

Please read these Operational Instructions carefully and follow them accordingly!

Ignoring these Instructions may lead to malfunctions or to brake failure, resulting in damage to other parts.
These Installation and Operational Instructions (I + O) are part of the brake delivery.
Please keep them handy and near to the brake at all times.

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Guidelines on the Declaration of Conformity

A conformity evaluation has been carried out for the product (electromagnetic safety brake) in terms of the EC low voltage directive 2006/95/EC. The Declaration of Conformity is laid out in writing in a separate document and can be requested if required.

Guidelines on the EMC Directive (2004/108/EC)

The product cannot be operated independently according to the EMC directive.

Due to their passive state, brakes are also non-critical equipment according to the EMC.

Only after integration of the product into an overall system can this be evaluated in terms of the EMC.

For electronic equipment, the evaluation has been verified for the individual product in laboratory conditions, but not in the overall system.

Guidelines on the Machinery Directive (2006/42/EC)

The product is a component for installation into machines according to the machinery directive 2006/42/EC.

The brakes can fulfil the specifications for safety-related applications in coordination with other elements.

The type and scope of the required measures result from the machine risk analysis. The brake then becomes a machine component and the machine manufacturer assesses the conformity of the safety device to the directive.

It is forbidden to start use of the product until you have ensured that the machine accords with the regulations stated in the directive.

Guidelines on the ATEX Directive

Without a conformity evaluation, this product is not suitable for use in areas where there is a high danger of explosion.

For application of this product in areas where there is a high danger of explosion, it must be classified and marked according to directive 94/9/EC.

Safety and Guideline Signs

CAUTION



Danger of injury to personnel and damage to machines.



According to German notation, decimal points in this document are represented with a comma (e.g. 0,5 instead of 0.5).



Please Observe!
Guidelines on important points.

Safety Regulations

These Safety Regulations are user hints only and may not be complete!

General Guidelines

DANGER



Danger of death!
Do not touch voltage-carrying cables and components.

Brakes may generate further risks, among other things:



Hand-
injuries



Danger of
seizure



Contact with
hot
surfaces



Magnetic
fields

Severe injury to people and damage to objects may result if:

- ☐ the electromagnetic brake is used incorrectly.
- ☐ the electromagnetic brake is modified.
- ☐ the relevant standards for safety and / or installation conditions are ignored.

During the required risk assessment when designing the machine or system, the dangers involved must be evaluated and removed by taking appropriate protective measures.

To prevent injury or damage, only professionals and specialists are allowed to work on the devices. They must be familiar with the dimensioning, transport, installation, initial operation, maintenance and disposal according to the relevant standards and regulations.



Before product installation and initial operation, please read the Installation and Operational Instructions carefully and observe the Safety Regulations. Incorrect operation can cause injury or damage.

At the time these Installation and Operational Instructions go to print, the electromagnetic brakes accord with the known technical specifications and are operationally safe at the time of delivery.

- ☐ Technical data and specifications (Type tags and Documentation) must be followed.
- ☐ The correct connection voltage must be connected according to the Type tag and wiring guidelines.
- ☐ Check electrical components for signs of damage before putting them into operation. Never bring them into contact with water or other fluids.
- ☐ Please observe the EN 60204-1 requirements for electrical connection when using in machines.



Only carry out installation, maintenance and repairs in a de-energised, disengaged state and secure the system against inadvertent switch-on.

Guidelines for Electromagnetic Compatibility (EMC)

In accordance with the EMC directives 2004/108/EC, the individual components produce no emissions. However, functional components e.g. mains-side energisation of the brakes with rectifiers, phase demodulators, ROBA[®]-switch devices or similar controls can produce disturbance which lies above the allowed limit values. For this reason it is important to read the Installation and Operational Instructions very carefully and to keep to the EMC directives.

Application Conditions



The catalogue values are guideline values which have been determined in test facilities. It may be necessary to carry out your own tests for the intended application. When dimensioning the brakes, please remember that installation situations, braking torque fluctuations, permitted friction work, run-in behaviour and wear as well as general ambient conditions can all affect the given values. These factors should therefore be carefully assessed, and alignments made accordingly.

- ☐ Mounting dimensions and connection dimensions must be adjusted according to the size of the brake at the place of installation.
- ☐ Use of the brake in extreme environmental conditions or outdoors, directly exposed to the weather, is not permitted.
- ☐ The magnetic coils are designed for a relative duty cycle of 100%.
However, a duty cycle > 60 % leads to higher temperatures, which cause premature ageing of the noise damping and therefore lead to an increase in switching noises.
- ☐ The braking torque is dependent on the present run-in condition of the brake.
- ☐ The brakes are only designed for dry running. The torque is lost if the friction surfaces come into contact with oil, grease, water or similar substances or foreign bodies.
- ☐ The surfaces of the outer components have been phosphated manufacturer-side to form a basic corrosion protection.

