

# Installation and Operating Instructions for ROBA-stop® -Z Dual Circuit Fail Safe Brake Type 892.10\_.0 Sizes 60 – 2000

(B.8.2.0.GB)

## Please read and observe this Operating Instruction carefully!

A possible malfunction or failure of the brake and any damage may be caused by not observing it.

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### Manufacturer's declaration

The product is to be seen as an option or component for installation into machines or equipment according to the machinery directive 98/37/EC. The machinery (product) must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the applicable EC-directives.

The product corresponds to the low voltage directives 2006/95/EC.

The product corresponds to the elevator directives 95/16/EC.

The observance of the relevant EMV-guideline 89/336/EEC is to be guaranteed.

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## Safety regulations

With this safety regulations no claim on completeness is raised!



### Attention!

Hazardous conditions when contacting hot connections and components.

**Only qualified and well-trained specialists should work on the units to avoid any personal injury or damage to machinery.**

### Danger!

If the electromagnetic brake is used in an improper way.  
If the electromagnetic brake has been modified or reconverted.  
If the relevant standards of the safety or installation conditions are not observed.



### Attention!

The installation and operating instructions must be read carefully and all safety regulations observed before installation and initial operation as danger to personnel and damage to machinery may be caused.  
The electromagnetic brakes are developed and manufactured in conformance with the temporally known rules of the technology and they are basically considered as fail-safe at the time of the delivery.

### Attention:

Based on the guideline 94/9/EC (ATEX-guideline) this product is not suitable for the application in potential explosive areas without evaluation of the conformity.

### Observe!

- ☐ Only qualified and well trained specialists who are familiar with the transport, installation, initial start-up, maintenance and operation of the units as well as with the relevant standards may carry out the corresponding works.
- ☐ Technical data and indications (Type tag and documentation) are to be kept absolutely.
- ☐ Connection of the supply voltage according to the Type tag.
- ☐ Supply connections must not be released and assembly, maintenance or repair must not be made when the unit is energized.
- ☐ Electrical leads must not be under tension when connected.
- ☐ Check current carrying components regarding damage before installation. Current carrying components must not be in contact with water or other liquids.
- ☐ The braking torque does not exist any more, if the friction lining and/or friction surface come into contact with oil or grease.

### Intended use

mayr®-brakes are determined for the use in machines and equipment and may only be used for the ordered and confirmed purpose.

The use beyond of the corresponding technical indications is considered as incorrect.

### Notes to the electromagnetic compatibility (EMV)



There are no emissions from the listed single components within the meaning of the EMV-guideline 89/336/EEC, however, increased interference levels can occur when working components are operated outside their specification limits as for example, energising the brake with rectifiers, phase demodulators or ROBA®-switch in the line side.  
Therefore, the installation and operating instructions must be read carefully the EMV-guidelines are to be observed.

### Conditions of the unit



The catalogue values are reference values, which can deviate in some cases. When selecting the brake, site of installation, braking fluctuations, permissible friction work, behaviour during run-in, wear and ambient conditions are to be carefully checked and agreed with the unit manufacturer.

### Observe!

- ☐ The mounting and connecting dimensions at the site of installation must match to the size of the brake.
- ☐ The brakes are designed for a relative switch on period of 100 %.
- ☐ The brakes are designed for a dry running only. Should oil, grease, water or similar materials come in contact with the friction surfaces the braking torque could be reduced.
- ☐ The braking torque depends on the corresponding running-in condition of the brake.
- ☐ The metallic surface of the brake is protected against corrosion arranged by the factory.

### Protection class I

The protection is not only based on the basis isolation, but that all conductive components must be connected with the protective conductor (PE) of the fixed installation. In case the basis isolation fails, no contact voltage can remain existing. (VDE 0580).

### Protection (mechanically) IP 10:

Protection against large body surfaces, against large foreign matters >50 mm diameter. No water protection.

### Protection (electrically) IP 54:

Dust-tight and protection against contact as well as protection against spraying water from all directions.

### Ambient temperature –20 °C up to +40 °C

#### Attention!

The torque could be severely reduced in case of temperatures over or under the freezing point due to dewing. The user must provide corresponding counter measures.

### Thermal class F (+155 °C)

The magnetic coil as well as the casting compound is designed for a max. operating temperature of +155 °C.

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## Safety regulations

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### Necessary protective measures to be undertaken by the user:

Cover all moving parts to prevent personnel injury as squeezing and seizing and catapulting.

Cover dangerously hot magnetic parts to prevent contact.

Attach a conductive connection between magnetic part and electrical conductor (PE) of the fixed installation (protection class I) to prevent electrical shock and inspection conforming to standards of the unified protective connection to all contactable metal components.

Protection against high inductive cut-off peaks according to VDE 0580/2000-07, par. 4.6 by fitting varistors, spark quenching units or similar, in order to prevent damage of coil insulations or the burn-off of the switching contact (this protection is included in the *mayr*®-rectifiers).

Provide additional necessary safety measures against corrosion of the brake, if they are used in extreme ambient conditions or in the open with direct atmospheric influences.

