other sections of the document which provide further information on this topic. These terms are either listed in the index, a heading or in the table of contents and may quickly be found.

2. Identification

2.1. Name plate

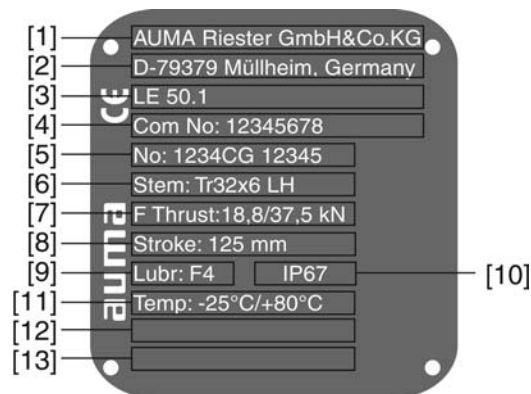
Figure1: Arrangement of name plates



- [1] Linear thrust unit name plate
- [2] Additional plate, e.g. KKS (Power Plant Classification System) plate or approval plate

Description of linear thrust unit name plate

Figure2: Linear thrust unit name plate (example)

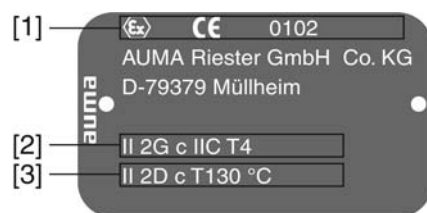


- [1] Name of manufacturer
- [2] Address of manufacturer
- [3] **Type and size** (see explanation below)
- [4] **Commission number** (see explanation below)
- [5] Serial number (works number)
- [6] **Stem** (see explanation below)
- [7] Thrust (for modulating duty/open-close duty)
- [8] Stroke
- [9] Lubricant
- [10] Enclosure protection
- [11] Ambient temperature
- [12] Explosion-proof version (option)
- [13] Customer information (option)

Type and size	These instructions apply to the following devices types and sizes: Linear thrust unit: LE 12.1 – LE 200.1
Stem	Thread diameter, flank lead and version of stem. <ul style="list-style-type: none"> • LH = Stem extension for clockwise rotation, i.e. actuator closes the valve in a clockwise rotation • RH = Stem retraction for clockwise rotation, i.e. actuator closes the valve in a counterclockwise rotation
Commission number	An order-relevant commission number (order number) is assigned to each device. This commission number can be used to directly download inspection records and further information regarding the device from the Internet: http://www.auma.com . For some details, the customer number might be required.

Description of approval plate in explosion-proof version (option)

Figure3: Approval plate in explosion-proof version (example)



[1] Ex symbol, CE mark, number of test authority

Classification:

- [2] Gas explosion protection
[3] Dust explosion protection

2.2. Short description

AUMA linear thrust units of types LE 12.1 – LE 200.1 are designed for the operation of industrial valves, e.g. globe valves.

They are used in combination with multi-turn actuators on valves which require linear travel. The linear thrust units convert the output torque of the multi-turn actuator into an axial thrust. As an option, AUMA linear thrust units are available with damping device to compensate for changes in lengths caused by varying temperatures, for example.

3. Transport, storage and packaging

3.1. Transport

For transport to place of installation, use sturdy packaging.



Hovering load!

Death or serious injury possible.

- Do NOT stand below hovering load.
- Linear thrust units mounted to a valve in combination with an actuator: Attach ropes or hooks for the purpose of lifting by hoist to valve and NOT to actuator.
- Respect total weight of combination (gearbox, linear thrust unit, actuator, ...).

Table 1: Weights linear thrust units

Type ¹⁾	Stroke ¹⁾	Weight [kg] ²⁾	Base weight [kg]
LE 12.1/ LE 25.1	50	8	11
	100	9	
	125	9	
	200	10	
	250	11	
	400	13	
	500	14	
LE 50.1	63	10	11
	125	12	
	250	15	
	400	18	
LE 70.1 / LE 100.1	80	23	40
	160	26	
	320	32	
	400	35	
LE 200.1	100	45	40
	200	50	
	400	62	
	500	68	

- 1) Refer to name plate
- 2) Without actuator and base

3.2. Storage

NOTICE

Danger of corrosion due to inappropriate storage!

- Store in a well-ventilated, dry room (maximum humidity 70 %).
- Protect against floor dampness by storage on a shelf or on a wooden pallet.
- Cover to protect against dust and dirt.
- Apply suitable corrosion protection agent to uncoated surfaces.

Long-term storage

If the device must be stored for a long period (more than 6 months) the following points must be observed in addition:

1. Prior to storage:
Protect uncoated surfaces, in particular the output drive parts and mounting surface, with long-term corrosion protection agent.
2. At an interval of approx. 6 months:
Check for corrosion. If first signs of corrosion show, apply new corrosion protection.

3.3. Packaging

Our products are protected by special packaging for transport when leaving the factory. The packaging consists of environmentally friendly materials which can easily be separated and recycled. We use the following packaging materials: wood, cardboard, paper, and PE foil. For the disposal of the packaging material, we recommend recycling and collection centres.

4. Assembly

4.1. Mounting position

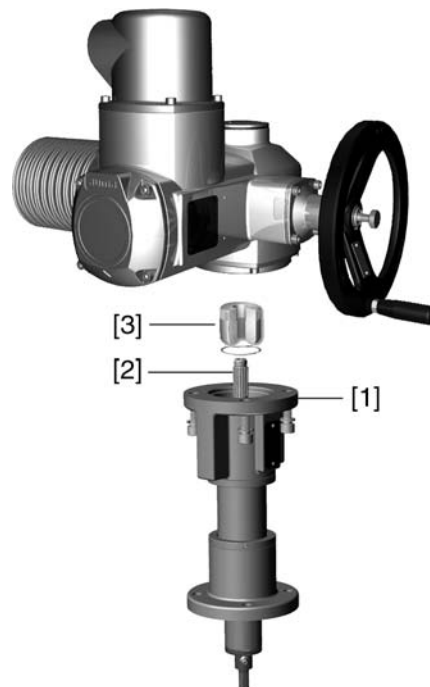
The gearboxes described here can be operated without restriction in any mounting position.

4.2. Actuators for linear thrust units

Assembly is performed in compliance with actuator operation instructions. This section provides information and indications regarding suitable actuators, flanges, and screws.

State of delivery When AUMA actuators and linear thrust units up to size LE 50.1 and a stroke of max. 200 mm are supplied together, assembly is performed in the factory. For larger strokes and when exceeding size LE 70.1, assembly must be performed by the customer. The suitable output drive sleeve and the screws for assembly are generally part of the scope of delivery.

Figure4: Example AUMA multi-turn actuator with LE 25.1



- [1] Actuator mounting flange
- [2] Stem
- [3] Output drive sleeve with circlip

Table 2: Suitable AUMA actuators, flanges, and screws

Type	Suitable AUMA actuator	Actuator mounting flange EN ISO 5210	Screws		Tightening torque T_A [Nm]
			Size	Quantity	Strength class A2-70
LE 12.1	SA 07.2/SAR 07.2	F10, F10-ZB ¹⁾	M10 x 30	4	36
	SVC 05.1/SVCR 05.1				
LE 25.1	SA 07.6/SAR 07.6	F10, F10-ZB ¹⁾	M10 x 30	4	36
	SVC 07.1/SVCR 07.1				
LE 50.1	SA 10.2/SAR 10.2	F10, F10-ZB ¹⁾	M10 x 30	4	36
	SVC 07.5/SVCR 07.5				
LE 70.1	SA 14.2/SAR 14.2	F14, F14-ZB ¹⁾	M16 x 40	4	150
LE 100.1	SA 14.6/SAR 14.6	F14, F14-ZB ¹⁾	M16 x 40	4	150
LE 200.1	SA 16.2/SAR 16.2	F16, F16-ZB ¹⁾ , F25 ²⁾	M20 x 50	4	294

- 1) Mounting flange with 2 holes for pivots
- 2) Extension flange F16/25 max. input torque 1,000 Nm

4.3. Linear thrust unit: mount to valve

Mounting position Mounting is most easily done with the valve shaft pointing vertically upward. But mounting is also possible in any other position.

The linear thrust unit leaves the factory with retracted thrust rod (stem).

4.3.1. Attachment dimensions for mounting to valve

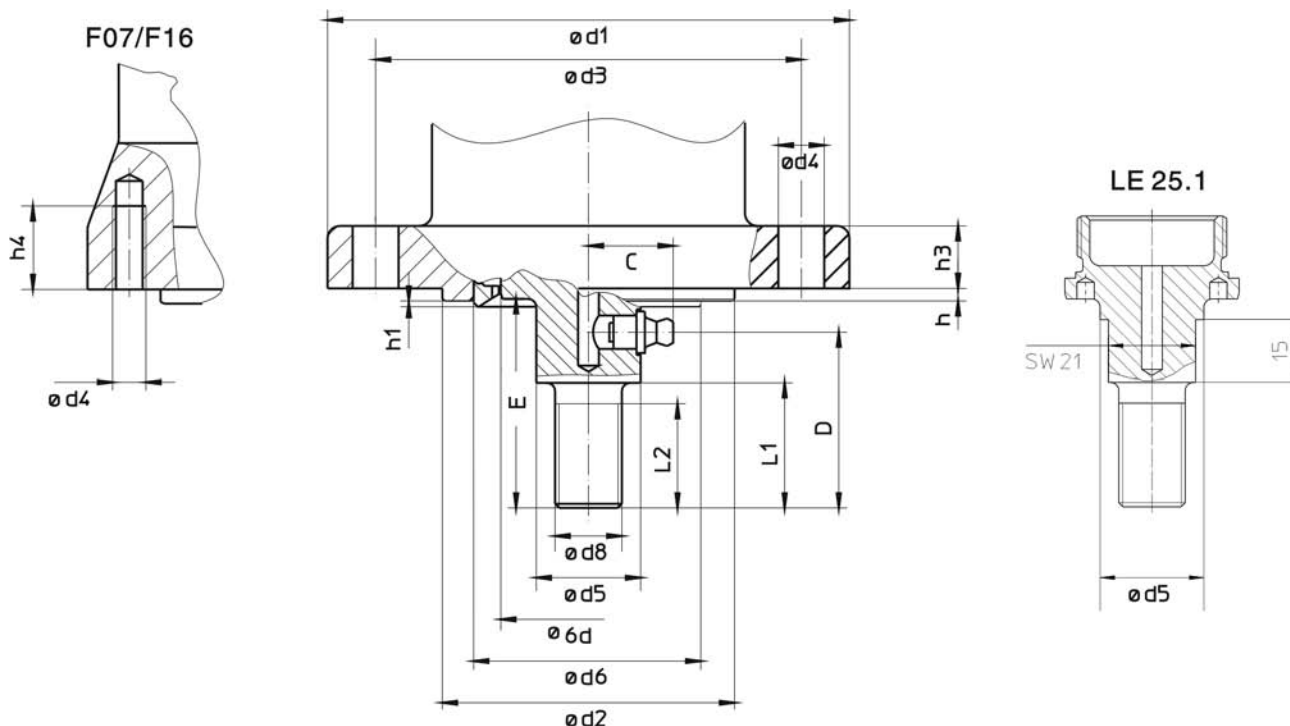


Table 3: Attachment dimensions to valve

Dimensions	LE 12.1		LE 25.1		LE 50.1	LE 70.1	LE 100.1	LE 200.1
EN ISO 5210 (DIN 3210)	F07 (G0)	F10 (G0)	F07 (G0)	F10 (G0)	F10 (-)	F14 (G1/2)	F14 (G1/2)	F16 (G3)
C	18		21		24	26	26	29
D	37		42		43	63	63	76
E ±0.2	45		50		55	75	75	90
L1	25		30		35	-	-	-
L2	20		25		30	55	55	65
∅ d1	□75	□125	□75	□125	125	175	175	210
∅ d2	(55 g7 = d6)	70 f8	(55 g7 = d6)	70 f8	70 g7	100 f8	100 f8	130 f8
∅ d3	70	102	70	102	102	140	140	165
∅ d4 (4x)	M8	11	M8	11	11	18	18	M20
∅ d5	20		25		32	36	36	42
∅ d6 g7	-	55 ¹⁾	-	55 ¹⁾	-	-	-	120
∅ d8	M12 x 1.25		M16 x 1.5		M20 x 1.5	M36 x 3	M36 x 3	M42 x 3
∅ d9 -0.1	42		42		55	70	70	100
h	3.4	3	3.4	3	3.4	4	4	4
h1	-	0.5	-	0.5	-	-	-	0.5
h3	-	15	-	15	15	18	18	-
h4	20	-	20	-	-	-	-	32

Grease nipple A-D8 according to DIN 71412

- 1) Spigot for F07

4.3.2. Linear thrust unit: mount to valve

1. Check whether attachment of linear thrust unit suit the valve.
2. Push thrust rod of linear thrust unit to desired position (e.g. OPEN) using the handwheel.
 - ➔ Assemble valve and actuator in the same end position.
 - ➔ For **globe valves**, the conventional assembly position is end position CLOSED (thrust rod is retracted).
3. Clean mounting surfaces (mounting flanges at linear thrust unit and valve). Thoroughly degrease uncoated mounting surfaces.
4. Place linear thrust unit onto valve as to ensure that bores or thread align with the mounting flanges.

Information: Ensure that the spigot fits uniformly in the recess and that the mounting faces are in complete contact.
5. Fasten linear thrust unit with screws and lock washers according to table.

Information: We recommend applying liquid thread sealing material to the screws to avoid contact corrosion.
6. Fasten screws crosswise to a torque according to table.

Table 4: Tightening torques for screws

Screws Threads	Tightening torque T_A [Nm]		
	Strength class		
	8.8	A2-70/A4-70	A2-80/A4-80
M8	25	18	24
M10	51	36	48
M12	87	61	82
M16	214	150	200
M20	431	294	392

7. Connect coupling stud (\varnothing d8) of linear thrust unit with valve stem.

Information: The type of connection depends on the valve and is determined by the valve manufacturer.
8. In case of risk of jamming due to moving parts: Provide protective equipment.

5. Commissioning

5.1. Stroke

The stroke of linear thrust units is limited by end stops.

NOTICE

Approaching the end stops in motor operation!

Risk of damage at linear thrust unit.

- DO NOT use end stops as stroke limitation in motor operation.
- Prior to performing motor operation: Limit stroke via limit switching in multi-turn actuator (setting).
- Observe overrun when performing the setting.

Stroke setting

The stroke per turn depends on the thread pitch of the stem (refer to name plate).

The setting of end positions OPEN and CLOSED within the possible stroke of the linear thrust unit is done via the mounted multi-turn actuator. Refer to <Limit switching: set> chapter in operation instructions of suitable AUMA multi-turn actuators.

5.2. Thrust limitation

Thrust limitation is made via mounted actuator.

Refer to <Limit switching: set> chapter in operation instructions of suitable AUMA multi-turn actuators.