CAUTION



The rotors may rust up and block in corrosive ambient conditions and/or after long periods of storage.
The user is responsible for taking appropriate countermeasures.

Safety Regulations

These Safety Regulations are user hints only and may not be complete!

Ambient Temperature: -20 °C up to +40 °C

CAUTION



At temperatures of around or under freezing point, both condensation and the special characteristics of the linings (lower friction values at lower temperatures) can strongly reduce the braking torque. The user is responsible for taking respective countermeasures, e.g. selecting brakes with higher nominal braking torques. Frequent and extensive temperature fluctuations at high humidity promote the formation of corrosion, which can lead to seized linings. The brake function must be inspected both once attachment has taken place as well as after longer system downtimes, in order to prevent the drive starting up against possibly seized linings. The customer is responsible for providing a protective cover against contamination caused by construction sites. Temperatures of over 70 °C on the brake mounting flange can have a negative effect on the switching times, the braking torque levels and the noise damping behaviour.

Appointed Use

mayr®-brakes have been developed, manufactured and tested in compliance with the DIN VDE 0580 standard and in accordance with the EU Low Voltage Directive as electromagnetic components. During installation, operation and maintenance of the product, the requirements for the standard must be observed.

mayr®-brakes are for use in machines and systems and must only be used in the situations for which they are ordered and confirmed. Using them for any other purpose is not allowed.

Earthing Connection

The brake is designed for Protection Class I. This protection covers not only the basic insulation, but also the connection of all conductive parts to the protective conductor (PE) on the fixed installation. If the basic insulation fails, no contact voltage will remain. Please carry out a standardised inspection of the protective conductor connections to all contactable metal parts!

Class of Insulation F (+155 °C)

The insulation components on the magnetic coils are manufactured at least to class of insulation F (+155 °C).

Protection

(mechanical) IP54: When installed, dust-proof and protected against contact as well as against water spray from any direction (dependent on customer-side mounting method).

(electrical) IP54: Dust-proof and protected against contact as well as against water spray from any direction.

Brake Storage

- ☐ Store the brakes in a horizontal position, in dry rooms and dust and vibration-free.
 - ☐ Relative air humidity < 50 %.
 - ☐ Temperature without major fluctuations within a range from -20 °C to +60 °C.
 - ☐ Do not store in direct sunlight or UV light.
 - ☐ Do not store aggressive, corrosive substances (solvents / acids / lyes / salts etc.) near to the brakes.
- For longer storage of more than 2 years, special measures are required (please contact the manufacturer).

Handling

Before installation, the brake must be inspected and found to be in proper condition.

The brake function must be inspected both **once attachment has taken place** as well as **after longer system downtimes**, in order to prevent the drive starting up against possibly seized linings.

User-implemented Protective Measures:

- ☐ Please cover moving parts to protect **against injury through seizure**.
- ☐ Place a cover on the magnetic part to protect **against injury through high temperatures**.
- ☐ **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 are 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, half-wave and bridge rectifiers), although this may of course then alter the switching times.
- ☐ Take precautions **against freeze-up of the friction surfaces** in high humidity and at low temperatures.

Safety Regulations

These Safety Regulations are user hints only and may not be complete!

Standards, Directives and Regulations Used

DIN VDE 0580	Electromagnetic devices and components, general specifications
2006/95/EC	Low voltage directive
CSA C22.2 No. 14-2010	Industrial Control Equipment
UL 508 (Edition 17)	Industrial Control Equipment
95/16/EC	Elevator Directive
EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
DIN EN 61000-6-4	Interference emission
EN 12016	Interference immunity (for elevators, escalators and moving walkways)
EN 60204-1	Electrical equipment of machines

Liability

The information, guidelines and technical data in these documents were up to date at the time of printing. Demands on previously delivered brakes are not valid.

Liability for damage and operational malfunctions will not be taken if:

- the Installation and Operational Instructions are ignored or neglected.
- the brakes are used inappropriately.
- the brakes are modified.
- the brakes are worked on unprofessionally.
- the brakes are handled or operated incorrectly.

Guarantee

- ☐ The guarantee conditions correspond with the Chr. Mayr GmbH + Co. KG sales and delivery conditions.
- ☐ Mistakes or deficiencies are to be reported to *mayr*® at once!

CE Identification



according to the
Low Voltage Directive 2006/95/EC and the Elevator
Directive 95/16/EC

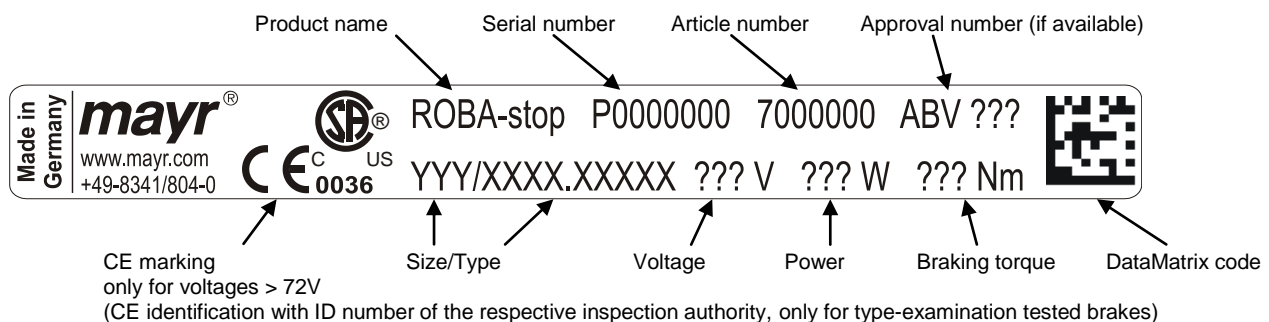
Conformity Markings



in terms of the Canadian and American
approval

Identification

mayr® components are clearly marked and described on the Type tag:



