



*your reliable partner*

# **ROBA®-duplostop®**

# **ROBA®-twinstop®**

# the perfect elevator brakes for compact drives



P.Q8012.V00.EN

[www.mayr<sup>®</sup>.com](http://www.mayr.com)



## Expert know-how in development and design

As the technological leader, *mayr®* power transmission focuses on continuous further development. Today, highly qualified engineers and technicians work on tomorrow's innovations using the most up-to-date tools. The many years of experience and countless trials carried out by the Research and Development department at the headquarters in Mauerstetten form the basis for a conscientiously-planned service lifetime, taking into account realistic and verified braking torque tolerances.

The values upheld by our traditional, family-run company also include long-term stability, independence as well as a good reputation and satisfied customers.

Therefore, we place emphasis on:

- Tested product quality
- Optimum customer service
- Comprehensive know-how
- Global presence
- Successful innovations
- Effective cost management

## Tested quality and reliability

*mayr®* brakes are subject to meticulous quality inspections. These include quality assurance measures during the construction process as well as a comprehensive final inspection. Only the best, tested quality leaves our factory. All products are rigorously tested on calibrated test stands, and adjusted precisely to the requested values. An electronic database in which the measurement values are archived together with the associated serial numbers guarantees 100 % traceability. On request, we confirm the product characteristics with a test protocol.

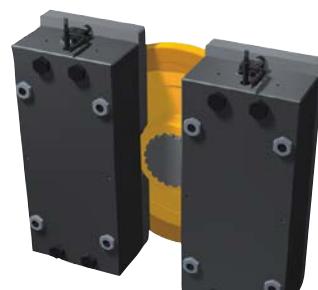
The certification of our quality management according to DIN EN ISO 9001:2000 confirms the quality-consciousness of our colleagues at every level of the company.

## ROBA®-duplostop®, ROBA®-twinstop®

### The doubled safety brakes for elevator drives

#### Performance Characteristics

- Highest safety system of two independent brake circuits according to EN 81-20
- Also licensed as protection against excessive upward speeds when fitted with release monitoring (type examination tested)
- Exceptionally short construction
- Cost-effective redundant elevator brake
- Brake circuits can be individually electrically switched and inspected
- Easy installation
- No air gap adjustment necessary
- Virtually silent due to patented mayr® noise damping
- Optional rotating hand release for manual release of the brake



ROBA®-duplostop®



ROBA®-twinstop®

#### Function

Both brake circuits brakes when the springs are applied, i.e. in energised operating condition, the electromagnetic brake is open. After the power is switched off or after unforeseeable power failures, both brake circuits automatically close, actuated through spring force, and thus reliably ensure static holding or dynamic deceleration of the moving elevator cabin in any operating situation.

#### Easy installation

The compact brake design, which is easy to assemble, permits short brake assembly times. After the brakes have been mounted, no further adjustment work is required, as the working air gap and release monitoring have already been adjusted for reliable function at the factory. In this way, possible malfunctions due to mounting or adjustment errors are excluded through the design.

#### Maintenance-free

The safety brake is mainly maintenance-free. The maintenance work is limited to an inspection of the brake linings. These friction linings, however, are extremely wear-resistant, and have a very long lifetime.

#### Virtually silent

The brakes operate extremely quietly due to the patented mayr® noise damping system.

#### TÜV (German Technical Inspectorate) Certificate (EN 81-20 / EN 81-50)

Type examination tested: Braking element acting on the traction sheave, as a part of the protection device against overspeed for the car moving in upwards direction, as well as against unintended car movement.

#### Design

These compact, rectangular elevator brakes are redundant safety brakes with two brake circuits next to one another. This permits an extremely short construction length depending on the construction type. On most designs, the additional attachment of an encoder is also possible without changing the total construction length. All these noise-damped safety brakes are designed for a duty cycle of 60 % with operating mode S3 in the standard version. Special designs for higher duty cycle are available on request.

#### Order Number

|                              |  |             |  |
|------------------------------|--|-------------|--|
|                              | Basic Type   | 0           | 0 Basic Type   |
|                              | Manually actuated using rotating hand release  | 1           | 1 With release monitoring <sup>3)</sup>  |
|                              | With rotating hand release for Bowden cable  | 2           | 2 With wear monitoring   |
| ROBA®-duplostop®             | 0  |             | 3 With release <sup>3)</sup> and wear monitoring   |
| ROBA®-twinstop®              | 2  |             |  |
|                              |  | ▼           | ▼  |
|                              | — / 8 0 1 — . — — — — 3 / — / —  |             |  |
| ▲                            |  | ▲           | ▲  |
| Size<br>125<br>up to<br>1500 | Nominal braking torque 100 %<br>Braking torque increased <sup>1)</sup><br>Braking torque reduced | 0<br>1<br>2 | 0 without hub / elastomer damping<br>1 <sup>4)</sup> with hub / elastomer damping<br>2 without hub / cup spring damping<br>3 <sup>4)</sup> with hub / cup spring damping |
|                              |  |             | Braking torque<br>(see Technical<br>Data)  |
|                              |  |             | Coil voltage <sup>2)</sup><br>24, 104, 180, 207<br>[VDC]   |

Example: 200 / 8010.20233 / 2 x 150 Nm / 207 VDC

1) Operation with overexcitation (1.4 to 2 x the nominal voltage) necessary (only on Type 8010).