Measures against freezing from armature disc and rotor with high humidity and deep temperatures.

### Following directives have been used:

98/37/EC	Machinery directive
2006/95/EC	Low-voltage directive
89/336/EEC	EMV-guideline
95/16/EC	Elevator guideline
EN 81-1	Safety regulations for the construction and installation of passenger lifts and goods elevators
BGV C1	(up to now VGB 70) Safety regulations for theatre and stage applications
DIN VDE 0580	Electromagnetic units and components, general regulations

### Following standards are to be observed:

DIN EN ISO 12100-1 und 2	Security of machines
DIN EN61000-6-4	Noise emission
EN12016	Interference resistance (for elevators, escalators, moving walkways)
EN60204	Electrical equipment of machines

### Liability

- ☐ The information, notes and technical data indicated in the documentation were at the time of printing on the latest state.

Claims on brakes already supplied cannot be made valid from it.

- ☐ Liability for damages and breakdowns is not taken over, with
  - ignoring the installation and operating instructions,
  - improper use of the brakes,
  - arbitrary modification of the brakes,
  - inappropriate working at the brakes,
  - handling or operating errors.

### Guarantee

- ☐ The warranty conditions correspond to the sales and supply conditions of Chr. Mayr GmbH + Co. KG.
- ☐ Defects are to be advised immediately after detection to *mayr*®.

### Test mark

CE corresponding to the low voltage directive 2006/95/EC.

### Marking

*mayr*®-components are clearly identified by means of the content of the Type tags:

<b>Manufacturer</b>
<b><i>mayr</i>®</b>
<b>Designation/Type</b>
<b>Article No.</b>
<b>Series number</b>

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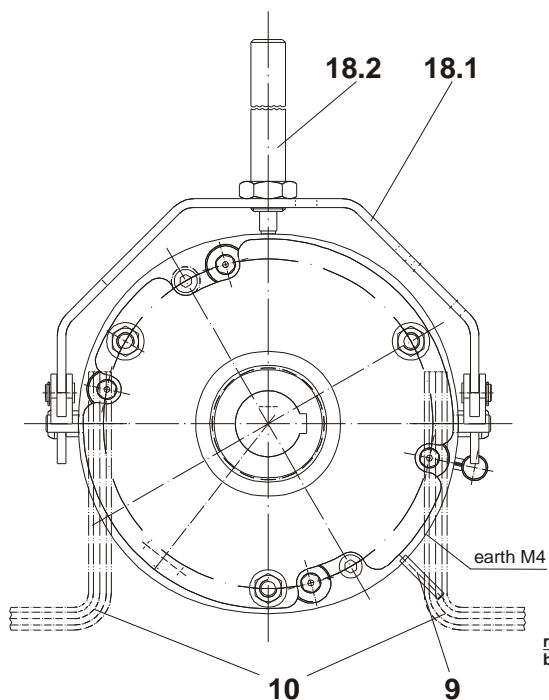


Fig. 1

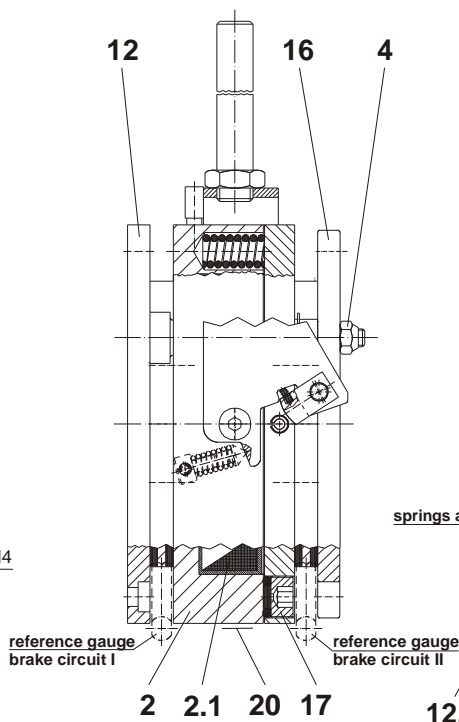


Fig. 2

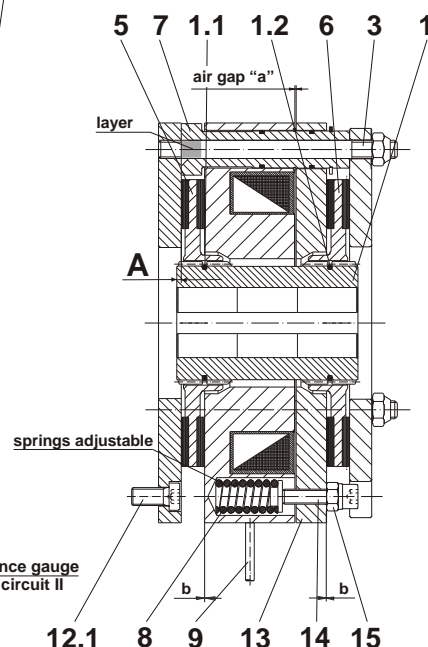


Fig. 3

## Parts List

(Only mayr® original parts are to be used)

