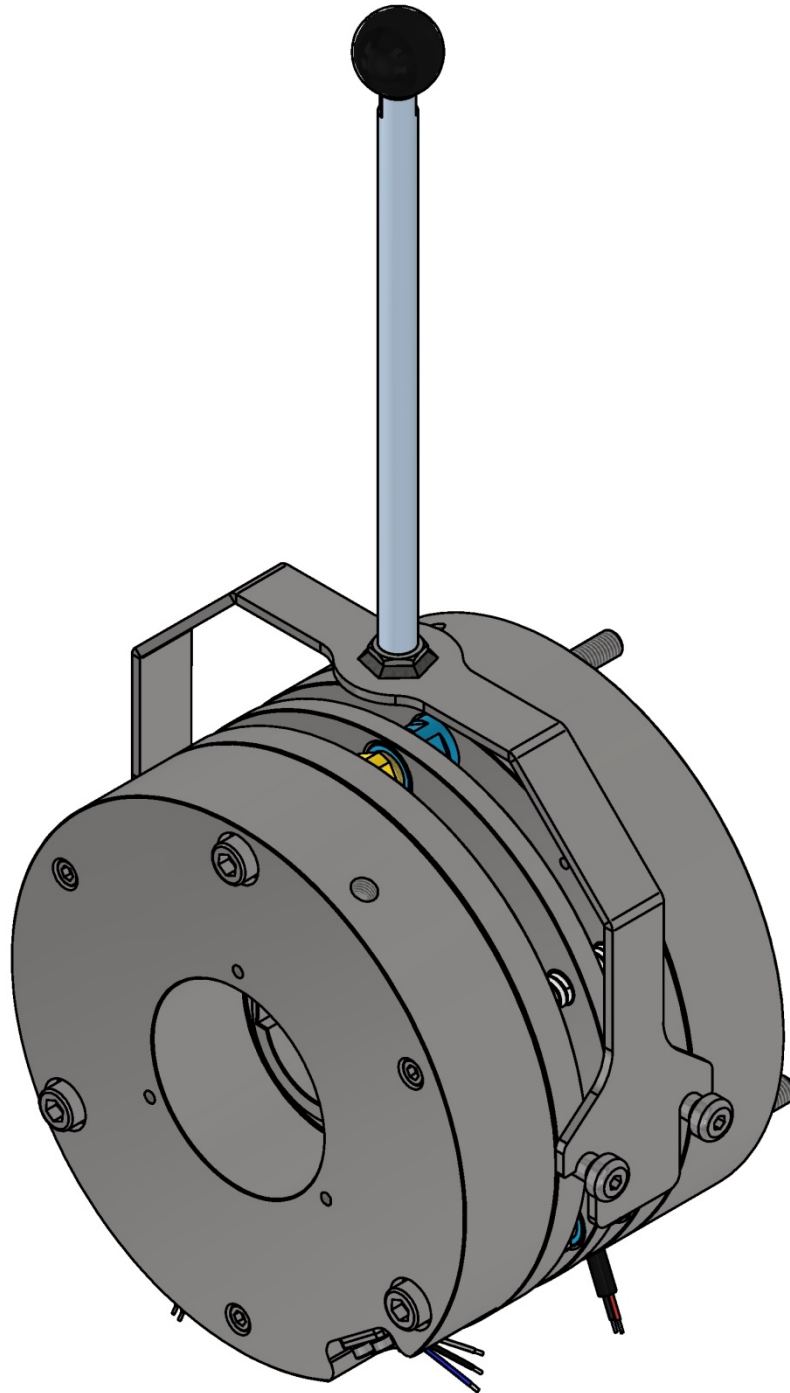




Emco Dynatorq Pvt. Ltd.
(Formerly **Emco Lenze Pvt. Ltd.**)

Operating, Installation & Servicing Instructions Manual



**EMCO – Simplatroll DC Spring Applied
Stage Machinery Brake Type: - 41.491.XX**

Installation and Operational Instructions Manual for EMCO Stage Machinery Brake

Please read these Operational Instructions carefully and follow them accordingly!

Ignoring these Instructions can lead to fatal accidents, malfunctions, brake failure and damage to other parts. These Installation and Operational Instructions are part of the brake delivery. Keep them handy and near to the brake at all times.

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Safety Regulations

These Safety Regulations are user hints only.

General Guidelines

DANGER



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

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.

To prevent injury or damage, only specialist personnel are allowed to work on the components. They must be familiar with the dimensioning, transport, installation, inspection of the brake equipment, initial operation, maintenance and disposal according to the relevant standards and regulations.

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, bedding-in condition / conditioning of the brake linings 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 brake system is designed for a relative duty cycle of 50 % / intermittent periodic duty S3.
- The braking torque is dependent on the current bedding-in condition of the brake. Bedding in / conditioning of the friction linings is necessary.
- 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 any other foreign bodies.
- The surfaces of the outer components have been plated & powder coated manufacturer-side to form a basic corrosion protection.

CAUTION



The rotors may rust up and seize up in corrosive ambient conditions & / or after longer downtimes. The user is responsible for taking appropriate countermeasures.

Dimensioning

When dimensioning the brake, please take into consideration that a load torque is present when selecting the protection.

- Load torque reduces the deceleration torque available.
- Load torques may increase the output speed:
 - ➔ during a possible processing time in the controls
 - ