

Here we are at home.

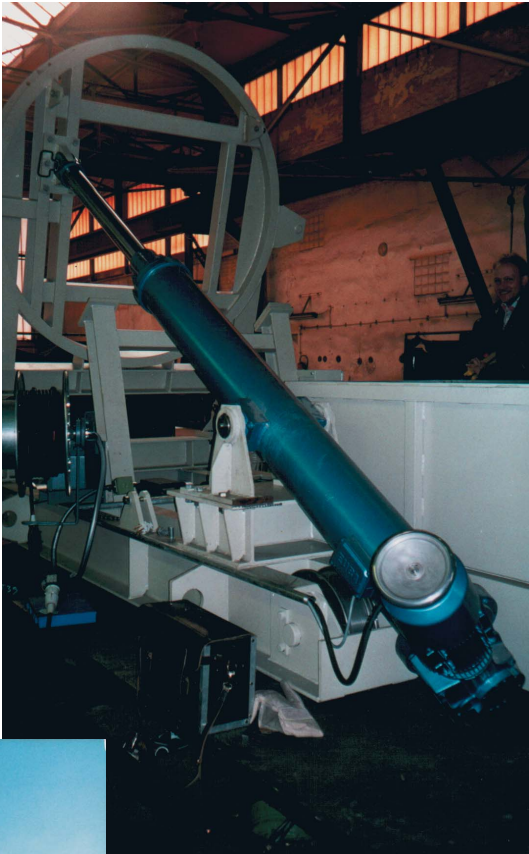


**EUBA**

electric actuators



Bunker flap control in steel plant



Transfer mechanism



Clarification plant  
Actuator for rake control



Flap actuator



Loading mechanism  
Lignite power plant

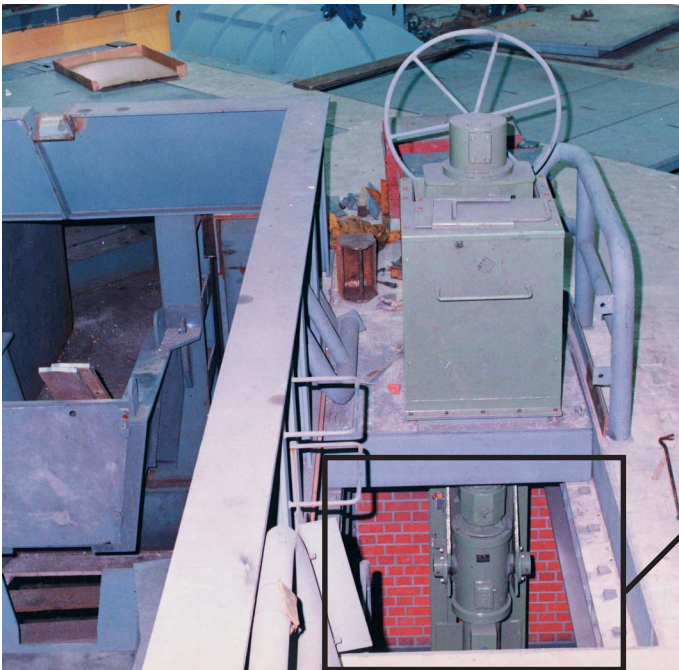




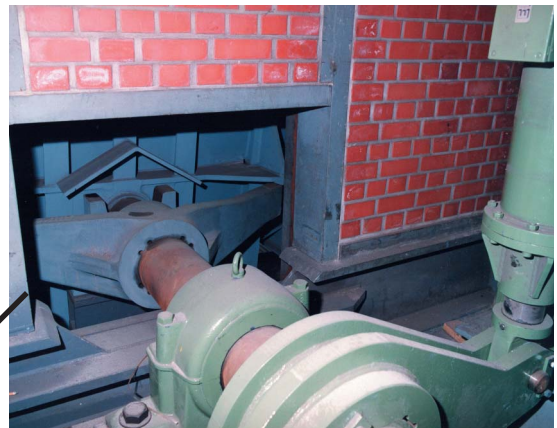
Breeches chute actuator



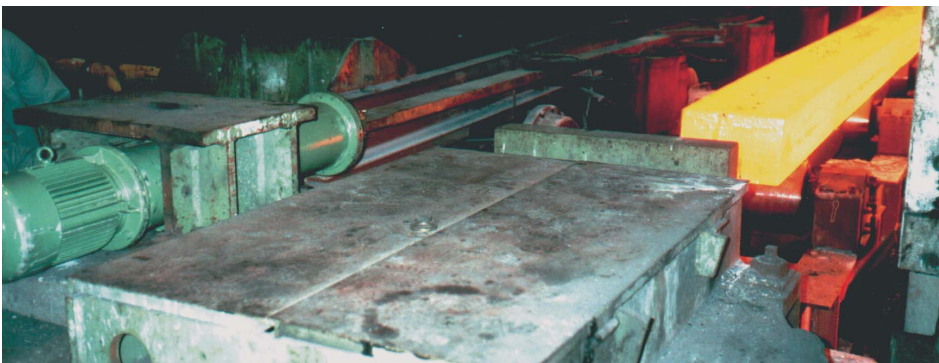
Belt scrapers for silos



Throughlike edging guide for pig iron



Governor level



Actuator for slabbing alignment

# EUBA

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Our supplies and services are based on our terms of business.  
Amendments of technical data as well as of measurements and weight, specified in this catalogue, are reserved.

## General Description

EUBA - Over 40 years of Know-How in research and sale of electric actuators.

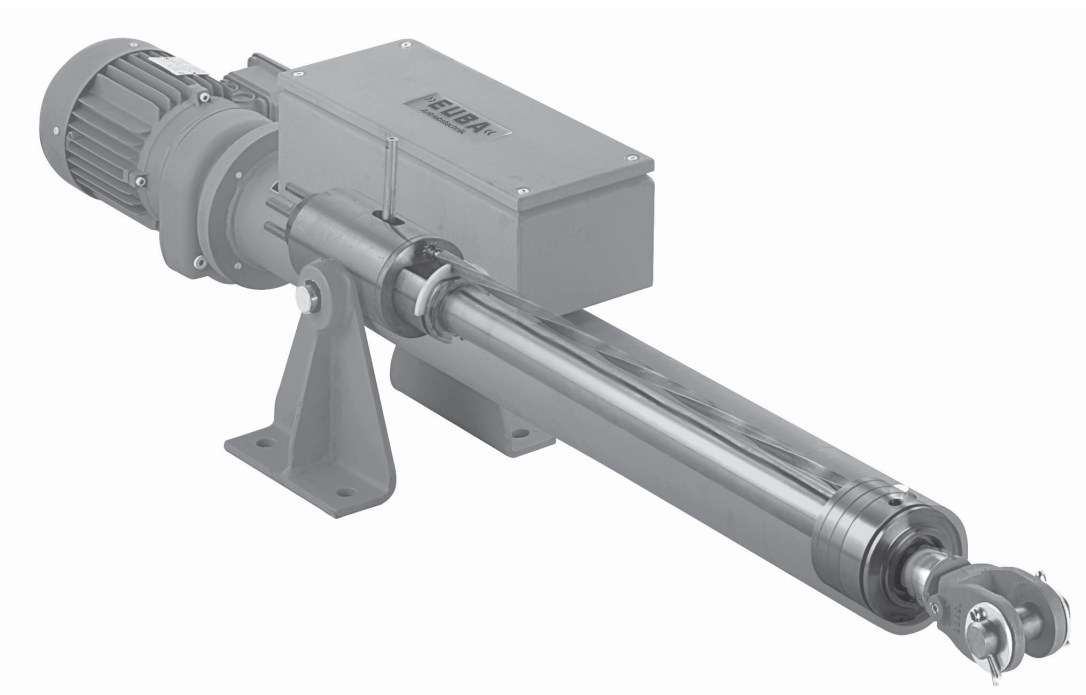
Custom-made solutions are our strength. We offer actuators from minimum of 50 daN up to mega actuators with forces up to 200.000 daN. A qualified team of engineers advises you in case of actuating problems in situ.

Innovative research and permanent quality control during manufacturing establishes standards. For your safety naturally no actuator leaves the factory until extensive examination.

From the very first beginning of your project you will be supported by qualified employees.

- ◆ Our engineering department also deals with special customer requests and offers solutions.
- ◆ Since over 40 years we manufacture our actuators with constant quality.
- ◆ Fast and professional assemblies will be done by our construction team.
- ◆ We also take on the planning and installation of the complete control engineering.

Profit by our Know-How, worldwide.



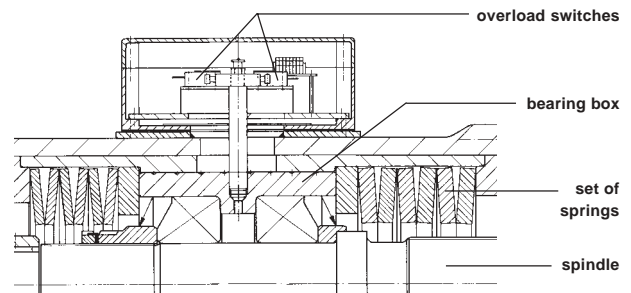
The actuators force can amount to 200.000 daN, with a stroke up to 7.000 mm and a variable velocity. Normally our actuators are manufactured with a hard chromium plated pushrod (special requests such as a ceramic plated pushrod can be considered). Commercial motor-gear combinations (A.C., D.C., et al.), which are connected to the actuator by a DIN IEC flange, are used. Rotary actuators, which are able to do complete revolutions, can also be flanged.

The base conception of this actuator is approved in heavy industry (steel plants, power plants, cement plants, et al.).

The actuator is made of a steel welded construction, sufficient dimensioned and equipped with the umpteen times proved EUBA overload switches.

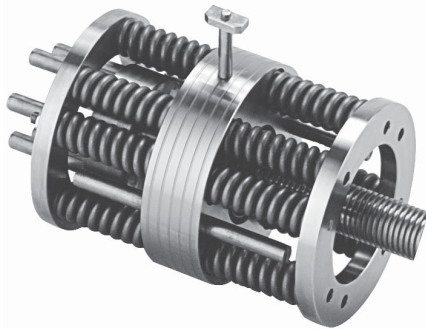
The advantages of the overload switches are:

- ◆ protection of the actuators
- ◆ absorption of axial impacts
- ◆ pressure forces can be adjusted
- ◆ wear-free attachment of motor and actuator (no slipping clutch).



Due to the variability of the spring characteristics, as well as the travel of the spring system, the overload switch is able to absorb huge axial impacts.

There is an optimal protection of the spindle against heavy loads, because the overload switch is integrated in the actuator itself.



Overload switch unit

In case of an overload of the requested push and pull forces, a shut-down of the actuator is guaranteed by overload switches.

A demolition respectively an overload of the mechanical devices is excluded from the beginning.

Due to external switch boxes the overload switches are easy accessible.

With the use of different sets of springs it is possible to adjust the overload switch to several push and pull forces and thus to specific demands.

EUBA actuators can be equipped with auxiliary attachments,

such as:

- ◆ Separat way limit switches
- ◆ Adjustable way limit switches for the whole stroke
- ◆ Overload switches
- ◆ Electronic position repeating devices 4 – 20 mA (continous)
- ◆ Bus-compatible position controller (Profibus)
- ◆ Frequency transformers
- ◆ Synchronization control for 2 or more actuators
- ◆ Synchronous speed control for 2 or more actuators



# Attachment- and Auxiliary Supplement



baseplate



threaded bolt  
(external thread)

limit switch  
1- or 2- polar



way limit switch

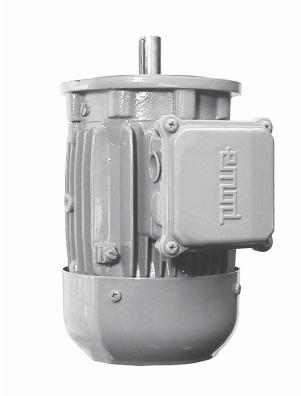
potentiometer



electronic position  
transmitter



switch box  
incl.  
verload unit



brake motor

handwheel  
with or without electrical shutdown



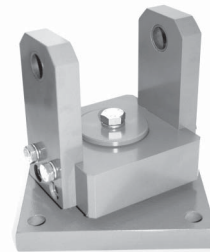
re end



shackle  
toggle joint



angle joint with  
clamping head



cardan joint



bracket  
for pivot



gear motor



norm motor

# Technical Explanation

## Calculations:

### 1. Determination of push-pull forces

For the calculations of push-pull forces for **EUBA**-actuators you have to consider the acceleration factors as specified in the chart below. This leads to the following calculation models:

a) Horizontal movement    b) Vertical movement

$$F_B = m \cdot a = \frac{G}{g} \cdot a \qquad F = F_B + F_R + G$$

$$F_R = \mu \cdot G$$

$$F = F_B + F_R$$

$F_B$  = acceleration force [N]

$m$  = body weight [kg]

$a$  = acceleration [m/s<sup>2</sup>]

$G$  = load [N]

$g$  = gravitational force [m/s<sup>2</sup>]

$F_R$  = frictional force [N]

$\mu$  = coefficient of friction

$F$  = necessary force of EUBA-actuator [N]

### 2. Acceleration factors

According to the specific velocity you have to use the following acceleration factors as an average value:

|                       |    |    |    |    |     |     |     |     |
|-----------------------|----|----|----|----|-----|-----|-----|-----|
| v [mm/s]              | 25 | 45 | 75 | 90 | 120 | 150 | 175 | 180 |
| a [m/s <sup>2</sup> ] | 1  | 2  | 3  | 4  | 5   | 6   | 7   | 8   |

### 3. Operating frequency

The operating frequency (s/min) of the EUBA-actuators depend on the maximum switching operations of the commercial motors and its electrical self-heating.

Based on years of experience, the maximum operating frequency of the EUBA-actuators meets half of the maximum no-load switchings of the motor per minute.

Hence we may infer the following average values :

|           |      |      |      |      |      |      |      |
|-----------|------|------|------|------|------|------|------|
| P [kW]    | 0,09 | 0,12 | 0,18 | 0,25 | 0,37 | 0,55 | 0,75 |
| s [1/min] | 35   | 35   | 30   | 25   | 25   | 20   | 20   |

|           |     |     |     |    |   |     |     |
|-----------|-----|-----|-----|----|---|-----|-----|
| P [kW]    | 1,1 | 1,5 | 2,2 | 3  | 4 | 5,5 | 7,5 |
| s [1/min] | 18  | 15  | 15  | 10 | 8 | 6   | 6   |

Above given data is meant for  $n=1500 \text{ min}^{-1}$  and a maximum ambient temperature of  $t=40^\circ \text{ C}$ .

The operating frequency depends on stroke and velocity also.

### Attention:

A motor-switch over from a left-handed into a right-handed rotation or vice versa is not allowed without a shutdown of the motor itself.



For special environmental and aggressive conditions EUBA-actuators can be sandblasted according to SA 2,5 and can be varnished with a coating thickness up to 240 µm.

For the case the actuators are used in explosion hazardous plants, an application of way limit- and overload switches as well as three phased motors are required according to ATEX-norm.

Protection class IP-55 is the standard of all EUBA-actuators, but they are available up to protection class IP-65 on request.

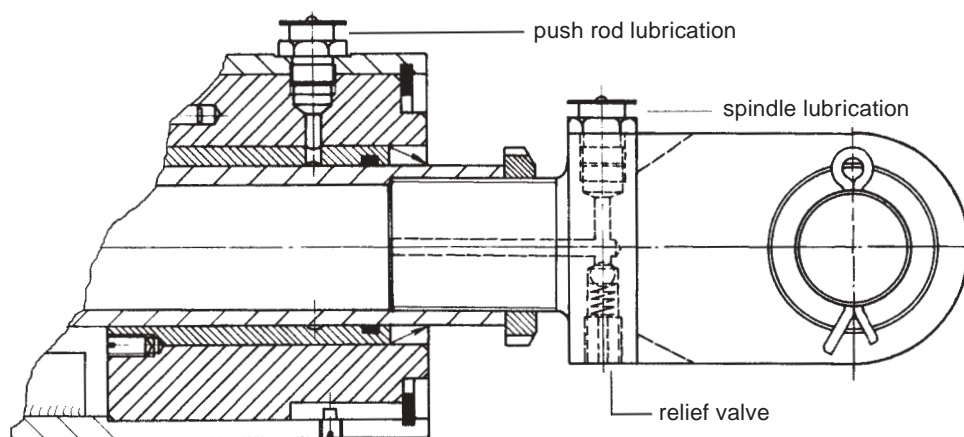
For an operation of the actuator during power failure we recommend a handwheel. For these actuators, the motor shaft protrudes at the end. It is possible to equip the motor shaft with a handwheel.

If demanded an electrical shutdown of the motor can be ensued when the handwheel is attached. The vacant second motor shaft is covered with a protection rod during normal operation all the time.

Depending on the requirements EUBA-actuators are equipped with different lubricants. The specifications of the used lubricants can be found in the operation and maintenance manual.

Usually the actuators are filled with Li-EP 2 grease.

The maintenance of the EUBA-actuators is limited to regular relubrication of the spindle nut-system. An excess pressure protection impedes an over-lubrication of the actuator.



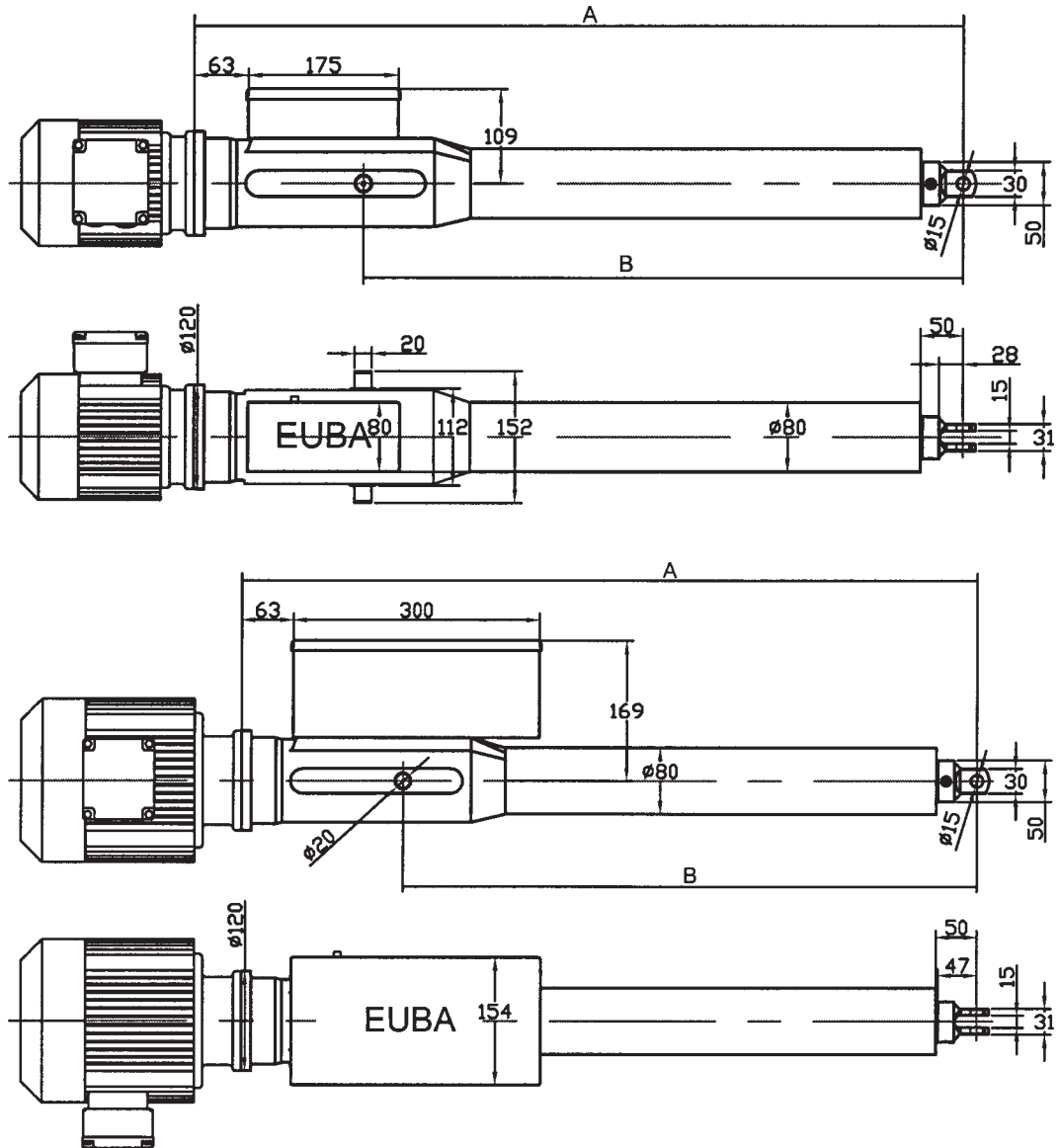
## Survey of Products Standard Design

| EUBA-Typ | max.<br>force F<br>up to | max.<br>velocity v<br>up to | max.<br>stroke<br>up to | page |
|----------|--------------------------|-----------------------------|-------------------------|------|
| A 4      | 500 daN                  | 90 mm/s                     | 600 mm                  | 10   |
| B 4      | 2.500 daN                | 180 mm/s                    | 1.250 mm                | 13   |
| C 4      | 4.500 daN                | 120 mm/s                    | 2.500 mm                | 16   |
| D 4      | 15.000 daN               | 60 mm/s                     | 4.000 mm                | 19   |
| E 4      | 50.000 daN               | 30 mm/s                     | 4.000 mm                | 30   |
| F 4*     | 200.000 daN              | 10 mm/s                     | 4.000 mm                | 30   |

\* on request

**For the determination of forces, please consider calculations on page 7!**

## Type A4:



| Mounting dimension actuator in mm (weight: 25-35 kg) |     |     |     |     |     |     |     |     |     |     |     |     |     |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| stroke   | 0   | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |
| A-size   | 397 | 447 | 497 | 547 | 597 | 647 | 697 | 747 | 797 | 847 | 897 | 947 | 997 |
| B-size   | 206 | 256 | 306 | 356 | 406 | 456 | 506 | 576 | 626 | 676 | 726 | 776 | 826 |

Actuator dimensions can vary, especially the motor dimensions due to different brands.

B-size changeable (+/- 100 mm)

Motor dimensions depending on motor type and supplier

**Power chart:**

| P in kW in accordance with DIN IEC |     |      |      |      |      |      |      |
|------------------------------------|-----|------|------|------|------|------|------|
| v in mm/s                          |     | 5    | 25   | 45   | 63   | 70   | 94   |
| F in daN                           | 100 | 0,09 | 0,12 | 0,18 | 0,18 | 0,25 | 0,37 |
|                                    | 200 | 0,09 | 0,18 | 0,37 | 0,37 | 0,55 | 0,55 |
|                                    | 300 | 0,09 | 0,25 | 0,55 | 0,55 | 0,75 | 1,10 |
|                                    | 400 | 0,09 | 0,37 | 0,55 | 0,75 | 1,10 | 1,10 |
|                                    | 500 | 0,12 | 0,37 | 0,75 | 1,10 | 1,10 | 1,50 |

Forces in between min. and max. can be realised continuously.