NOTICE

Valve damage due to excessive tripping torque limit setting!

- The tripping torque must suit the valve.
- Only change the setting with the consent of the valve manufacturer.

Calculation of thrust limitation (tripping torque)

The maximum required or permissible thrust [F in kN] for a globe valve must be converted to torque [T in Nm] when setting the actuator torque switching:

Formula: $T = F \times f$

Type	LE 12.1	LE 25.1	LE 50.1	LE 70.1	LE 100.1	LE 200.1
Factor f	2.6	2.6	3.2	3.9	3.9	4.6

The thrust limitation is then performed indirectly using the calculated value through the setting of the torque switching at the mounted multi-turn actuator.

Example:

Max. permissible thrust of globe valve: $F = 30 \text{ kN}$

Linear thrust unit type LE 50.1 (factor $f = 3.2$)

$T = 30 \text{ kN} \times 3.2 \text{ m/k} = 96 \text{ Nm}$

Multi-turn actuator type SA 10.2; torque range 40 – 120 Nm

5.3. Test run

WARNING

Moving parts!

Danger of jamming.

- Keep hands clear from stroke range of combination.
- If necessary, fit protective cover.

Verify stroke direction

Information: AUMA linear thrust units LE 12.1 – LE 200.1 leave the factory with retracted thrust rods (end position OPEN)

1. Move actuator manually to intermediate position or to sufficient distance from end position.
2. Switch on actuator in direction OPEN and observe the direction of stroke.
→ Switch off before reaching the end position.
3. In case of incorrect direction of stroke, reverse rotary direction at actuator.
4. Then: Approach end position CLOSED and end position OPEN and check seating.

6. Servicing and maintenance



Damage caused by inappropriate maintenance!

- Servicing and maintenance must be carried out exclusively by suitably qualified personnel having been authorised by the end user or the contractor of the plant. Therefore, we recommend contacting our service.
- Only perform servicing and maintenance tasks when the device is switched off.

AUMA Service & Support

AUMA offer extensive service such as servicing and maintenance as well as customer product training. For the relevant contact addresses, please refer to <Addresses> in this document or to the Internet (www.auma.com).

6.1. Preventive measures for servicing and safe operation

The following actions are required to ensure safe device operation:

Every 6 months after commissioning and then once a year

- Perform visual inspection for grease leakage.
- Check fastening screws between actuator, linear thrust unit and valve for tightness. If required, fasten screws while applying the tightening torques as indicated in chapter <Assembly>.
- Perform test run.

6.2. Maintenance intervals

Recommendation for grease change and seal replacement:

- Generally after 4 to 6 years for modulating duty.
- Generally after 6 to 8 years if operated frequently (open-close duty).
- Generally after 10 to 12 years if operated rarely (open-close duty).

The flange for actuator with integral spring-loaded damping device (option) is lubricated for life.

NOTICE

Gearing damage due to inappropriate grease!

- Only use original lubricants.
- The lubricant type is marked on the name plate.
- Do not mix lubricants.

Table 5: Grease quantities LE 12.1 – LE 50.1

LE– Stroke	12.1-50 25.1-50	12.1-100 25.1-100	12.1-200 25.1-200	12.1-400 25.1-400	12.1-500 25.1-500	50.1-63	50.1-125	50.1-250	50.1-400
Quantity [dm ³] ¹⁾	0.05	0.07	0.12	0.24	0.3	0.1	0.15	0.3	0.48
Weight [kg] ²⁾	0.04	0.06	0.11	0.22	0.27	0.09	0.14	0.27	0.44

1) for r = approx. 0.87 kg/dm³

2) for r = approx. 0.9 kg/dm³

Table 6: Grease quantities LE 70.1 – LE 200.1

LE– Stroke	70.1-80 100.1-80	70.1-160 100.1-160	70.1-320 100.1-320	70.1-400 100.1-400	200.1-100	200.1-200	200.1-400	200.1-500	
Quantity [dm ³] ¹⁾	0.25	0.35	0.7	0.85	0.7	1.1	2.2	2.6	
Weight [kg] ²⁾	0.23	0.32	0.64	0.77	0.64	1	2	2.35	

1) for r = approx. 0.87 kg/dm³

2) for r = approx. 0.9 kg/dm³

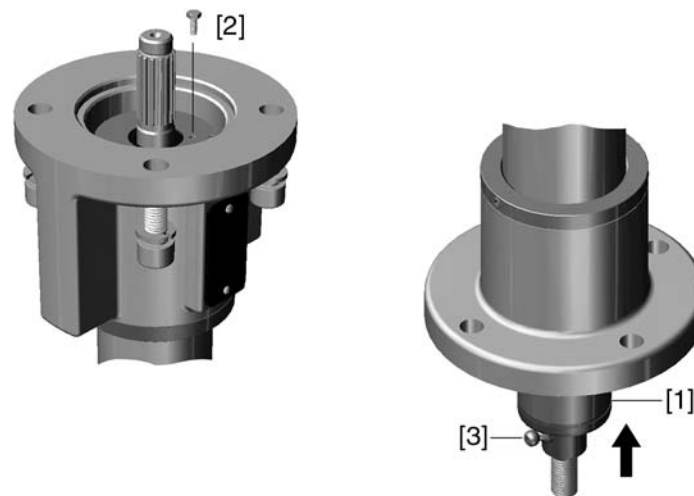
Instructions for use in potentially explosive atmospheres of categories M2, 2G, 3G, 2D and 3D according to EU directive 94/9/EC

- The technical data as well as the ambient temperatures, type of duty and running times indicated on the name plate must imperatively be observed.
- In hazardous areas where combustible dust is present in particular, perform visual inspection for deposit of dirt or dust on a regular basis. Clean devices if required.