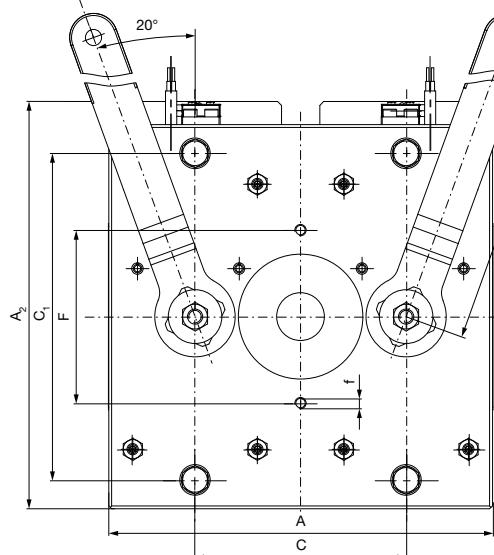
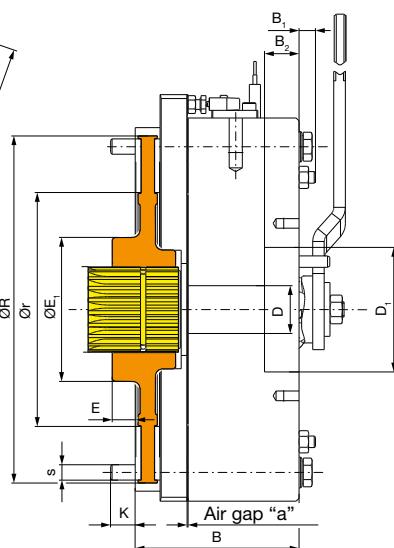
2) We recommend connection via smoothed DC voltage or the application of a mayr®-DC voltage module.

3) Release monitoring through mechanically-actuated microswitches or through optional contactless proximity switches (see page 11).

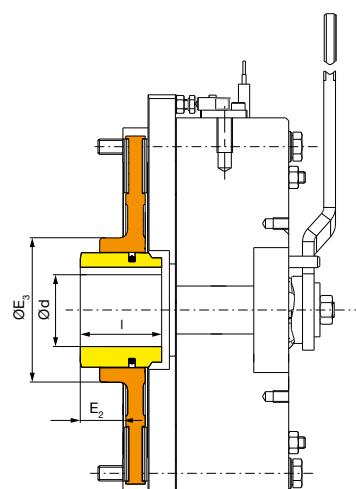
4) Design with hub on Type 8010 available on request

**ROBA®-twinstop® Type 8012...**

3

**Compact Design, Sizes 125 up to 225**

 Design with rotating hand release  
manually actuated


Design for splined motor shaft

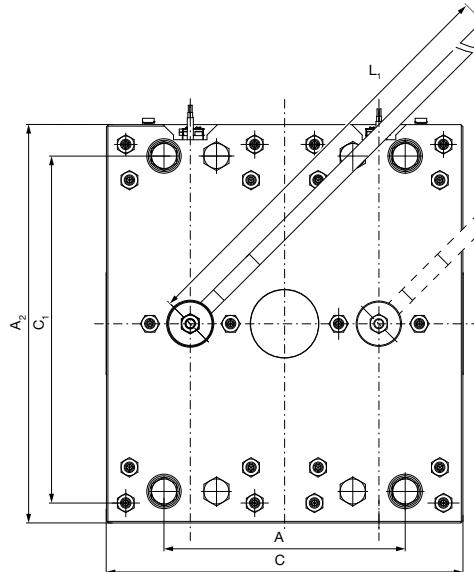
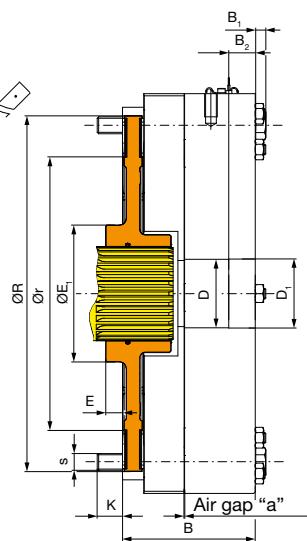
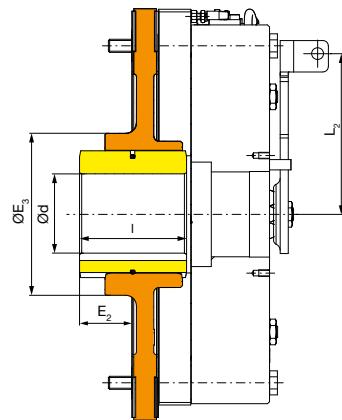