**Standard design:**

- Pivot
- Clevis

**Special design:**

- Brackets
- Foot mounting
- Cardan joint
- Special fixing
- Shackle toggle joint
- Angle ball
- High temperature range up to +80°C
- Low temperature range down to -40°C
- Protection class up to IP-65

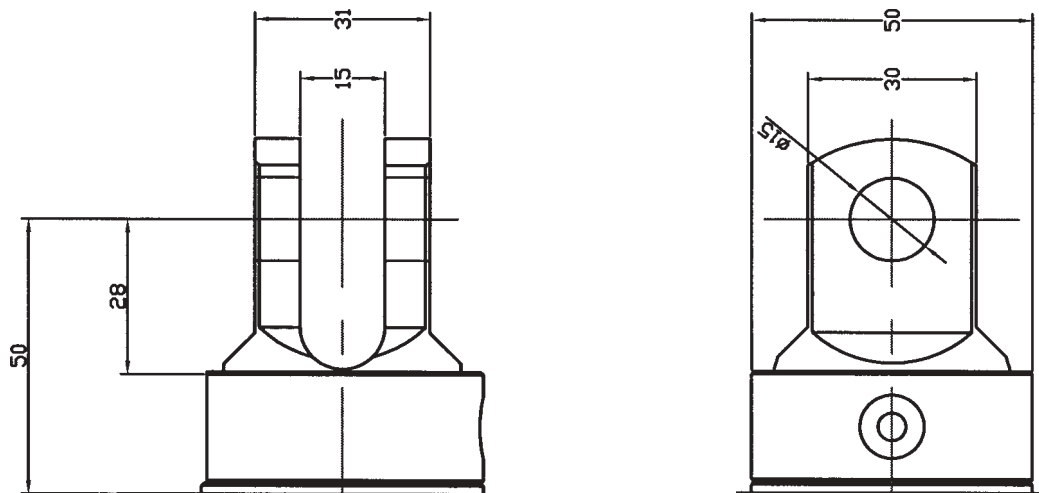
**Actuator:**

- Steel, with overload switches
- Acme screw thread spindle
- Spindle bearing system (overload protection unit), on both sides supported by spring piles
- Chrome plated push rod with internal torsion protection and scraper
- Temperature range from -10°C to +40°C

**Motor:**

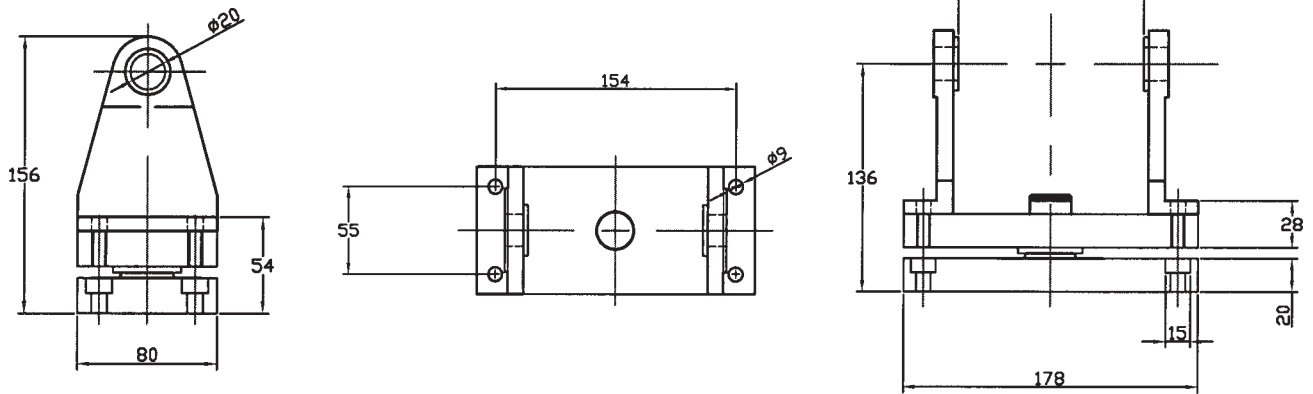
Attachment of DIN IEC flange- and gear motors (manufacturer independent)

**Clevis:**

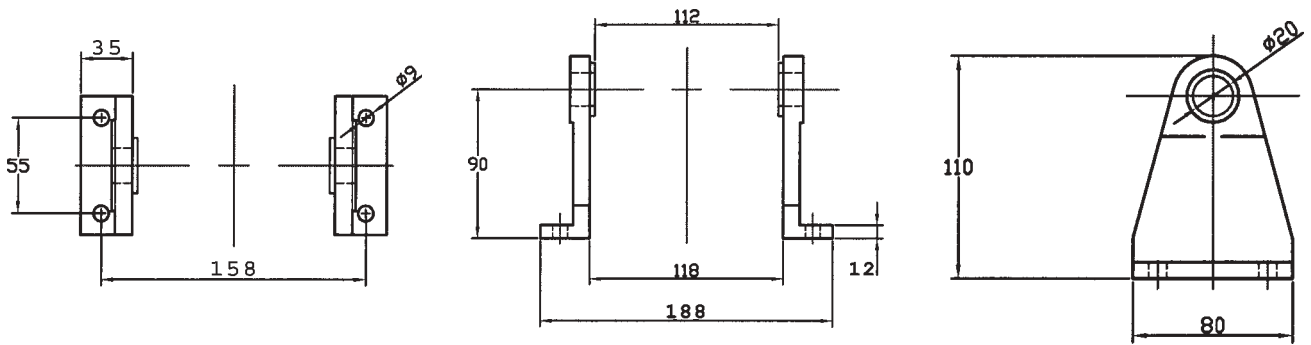




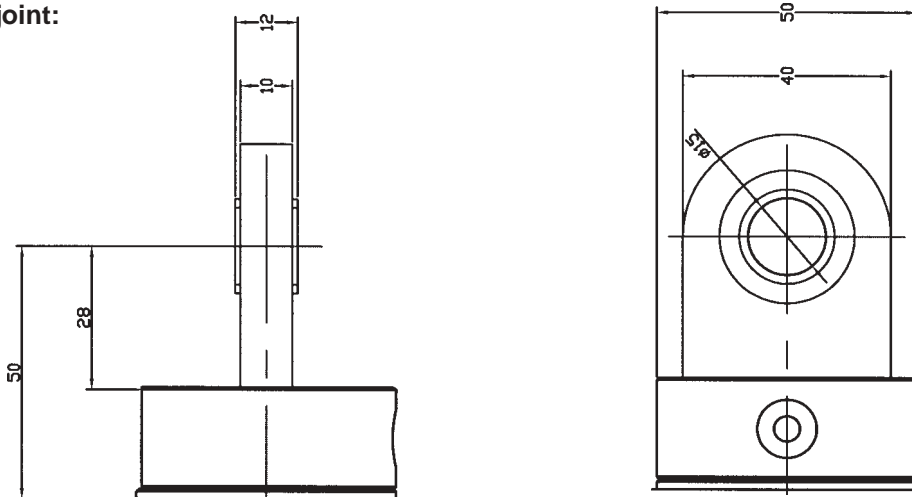
**Cardan joint:**



**Brackets for pivot:**

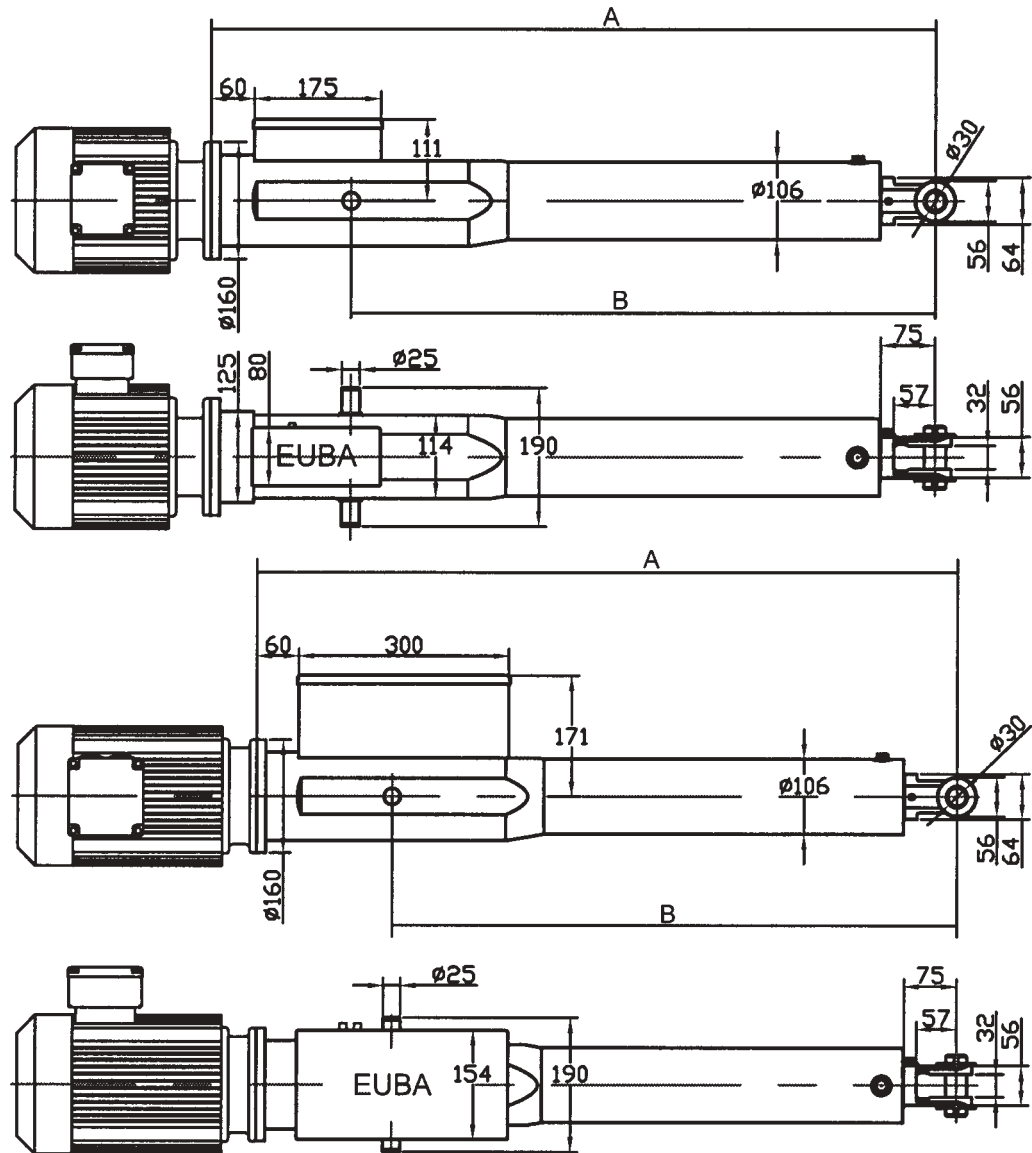


**Shackle toggle joint:**



Please use Fax request sheet on page 29 for a detailed technical layout.  
 Minor changes in dimensions are possible due to production tolerances.

## Type B4:



| Mounting dimension actuator in mm (weight: 60-80 kg) |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>stroke</b>  | 0    | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  | 550  | 600  |
| <b>A-size</b>  | 502  | 552  | 602  | 652  | 702  | 752  | 802  | 852  | 902  | 952  | 1002 | 1052 | 1102 |
| <b>B-size</b>  | 308  | 358  | 408  | 458  | 508  | 558  | 608  | 658  | 708  | 758  | 808  | 858  | 908  |
| <b>stroke</b>  | 650  | 700  | 750  | 800  | 850  | 900  | 950  | 1000 | 1050 | 1100 | 1150 | 1200 | 1250 |
| <b>A-size</b>  | 1152 | 1202 | 1252 | 1302 | 1352 | 1402 | 1452 | 1502 | 1552 | 1602 | 1652 | 1702 | 1752 |
| <b>B-size</b>  | 958  | 1008 | 1058 | 1108 | 1158 | 1208 | 1258 | 1308 | 1358 | 1408 | 1458 | 1508 | 1558 |

Actuator dimensions can vary, especially the motor dimensions due to different brands.

B-size changeable (+/- 100 mm)

Motor dimensions depending on motor type and supplier

**Power chart:**

| P in kW in accordance with DIN IEC |      |      |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|------|------|
| v in mm/s                          |      | 5    | 25   | 40   | 63   | 80   | 94   | 118  |
| F in daN                           | 500  | 0,09 | 0,37 | 0,75 | 1,10 | 1,50 | 1,50 | 2,20 |
|                                    | 750  | 0,12 | 0,55 | 1,10 | 1,50 | 2,20 | 2,20 | 3,00 |
|                                    | 1000 | 0,18 | 0,75 | 1,50 | 2,20 | -    | 3,00 | 4,00 |
|                                    | 1500 | 0,25 | 1,10 | 2,20 | -    | -    | -    | -    |
|                                    | 2000 | 0,37 | 1,50 | 3,00 | -    | -    | -    | -    |
|                                    | 2500 | 0,37 | 2,20 | 3,00 | -    | -    | -    | -    |

Forces in between min. and max. can be realised continuously.

**Standard design:**

- Pivot
- Clevis

**Special design:**

- Brackets
- Foot mounting
- Cardan joint
- Special fixing
- Shackle toggle joint
- Angle ball
- High temperature range up to +80°C
- Low temperature range down to -40°C
- Protection class up to IP-65

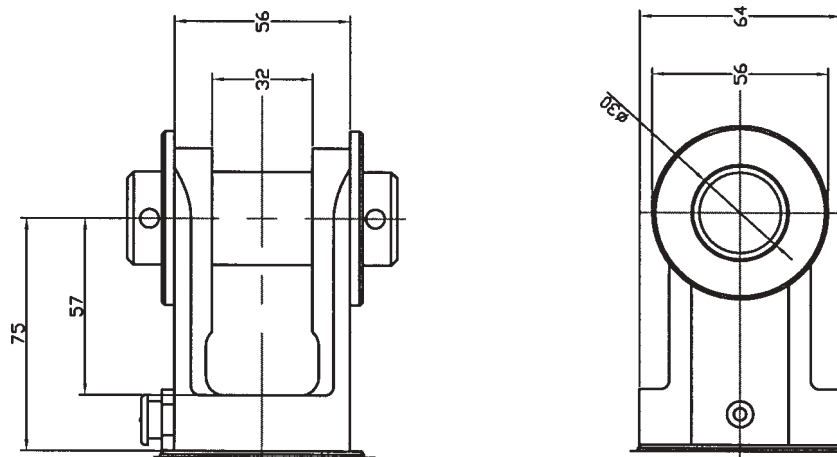
**Actuator:**

- Steel, with overload switches
- Acme screw thread spindle
- Spindle bearing system (overload protection unit), on both sides supported by spring piles
- Chrome plated push rod with internal torsion protection and scraper
- Temperature range from -10°C to +40°C

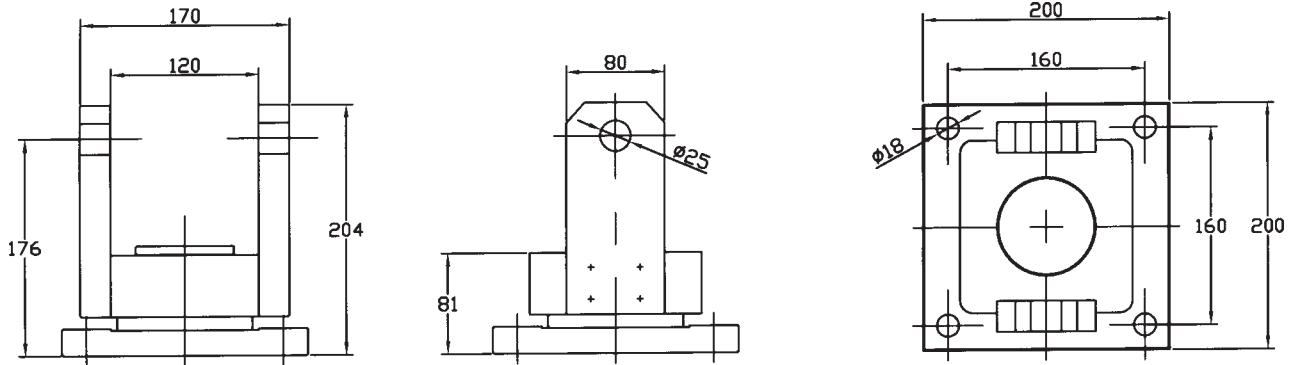
**Motor:**

Attachment of DIN IEC flange- and gear motors (manufacturer independent)

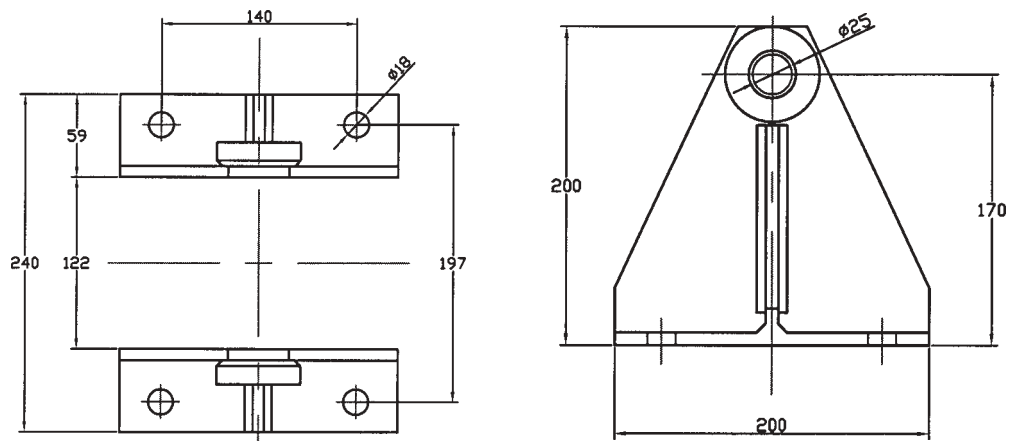
**Clevis:**



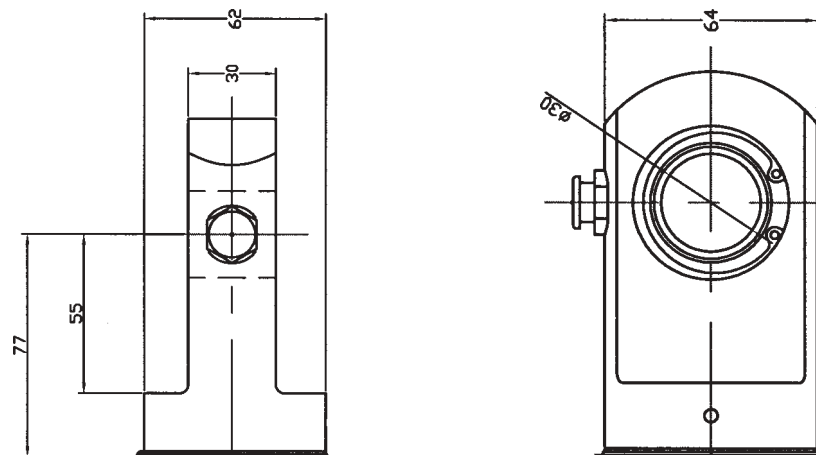
**Cardan joint:**



**Brackets for pivot:**



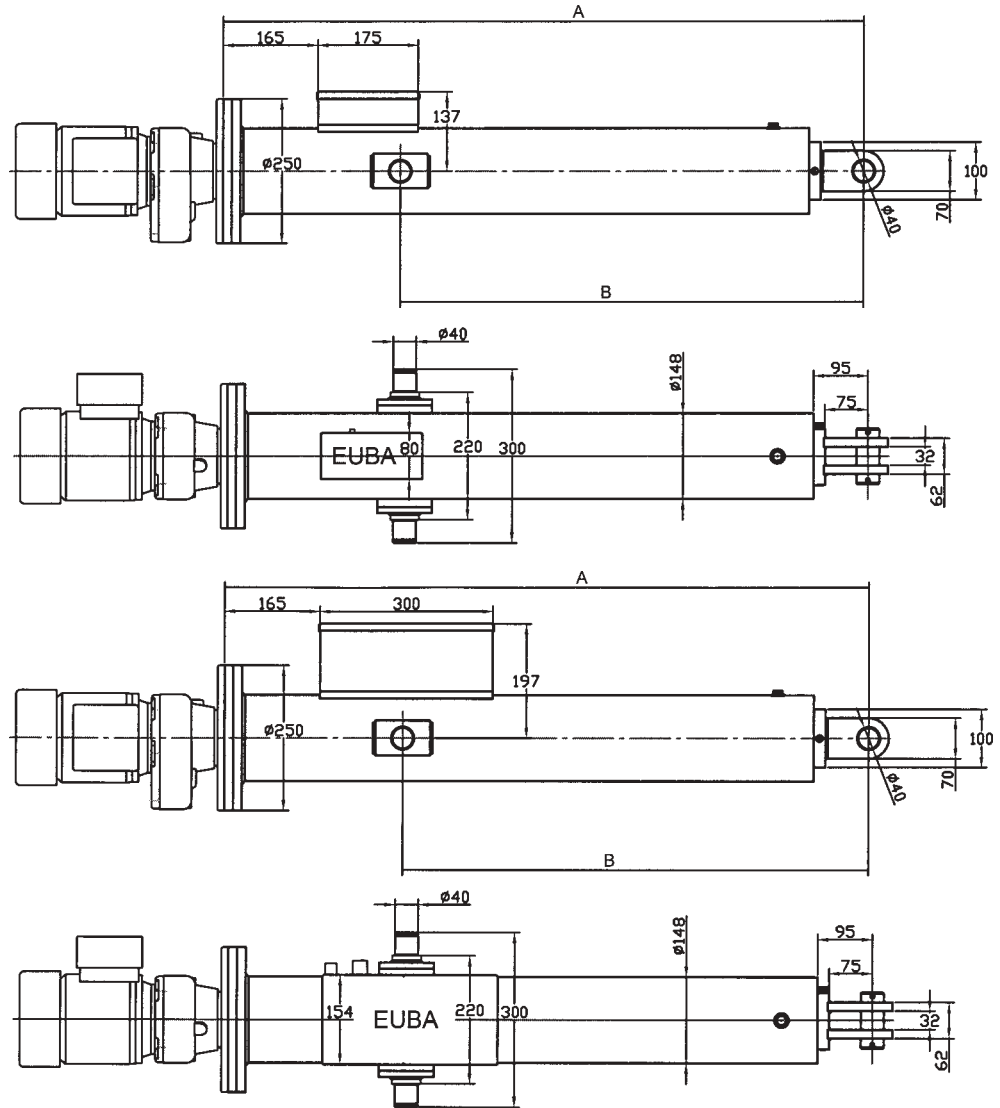
**Shackle toggle joint:**



Please use Fax request sheet on page 29 for a detailed technical layout.  
 Minor changes in dimensions are possible due to production tolerances.



## Type C4:



| Mounting dimension actuator in mm (weight: 120-250 kg) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| stroke   | 0    | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  | 550  | 600  | 650  | 700  | 750  |
| <b>A-size</b>  | 618  | 668  | 718  | 768  | 818  | 868  | 918  | 968  | 1018 | 1068 | 1118 | 1168 | 1218 | 1268 | 1318 | 1368 |
| <b>B-size</b>  | 180  | 230  | 280  | 330  | 380  | 430  | 500  | 550  | 600  | 650  | 700  | 750  | 800  | 850  | 900  | 950  |
| <b>stroke</b>  | 800  | 850  | 900  | 950  | 1000 | 1050 | 1100 | 1150 | 1200 | 1250 | 1300 | 1350 | 1400 | 1450 | 1500 |      |
| <b>A-size</b>  | 1418 | 1468 | 1518 | 1568 | 1618 | 1668 | 1718 | 1768 | 1818 | 1868 | 1918 | 1968 | 2018 | 2068 | 2118 |      |
| <b>B-size</b>  | 1000 | 1050 | 1100 | 1150 | 1200 | 1250 | 1300 | 1350 | 1400 | 1450 | 1500 | 1550 | 1600 | 1650 | 1700 |      |

Actuator dimensions can vary, especially the motor dimensions due to different brands.

B-size changeable (+/- 100 mm)

Motor dimensions depending on motor type and supplier

**Power chart:**

| P in kW in accordance with DIN IEC |      |      |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|------|------|
| v in mm/s                          |      | 5    | 15   | 25   | 35   | 45   | 111  | 166  |
| F in daN                           | 1500 | 0,25 | 0,75 | 1,10 | 2,20 | 2,20 | 5,50 | 7,50 |
|                                    | 2000 | 0,37 | 1,10 | 1,50 | 2,20 | 3,00 | -    | -    |
|                                    | 2500 | 0,55 | 1,50 | 2,20 | 3,00 | 4,00 | -    | -    |
|                                    | 3000 | 0,55 | 1,50 | 3,00 | 4,00 | 4,00 | -    | -    |
|                                    | 4000 | 0,75 | 2,20 | 3,00 | 5,50 | 5,50 | -    | -    |
|                                    | 5000 | 0,75 | 3,00 | 4,00 | 5,50 | 7,50 | -    | -    |

Forces in between min. and max. can be realised continuously.

**Standard design:**

- Pivot
- Clevis

**Special design:**

- Brackets
- Foot mounting
- Cardan joint
- Special fixing
- Shackle toggle joint
- Angle ball
- High temperature range up to +80°C
- Low temperature range down to -40°C
- Protection class up to IP-65

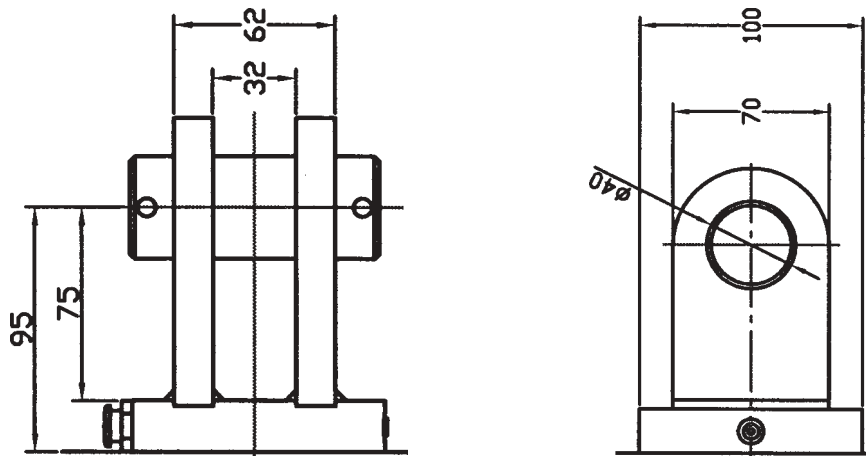
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- Chrome plated push rod with internal torsion protection and scraper
- Temperature range from -10°C to +40°C

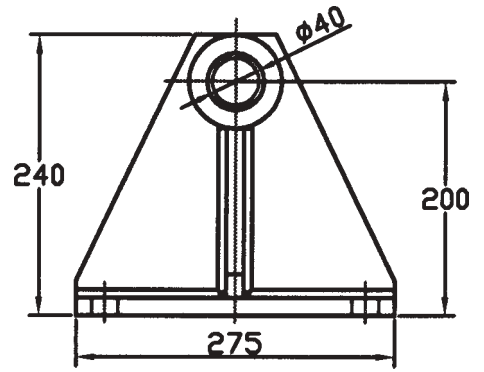
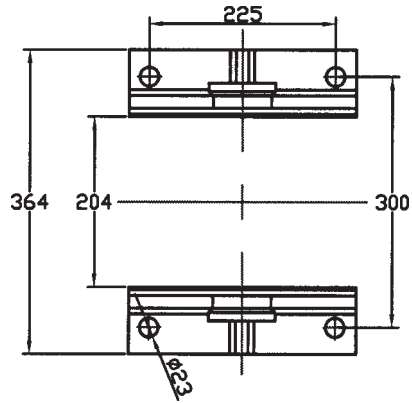
**Motor:**

Attachment of DIN IEC flange- and gear motors (manufacturer independent)

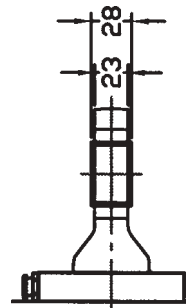
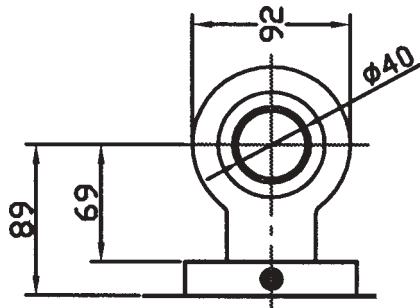
**Clevis:**



Brackets for pivot:

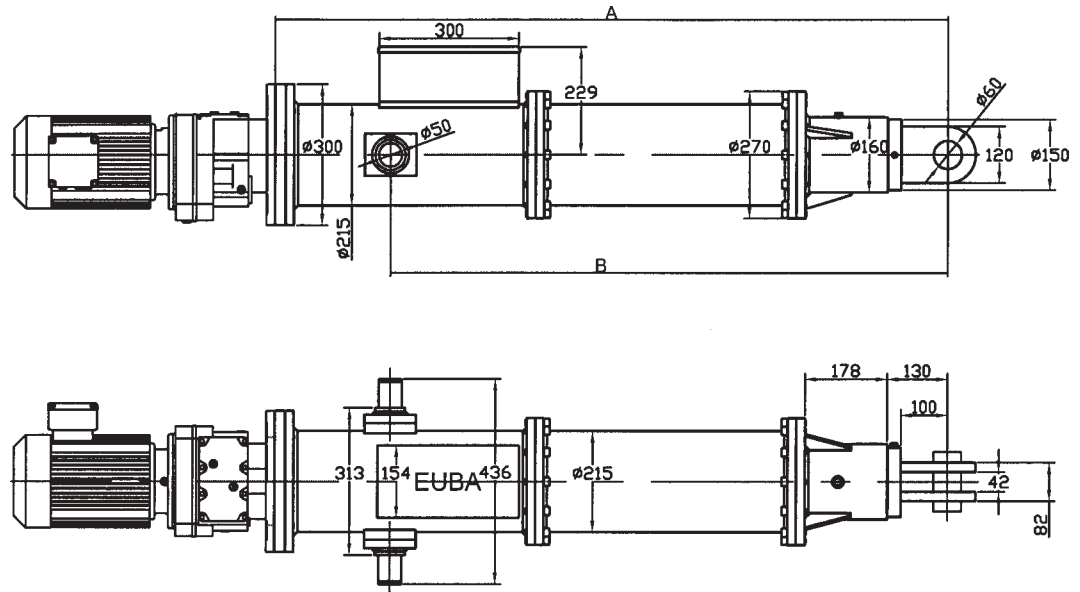


Shackle toggle joint:



Please use Fax request sheet on page 29 for a detailed technical layout.  
Minor changes in dimensions are possible due to production tolerances.

## Type D4:



| Mounting dimension actuator in mm (weight: 150-400 kg) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| stroke   | 0    | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  | 550  | 600  | 650  | 700  | 750  |
| <b>A-size</b>  | 988  | 1038 | 1088 | 1138 | 1188 | 1238 | 1288 | 1338 | 1388 | 1438 | 1488 | 1538 | 1588 | 1638 | 1688 | 1738 |
| <b>B-size</b>  | 699  | 749  | 799  | 849  | 899  | 949  | 999  | 1049 | 1099 | 1149 | 1199 | 1249 | 1299 | 1349 | 1399 | 1449 |
| <b>stroke</b>  | 800  | 850  | 900  | 950  | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |      |
| <b>A-size</b>  | 1788 | 1838 | 1888 | 1938 | 1988 | 2088 | 2188 | 2288 | 2388 | 2488 | 2588 | 2688 | 2788 | 2888 | 2988 |      |
| <b>B-size</b>  | 1499 | 1549 | 1599 | 1649 | 1699 | 1799 | 1899 | 1999 | 2099 | 2199 | 2299 | 2399 | 2499 | 2599 | 2699 |      |

Actuator dimensions can vary, especially the motor dimensions due to different brands.

B-size changeable (+/- 100 mm)

Motor dimensions depending on motor type and supplier



**Power chart:**

| P in kW in accordance with DIN IEC |       |      |      |       |       |       |       |       |
|------------------------------------|-------|------|------|-------|-------|-------|-------|-------|
| v in mm/s                          |       | 5    | 15   | 25    | 35    | 40    | 50    | 60    |
| F in daN                           | 4000  | 0,75 | 2,20 | 4,00  | 5,50  | 7,50  | 7,50  | 9,20  |
|                                    | 6000  | 1,10 | 4,00 | 5,50  | 7,50  | 9,20  | 11,00 | 15,00 |
|                                    | 8000  | 1,50 | 5,50 | 7,50  | 11,00 | 15,00 | 15,00 | 18,50 |
|                                    | 10000 | 2,20 | 5,50 | 9,20  | 15,00 | 15,00 | 18,50 | 22,00 |
|                                    | 12500 | 2,20 | 7,50 | 11,00 | 18,50 | 18,50 | 22,00 | 30,00 |
|                                    | 15000 | 3,00 | 9,20 | 15,00 | 18,50 | 22,00 | 30,00 | -     |

Forces in between min. and max. can be realised continuously.

**Standard design:**

- Pivot
- Clevis

**Special design:**

- Brackets
- Foot mounting
- Cardan joint
- Special fixing
- Shackle toggle joint
- Angle ball
- High temperature range up to +80°C
- Low temperature range down to -40°C
- Protection class up to IP-65

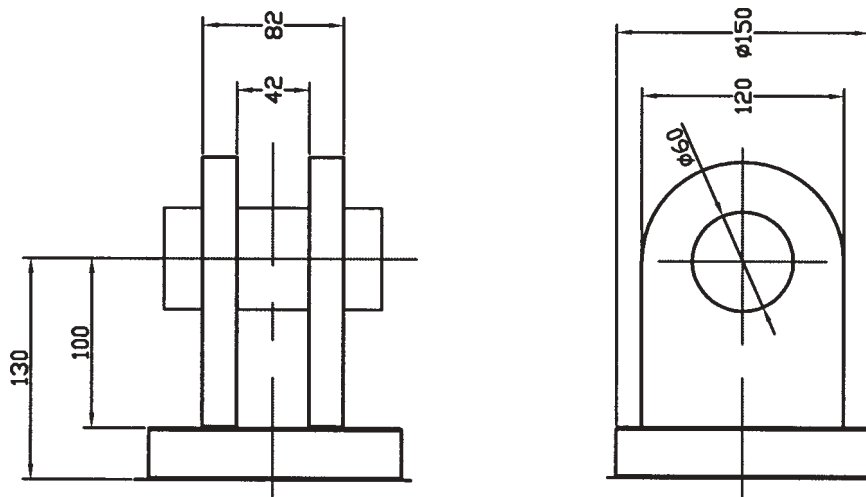
**Actuator:**

- Steel, with overload switches
- Acme screw thread spindle
- Spindle bearing system (overload protection unit), on both sides supported by spring piles
- Chrome plated push rod with internal torsion protection and scraper
- Temperature range from -10°C to +40°C

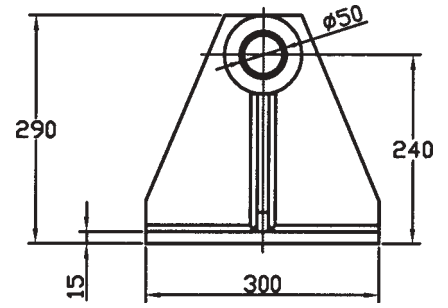
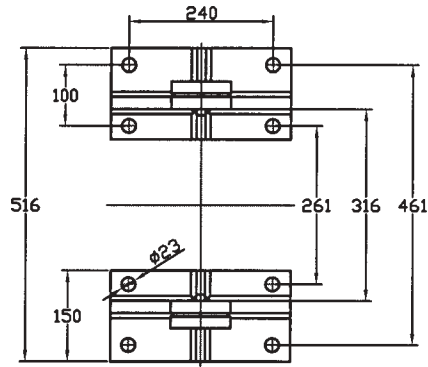
**Motor:**

Attachment of DIN IEC flange- and gear motors (manufacturer independent)

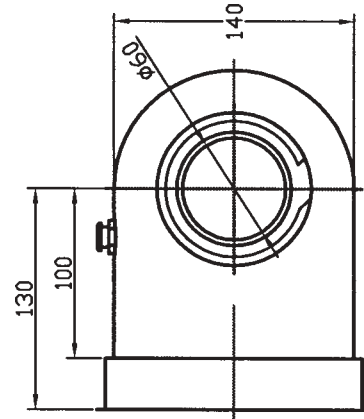
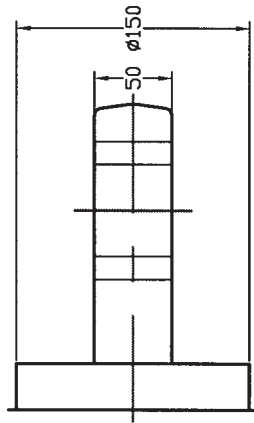
**Clevis:**