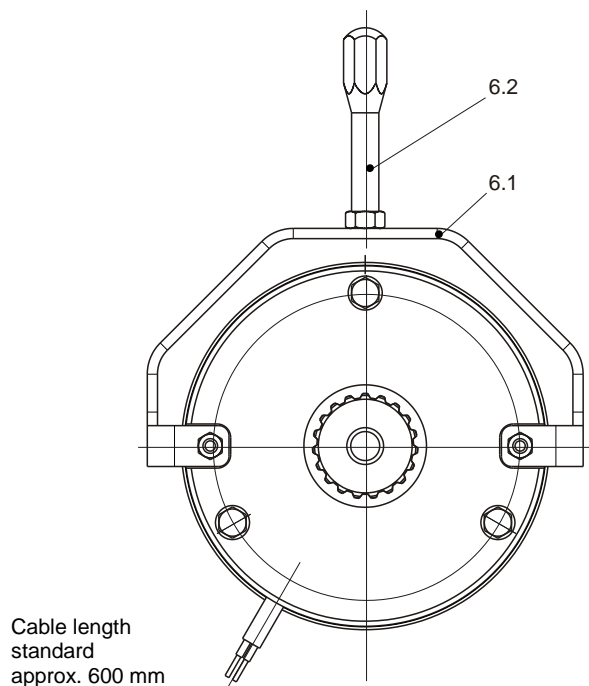


Fig. 1

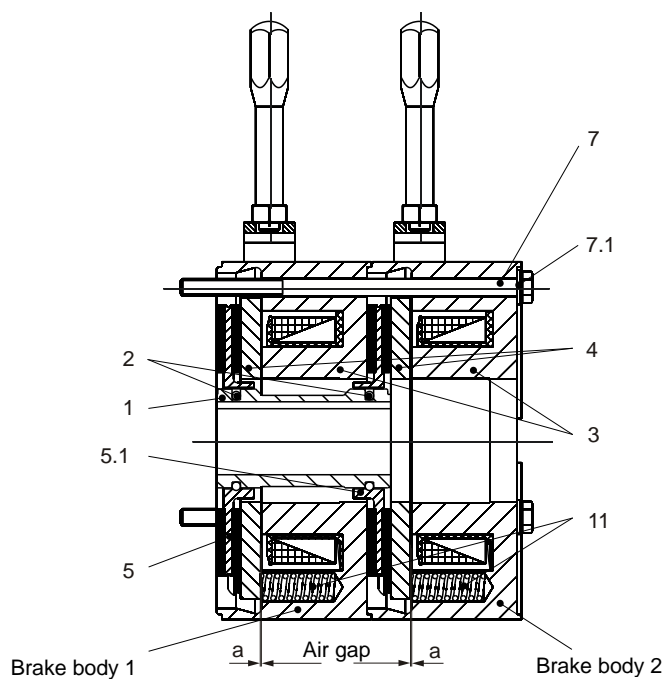


Fig. 2

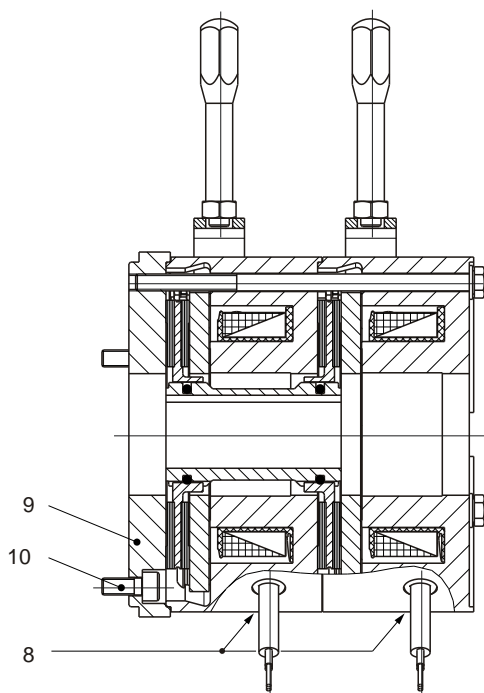


Fig. 3

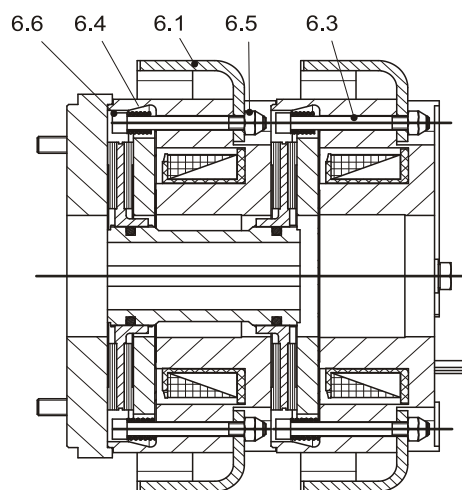


Fig. 4

Installation and Operational Instructions for ROBA®-secustop Type 8020. _ _ _ _ Sizes 4 – 16

(B.8020.EN)

Parts List *(Only use mayr® original parts)*

1	Hub assembly with 2 O-rings (2 / dependent on Type)	6.4	Thrust spring
2	O-ring (only Type 8020._1_ _ _)	6.5	Hexagon nut
3	Coil carrier assemblies 1 and 2	6.6	Key
4	Armature disks 1 and 2	7	Hexagon head screw
5	Rotor 1	7.1	Washer
5.1	Rotor 2	8	Type tag
6	Hand release assembly	9	Flange plate
6.1	Switch bracket	10	Cap screw
6.2	Hand release rod	11	Thrust spring
6.3	Threaded bolt		

Technical Data

Nominal voltages:	24 V / 104 V / 180 V / 207 V
Protection (electrical)	IP54
Protection (mechanical)	IP54
Duty cycle:	100 %
Connection:	2 x 0,88 mm ²
Ambient temperature:	-20 °C up to +40 °C

Table 1: Technical Data (Dependent on Size)

Size	Braking Torque (tolerance +60 %) [Nm]	Max. speed [rpm]	Electrical nominal power [W]	Mass [kg]	Hand release force per lever at nominal torque approx. [N]	Actuation Angle Hand release
4	2 x 4	4500	2 x 31	2 x 1,4	35	12°
8	2 x 8	3600	2 x 34	2 x 2,8	35	12°
16	2 x 16	3600	2 x 33	2 x 3,5	110	15°

Table 2: Technical Data (Dependent on Size)

Size	Mass moment of inertia J Hub + rotor on d _{max} [kgm ²]	Friction work Q _{r 0,1} (per 0,1 mm wear) [J]	Friction work Q _{r ges.} (max. possible friction work in relation to nominal air gap) [J]
4	0,27 x 10 ⁻⁴	39,5 x 10 ⁶	118,5 x 10 ⁶
8	0,43 x 10 ⁻⁴	62,5 x 10 ⁶	337,5 x 10 ⁶
16	2,94 x 10 ⁻⁴	92,5 x 10 ⁶	585 x 10 ⁶

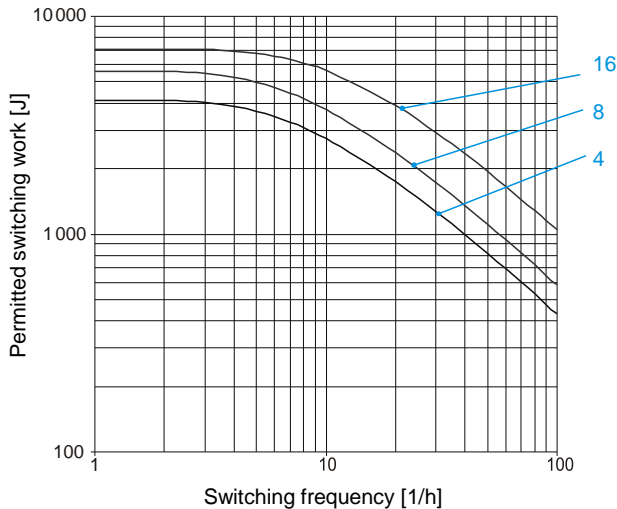


Please Observe!

The stated values Q_{r 0,1} and Q_{r ges.} are only reference values for specific friction work values < 0,5 J/mm² and sliding speeds < 10 m/s.

Friction Power Diagram

$n = 3600 \text{ rpm}$



Scope of Delivery / State of Delivery

Please check the state of delivery immediately!
mayr® will take no responsibility for belated complaints.
Please report transport damage immediately to the deliverer.
Please report incomplete delivery and obvious defects immediately to the manufacturer.