1	Gear hub (assembly)	12	Flange plate (option dependent on type) or machine wall (custome made)
1.1	O-ring 1	12.1	Cap screw
1.2	O-ring 2	13	Armature disk
2	Brake body (assembly)	14	Cap screw
2.1	Magnetic coil	15	Hexagon nut
3	Double end stud	16	Brake plate
4	Hexagon nut (Quality- 10)	17	Noise damping (assembly)
5	Rotor 1	18	Hand release (assembly)
6	Rotor 2	18.1	Hand release bracket
7	Distance sleeve	18.2	Hand release lever
8	Thrust spring	18.3	Hexagon nut
9	Cable 4-leads Connection coil blue/brown Connection PTC temperature sensor 90°C grey/grey	19	Wear monitoring (assembly) (option dependent on Type Figs. 7 / 8)
10	Reference gauge (2x)	19.1	Micro switch
11	Release monitoring, co (opt. dependent on Fig. 6)	19.2	Hexagon head cap screw
11.1	Micro switch	19.3	Hexagon nut
11.2	Hexagon head cap screw	19.4	Spring washer
11.3	Hexagon nut	19.5	Cap screw
11.4	Spring washer	19.6	Adapter plate (only for sizes 60 – 125)
11.5	Cap screw	19.7	Cap screw (only for sizes 60 – 125)
11.6	Adapter plate	20	Type tag
11.7	Cap screw		

Subject to technical alterations!

# Installation and Operating Instructions for ROBA-stop® -Z Dual Circuit Fail Safe Brake Type 892.10\_0 Sizes 60 – 2000

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## Usage

As a holding brake with Emergency-stop braking actions (max. 10 per day).

- ☐ In enclosed buildings (in tropical area, in case of high humidity with long downtimes and sea climate only with special arrangements).
- ☐ In a dry running environment.
- ☐ Mounting position horizontal (vertical on request).
- ☐ In a clean environmental area (coarse dust as well as liquids of all kinds impair the brake function, => attach cover).

- ☐ The dimension "A" (Fig. 3 and Table 2) is to be maintained.
- ☐ Rotors and braking surfaces must be free of oil and grease. There has to be a suitable counter friction face (steel or cast iron). Sharp-edged interruptions of the friction face have to be avoided.  
Recommended surface quality in the range of the friction surface  $R_a = 1,6 \mu\text{m}$ .  
Especially mounting areas made of cast iron arranged by the customer are additionally to be drawn off with a fine abrasive paper (granulation  $\approx 400$ )

**Brake must be checked as to supply condition (complete brake) according to type indication.**

Table 1

Size	Max. friction power [J]	With speed n [rpm]
60	20000	1500
125	30000	1500
250	50000	1500
500	80000	1500
1000	100000	750
2000	120000	750

## Assembly conditions

- ☐ The eccentricity of the shaft end relative to the fixing hole P.C.D. must not exceed 0,2 mm.
- ☐ The positioning tolerance of the threads for the double end stud (3) must not exceed 0,2 mm.
- ☐ The deviation in the true running of the screw-on surface to the shaft must not exceed the permissible true running tolerance acc. to DIN 42955 R: for sizes 60 – 500: **0,05 mm**,  
for sizes 1000 – 2000: **0,063 mm**  
Reference diameter is the pitch circle diameter for brake attachment.  
Larger deviations can cause a drop of the torque, continuous wear of the rotor and overheating.
- ☐ The hub and shaft fits are to be selected so that the hub teeth do not distort. It can clamp the rotor onto the hub causing a problem with the brake, (recommended hub-shaft fit H7/k6).

## Assembly (Figs. 1 – 3)

- Mount gear hub, compl. (1) to the shaft acc. to Fig. 3, **observe dim. "A" acc. to Table 2 and Fig. 3, observe the complete supporting length of the keyway**, and lock it axially (e.g. with a retaining ring).
- If necessary, assemble flange plate (12) using the cap screws (12.1) (observe tightening torque acc. to Table 2).
- Push rotor 1 (5) manually with a slight pressure via O-rings (1.1 and 1.2) onto the gear hub (1) (rotor hub nose away from machine wall/flange plate). Rotor must slide smoothly over hub. No damage of the O-rings.
- Manually turn double end stud (3) **with coated side of thread** until coating (screw in limitation) into the tapped holes of the brake screw-on surface (machine wall) or with flange plate until contact (secure it with LOCTITE 243).
- Push brake body (2) over double end studs (3).
- Push rotor 2 (6) manually with a slight pressure (via O-ring) (1.2) onto the gear hub (1). (Rotor collar shows in direction of flange plate/machine wall). Rotor must slide smoothly over hub. No damage to the O-ring.
- Push brake plate (16) over double end studs (3).
- Uniformly attach the brake using the hexagon nuts (4). (**Tighten hexagon nuts with a torque wrench**) **Observe tightening torque according to Table 2.**
- Check air gap "a" acc. to Table 2.**  
Nominal air gap must be given.
- Check air gap single circuit "b" at the rotors 1 and 2.**  
The corresponding air gap according Table 2 **must** be given.