6.3. Re-lubrication

Re-lubrication is only necessary if grease has been visibly leaking and can be performed through the grease nipple while mounted.

Figure5: Grease nipple and vent



- [1] Inner tube
- [2] Hexagonal screw for venting
- [3] Grease nipple

1. Move inner tube [1] to upper position (retracted).
2. Remove multi-turn actuator from linear thrust unit.
3. Open vent hole by removing the hexagon screw [2].
4. Press grease into the grease nipple [3] with grease gun until grease emerges from the vent hole of the hexagon screw [2].
5. Close vent hole again using hexagon screw [2].
6. Mount multi-turn actuator again to linear thrust unit.

6.4. Disposal and recycling

Our devices have a long lifetime. However, they have to be replaced at one point in time. The devices have a modular design and may, therefore, easily be separated and sorted according to materials used, i.e.:

- electronic scrap
- various metals
- plastics
- greases and oils

The following generally applies:

- Greases and oils are hazardous to water and must not be released into the environment.
- Arrange for controlled waste disposal of the disassembled material or for separate recycling according to materials.
- Observe the national regulations for waste disposal.

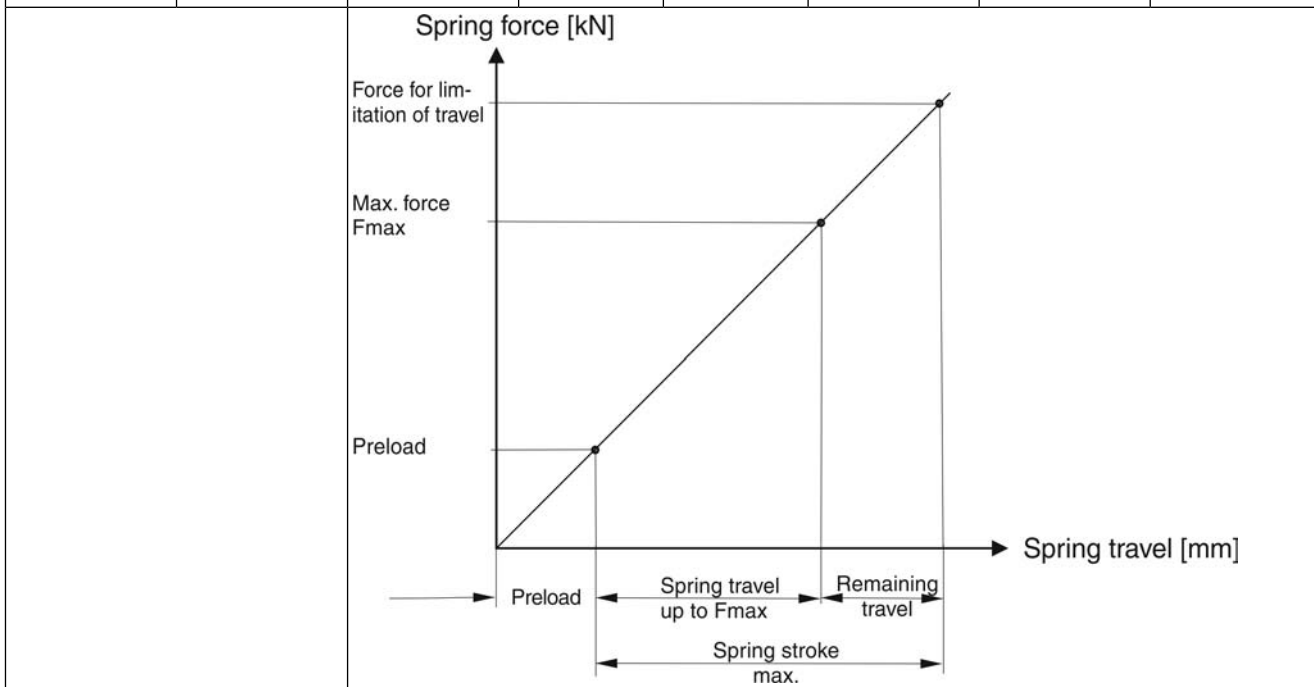
7. Technical data

Information The following technical data includes standard and optional features. For detailed information on the customer-specific version, refer to the order-relevant data sheet. This data sheet can be downloaded from the Internet at <http://www.auma.com> in German and English (indication of commission number required).

7.1. Features and functions

Version	Standard: LH = Stem extension for clockwise rotation, i.e. multi-turn actuator closes valve in clockwise rotation Option: RH = Stem retraction for clockwise rotation, i.e. multi-turn actuator closes valve in counterclockwise rotation					
Type of duty	Short-time duty S2 - 15 min (open-close duty) Intermittent duty S4 – 25 % (modulating duty); based on maximum thrust for modulating torque 100 % load may only be applied for a short time during opening and closing.					
Self-locking	Yes					
Valve attachment	Dimensions according to DIN 3358					
Output drive type	Standard thread of valve stem (for exact version, refer to actuator name plate).					
	LE 12.1	LE 25.1	LE 50.1	LE 70.1	LE 100.1	LE 200.1
	26 x 5 LH	26 x 5 LH	32 x 6 LH	40 x 7 LH	40 x 7 LH	48 x 8 LH

Version with damping device (option) ¹⁾							
Type	Spring stroke max.	Force for travel limitation	Preload ²⁾		Spring travel to F _{max}	Max. force F _{max}	Remaining travel
	[mm]	[kN]	[mm]	[kN]	[mm]	[kN]	[mm]
LE 12.1	4	15	1.7	6.8	1.8	11.5	2.2
LE 25.1	4	33	2	13.8	1.7	23	2.3
LE 50.1	5	46	3	22	3	37.5	2
LE 70.1	6	79	2.8	33.4	3.6	64	2.4
LE 100.1	6	149	2.7	56.9	4.4	128	1.6
LE 200.1	6	264	3	99.4	4.2	217	1.8



1) Not suitable for use in potentially explosive atmospheres.

Technical data

2) Tolerance variations of Belleville springs are not considered.

7.2. Service conditions

Mounting position	Any position
Enclosure protection according to EN 60529	Standard: IP67 For actual version, refer to actuator name plate.
Corrosion protection	Standard: KS: Suitable for installation in industrial units, in water or power plants with a low pollutant concentration as well as for installation in occasionally or permanently aggressive atmosphere with a moderate pollutant concentration (e.g. wastewater treatments plants, chemical industry) Options: KX: Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration For actual version, refer to actuator name plate.
Finish coating base	Standard: Paint based on polyurethane (powder coating)
Colour base	Standard: AUMA silver-grey (similar to RAL 7037)
Ambient temperature	Standard: -25 °C to +80 °C For actual version, refer to actuator name plate.

Special features for use in potentially explosive atmospheres

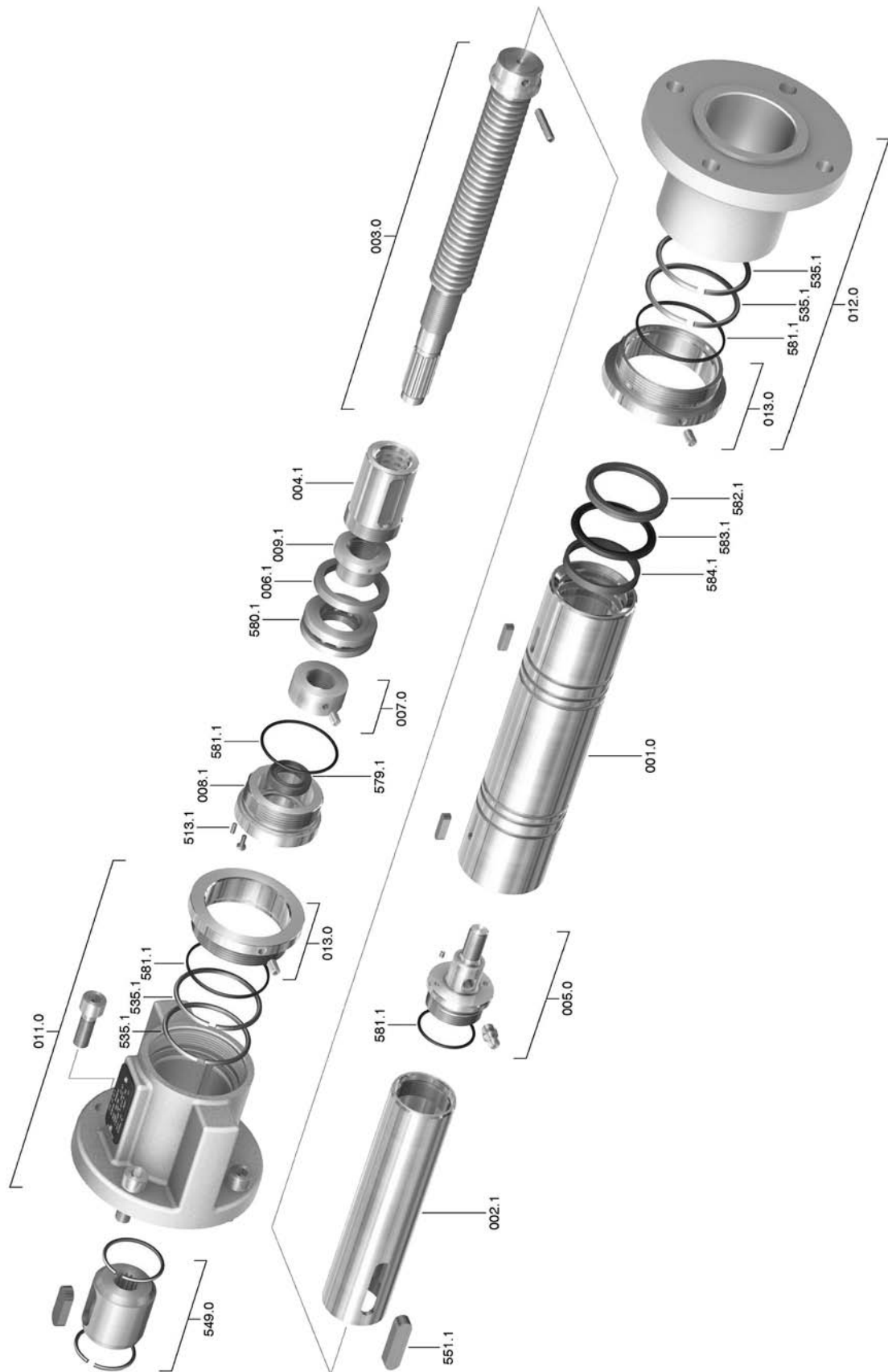
The tests to ensure conformity with ATEX directive 94/9/EC were performed according to the technical data. For other applications please consult the factory. 100 % load may only be applied for a short time during opening and closing. During running operation, sufficient pause times have to be respected.	
Explosion protection in compliance with 94/9/EC	II2G c IIC T4
Type of duty	Short-time duty S2 - 15 min, max. 3 cycles (OPEN-CLOSE-OPEN) based on mean thrust and standard ambient temperature The type of duty must not be exceeded.
Ambient temperature	Standard: -25 °C to +40 °C For actual version, refer to actuator name plate.