Application

For use as holding brake with EMERGENCY STOP braking actions

- ☐ in enclosed buildings
(in tropical regions, in high humidity with long downtimes and sea climates only after taking special measures)
- ☐ in dry running
- ☐ horizontal and vertical installation positions
- ☐ in clean ambient conditions
(coarse-grained dust as well as liquids of all kinds affect the braking function ⇒ cover the device).

Functional Description

The ROBA®-secustop is designed as a double brake in which two brake bodies working independently of each other ensure high operational safety.

The braking torque in brake body 1 (3) is generated via the pressure force of several thrust springs (11) using frictional locking between both friction linings of the rotor (5), the armature disk 1 (4) and the flange plate (9) or machine wall.

The braking torque in brake body 2 (3) is generated via the pressure force of several thrust springs (11) using frictional locking between both friction linings of the rotor (5.1), the armature disk 2 (4) and the coil carrier 1 (3).

The brake is released electromagnetically.

Installation Conditions

- ☐ The eccentricity of the shaft end in relation to the mounting pitch circle must not exceed 0,2 mm.
- ☐ The positional tolerance of the threads for the hexagon head screws (7) must not exceed 0,2 mm.
- ☐ The axial run-out deviation of the screw-on surface to the shaft must not exceed the permitted axial run-out tolerance of **0,05 mm** acc. DIN 42955 R.
The reference diameter is the pitch circle diameter for securement of the brakes.
Larger deviations can lead to a drop in torque, to continuous grinding on the rotors and to overheating.
- ☐ The tolerances of the hub (1) and the shaft must be selected so that no widening of the hub (1) toothing can occur, as widening of the toothing leads to the rotors (5 and 5.1) jamming on the hub (1) and therefore to brake malfunctions (recommended hub – shaft tolerance H7/k6).
If the hub (1) is heated for better joining, the O-rings (2 / dependent on Type) must be removed beforehand and re-mounted after hub installation.
The max. permitted joining temperature of 200 °C must not be exceeded.
- ☐ The O-rings (2 / dependent on Type) on the hub (1) must be lightly greased.
- ☐ The rotors (5 and 5.1) and brake surfaces must be oil and grease-free. A suitable counter friction surface (steel or cast iron) must be used. Sharp-edged interruptions on the friction surfaces must be avoided.
Recommended surface quality in the area of the friction surface $R_a = 1,6 \mu\text{m}$.
In particular customer-side mounting surfaces made of grey cast iron are to be rubbed down additionally with fine sandpaper (grain ≈ 400).

Installation and Operational Instructions for ROBA[®]-secustop Type 8020. _ _ _ _ Sizes 4 – 16

(B.8020.EN)

Table 3

Size	Rotor thickness New condition [mm]	Rotor thickness minimum * [mm]	Nominal air gap "a" per brake body [mm]	Fixing screws with wrench openings and tightening torques					
				Item 7	SW	[Nm]	Item 10	SW	[Nm]
4	6	5,3	0,25 +0,10/-0,05	3 x M4	7	3	3 x M4	3	3
8	7	6,2	0,25 +0,10/-0,05	3 x M5	8	5,8	3 x M5	4	5,8
16	8,7	7,6	0,25 +0,10/-0,05	3 x M6	10	14,9	3 x M6	5	14,9

* Once the minimum rotor thickness has been reached, the rotors must be replaced. However, the brake already becomes louder at an air gap > "a" + 0,1 mm.

CAUTION



On brakes with reduced braking torque, braking function can no longer be guaranteed when air gap > maximum air gap.

Installation (Figs. 1, 2 and 3)

- Disassemble the flange plate (9 / dependent on Type) from the brake.
- If necessary, mount the flange plate (9) using cap screws (10) onto the mounting surface (please observe the tightening torque according to Table 3).
- Mount the hub assembly (1) with the O-rings (Item 2 / dependent on Type / **O-rings must be slightly greased**) onto the shaft, bring it into the correct position (the length of the key should lie over the entire hub) and secure it axially (e.g. using a locking ring).
- Push rotor 1 (5) by hand using light pressure over both O-rings (2 / dependent on Type) onto the hub (1) (the rotor collar should face away from the machine wall or flange plate).
Check that the toothing moves easily.
Do not damage the O-rings!
- Push brake body 1 over hub (1) and rotor collar of rotor 1 (5) (the fixing holes should align with the threaded holes in the flange plate (9) or machine wall).
- Push rotor 2 (5.1) by hand using light pressure over an O-ring (2 / dependent on Type) onto the hub (1), so that the friction lining of rotor 2 (5.1) lies against the brake body 1 (the rotor collar should be facing the machine wall or the flange plate).
Check that the toothing moves easily.
Do not damage the O-ring.
- Insert the hexagon head screws (7) into the bores in brake body 2 and then join with brake body 1 (see Fig. 2) and screw onto the machine wall or flange plate.
Tighten the hexagon head screws (7) evenly all around **using a torque wrench to a tightening torque acc. Table 3.**

Brake Inspection (before brake initial operation)

- Braking torque inspection:**
Please compare the requested braking torque with the torque stated on the Type tag.
- Carry out a release inspection:**
by energising the brake or manually with the hand release (dependent on Type).