Table 2:

Brake size	Brake torque <sup>+40% / -20%</sup> / Max. speed		Dim. "A" [mm]	Tightening torque hexagon nut (Pos. 4) [Nm]	Tightening torque cap screw (Pos.12.1) [Nm]	Nom-air gap "a" complete (braked) [mm]	Limit air gap [mm]	Inspection air gap "b" released single circuit [mm]
	Type 892.10_0 M [Nm]	n [rpm]						
60	70 (2x 35)	3000	3	12	9	0,45 <sup>+0,25</sup>	1,0	min. 0,15
125	140 (2x 70)	3000	3	29	21	0,50 <sup>+0,25</sup>	1,2	min. 0,15
250	280 (2x 140)	3000	3	58	42	0,60 <sup>+0,25</sup>	1,4	min. 0,2
500	540 (2x 270)	1500	3	98	75	0,7 <sup>+0,3</sup>	1,6	min. 0,2
1000	1100 (2x 550)	750	6	250	180	0,8 <sup>+0,3</sup>	1,8	min. 0,25
2000	2380 (2x 1190)	750	7	650	550	1,1 <sup>+0,4</sup>	2,0	min. 0,3



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## Noise damping (17)



### Attention!

The noise damping is adjusted at the factory.  
An adjustment is only possible by specialists.

## Temperature sensor (9)

ROBA-stop® - dual circuit fail safe brakes are supplied with a PTC sensor (DIN 44081/44082).

The temperature monitoring or signal evaluation is made via a posistor tripping device attached by the customer.  
(Connection: brake cable leads grey/grey).

If the brake is used as part of the protective device for the ascending elevator cage against an overspeed (inspected design ABV 547/1) or as brake for theatre and stage applications, an evaluation of the PTC-sensor in the elevator range must be made by the customer. For the theatre and stage applications the signal must only be evaluated, if the starting torque of the drive motor is bigger than the complete torque of the brake.

## Electric connection of the brake

In safety-relevant applications the regulations for a risk reduction and error prevention (e. g. redundancy, diversification, monitoring etc.) are to be observed with an electrical control.

### Operating voltage of the coil:

The D.C. current with a tolerance of +/- 10 % according to DIN IEC 60038 is indicated on Type tag. Additionally it is stamped on the brake body (2).

This current can be generated via rectifiers (half-wave or bridge rectifiers) as well as D.C. supply units.

The connection is made via a four-conductor cable.

### Four conductor cable connection

Wires: blue and brown Coil connection (operating voltage).

Wires: grey and grey Connection of the fitted posistor.



### Attention!

Do not apply any coil voltage!  
⇒ Damage of PTC sensor and coil.

### Earthing:

The dual circuit brake is designed for protection class I, i.e. a well conductive connection of all conductive elements is to be arranged with the earthed conductor.

The earth connection (marked) is attached on the brake body (2) which must be made via an M4-cap screw. It has to be observed that all contact faces are bare and well conductive.

An inspection conforming to standards of the through-going protective connection to all metal components is to be carried out.

### ON/OFF – switching of the brake

#### Important!

The operating performance of the brake depends on the used kind of wiring. Therefore the following kind of wirings must be observed.

### Switching-ON

Switching-ON is either made on the AC current side with the switch S3 and a bridge via the terminals 3 and 4 (in this case there are no switches S1 and S2)

or

on the AC and DC current sides with the switches S1 and S2 (in this case there is no switch S3).

ROBA®-switch fast acting rectifiers with overexcitation voltage for example can be used to achieve fast release times (disconnection times). In this case the brake is energised within an adjustable overexcitation time (up to max. 2 secs.) with a higher operating voltage allowing a faster release of the brake. As soon as the overexcitation time has passed the brake is energised with the coil voltage.

### Switching-OFF

On the AC current side with the switch S3 and a bridge over the terminals 3 and 4.

#### Observe!

- ☐ Application for **standard operation** of the elevator.
- ☐ **Silent switching**, but longer engaging time of the brake (approx. 6-8 times longer than with switching-OFF on the DC current side).

### Switching-OFF

On the DC current side with the switches S1 and S2

#### Observe!

- ☐ **Noisy switching – but short engaging time of the brake.**
- ☐ Application for **emergency-stop operation!**

### Important!

In case of switching-OFF on the D.C. current side the coil must be protected against transient overvoltages by means of suitable protective wiring according to VDE 0580. (included in mayr®-rectifiers).

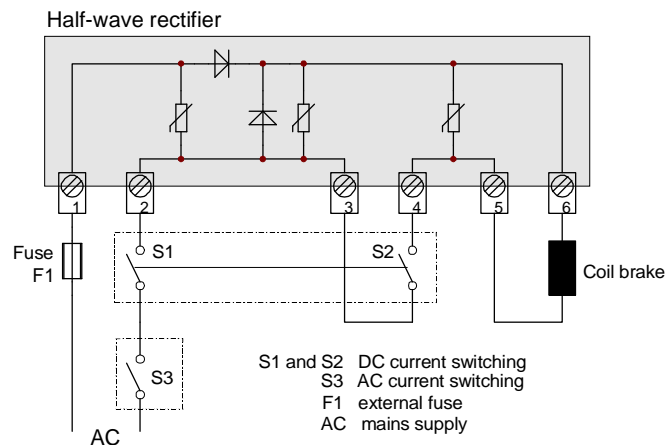
### Fuse protection of the unit F1

A miniature fuse for protection against short circuits must be provided in the supply mains by the customer.