**Brackets for pivot:**



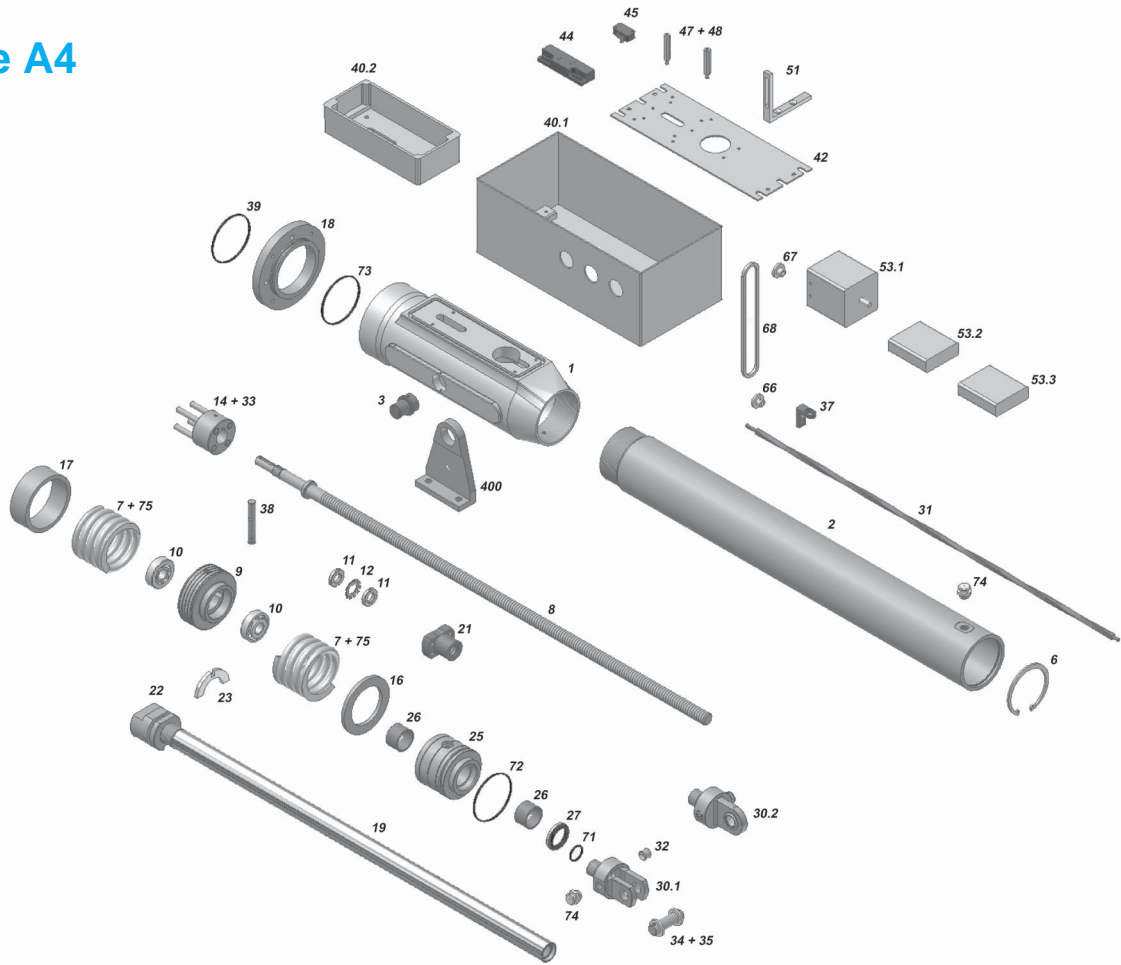
**Shackle toggle joint:**



Please use Fax request sheet on page 29 for a detailed technical layout.  
Minor changes in dimensions are possible due to production tolerances.

## Spare parts drawing of EUBA-actuators

### Type A4



| <u>Object</u> | <u>Pc's</u> | <u>Description</u>     | <u>Object</u> | <u>Pc's</u> | <u>Description</u>              |
|---------------|-------------|------------------------|---------------|-------------|---------------------------------|
| 1             | 1           | Overload housing       | 31            | 1           | Torsion rod                     |
| 2             | 1           | Rod housing            | 32            | 1           | Pressure safety                 |
| 3             | 2           | Turning pin            | 34 + 35       | 1           | Yoke end bolt + washer          |
| 6             | 1           | Lock ring              | 37            | 1           | Angle for torsion rod           |
| 7             | Set         | Cup spring             | 38            | 1           | Switching piece                 |
| 8             | 1           | Acme thread spindle    | 39*           | 1           | O-Ring rear flange              |
| 9             | 1           | Bearing housing        | 40.1          | 1           | Switch box complete             |
| 10*           | 2           | Tapered roller bearing | 40.2          | 1           | Overload switch box complete    |
| 11*           | 2           | Shaft nut              | 42            | 1           | Mounting board                  |
| 12*           | 1           | Safety sheet           | 44            | 2           | Micro end switch board          |
| 14 + 33       | 2           | Coupling               | 45*           | Set         | Micro end switches              |
| 16            | 2           | Thrust ring            | 47 + 48       | 2           | Distance bolt + rail            |
| 17            | 1           | Spacer sleeve          | 51            | 1           | Angle for way limit switch      |
| 18            | 1           | Flange                 | 53.1          | 1           | Way limit switch                |
| 19            | 1           | Push rod               | 53.2          | 1           | Potentiometer                   |
| 21*           | 1           | Acme spindle nut       | 53.3          | 1           | Electronic position transmitter |
| 22            | 1           | Push rod head          | 66            | 1           | Roller chain sprocket           |
| 23*           | 1           | Torsion rod guide      | 67            | 1           | Roller chain sprocket           |
| 25            | 1           | Push rod guide         | 68*           | 1           | Roller chain                    |
| 26*           | 2           | Bushing guide          | 71*           | 1           | O-Ring joke end                 |
| 27*           | 1           | Scraper                | 72*           | 1           | O-Ring bushing guide            |
| 30.1          | 1           | Yoke end               | 73*           | 1           | O-Ring front flange             |
| 30.2          | 1           | Shackle toggle joint   | 74*           | 2           | Flat grease nipple              |
|               |             |                        | 75            | 6           | Spacer ring                     |
|               |             |                        | 400           | 2           | Brackets                        |

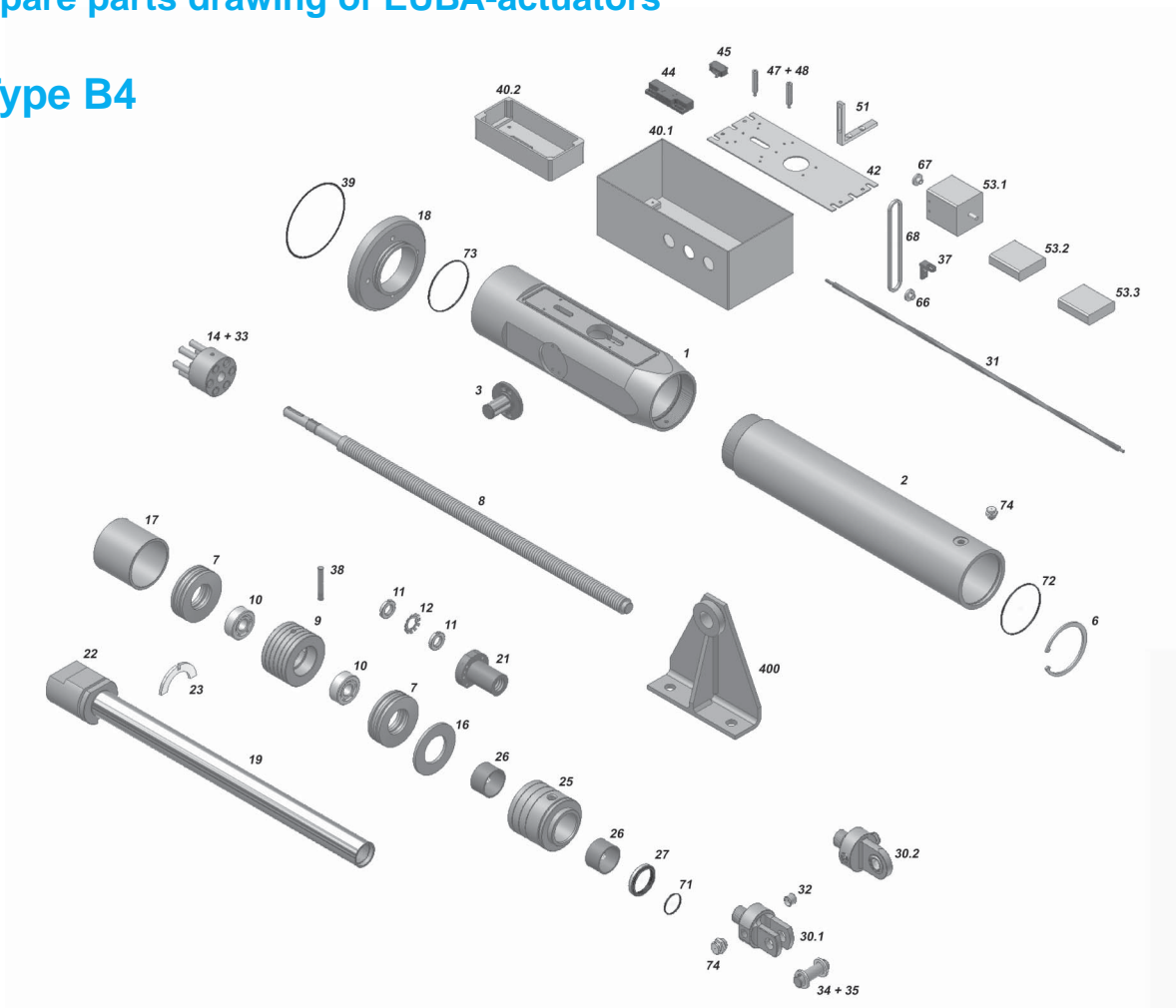
\* = wear out parts

Please indicate actuator number as well as the position of the spare part list.

For online spare parts enquiries please go to [www.euba.de](http://www.euba.de)

## Spare parts drawing of EUBA-actuators

### Type B4



| <u>Object</u> | <u>Pc's</u> | <u>Description</u>     | <u>Object</u> | <u>Pc's</u> | <u>Description</u>                        |
|---------------|-------------|------------------------|---------------|-------------|---|
| 1             | 1           | Overload housing       | 31            | 1           | Torsion rod                               |
| 2             | 1           | Rod housing            | 32            | 1           | Pressure safety                           |
| 3             | 2           | Turning pin            | 34 + 35       | 1           | Yoke end bolt + washer                    |
| 6             | 1           | Lock ring              | 37            | 1           | Angle for torsion rod                     |
| 7             | Set         | Cup spring             | 38            | 1           | Switching piece                           |
| 8             | 1           | Acme thread spindle    | 39*           | 1           | O-Ring rear flange                        |
| 9             | 1           | Bearing housing        | 40.1          | 1           | WS-Switch box complete                    |
| 10*           | 2           | Tapered roller bearing | 40.2          | 1           | Overload switch box complete (-DE-)       |
| 11*           | 2           | Shaft nut              | 42            | 1           | Mounting board                            |
| 12*           | 1           | Safety sheet           | 44            | 2           | Micro end switch board                    |
| 14 + 33       | 2           | Coupling               | 45*           | Set         | Micro end switches                        |
| 16            | 2           | Thrust ring            | 47 + 48       | 2           | Distance bolt + rail                      |
| 17            | 1           | Spacer sleeve          | 51            | 1           | Angle for way limit switch                |
| 18            | 1           | Flange                 | 53.1          | 1           | Way limit switch -WS...-                  |
| 19            | 1           | Push rod               | 53.2          | 1           | Potentiometer                             |
| 21*           | 1           | Acme spindle nut       | 53.3          | 1           | Electronic position transmitter (4/20 mA) |
| 22            | 1           | Push rod head          | 66            | 1           | Roller chain sprocket                     |
| 23*           | 1           | Torsion rod guide      | 67            | 1           | Roller chain sprocket                     |
| 25            | 1           | Push rod guide         | 68*           | 1           | Roller chain                              |
| 26*           | 2           | Bushing guide          | 71*           | 1           | O-Ring yoke end                           |
| 27*           | 1           | Scraper                | 72*           | 1           | O-Ring bushing guide                      |
| 30.1          | 1           | Yoke end               | 73*           | 1           | O-Ring front flange                       |
| 30.2          | 1           | Shackle toggle joint   | 74*           | 2           | Flat grease nipple                        |
|               |             |                        | 400           | 2           | Brackets                                  |

\* = wear out parts

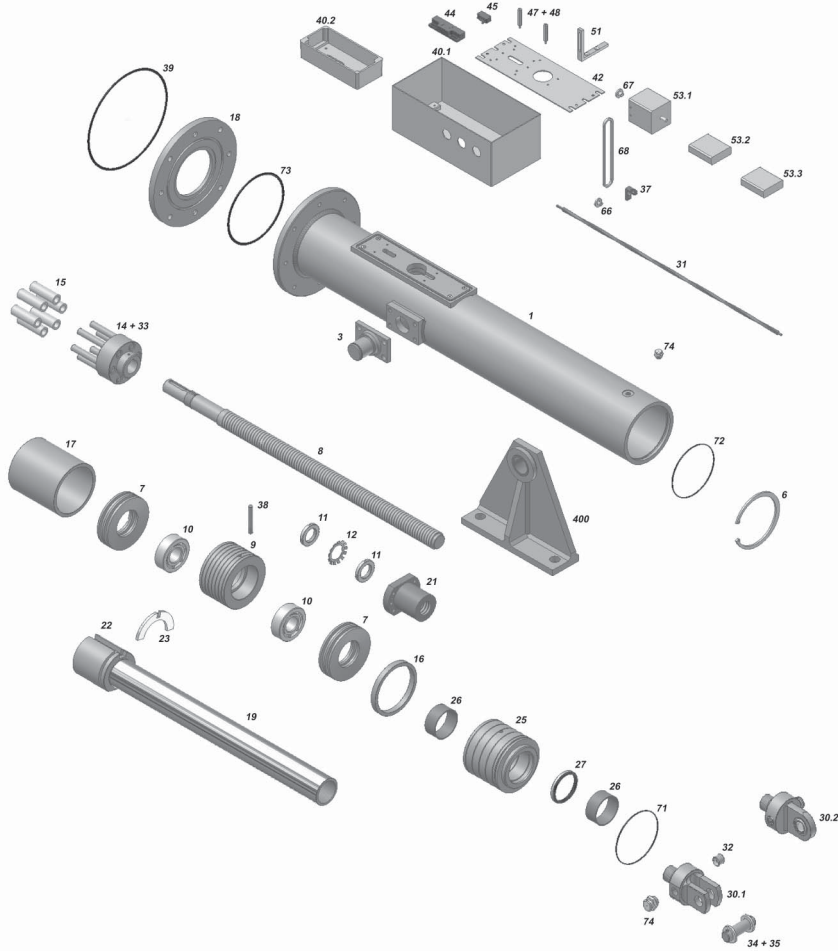
Please indicate actuator number as well as the position of the spare part list.

For online spare parts enquiries please go to [www.euba.de](http://www.euba.de)



## Spare parts drawing of EUBA-actuators

### Type C4



| <b>Object</b> | <b>Pc's</b> | <b>Description</b>     | <b>Object</b> | <b>Pc's</b> | <b>Description</b>                        |
|---------------|-------------|------------------------|---------------|-------------|---|
| 1             | 1           | Housing                | 31            | 1           | Torsion rod                               |
| 3             | 2           | Turning pin            | 32            | 1           | Pressure safety                           |
| 6             | 1           | Lock ring              | 34 + 35       | 1           | Yoke end bolt + washer                    |
| 7             | Set         | Cup spring             | 37            | 1           | Angle for torsion rod                     |
| 8             | 1           | Acme thread spindle    | 38            | 1           | Switching piece                           |
| 9             | 1           | Bearing housing        | 39*           | 1           | O-Ring rear flange                        |
| 10*           | 2           | Tapered roller bearing | 40.1          | 1           | WS-Switch box complete                    |
| 11*           | 2           | Shaft nut              | 40.2          | 1           | Overload switch box complete (-DE-)       |
| 12*           | 1           | Safety sheet           | 42            | 1           | Mounting board                            |
| 14 + 33       | 2           | Coupling               | 44            | 2           | Micro end switch board                    |
| 15            | Set         | Coupling buffer        | 45*           | Set         | Micro end switches                        |
| 16            | 2           | Thrust ring            | 47+ 48        | 2           | Distance bolt + rail                      |
| 17            | 1           | Spacer sleeve          | 51            | 1           | Angle for way limit switch                |
| 18            | 1           | Flange                 | 53.1          | 1           | Way limit switch                          |
| 19            | 1           | Push rod               | 53.2          | 1           | Potentiometer                             |
| 21*           | 1           | Acme spindle nut       | 53.3          | 1           | Electronic position transmitter (4/20 mA) |
| 22            | 1           | Push rod head          | 66            | 1           | Roller chain sprocket                     |
| 23*           | 1           | Torsion rod guide      | 67            | 1           | Roller chain sprocket                     |
| 25            | 1           | Push rod guide         | 68*           | 1           | Roller chain                              |
| 26*           | 2           | Bushing guide          | 71*           | 1           | O-Ring joke end                           |
| 27*           | 1           | Scraper                | 72*           | 1           | O-Ring bushing guide                      |
| 30.1          | 1           | Yoke end               | 73*           | 1           | O-Ring front flange                       |
| 30.2          | 1           | Shackle toggle joint   | 74*           | 2           | Flat grease nipple                        |
|               |             |                        | 400           | 2           | Brackets                                  |

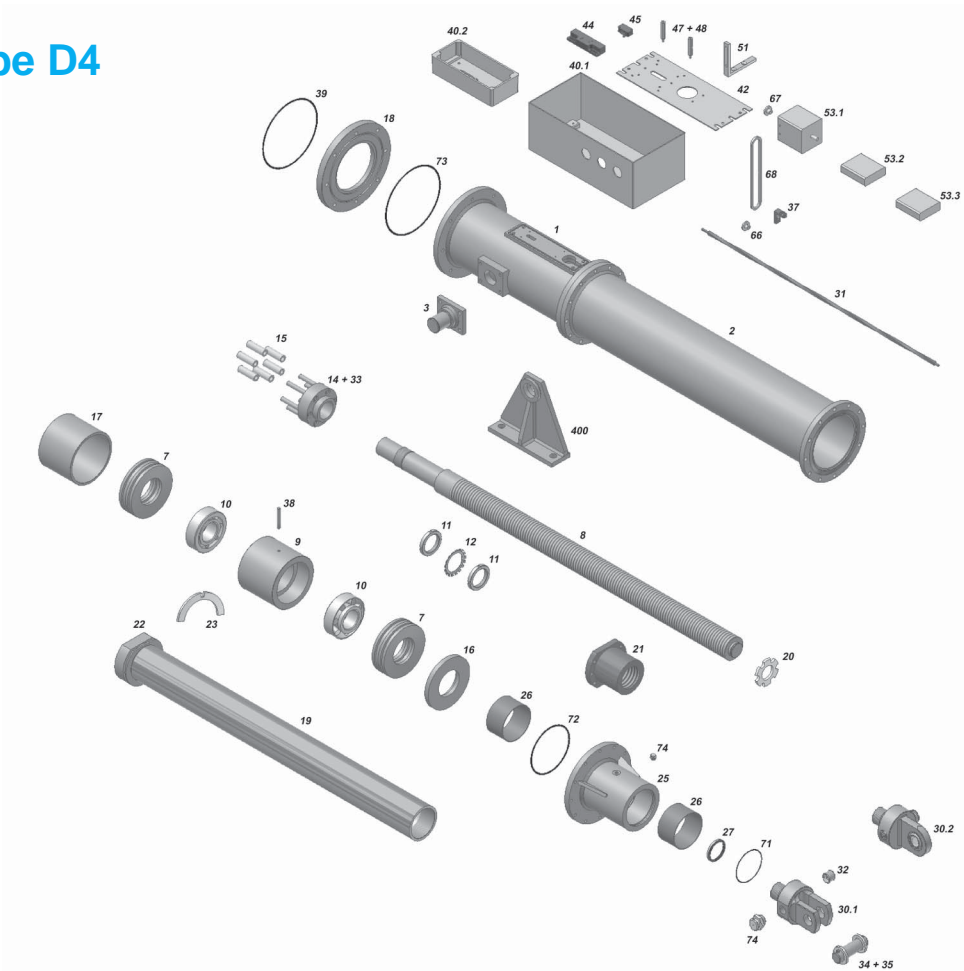
\* = wear out parts

Please indicate actuator number as well as the position of the spare part list.

For online spare parts enquiries please go to [www.euba.de](http://www.euba.de)

## Spare parts drawing of EUBA-actuators

### Type D4



| <b>Object</b> | <b>Pc's</b> | <b>Description</b>         | <b>Object</b> | <b>Pc's</b> | <b>Description</b>              |
|---------------|-------------|----------------------------|---------------|-------------|---------------------------------|
| 1             | 1           | Housing                    | 31            | 1           | Torsion rod                     |
| 3             | 2           | Turning pin                | 32            | 1           | Pressure safety                 |
| 7             | Set         | Cup spring                 | 34 + 35       | 1           | Yoke end bolt + washer          |
| 8             | 1           | Acme thread spindle        | 37            | 1           | Angle for torsion rod           |
| 9             | 1           | Bearing housing            | 38            | 1           | Switching piece                 |
| 10*           | 2           | Tapered roller bearing     | 39*           | 1           | O-Ring rear flange              |
| 11*           | 2           | Shaft nut                  | 40.1          | 1           | Switch box complete             |
| 12*           | 1           | Safety sheet               | 40.2          | 1           | Overload switch box complete    |
| 14 + 33       | 2           | Coupling                   | 42            | 1           | Mounting board                  |
| 15            | Set         | Coupling buffer            | 44            | 2           | Micro end switch board          |
| 16            | 2           | Thrust ring                | 45*           | Set         | Micro end switches              |
| 17            | 1           | Spacer sleeve              | 47+ 48        | 2           | Distance bolt + rail            |
| 18            | 1           | Flange                     | 51            | 1           | Angle for way limit switch      |
| 19            | 1           | Push rod                   | 53.1          | 1           | Way limit switch                |
| 20            | 1           | Acme thread spindle buffer | 53.2          | 1           | Potentiometer                   |
| 21*           | 1           | Acme spindle nut           | 53.3          | 1           | Electronic position transmitter |
| 22            | 1           | Push rod head              | 66            | 1           | Roller chain sprocket           |
| 23*           | 1           | Torsion rod guide          | 67            | 1           | Roller chain sprocket           |
| 25            | 1           | Push rod guide             | 68*           | 1           | Roller chain                    |
| 26*           | 2           | Bushing guide              | 71*           | 1           | O-Ring joke end                 |
| 27*           | 1           | Scraper                    | 72*           | 1           | O-Ring bushing guide            |
| 30.1          | 1           | Yoke end                   | 73*           | 1           | O-Ring front flange             |
| 30.2          | 1           | Shackle toggle joint       | 74*           | 2           | Flat grease nipple              |
|               |             |                            | 400           | 2           | Brackets                        |

\* = wear out parts

Please indicate actuator number as well as the position of the spare part list.

For online spare parts enquiries please go to [www.euba.de](http://www.euba.de)

---

## Special Actuators:

### Actuators type W:

These actuators are specially designed for hydro engineering. The prescriptions of the DIN-standards for these actuators are realized by a special assembly.

The range of application of our actuators are docks, flood gates, water works and purification plants (see page 32).

### Special designed actuators:

#### Throughlike edging guide actuators:

It is possible to adjust throughlike edging guides for all kinds with these actuators, e.g. for pig iron or slag. As a result high forces with small velocities can be fabricated also (see center page 2).

#### Ingot pusher:

Actuators of this kind can be used at industrial furnaces, foundry plants et al., where high forces, strokes and velocity are needed.

#### Road blocker:

Suitable for driveways, carparks or city entrances. The characteristic of this actuator is an automatic retraction during a power failure. Individual control panels, including key switches or remote controls for police-, fire departments and ambulances, for an automatic opening or closing for driveways can be installed (see page 31 down left).