7.3. Further information

EU Directives	<ul style="list-style-type: none"> • ATEX Directive: (94/9/EC) • Machinery Directive: (2006/42/EC)
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8. Spare parts

8.1. Linear thrust unit LE 12.1 – LE 200.1

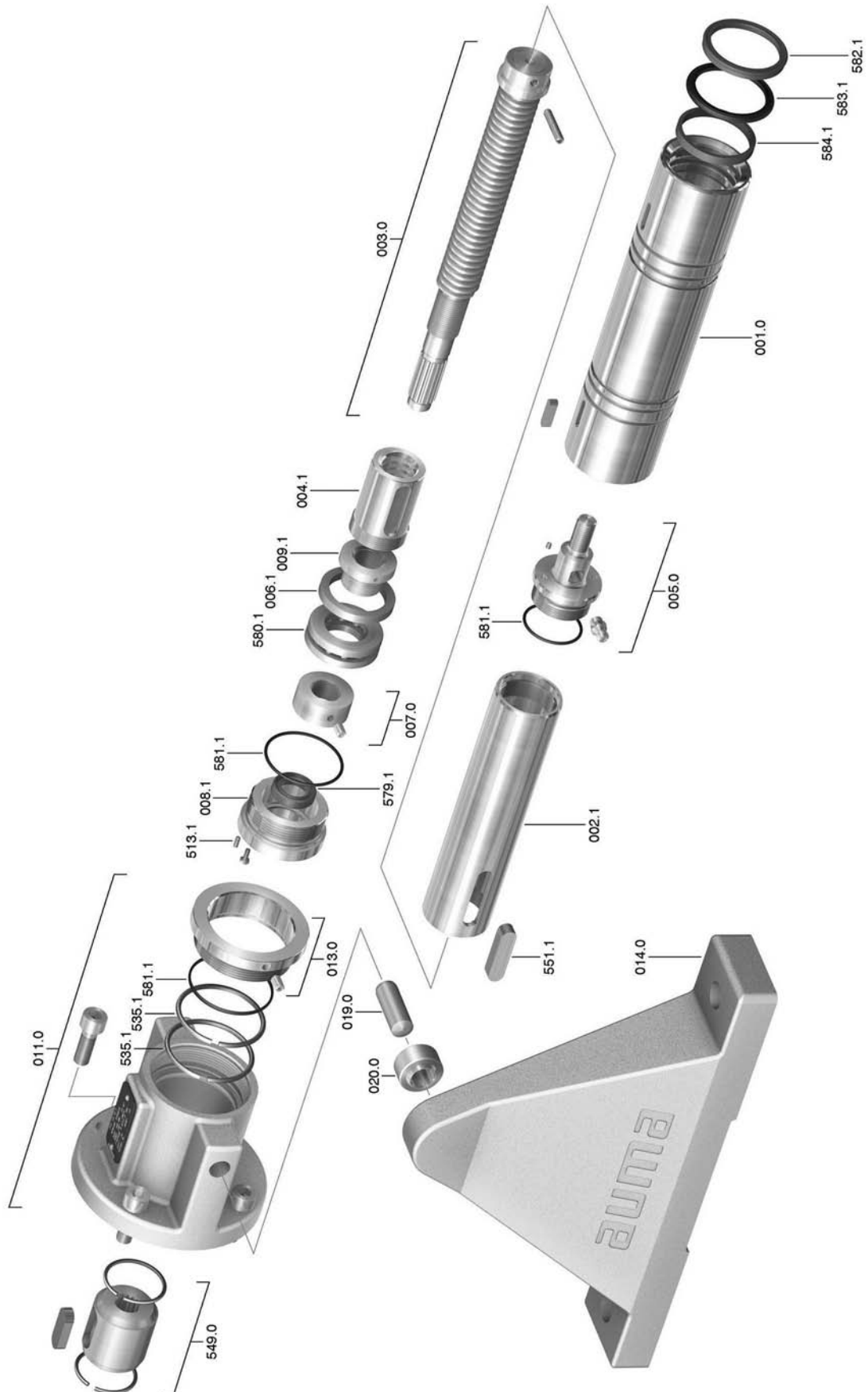


Spare parts

Information: Please state type and commission no. of the device (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts from any liability. Delivered spare parts may slightly vary from the representation.

No.	Designation	Type
001.0	Outer tube	
002.1	Inner tube	
003.0	Stem	Sub-assembly
004.1	Nut	
005.0	Coupling stud	Sub-assembly
006.1	Support washer	
007.0	Ring nut	Sub-assembly
008.1	Retainer	
009.1	Bearing bush	
011.0	Actuator flange	Sub-assembly
012.0	Mounting flange	Sub-assembly
013.0	Locking nut	Sub-assembly
513.1	Grub screw	
535.1	Snap ring	
549.0	Output drive type B3/B4/E	Sub-assembly
551.1	Parallel key	
579.1	Radial seal	
580.1	Axial deep groove ball bearing	
581.1	O-ring	
582.1	Dust retainer ring	
583.1	Sealing ring	
584.1	Guide ring	

8.2. Linear thrust unit LE 12.1 – LE 200.1 with base



Spare parts

Information: Please state type and commission no. of the device (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts from any liability. Delivered spare parts may slightly vary from the representation.

No	Designation	Type
001.0	Outer tube	
002.1	Inner tube	
003.0	Stem	Sub-assembly
004.1	Nut	
005.0	Coupling stud	Sub-assembly
006.1	Support washer	
007.0	Ring nut	Sub-assembly
008.1	Retainer	
009.1	Bearing bush	
011.0	Actuator flange	Sub-assembly
013.0	Locking nut	Sub-assembly
014.0	Base assy	Sub-assembly
019.0	Parallel pin	
020.0	Self-aligning bearings	
513.1	Grub screw	
535.1	Snap ring	
549.0	Output drive type B3/B4/E	Sub-assembly
551.1	Parallel key	
579.1	Radial seal	
580.1	Axial deep groove ball bearing	
581.1	O-ring	
582.1	Dust retainer ring	
583.1	Sealing ring	
584.1	Guide ring	

9. Certificates

9.1. Declaration of Incorporation and EC Declaration of Conformity

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 79379 Müllheim, Germany Riester@auma.com
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Original Declaration of Incorporation of Partly Completed Machinery (EC Directive 2006/42/EC) and EC Declaration of Conformity in compliance with the Directive on Explosion Protection