### Switching example (Fig. 4)

#### Notice!

The half-wave rectifier shown on Fig. 4 can be taken as switching example and can be replaced by others, as for example bridge rectifiers, ROBA®-switch fast acting rectifier, power supply units. The fuse size must be adapted to the corresponding brake size.



(Example) Fig. 4

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## Brake inspection (Figs. 1 - 3)

(Before initial start of the brake).

- ❑ **Inspection of the complete air gap** (nominal air gap „a“) braked  
(several times at the brake circumference) acc. to Table 2
- ❑ **Inspection of air gap, single circuit** („b“ released) brake circuit 1 internal and brake circuit 2 external (several times at the brake circumference) according to Table 2.
- ❑ **Inspection of the hand release function**  
By deflection of the hand release (18) via a manual force linings are unloaded. The brake is free up to a residual torque of approx. max. 5 %.  
**Indication:**  
When the hand release is actuated a switch signal of the release monitoring system is not guaranteed.

## Brake inspection (dual circuit braking function)

The ROBA-stop® - Z brake has a double safe (redundant) brake system. If one brake circuit fails 50% of the braking torque, however, maintains. The single brake circuit is inspected by means of an included reference gauge (10).



### Attention!

Should the elevator move after tilting the reference gauges (10) or not decelerate sensibly during the braking process, immediately reverse rotate the reference gauges and remove it. The dual circuit

braking function is not guaranteed. Stop elevator.

Disassemble brake and check it.

- ❑ Take **reference gauges** (attached to motor or gear box respectively). **Inspection:** reference gauges are marked.  
Size of gauge must correspond with brake size.  
(Exception: brake size 2000 = reference gauge size 1000)
- ❑ **Inspection brake circuit I (mounting side Fig. 2):**  
**a.)** Push both reference gauges, displaced 180° to each other, with the flattened surfaces between brake body (2) and mounting area (12). Rotate reference gauges 90° and hold in this position (no spring force on rotor 1 (5)).  
**b.)** Release emergency braking (with max. load and max. speed) and check stopping distance acc. to specifications for passenger lifts.  
**c.)** Turn reference gauges to the flattened surface and remove from the brake.

- ❑ **Inspection brake circuit II (brake flange side Fig. 2):**  
**a.)** Push both reference gauges, displaced 180° to each other, with the flattened surface between armature disc (13) and braking plate (16). Rotate reference gauge by 90° and hold in this position (no spring force on rotor 2 (6)).  
**b.)** Release emergency braking (with max. load and max. speed) and check stopping distance acc. to specifications for passenger lifts.  
**c.)** Turn reference gauge to the flattened surface and remove from the brake.

**Attach references gauges to the motor or gear box again.**

## Braking torque adjustment (Fig. 5 and Table 2)

ROBA-stop® - Z brakes are adjusted to the nominal torque or braking torque requested in the order at the factory. The braking torque can be reduced continuously up to 50 % via two cap screws (14) (size 2000: 4 pcs.) together with the hexagon nuts (15) by the aid of the dimension "X" (Fig. 5 and Table 3). It has to be observed that both screws are adjusted uniformly and the hexagon nuts are locked again.

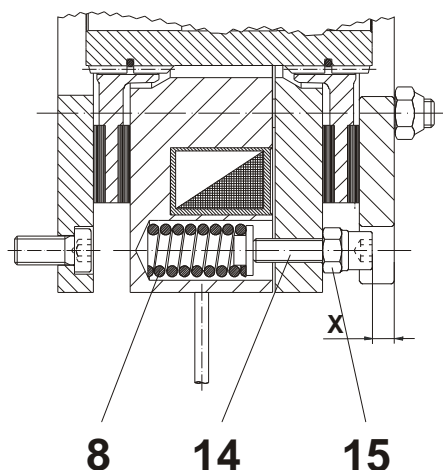


Fig. 5

Table 3:

Size	Braking torque adjustment "M" [Nm] and dimension "X" [mm]												Rotor thickness "new"  [mm]
	Type 892.10_0												
	M [Nm]	"X" [mm]	M [Nm]	"X" [mm]	M [Nm]	"X" [mm]	M [Nm]	"X" [mm]	M [Nm]	"X" [mm]	M [Nm]	"X" [mm]	
60	35	2,2	40	3,3	50	5,1	60	7,0	65	7,9	70	8,7	9,4 <sub>-0,05</sub>
125	70	1	85	2,2	100	3,5	115	4,7	130	5,9	140	6,5	10,5 <sub>-0,05</sub>
250	140	1,5	170	3,0	200	4,5	230	6,0	260	7,5	280	8,5	12,5 <sub>-0,05</sub>
500	270	6,7	325	8,6	385	10,6	440	12,5	500	14,6	540	16,0	15,45 <sub>-0,05</sub>
1000	550	13,4	700	16,1	800	17,8	900	19,6	1000	21,4	1100	23,5	18,5 <sub>-0,05</sub>
2000	1190	16	1425	18,5	1665	21,5	1885	24,5	2125	27,5	2380	30,5	18,5 <sub>-0,05</sub>



### Please Observe!

The adjustment dimensions "X" given are only valid for the respective standard braking torque range. For the adjustment dimensions "X" on special braking torque ranges, please see the assembly drawings included in delivery.