Hub design

| Dimensions                     |                                      | Size            |                 |                 |                 |
|--------------------------------|--------------------------------------|-----------------|-----------------|-----------------|-----------------|
|                                |                                      | 125             | 180             | 225             |                 |
| Design                         | splined motor shaft <sup>1) 2)</sup> | 45 x 2 x 21     | 50 x 2 x 24     | 55 x 2 x 26     | 55 x 2 x 26     |
|                                |                                      | 60 x 2.5 x 22   | 72 x 3 x 22     | 82 x 3 x 26     | 82 x 3 x 26     |
| Hub                            | $d_{min}$                            | 32              | 42              | 45              | 45              |
|                                | $d_{max}$                            | 37              | 45              | 53              | 52              |
| A <sup>+4</sup>                |                                      | 200             | 200             | 200             | 200             |
| A <sub>2</sub> <sup>+2</sup>   |                                      | 212             | 237             | 267             | 267             |
| B                              |                                      | 85.6            | 92.6            | 97.6            | 97.6            |
| B <sub>1</sub>                 |                                      | 10              | 11              | 10              | 10              |
| B <sub>2</sub>                 |                                      | 18              | 15.5            | 20              | 20              |
| C                              |                                      | 110             | 110             | 110             | 110             |
| C <sub>1</sub>                 |                                      | 170             | 195             | 225             | 225             |
| D                              |                                      | 25              | 25              | 25              | 25              |
| D <sub>1</sub> <sup>+0,1</sup> |                                      | 65              | 65              | 65              | 65              |
| E                              |                                      | 12              | 13.5            | 10.5            | 14.5            |
| E <sub>1</sub>                 |                                      | 75              | 92              | 92              | 110             |
| E <sub>2</sub>                 |                                      | 22              | 22              | 20              | 20              |
| E <sub>3</sub>                 |                                      | 75              | 92              | 92              | 110             |
| F                              |                                      | 90              | 90              | 90              | 90              |
| L <sub>1</sub>                 |                                      | 233             | 233             | 273             | 273             |
| f                              |                                      | 2 x M6 (8 deep) |
| K                              |                                      | 13              | 16              | 15.5            | 15.5            |
| I                              |                                      | 42              | 46              | 50              | 50              |
| r                              |                                      | 122             | 145             | 145             | 180             |
| R                              |                                      | 181             | 196             | 196             | 222.5           |
| s                              |                                      | 4 x M8          | 4 x M8          | 4 x M10         | 4 x M10         |

- 1) DIN 5480 ( $\varnothing d_b \times m \times z$ )  
Directly splined motor shaft  
other splines on request
- 2) Spline length on request

| Technical Data                                  | Size            |                  |       |         |
|---|-----------------|------------------|-------|---------|
|   | 125             | 180              | 225   |         |
| Nominal braking torque                          | Type 8012.0_ _3 | M <sub>nom</sub> | [Nm]  | 2 x 125 |
| reduced braking torques up to:                  | Type 8012.2_ _3 | M                | [Nm]  | 2 x 90  |
| Electrical nominal power                        | Type 8012.0_ _3 | P <sub>20</sub>  | [W]   | 2 x 64  |
| Weight (without hub)                            |                 |                  | [kg]  | 21.6    |
| Maximum speed in the application range elevator |                 | n <sub>max</sub> | [rpm] | 800     |
| Nominal air gap (Tolerance + 0,15/-0,05)        |                 | a                | [mm]  | 0.45    |

**ROBA®-twinstop® Type 8012...3**
**Compact Design, Sizes 600 up to 1000**

 Design with rotating hand release  
 manually actuated (insertable) Sizes 800/1000

 Design for splined motor shaft  
 Sizes 800/1000

 Design with hub and rotating hand release  
 for bowden cable Size 600

| Design                       | Dimensions                | Size        |             |             |
|------------------------------|---------------------------|-------------|-------------|-------------|
|                              |                           | 600         | 800         | 1000        |
|                              | splined motor shaft 1) 2) | 72 x 3 x 22 | 80 x 3 x 25 | 90 x 3 x 28 |
|                              |                           | 90 x 3 x 48 | -           | -           |
| Hub                          | $d_{min}$                 | 32          | 42          | 45          |
|                              | $d_{max}$                 | 55          | 45          | 53          |
| A <sup>+4</sup>              |                           | 237         | 240         | 220         |
| A <sub>2</sub> <sup>+2</sup> |                           | 303         | 340         | 395         |
| B                            |                           | 102.6       | 112         | 126         |
| B <sub>1</sub>               |                           | 8.4         | 10          | 13          |
| B <sub>2</sub>               |                           | 15          | 25          | 25          |
| C <sup>+3</sup>              |                           | 315         | 340         | 340         |
| C <sub>1</sub>               |                           | 258         | 300         | 342         |
| D <sup>+0,1</sup>            |                           | 65          | 65          | 65          |
| D <sub>1</sub>               |                           | 65.5        | 65.5        | 65.5        |
| E                            |                           | 20          | 15          | 16          |
| E <sub>1</sub>               |                           | 124         | 124         | 130         |
| E <sub>2</sub>               |                           | 25          | -           | -           |
| E <sub>3</sub>               |                           | 124         | 124         | 130         |
| L <sub>1</sub>               |                           | 406         | 606         | 606         |
| L <sub>2</sub>               |                           | 123         | 171         | 171         |
| K                            |                           | 16          | 26          | 24          |
| I                            |                           | 70          | -           | -           |
| r                            |                           | 250         | 250/280     | 260         |
| R                            |                           | 315         | 315/348     | 338         |
| s                            |                           | 4 x M8      | 4 x M12     | 4 x M16     |

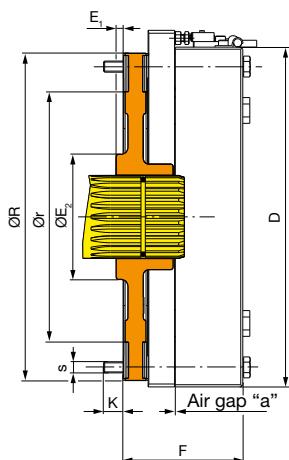
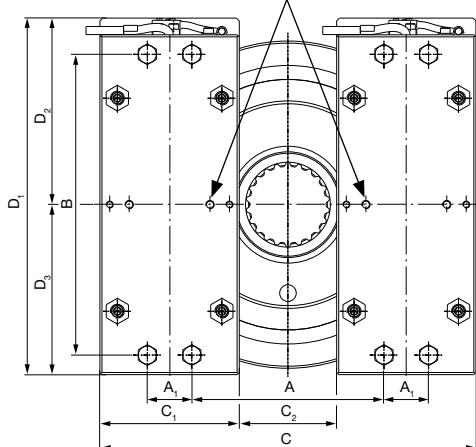
- 1) DIN 5480 ( $\varnothing d_e \times m \times z$ )  
 Directly splined motor shaft  
 other splines on request
- 2) Spline length on request