Dual Circuit Brake Functional Inspection

The ROBA[®]-secustop brake is equipped with a double safety (redundant) braking system.
This means that, should one brake circuit fail, the braking effect is still maintained.

CAUTION



Should the load begin to move after release of one brake circuit or should it fail to react to the braking procedure, the energised coil must be switched off immediately!

The dual circuit braking function is not guaranteed.

Shut down the elevator, de-install and inspect the brake.

The individual circuit inspection is carried out by energising the individual circuits with nominal voltage, see Type tag (8).

Inspection brake circuit 1:

- Energise brake circuit 2.
- Trigger an EMERGENCY STOP and inspect the stopping distance.

- De-energise brake circuit 2.

Inspection brake circuit 2:

- Energise brake circuit 1.
- Trigger an EMERGENCY STOP and inspect the stopping distance.

- De-energise brake circuit 1.

Inspection of both brake circuits:

Energise both brake circuits with nominal voltage, see Type tag (8).

Trigger an EMERGENCY STOP and inspect the stopping distance.

The stopping distance must be much shorter than the stopping distance for an individual circuit.

Hand Release

The hand release is installed and set manufacturer-side!

Hand Release Installation (Fig. 5) Manufacturer-side

CAUTION



For hand release installation, the brake must be dismantled and de-energised.

The installation procedure is identical for brake bodies 1 and 2 (see Fig. 5).

Installation onto brake body:

1. Push the thrust springs (6.4) onto the threaded bolts (6.3). The threaded bolts (6.3) come manufacturer-side assembled with a key as tension element. This connection must not be loosened.
2. Push the threaded bolts (6.3) with thrust springs (6.4) from the inside (you should be facing the magnetic coil (6.7)) into the hand release bores in the coil carrier (3).
3. Mount the switch bracket (6.1) and lightly screw on the self-locking hexagon nuts (6.5).
4. Tighten both hexagon nuts (6.5) evenly, until the specified adjustment dimension "Y" (Fig. 5 and Table 4) is reached.
Attention: An uneven adjustment dimension on the hand release can cause the brake to malfunction.
5. After installing the fan cover, screw the hand release rod (6.2) into the switch bracket (6.1) and tighten it. The hand release rod (6.2) must be protected against loosening using a screw-securing product, e.g. Loctite 243.

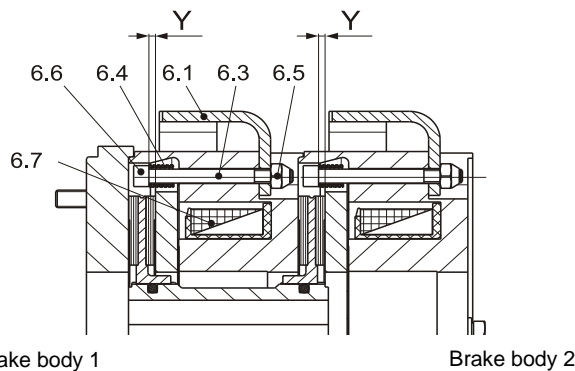


Fig. 5

Table 4 (Adjustment Dimension and Hand Release Force)

Size	Dimension "Y"	Hand release force per lever
4	1,4 mm	35 N
8	1,4 mm	35 N
16	1,5 mm	110 N

Noise Damping



Please Observe!

Replacing the damping element is only permitted at the *mayr*® site of manufacture.

The noise damping is installed manufacturer-side. However, the noise damping is subject to wear dependent on the application or operating conditions (torque adjustment, switching frequency, ambient conditions, system vibrations etc.).

Electrical Connection

DC current is necessary for operation of the brake. The coil voltage is indicated on the Type tag as well as on the brake body and is designed according to the DIN IEC 60038 ($\pm 10\%$ tolerance). Operation must take place via DC voltage with a low ripple content, e.g. via a bridge rectifier or with another suitable DC supply. The connection possibilities can vary dependent on the brake equipment. Please follow the exact connections according to the Wiring Diagram. The manufacturer and the user must observe the applicable regulations and standards (e.g. DIN EN 60204-1 and DIN VDE 0580). Their observance must be guaranteed and double-checked!

Earthing Connection

The brake is designed for Protection Class I. This protection covers not only the basic insulation, but also the connection of all conductive parts to the protective conductor (PE) on the fixed installation. If the basic insulation fails, no contact voltage will remain. Please carry out a standardised inspection of the protective conductor connections to all contactable metal parts!

Supply Voltage Requirements

In order to minimise noise development of the released brake, it must only be operated via DC voltage with low ripple content. AC current operation can take place using a bridge rectifier or another suitable DC power supply. Supplies whose output voltages have a high ripple content (e.g. a half-wave rectifier, phase angle control systems, ...) are not suitable for operation of the brake.