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## Release monitoring (11) Fig. 6

ROBA-stop® – Z brakes are supplied with adjusted release monitoring (adjustment acc. to type).

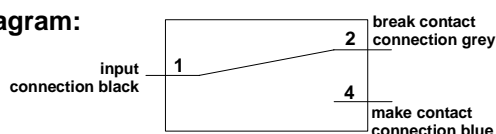
If the brake is used as part of the protective device for the ascending elevator cage against an overspeed (inspected design ABV 547/1) or as brake for theatre and stage applications, a release monitoring is prescribed.

A micro switch (11.1) gives signal: "brake opened or brake closed" for every change of the brake condition.

**An evaluation of the signal of both conditions must be made by the customer.**

From the time when the brake is energised a period of three times the separation time must be passed, before the micro switch signal of the release monitoring system is evaluated.

## Wiring diagram:



## Function

When the magnetic coil is energised (2.1) in the brake body (2) the armature disc (13) is attracted to the brake body (2), a micro switch (11.1) gives signal, the brake is released.

## Note:

When the hand release (18) is actuated a switch signal of the release monitoring system (11) is not guaranteed.

## Assembly (at the factory Fig. 6)

### Attention:

**Brake attached at the assembly device or mounting face-brake, mounting position horizontally, fastened with nominal tightening torque and de-energised.**

- Put LOCTITE 243 on hexagon head cap screw (11.2) at the beginning of the thread and screw it into the armature disc (13) until contact of the screw head. Head of screw shows in direction of the brake body (2).
- Locate hexagon nut (11.3) with spring washer (11.4).
- Screw micro switch (11.1) with cap screws (11.7) to the adapter plate (11.6) (M= 0,2Nm). Put UHU endfest 300 between micro switch and adapter plate.  
(Secure cap screws with UHU endfest 300)
- Screw adapter plate (11.6) with two cap screws (11.5) (M4x8 – DIN912) to the brake body (2) on the side of the release monitoring (Fig. 6) (lock it with LOCTITE 243).
- Screw brake at the machine wall (12) or assembly device with nominal tightening torque.

## Adjustment and inspection of the micro switch ((pos. 11.1) Fig. 6 at the factory):

**Attention!! Brake must not be connected to supply voltage.**

- Connect inspection lamp or measuring unit (diode inspection) at the micro switch (11.1) (make contact = blue and black).
- Turn hexagon head cap screw (11.2) in direction of the micro switch (11.1) until contact of the micro switch tappet.
- Tighten hexagon nut (11.3) so far that the hexagon head cap screw (11.2) is put under pretension of the spring washer (11.4).
- Push feeler gauge (loose feeler sheet) **dimension "c"** (Table 4) between switch tappet and hexagon head cap screw (11.2).

- Turn hexagon head cap screw (11.2) in direction of the micro switch (11.1), until **signal "ON"**, turn it back until **signal "OFF"**. Lock hexagon head cap screw (11.2) with hexagon nut (11.3).
- Cycle 2x; if necessary re-adjust it according to item 5.  
energised ⇒ **signal "ON"**,  
de-energised ⇒ **signal "OFF"**,
- Add additional feeler gauge (loose feeler sheet) **0,1mm** to the **dimension "c"** ⇒ cycle 1 x,  
de-energised ⇒ **signal "ON"**.  
Remove feeler gauge.
- Put feeler gauge **dimension "d"** between brake body (2) and armature disc (13) in the range of the micro switch.  
energised ⇒ **signal „ON“**,  
de-energised ⇒ **signal „OFF“**,

Table 4

Size	Dimension Feeler gauge [mm]	
	c	d
Z60	0,15	0,2
Z125	0,2	0,25
Z250	0,2	0,25
Z500	0,25	0,3
Z1000	0,3	0,4
Z2000	0,3	0,4

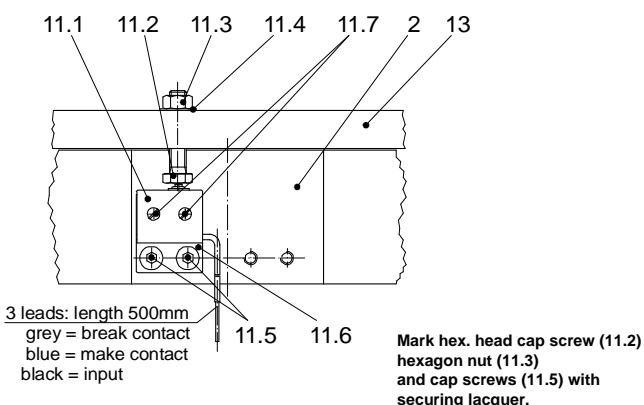


Fig. 6 (Sizes 60 – 2000)