for AUMA linear thrust units of type ranges

LE 12.1 – LE 200.1

AUMA Riester GmbH & Co. KG as manufacturer declares herewith, that the above mentioned linear thrust units meet the following basic requirements of the EC Machinery Directive 2006/42/EC: Annex I, articles 1.1.2, 1.1.3, 1.1.5, 1.3.1, 1.3.7, 1.7.1, 1.7.3, 1.7.4

The following harmonised standards within the meaning of the Machinery Directive have been applied:

EN 12100-1: 2003 ISO 5210: 1996

EN 12100-2: 2003

With regard to the partly completed machinery, the manufacturer commits to submitting the documents to the competent national authority via electronic transmission upon request. The relevant technical documentation pertaining to the machinery described in Annex VII, part B has been prepared.

AUMA linear thrust units are designed to be installed on industrial valves. AUMA linear thrust units must not be put service until the final machinery into which they are to be incorporated has been declared in conformity with the provisions of the EC Directive 2006/42/EC.

Authorised person for documentation: Peter Malus, Aumastrasse 1, D-79379 Muellheim

As partly completed machinery in "ATEX" version, the linear thrust units further comply with the requirements of the following directive and the respective approximation of national laws as well as the respective harmonised standards as listed below:

(1) Equipment and protective systems intended for use in potentially explosive atmospheres (94/9/EC)

EN 1127-1: 2007

EN 13463-1: 2009

EN 13463-5: 2003

The above mentioned AUMA linear thrust units in "ATEX" version are marked as follows:

II2G c IIC T4 or T3

II2D IP6X T130°C or T190°C

In order to meet the requirements for use of AUMA linear thrust units in potentially explosive atmospheres, the relevant information in the operation instructions and technical data sheets must imperatively be observed.

Muellheim, 2010-04-01

M. Newerla, General Management

This declaration does not contain any guarantees. The safety instructions in product documentation supplied with the devices must be observed. Non-concerted modification of the devices voids this declaration.

Y005.014/002/en

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