| Technical Data                                  | Size            |                       |  |
|---|-----------------|-----------------------|--|
|   | 600             | 800                   | 1000                                       |
| Nominal braking torque                          | Type 8012.0...3 | M <sub>nom</sub> [Nm] | 2 x 600                                    |
| reduced braking torques up to:                  | Type 8012.2...3 | M [Nm]                | 2 x 800/900                                |
| Electrical nominal power                        | Type 8012.0...3 | P <sub>20</sub> [W]   | 2 x 1200                                   |
| Weight (without hub)                            |                 | [kg]                  | Please contact<br>mayr® power transmission |
| Maximum speed in the application range elevator |                 | [rpm]                 | 2 x 92                                     |
| Nominal air gap (Tolerance + 0,15/-0,05)        |                 | [mm]                  | 2 x 118                                    |
|   |                 |                       | 2 x 155                                    |
|   |                 |                       | 54   |
|   |                 |                       | 73   |
|   |                 |                       | 97   |
|   |                 |                       | 800  |
|   |                 |                       | 600  |
|   |                 |                       | 460  |
|   |                 |                       | 0.45                                       |

We reserve the right to make dimensional and constructional alterations.

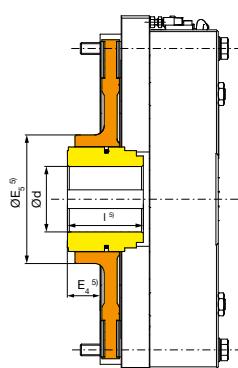
## ROBA®-duplostop® Type 8010\_3

Drilling pattern for encoder available on request



Design for splined motor shaft

## Sizes 200 up to 600



Hub design

| Dimensions                                 | Size          |             |             |             |
|--|---------------|-------------|-------------|-------------|
|  | 200           | short       | 400 long    | 600         |
| Design splined motor shaft <sup>1)2)</sup> | 60 x 2.5 x 22 | 65 x 3 x 20 | 72 x 3 x 22 | 72 x 3 x 22 |
| Hub <sup>3)</sup> d <sup>4)</sup>          | 45/56         | 56          | 56          | 56/62       |
| A variable on request                      | 138           | 153         | 128         | 165         |
| A <sub>1</sub>                             | 32            | 42          | 42          | 50          |
| B  | 216           | 238         | 258         | 264         |
| C variable on request                      | 270           | 315         | 290/335     | 355         |
| C <sub>1</sub>                             | 100           | 120         | 120         | 140         |
| C <sub>2</sub> variable on request         | 70            | 75          | 50/95       | 75          |
| D  | 244           | 268         | 290         | 298         |
| D <sub>1</sub>                             | 256           | 280         | 303         | 311         |
| D <sub>2</sub>                             | 134           | 146         | 157         | 162         |
| D <sub>3</sub>                             | 122           | 134         | 146         | 149         |
| E <sub>1</sub> Type 8010.0_0_3             | 5             | 17          | 17          | 25          |
| Type 8010.2_0_3                            |               |             |             |             |
| Type 8010.1_3                              | 5             | 17          | 21          | 25          |
| E <sub>2</sub>                             | 90            | 90          | 90          | 110         |
| F Type 8010.0_0_3                          | 86.1          | 96.1        | 101.1       | 101.1       |
| Type 8010.2_0_3                            |               |             |             |             |
| Type 8010.1_3                              | 91.1          | 96.1        | 101.1       | 101.1       |
| K Type 8010.0_0_3                          | 14            | 14          | 19          | 19          |
| Type 8010.2_0_3                            |               |             |             |             |
| Type 8010.1_0_3                            | 19            | 14          | 19          | 19          |
| r  | 180           | 200         | 200/212     | 220/210     |
| R  | 235           | 253         | 253/281     | 281         |
| s  | 8 x M8        | 8 x M10     | 8 x M10     | 8 x M12     |



Rotating hand release  
Type 8010.\_2\_3

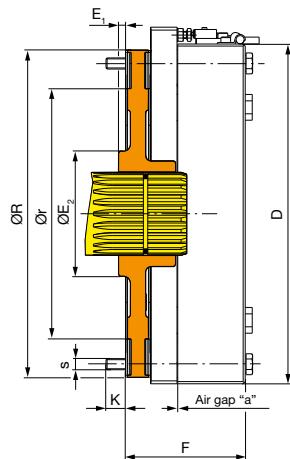
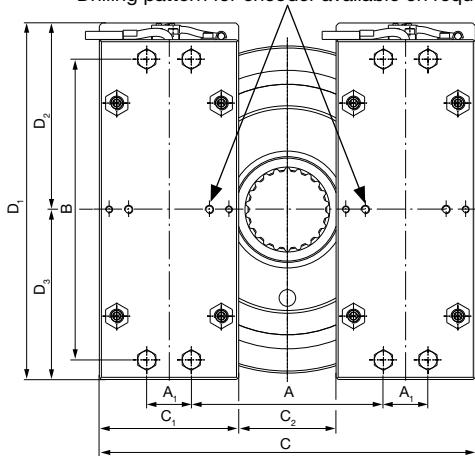
| Technical Data                          | Size   |                        |         |             |
|---|--|------------------------|---------|-------------|
|   | 200  | short                  | 400     | 600         |
| Nominal braking torque                  | Type 8010.0_3  | M <sub>nom</sub> [Nm]  | 2 x 200 | 2 x 410     |
| Higher braking torque                   | Type 8010.1_3  | M [Nm]                 | 2 x 220 | -           |
|   |  |                        | 2 x 240 | 2 x 490/540 |
| Reduced braking torques up to:          | Type 8010.2_3  | M [Nm]                 | 2 x 150 | 2 x 210/280 |
| Electrical nominal power                | Type 8010.0_3  | P <sub>20</sub> [W]    | 2 x 74  | 2 x 93      |
| Weight                                  |  | [kg]                   | 27      | 36.6        |
| Speed                                   | inspected max. speed in the elevator area as a type-examination tested brake | n <sub>max</sub> [rpm] | 1200    | 1000        |
| Nominal air gap (tolerance +0,15/-0,05) | a [mm]   |                        | 0.45    |             |