Table 5: Maximum switch capacity  
Micro switch (Pos.11.1)

AC switch capacity		DC switch capacity	
Voltage [VAC]	Resistance load [A/R <sub>Last</sub> ]	Voltage [VDC]	Resistance load [A/R <sub>Last</sub> ]
125	5	bis 30	5
250	5	125	0,5
-	-	250	0,25

Minimum switch capacity: 0,12VA (> 12V, > 10mA)  
Contact material: silver



# Installation and Operating Instructions for ROBA-stop® -Z Dual Circuit Fail Safe Brake Type 892.10\_.0 Sizes 60 – 2000

(B.8.2.0.GB)

## Wear monitoring (19)

### Figs. 7 and 8

ROBA-stop® – Z brakes (depending on type) are supplied with factory adjusted wear monitoring.

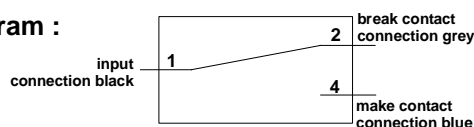
**A wear monitoring is recommended with reduced braking torques and/or and operation with fast acting rectifiers (overexcitation) due to the increased drawing behaviour of the brake.**

### Function

The air gap "a" between brake body (2) and armature disc (13) is increased due the wear of the rotors (5 and 6). If the limiting air gap (acc. to Table 2) is achieved the contact of the micro switch (19.1) switches over and gives signal. The rotors (5+6) must be exchanged.

*The customer must evaluate the signal.*

### Wiring diagram :



### Before exchange of the rotors (pos. 5 and 6)

- Clean brake, remove abrasive dust with the aid of air pressure.
- Check rotor thickness "new" (acc. to Table 3).

### Exchange of the rotors (pos. 5 and 6)

The exchange of the rotors is made in the opposite sequence of the brake assembly.



### Attention!

**In case of hoisting drives the drive-brake must be free of load.  
Otherwise there is the risk of the load falling!**

### Assembly (at the factory Figs. 7 and 8)

**Attention! Brake must not be connected to supply voltage**

#### Sizes 60 - 125

1. Put LOCTITE 243 on hexagon head cap screw (19.2) at the beginning of the thread and screw it into the armature disc (13) until contact of the screw head. Head of screw shows in direction of the brake body (2).
2. Locate hexagon nut (19.3) with spring washer (19.4).
3. Screw micro switch (19.1) with cap screws (19.7) to the adapter plate (19.6) (M= 0,2Nm). Put UHU endfest 300 between micro switch and adapter plate.  
(Secure cap screws with UHU endfest 300)
4. Screw adapter plate (19.6) with two cap screws (19.5) (M4x8 – DIN912) to the brake body (2) on the side of the release monitoring (Fig. 7) (lock it with LOCTITE 243).
5. Screw brake to the machine wall (12) or assembly device with nominal tightening torque, **put measuring strip "Z" between all distance sleeves (7) and machine wall (12) or assembly device according to Table 8.**

#### Sizes 250 – 2000:

1. Screw hexagon head cap screw (19.2) into the armature disc (13) until contact of the screw head.  
(head of screws shows in direction of the brake body (2)).
2. Slightly locate hexagon nut (19.3).
3. Screw micro switch (19.1) using cap screws (19.5) to the brake body (2) at the wear monitoring side (Fig. 8) (secure cap screws (19.5) with LOCTITE 243).
4. Screw brake to the machine wall (12) or assembly device with nominal tightening torque, **put measuring strip "Z" between all distance sleeves (7) and machine wall (12) or assembly device according to Table 8.**

## Adjustment and inspection of the micro switch

((pos. 19.1) Figs. 7 and 8 at the factory):

**Attention!! Brake must not be connected to supply voltage**

1. Connect signal lamp or inspection unit (adjustment diode inspection at the micro switch (pos. 19.1).  
(Break contact: leads grey and black)
2. Turn hexagon head cap screw (pos. 19.2) in direction of the micro switch (pos. 19.1) until this switches.
3. Turn hexagon head cap screw (pos. 19.2) back again until contact of the micro switch (pos. 19.1) switches over again.
4. Lock hexagon head cap screw (pos. 19.2) by the aid of the hexagon nut (pos. 19.3) (secure it with LOCTITE 243).

### Operational check

**with feeler gauge (Figs. 7 and 8) at the factory:**

1. Push feeler gauge **dim. = 0,1mm** between switch tappet and hexagon head cap screw (Pos.19.2)  
(observe straight position of the switch tappet).  
**Signal lamp must signal "OFF".**
2. Release brake, remove measuring stripe.
3. Brake can be assembled with wear monitoring system.
4. Attach indication label wear monitoring system.