#### Gate actuators:

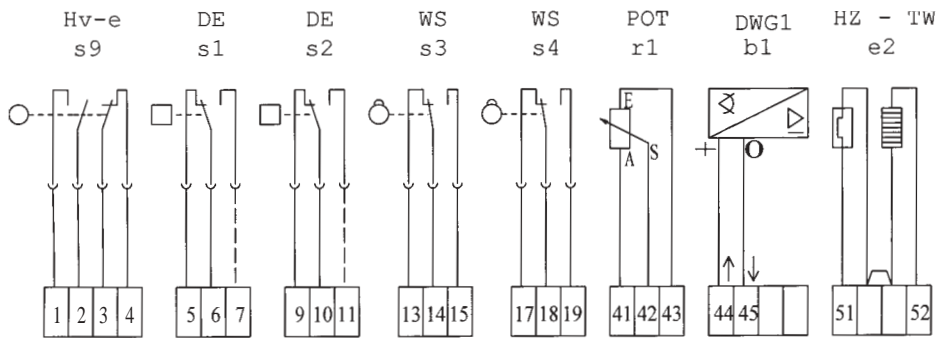
Special designed actuators for opening and closing of heavy gates with long strokes. Strokes of 7 m can be realized with only one motor and two stroke units (see center page 31).

#### Window actuators:

With only one EUBA-actuator you are able to open and close columns of windows. Greenhouses, hangars, farmhouses or buildings with glass domes can be equipped with thermal sensors for an automatical control of the inside temperature.

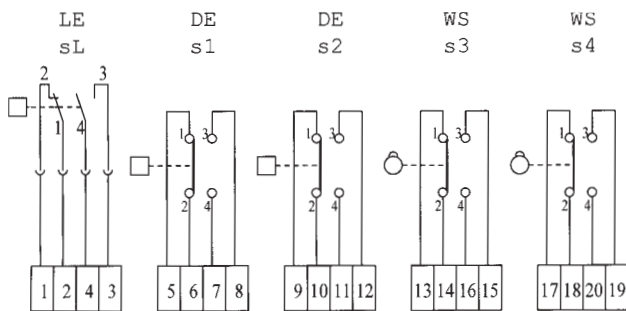
# Wiring Diagrams

## Switches 1-polar



## Switches 2-polar

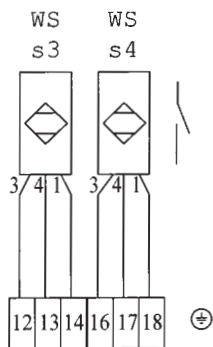
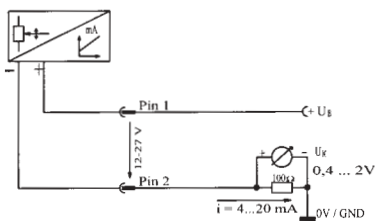
## way limit switches max. up to 6



Legend:

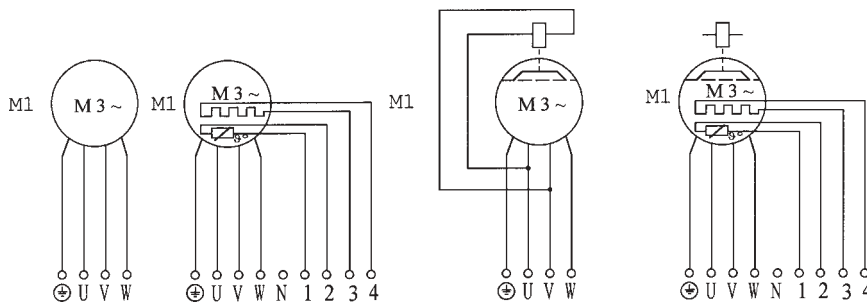
|     |  |
|-----|--|
| HVE | = Hand wheel with electrical switch off                |
| DE  | = Overload switch                                      |
| WS  | = Way limit switch                                     |
| POT | = Potentiometer  |
| DWG | = Electronical position repeater<br>0-20 mA or 4-20 mA |
| BL  | = Blinker unit   |
| HZ  | = Heater   |
| TW  | = Thermistor (PTC)                                     |
| MG  | = Transducer   |

## MG1 b1



## Special design:

- Switches gold-plated
- Initiators for shut-down
- Position repeater 4...20 mA



- standard- and breakmotors of all designs
- gearmotors also

# Electrical Supplement

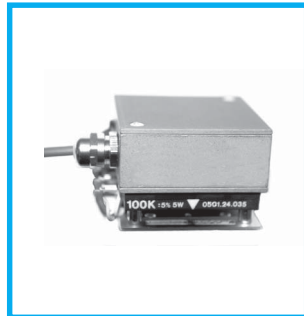
## Way limit switches

To indicate your desired position, we use a control system with two or more switches.



## Electronic position repeating devices

We use electronic position repeating devices 0/4-20 mA as commercial, continuous position indicators.



## Micro switch

Special entire moulded switches ensure an ATEX-application.



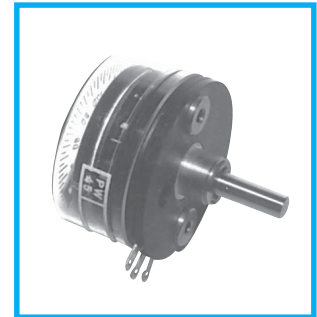
## Plug connections

For a fast assembly it is of great advantage to use plug connections of commercial manufactureres.



## Potentiometer

It is possible to attach potentiometers for easy and profitable way indication.



## Frequency transformers

Synchronization-, positioning controls and variable speed are possible by using frequency transformers.



# Fax Request

# EUBA

Antriebstechnik  
Eller GmbH  
Fax: +49 201- 8531125

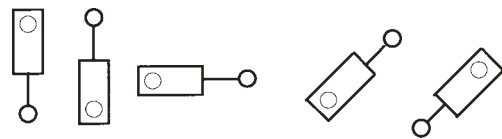
Company:  
Street:  
City:  
Country:  
Phone:  
Fax:  
Interlocutor:

## Regulating power dynamical:

Pull: .....daN  
Push: .....daN  
Static stress: .....daN

Stroke: .....mm  
Velocity: .....mm/s

## Fitting position:



Operating frequency: .....s/h  
Cyclic duration factor: .....% ED

## Type of mounting:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> bracket                 | <input type="checkbox"/> pivot                       | <input type="checkbox"/> clevis and bold              |
| <input type="checkbox"/> cardan joint            | <input type="checkbox"/> flange                      | <input type="checkbox"/> shackle toggle joint+bearing |
| <input type="checkbox"/> angle ball+socket joint | <input type="checkbox"/> special fixing (on request) |   |

## Conditions of surroundings:

- dusty
- humid
- tropic
- sea surrounding

## Installation:

- outdoors
- rooved over
- closed room
- ..... meter above sea level

## Specification:

- high rust protection
- special coating
- bellow

Connection voltage: 1AC .....V .....Hz DC .....V  
3AC ...../.....V .....Hz

Type of protection: IP-..... Ambient temperature: .....°C to .....°C  
Insulation class: .....

## Way limit switch:

- 2  4  6 adjustable limit switches
- potentiometer .....Ω  precision potentiometer .....Ω
- electronic position 0/4 - 20 mA transmitter  special design (on request)

## Special design:

- PTC thermistor sensor  brake motor  anti-condensation heater
- switch box heater  plug connection



---

## Special features

### Special actuators

EUBA-elektro-actuators of series E4 and F4 are designed for forces up to 2.000.000 N.

Predominantly these actuators are produced for water engineering, iron and steel work et al.

### Explosion protection

Our whole series of actuators can be produced for an operation in explosion-proof constructions zone 22, device category III.

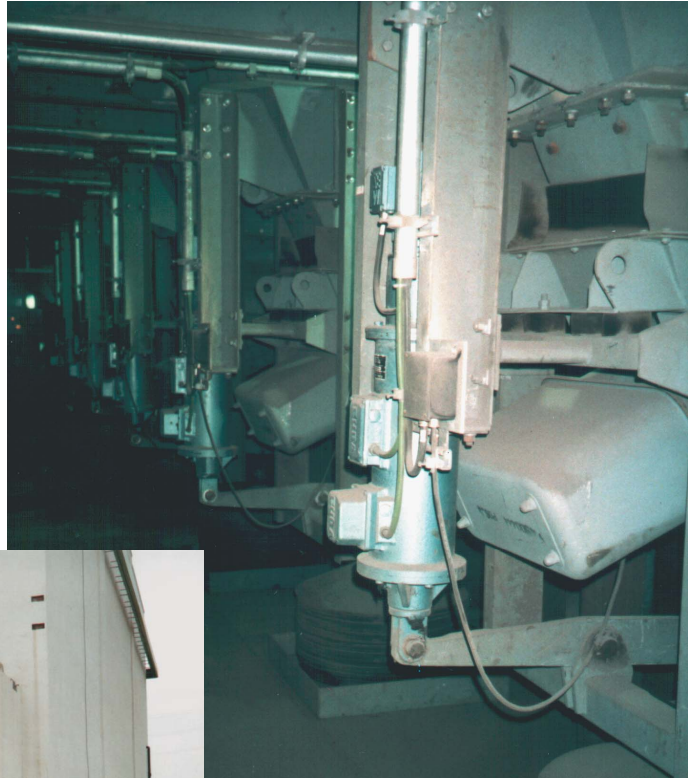
For this we will need detailed information about the job site.

### Synchronous working

By controlling frequency inverters with the help of incremental-/absolute encoders a synchronous working of two or more actuators is ensured.



Accessory drive  
smallest size



Test weight control for  
steel plant



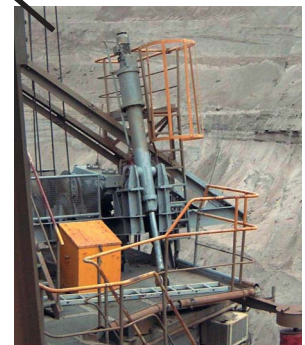
Gate actuator  
Force: 10 t, Stroke: 7000 mm



Road blocker



Cab level regulation  
open-pit lignite mine



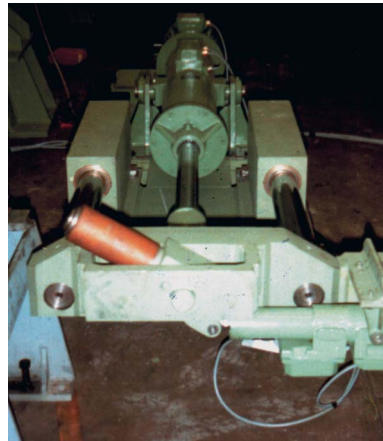


Flood gate regulation



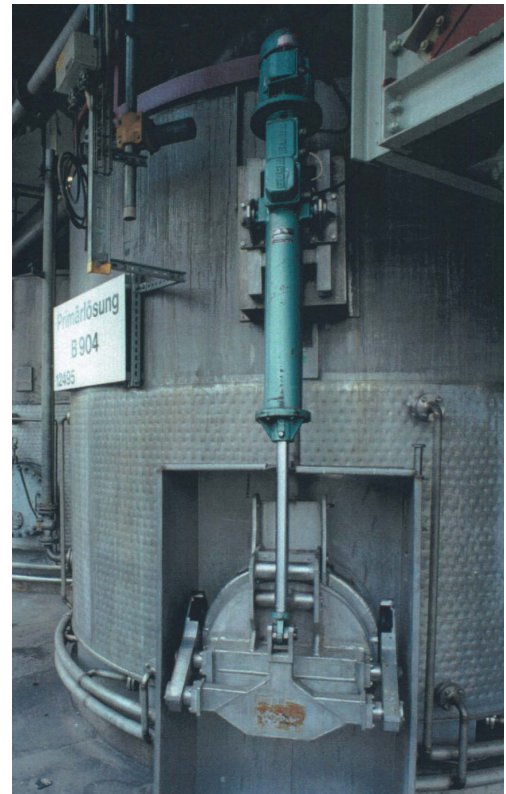
Silo feeding installation for belt conveyor system

Flood gate actuator



Transfer mechanism steel-plant Krivoy-Rok

Damper adjustment



Flood gate actuator





**EUBA -  
Over 40 years  
of Know-How in research  
and sale of electric  
actuators.**

A custom-made solution is our strength. We are offering actuators from minimum-, up to mega actuators with forces from 50 daN up to 200000 daN. A qualified team of engineers advises you for the case of actuating problems in situ. This guarantees quality from the beginning.

Innovative research and permanent quality control during the manufacturing establishes standards. For your safety naturally no actuators leaves the factory until extensive examination.

Profit by our Know-How - worldwide.

**EUBA**

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Germany

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Tel.: 0027 / 11 918 3200  
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