- 1) DIN 5480 ( $\varnothing d_B \times m \times z$ )
- 2) Directly splined motor shaft other splines on request
- 3) Spline length on request
- 4) Recommended tolerance hub-shaft H7/k6
- 5) Dimensions on request

We reserve the right to make dimensional and constructional alterations.

## ROBA®-duplostop® Type 8010.\_ \_ \_ 3

Drilling pattern for encoder available on request

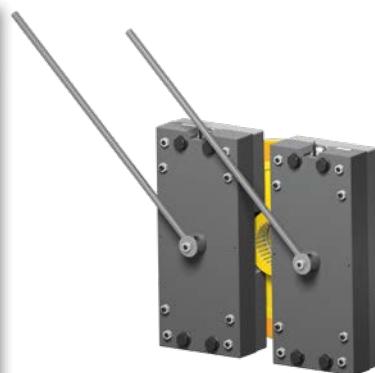


Design for splined motor shaft

## Sizes 800 up to 1500



Rotating hand release  
manually actuated  
Type 8010.\_ \_ \_ 3



Rotating hand release  
manually actuated (insertable)  
Type 8010.\_ \_ \_ 1\_3  
Size 1500

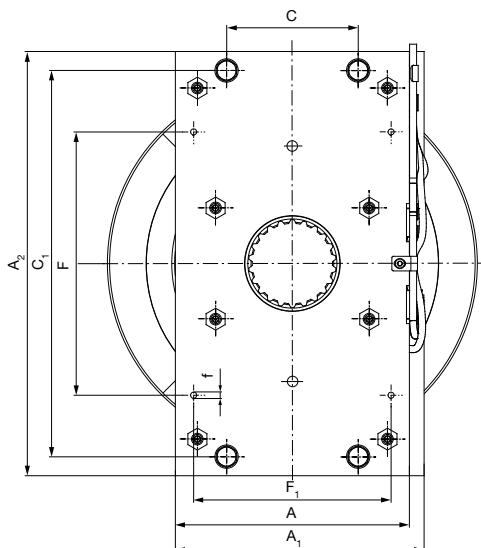
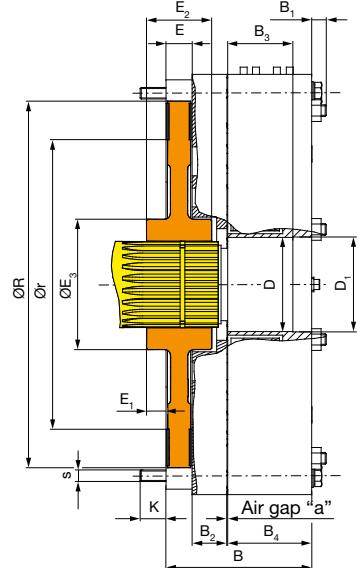
| Dimensions                                |   | Size                                      |                            |                            |
|---|---|---|----------------------------|----------------------------|
|   |   | 800                                       | 1000                       | 1500                       |
| splined shaft <sup>1)2)</sup><br>DIN 5480 | Type 8010.0 _ _ _ 3<br>2  | 82 x 3 x 26<br>90 x 3 x 28<br>98 x 4 x 23 | 90 x 3 x 28<br>98 x 4 x 23 | 95 x 3 x 30<br>98 x 4 x 23 |
| Ø d_B x m x z                             | Type 8010.1 _ _ _ 3   | 98 x 4 x 23                               | -                          | -                          |
| A   | variable on request   | 169                                       | 175                        | 210                        |
| A <sub>1</sub>                            |   | 56  | 60                         | 70                         |
| B   |   | 300                                       | 342                        | 410                        |
| C   | variable on request   | 375                                       | 395                        | 480                        |
| C <sub>1</sub>                            |   | 150                                       | 160                        | 200                        |
| C <sub>2</sub>                            | variable on request   | 75  | 75                         | 80                         |
| D   |   | 336                                       | 380                        | 458                        |
| D <sub>1</sub>                            |   | 349                                       | 393                        | 458                        |
| D <sub>2</sub>                            |   | 181                                       | 203                        |                            |
| D <sub>3</sub>                            |   | 168                                       | 190                        |                            |
| E <sub>1</sub>                            | Type 8010.0 _ 0 _ 3<br>Type 8010.2 _ 0 _ 3<br>Type 8010.1 _ _ _ 3 | 20  | 22.5                       | 44                         |
| E <sub>2</sub>                            |   | 20  | 22.5                       |                            |
| F   | Type 8010.0 _ 0 _ 3<br>Type 8010.2 _ 0 _ 3<br>Type 8010.1 _ _ _ 3 | 108.1                                     | 108.1                      | 116                        |
| K   | Type 8010.0 _ 0 _ 3<br>Type 8010.2 _ 0 _ 3<br>Type 8010.1 _ 0 _ 3 | 22  | 22                         | 21                         |
| r   |   | 250                                       | 280                        | 336                        |
| R   |   | 315                                       | 348                        | 418                        |
| s   |   | 8 x M12                                   | 8 x M16                    | 8 x M16                    |