Device Fuses

To protect against damage from short circuits, please add suitable device fuses to the mains cable.

Switching Behaviour

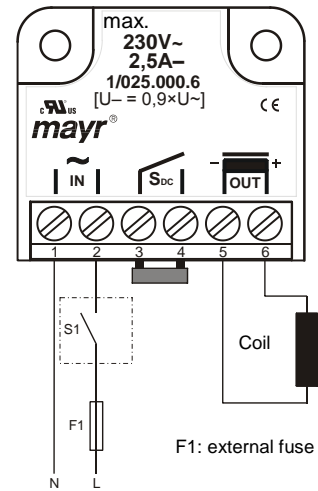
The reliable operational behaviour of a brake is to a large extent dependent on the switching mode used. Furthermore, the switching times are influenced by the temperature and the air gap between the armature disk (4) and the coil carrier (3) (dependent on the wear condition of the linings).

Magnetic Field Build-up

When the voltage is switched on, a magnetic field is built up in the brake coils, which attracts the armature disks (4) to the coil carriers (3) and releases the brake.

Magnetic Field Removal

AC-side Switching

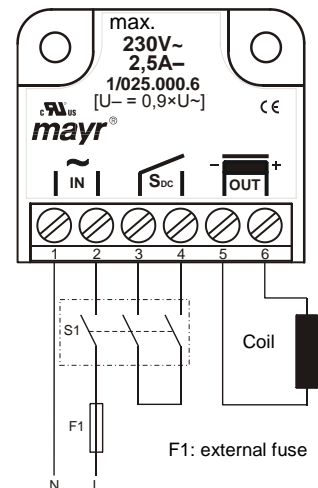


The power circuit is interrupted in front of the rectifier. The magnetic field slowly reduces. This delays the rise in braking torque.

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.

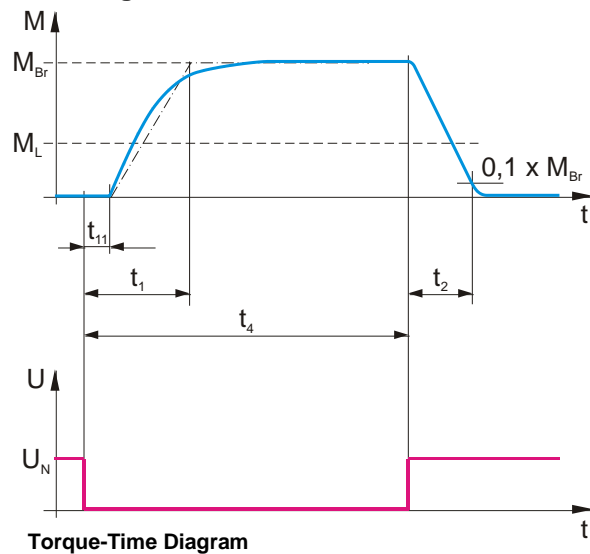
When switching DC-side, high voltage peaks are produced in the coil, which can lead to wear on the contacts from sparks and to destruction of the insulation.

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 are 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 of course then alter the switching times.

Switching Times



Keys:

M_{Br}	=	Braking torque
M_L	=	Load torque
t_1	=	Connection time
t_{11}	=	Response delay on connection
t_2	=	Separation time
t_4	=	Slip time + t_{11}
U_N	=	Coil nominal voltage



Please Observe!

If the brake is operated without damping (Type 8020._0_ _ _), it should be switched DC-side (switching time).

Table 5: Switching Times

Size	These values are mean values referring to a nominal air gap and a nominal torque (100 %) on a warm brake.				
	Without damping (DC switching)		With damping (AC switching)		Separation time t_2 [ms]
	Connection time t_1 [ms]	Response delay on connection t_{11} [ms]	Connection time t_1 [ms]	Response delay on connection t_{11} [ms]	
4	43	30	197	114	33
8	81	68	340	190	48
16	101	40	473	252	84

Maintenance

ROBA®-secustop brakes are mainly maintenance-free. The friction lining pairing is robust and wear-resistant. This ensures a particularly long service lifetime. However, the friction lining is subject to operational wear on frequent EMERGENCY STOP braking actions. Therefore, the following inspections should be carried out at regular intervals:

- Braking torque or retardation inspection (individual brake circuits) (min. 1 x per year)
- Inspection of the rotor thickness (min. 1 x per year)

In order to inspect the wear condition, please measure the rotor thickness of the rotors 1 + 2 (Items 5 + 5.1). The rotors must be replaced at the latest when the minimum permitted rotor thickness has been reached (Table 3).

Before replacing the rotors (Items 5 and 5.1):

- ☐ Clean the brake, remove abraded particles (use an industrial vacuum and wear a dust mask)
- ☐ Measure the rotor thickness (new); rotor thickness acc. Table 3 must be given

Replacing the rotors (Items 5 and 5.1)

Replace the rotors by following the Brake Installation instructions backwards.