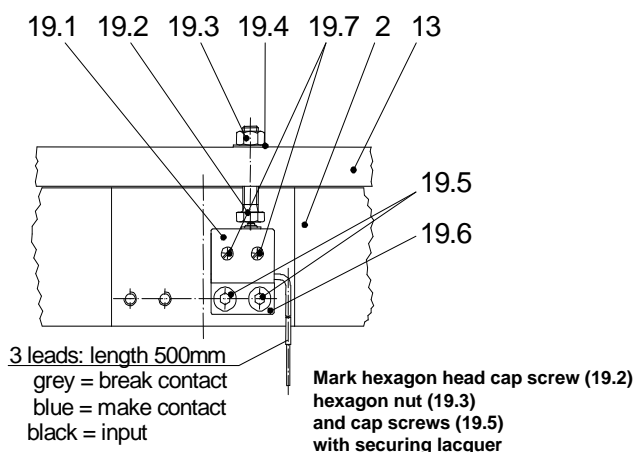


Fig. 7 (Size 60 – 125)

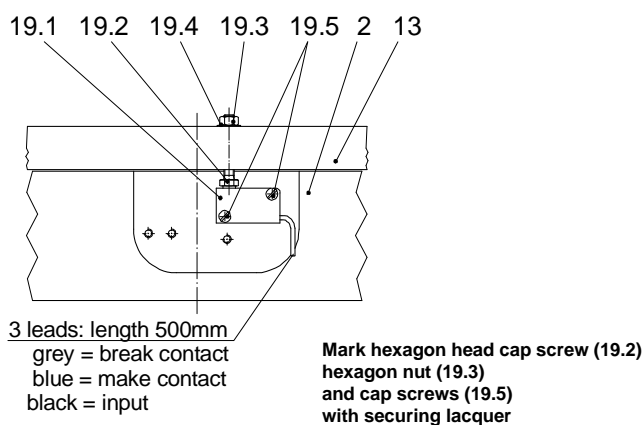


Fig. 8 (Size 250 – 2000)

# Installation and Operating Instructions for ROBA-stop® -Z Dual Circuit Fail Safe Brake Type 892.10\_.0 Sizes 60 – 2000

(B.8.2.0.GB)

**Table 6: Maximum switch capacity micro switch  
sizes 60 - 125**

AC switch capacity		DC switch capacity	
Voltage [VAC]	Resistance load [A/R <sub>load</sub> ]	Voltage [VDC]	Resistance load [A/R <sub>load</sub> ]
125	5	up to 30	5
250	5	125	0,5
-	-	250	0,25

Minimum switch capacity: 0,12 VA (>12 V, >10 mA)  
Contact material: silver

**Table 7: Maximum switch capacity micro switch  
sizes 250 - 2000**

AC switch capacity		DC switch capacity	
Voltage [VAC]	Resistance load [A/R <sub>load</sub> ]	Voltage [VDC]	Resistance load [A/R <sub>load</sub> ]
230	1,5	60	0,5
		24	2

Minimum switch capacity: 0,12 VA (>12 V, >10 mA)  
Contact material: silver

**Table 8: Measuring stripe „Z“ and  
number of distance sleeves**

Brake size	Dim. "Z" [mm]	Number of distance sleeves (Pos.7)
60	0,4	3
125	0,4	3
250	0,5	3
500	0,5	3
1000	0,6	3
2000	0,6	3

## Maintenance

ROBA-stop® -Z brakes are virtually maintenance free.

The friction lining is robust and wear resistant ensuring that a long service life of the brake is obtained.

The friction lining, however, is a wearing item, and in the case of emergency OFF braking actions, the following inspections should be made at regular periods as below:

- ☐ Inspection of the braking torque or deceleration (inspection brake circuit separately (Fig. 2 and Table 2)).
- ☐ Inspection of the nominal air gap or limiting air gap respectively (Fig. 3 and Table 2).

*The intervals for inspection are to be determined according to the application by the customer, or to be carried out with the TÜV inspection the latest..*

The inspection of the wearing condition of the rotors 1 and 2 (pos. 5+6) is made by checking the air gap "a" (Fig. 3 and Table 2). Immediately after reaction of the wear monitoring or when the limit air gap is achieved the rotors are to be exchanged.

### Before exchanging the rotors (pos. 5 and 6)

- Clean brake, remove abrasive dust with the aid of air pressure.
- Check thickness of rotor "new", (acc. to Table 3).

### Exchange of the rotors (pos. 5 and 6)

The exchange of the rotors is made in the opposite sequence of the brake assembly.



### Attention!

In case of hoisting drives the drive brake must be free of any load. Otherwise there is the risk of the load falling!

## Breakdowns:

Failures	Possible reasons	Remove
Brake does not release	<input type="checkbox"/> False voltage measured at the rectifier <input type="checkbox"/> ROBA®-switch fast acting rectifier failed <input type="checkbox"/> Air gap too big (rotor worn down) <input type="checkbox"/> Coil interrupted	<input type="checkbox"/> Apply correct voltage <input type="checkbox"/> Exchange ROBA®-switch fast acting rectifier <input type="checkbox"/> Exchange lining carrier <input type="checkbox"/> Exchange brake
Brake engages with delay in case of Emergency stop.	<input type="checkbox"/> Brake is switched to AC side	<input type="checkbox"/> Switch to DC side