1) Design with hub available on request  
(recommended tolerance hub-shaft H7/k6)  
2) Spline length on request

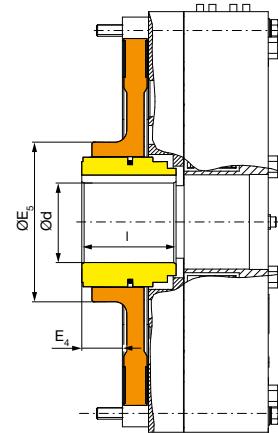
| Technical Data                          |  | Size                   |         |          |
|---|--|------------------------|---------|----------|
|   |  | 800                    | 1000    | 1500     |
| Nominal braking torque                  | Type 8010.0 _ _ _ 3  | M <sub>nom</sub> [Nm]  | 2 x 830 | 2 x 1015 |
| Higher braking torque                   | Type 8010.1 _ _ _ 3  | M [Nm]                 | 2 x 930 | 2 x 1200 |
| Reduced braking torques up to:          | Type 8010.2 _ _ _ 3  | M [Nm]                 | 2 x 650 | 2 x 920  |
| Electrical nominal power                | Type 8010.0 _ _ _ 3  | P <sub>20</sub> [W]    | 2 x 118 | 2 x 121  |
| Weight                                  |  | [kg]                   | 66.5    | 83       |
| Speed                                   | inspected max. speed in the elevator area as a type-examination tested brake | n <sub>max</sub> [rpm] | 600     | 500      |
| Nominal air gap (tolerance +0,15/-0,05) |  | n [rpm]                | 400     | 400      |
|   |  | a [mm]                 | 0.45    |          |

Braking torque tolerance 0 % / +60 %.

We reserve the right to make dimensional and constructional

**ROBA®-twinstop® Type 8012\_ \_ \_ \_ 3**

**Rectangular Design, Sizes 200 up to 350**


Design for splined motor shaft



Hub design

| Dimensions          | Size                    |                 |                 |
|---------------------|-------------------------|-----------------|-----------------|
|                     | 200                     | 250             | 350             |
| splined motor shaft | 60 x 2.5 x 22           | 65 x 3 x 20     | 65 x 3 x 20     |
| Hub                 | $d^4)$                  | 56              | 56              |
|                     | $d_{max}$               | 60              | 60              |
| A                   | 160                     | 160             | 200             |
| A <sub>1</sub>      | 170                     | 170             | 210             |
| A <sub>2</sub>      | 290                     | 290             | 300             |
| B                   | 90.6                    | 100.6           | 100.6           |
| B <sub>1</sub>      | 12                      | 12              | 12              |
| B <sub>2</sub>      | 24.1                    | 24.1            | 24.1            |
| B <sub>3</sub>      | 35                      | 45              | 45              |
| B <sub>4</sub>      | 48                      | 58              | 58              |
| C                   | 90                      | 90              | 120             |
| C <sub>1</sub>      | 264                     | 264             | 272             |
| D                   | 65                      | 65              | 65              |
| D <sub>1</sub>      | 65.5                    | 65.5            | 65.5            |
| E                   | 18                      | 18              | 18              |
| E <sub>1</sub>      | 5                       | 13.5            | 17              |
| E <sub>2</sub>      | 41                      | 45              | 52              |
| E <sub>3</sub>      | 90                      | 110             | 110             |
| E <sub>4</sub>      | 28                      | 28              | 28              |
| E <sub>5</sub>      | 110                     | 110             | 110             |
| F                   | 180                     | 180             | 200             |
| F <sub>1</sub>      | 135                     | 135             | 185             |
| f                   | 4 x M5 (8 deep)         | 4 x M5 (8 deep) | 4 x M5 (8 deep) |
| K                   | 18                      | 18              | 17              |
| I                   | 65                      | 65              | 65              |
| r                   | 180 / 200 <sup>2)</sup> | 200             | 208             |
| R                   | 235 / 253 <sup>2)</sup> | 253             | 273             |
| s                   | 4 x M8                  | 4 x M8          | 4 x M10         |

- 1) DIN 5480 ( $\varnothing d_B \times m \times z$ )  
Directly splined motor shaft  
other splines on request
- 2) For version with hub
- 3) Possible without overexcitation < 65 dB (A)
- 4) Preferred bore

Release version by hand on request



Rotating hand release for  
bowden cable  
Type 8012\_ \_ 2\_ 3

**Technical Data**

|   | Type 8012.0_ _ _ 3 | $M_{nom}$ | [Nm]  | Size    |         |         |
|---|--------------------|-----------|-------|---------|---------|---------|
|   |                    |           |       | 200     | 250     | 350     |
| Nominal braking torque <sup>3)</sup>            | Type 8012.0_ _ _ 3 | $M$       | [Nm]  | 2 x 200 | 2 x 250 | 2 x 350 |
| Increased braking torque without overexcitation | Type 8012.1_ _ _ 3 | $M$       | [Nm]  | -       | 2 x 280 | 2 x 410 |
| reduced<br>braking torque                       | Type 8012.2_ _ _ 3 | $M$       | [Nm]  | 2 x 160 | 2 x 230 | 2 x 300 |
| Electrical nominal power                        | Type 8012.0_ _ _ 3 | $P_{20}$  | [W]   | 2 x 63  | 2 x 79  | 2 x 82  |
| Weight (without hub)                            |                    |           | [kg]  | 23.7    | 26.8    | 34.6    |
| Maximum speed                                   |                    | $n_{max}$ | [rpm] | 1000    | 1000    | 1000    |
| Nominal air gap (Tolerance +0,2/-0,05)          |                    | a         | [mm]  | 0.45    |         |         |

We reserve the right to make dimensional and constructional alterations.

## Spark Quenching Unit Type 070.000.6

### Application

Reduces spark production on the switching contacts occurring during DC-side switch-off of inductive loads.

- Voltage limitation according to VDE 0580 2000-07, Item 4.6.
- Reduction of EMC-disturbance by voltage rise limitation, suppression of switching sparks.
- Reduction of brake engagement times by a factor of 2 – 4 compared to freewheeling diodes.



### Function

The spark quenching unit will absorb voltage peaks resulting from inductive load switching, which can cause damage to insulation and contacts. It limits these to 70 V and reduces the contact load. Switching products with a contact opening distance of > 3 mm are suitable for this purpose.

## ROBA®-switch Type 017.\_00.2

### Application

ROBA®-switch fast acting rectifiers are used to connect DC consumers to alternating voltage supplies, for example electromagnetic brakes and clutches (ROBA-stop®, ROBA®-quick, ROBATIC®) as well as electromagnets, electrovalves, etc.

#### Fast acting rectifier ROBA®-switch 017.\_00.2

- Consumer operation with overexcitation or power reduction
- Input voltage: 100 – 500 VAC
- Maximum output current  $I_{RMS}$ : 3 A at 250 VAC
- UL-approved



### Function

The ROBA®-switch is used for operation at an input voltage of between 100 and 500 VAC, depending on the size. They can switch internally from bridge rectification output voltage to half-wave rectification output voltage. The bridge rectification time can be modified from 0.05 to 2 seconds by exchanging the external resistor ( $R_{ext}$ ).

#### Calculation output voltage

|                        |                  |
|------------------------|------------------|
| Holding voltage        | VDC = VAC x 0,45 |
| Overexcitation voltage | VDC = VAC x 0,9  |

## Brückengleichrichter Type 025.000.6

### Application

Rectifiers are used to connect DC consumers to alternating voltage supplies, for example electromagnetic brakes and clutches (ROBA-stop®, ROBA®-quick®, ROBATIC®), electromagnets, electrovalves, contactors, switch-on safe DC motors, etc.

### Function

The AC input voltage (VAC) is rectified (VDC) in order to operate DC voltage units. Also, voltage peaks, which occur when switching off inductive loads and which may cause damage to insulation and contacts, are limited and the contact load reduced.



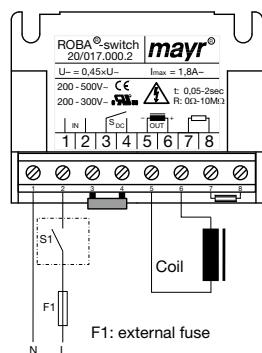
#### Calculation output voltage

|                 |
|-----------------|
| VDC = VAC x 0,9 |
|-----------------|

## Electrical Connection

### Magnetic Field Removal

- AC-side Switching

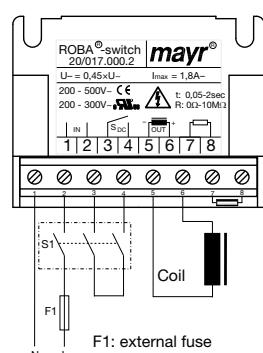


The power circuit is interrupted in front of the rectifier. The magnetic field slowly reduces. This delays the rise in braking torque.

When switching times are not important, please switch AC-side, as no protective measures are necessary for coil and switching contacts.

AC-side switching means **low-noise switching**; however, the brake engagement time is longer (approx. 6 – 10 times longer than with DC-side switch-off), use for non-critical braking times.

- DC-side Switching



The power circuit is interrupted between the rectifier and the coil as well as mains-side. The magnetic field reduces extremely quickly. This causes a quick rise in braking torque.

When switching DC-side, high voltage peaks are produced in the coil, which can lead to wear on the contacts from sparks and to destruction of the insulation.

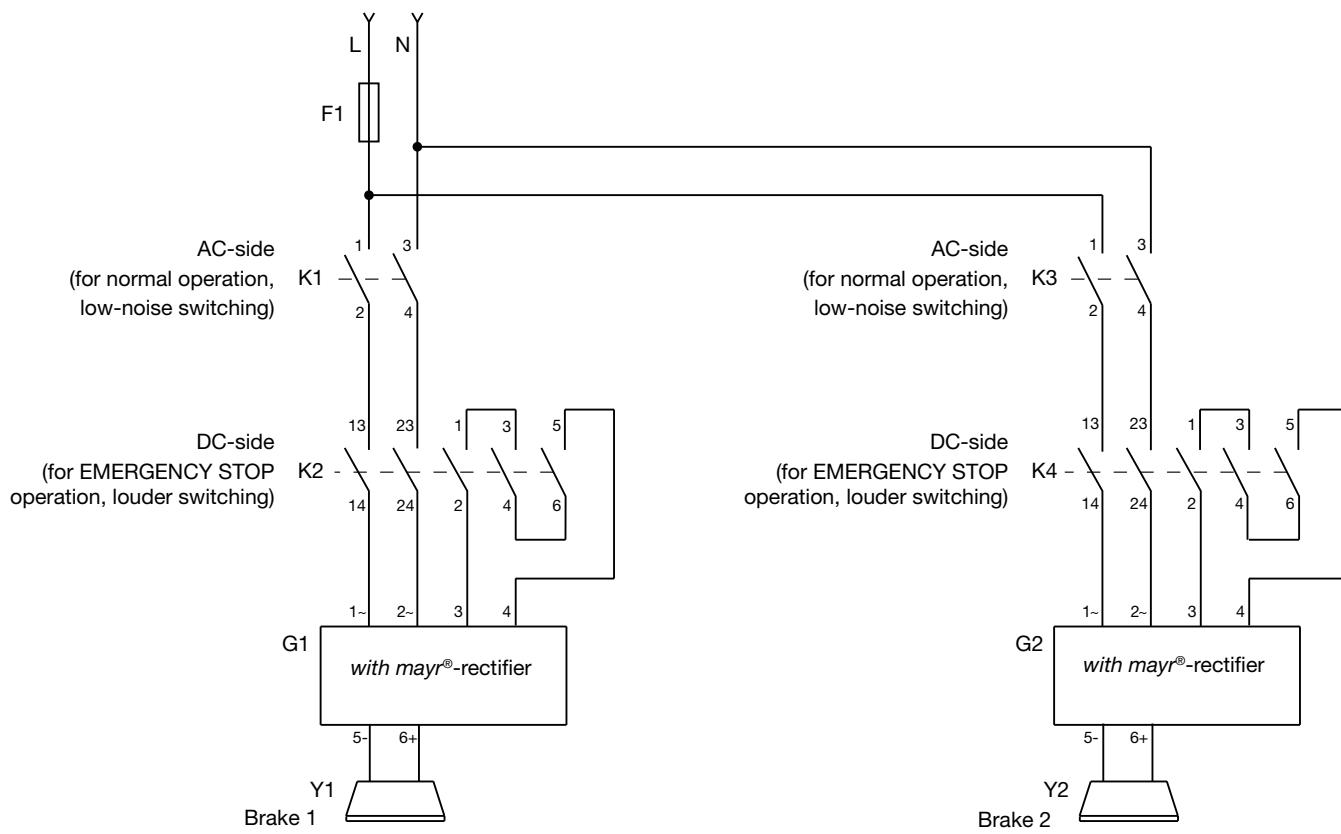
DC-side switching means **short brake engagement times (e.g. for EMERGENCY STOP operation)**; however, louder switching noises.

### • Protection Circuit

When using DC-side switching, the coil must be protected by a suitable protection circuit according to VDE 0580, which is integrated in mayr®-rectifiers. To protect the switching contact from consumption when using DC-side switching, additional protective measures may be necessary (e.g. series connection of switching contacts). The switching contacts used should have a minimum contact opening of 3 mm and should be suitable for inductive load switching. Please make sure on selection that the rated voltage and the rated operating current are sufficient. Depending on the application, the switching contact can also be protected by other protection circuits (e.g. mayr®-spark quenching unit), although this may course then alter the switching times.

### Switching example

The mayr®-rectifiers shown in the Figure below serve as a switching example (e.g. combined switching for the elevator industry).



## Contactless release monitoring for ROBA-stop® safety brakes

- **Wear-free**
- **Robust**
- **Magnetic field-resistant**
- **Absolutely reliable**

### Function

Release monitoring prevents unpermitted operating conditions such as for example starting up against a closed brake. *mayr*® power transmission, international leaders in safety brakes for safety-critical applications such as for example passenger elevators or vertical axes, now provides a contactless system with inductive proximity switches for its safety brakes as an alternative to the tried and tested release monitoring system with microswitches.

### Maximum reliability and accuracy

As there are no mechanical parts involved, the lifetime of this new, contactless release monitoring system is not dependent on the switching frequency. The system is **magnetic field** resistant and works **absolutely reliably** and **wear-free**. It is also resistant to impacts and vibrations, as there are no movable parts, and the electronics are completely encapsulated. Other advantages of the inductive proximity switch are the high switching point repetitive accuracy, the low hysteresis and the low temperature drift.

The switching bolt for the inductive proximity switch is installed at the factory and is, in contrast to the release monitoring system with microswitch, not adjustable. Application errors through adjustment of the switching point position can be excluded. This feature, too, plays an important role in maximising functional and operational safety.



### Optionally NO or NC contacts

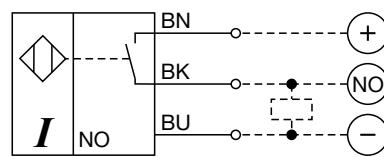
The contactless release monitoring system can be designed either as an NO or NC contact. With the NC contact function, the 'High' signal is generated if the brake is switched when de-energised. Here the armature disk drops and the brake closes. Cable breakage is recognised when the brake is closed.

With the NO contact function, the 'High' signal is generated if the brake is energised and the armature disk releases the rotor. The brake is released. Only on generation of the 'High' signal is the motor enabled for start-up. This reliably prevents the motor from starting up against a closed brake. Cable breakage is recognised when the brake is open.

### Technical Data

|   |               |
|---|---------------|
| Operating voltage:                      | 10.. 30 VDC   |
| DC rated operating current:             | ≤ 150 mA      |
| Ambient temperature                     | -25 to +85 °C |
| Repetitive accuracy                     | < 0.015 mm    |
| Hysteresis                              | < 0.025 mm    |
| Temperature drift<br>(-25 °C to +85 °C) | < +- 0.05 mm  |

### NO contact function wiring diagram





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