CAUTION



The drive brake must be load-free on hoist drives. Otherwise there is a danger of load crashes!

Disposal

Our electromagnetic brake components must be disposed of separately as they consist of different materials. Please also observe the relevant authority regulations. Code numbers may vary according to the disassembling process (metal, plastic and cables).

Electronic components

(Rectifier / ROBA®-switch / Microswitch):

Products which have not been disassembled can be disposed of under Code No. 160214 (mixed materials) or components under Code No. 160216, or can be disposed of by a certified disposal firm.

Brake bodies made of steel pads with coil /cable and all other steel components:

Steel scrap (Code No. 160117)

All aluminium components:

Non-ferrous metals (Code No. 160118)

Brake rotor (steel or aluminium pads with friction linings):

Brake linings (Code No. 160112)

Seals, O-rings, V-seals, elastomers, terminal boxes (PVC):

Plastic (Code No. 160119)

Malfunctions / Breakdowns

Malfunction	Result of Malfunction	Possible Causes	Solutions <input type="checkbox"/> The brake must always be dismantled in order to remove damage and malfunctions. <input type="checkbox"/> Damaged parts must be replaced to solve malfunctions. <input type="checkbox"/> The brake must be cleaned before re-installation.
The brake does not release completely; permanent grinding of the rotor	The axial flexibility of the rotor is limited; rotor is jammed axially	Incorrect tolerance constellation on the shaft-hub connection	Check tolerances
		Tolerance errors on the key connection	
		Broken hub due to installation error when mounting	Suitable mounting method
		Poor shaft quality	Check the shaft quality
		Poor key dimensioning	Carry out a key calculation
		Hub toothing dirty due to abraded or worn particles	Check the hub and rotor toothing; maintain suitable maintenance intervals
		Worn, knocked out hub and rotor toothing	
		Toothings breakage	
		Damaged / deformed hub and rotor toothing	
	Wiring error on the brake	Incorrect voltage, no DC voltage	Check voltage; observe the wiring guidelines
		Defective electrical wiring	Check electrical wiring
		Defective coil, coil is electrically or thermally overloaded	Check coil capacity; check insulation resistance
	Air gap too small in released condition	Due to installation	Air gap inspection
		Penetration of foreign bodies into the brake, in particular magnetisable particles	Check the brake interior for dirt and clean it
		Excessive component temperatures; temperature expansion	Temperature inspection

Installation and Operational Instructions for ROBA®-secustop Type 8020. _ _ _ _ Sizes 4 – 16

(B.8020.EN)

Malfunction	Result of Malfunction	Possible Causes	Solutions
			<input type="checkbox"/> The brake must always be dismantled in order to remove damage and malfunctions. <input type="checkbox"/> Damaged parts must be replaced to solve malfunctions. <input type="checkbox"/> The brake must be cleaned before re-installation.
Slipping; permanent grinding of the brake under load; increase in friction work	Braking torque too low	Incorrect dimensioning	Check the required braking torque
		Incorrect spring configuration	Check the spring configuration; have the brake checked at the place of manufacture
	Drop in braking torque	Excessive wear on the rotor	Wear inspection
		Changes to the friction behaviour on the friction lining due to the maximum sliding speed being exceeded	Check for correct wiring, switching times and dimensioning
	Changes in braking torque	Unpermittedly high friction work, squeaking, type and quality of the counter friction surface	Check for correct wiring, switching times and dimensioning
		Corrosion on the counter friction surface	Check the brake for corrosion
		Ambient influences, oil, water, cleaning media, condensation formation	Check protection against environmental influences
		Type and quality of the counter friction surface	Check the counter friction surface
	Brake cannot be released	Extremely low friction speeds	Check the dimensioning
		Excessive tension path due to unpermitted wear	Wear inspection; replace the rotor
Increased friction work; brake grinds	Excessively long engagement times	Load accelerates the drive line during the brake engagement time	Check for correct wiring, switching times and dimensioning
	Drop in braking torque	Excessive wear on the rotor	Wear inspection; replace the rotor
	Motor starts up against closed brake	Excessive brake attraction times	Check for correct wiring, switching times; check dimensioning; check motor controls
Component breakage	Operating conditions	Oscillations, vibrations, overload, unpermittedly high speeds	Check operating conditions and dimensioning
	Ambient influences, temperature, fluids, media, corrosion	Friction linings sticking, settling or swelling; changes in friction lining friction behaviour	Check protection against environmental influences
	Deviations, adjustment dimensions and the screw tightening torques	Brake securement, hand release, actuation lever, screws	Check the guidelines and values according to the information in the Installation and Operational Instructions



Please Observe!

mayr® will take no responsibility or guarantee for replacement parts and accessories which have not been delivered by mayr®, or for damage resulting from the use of these products.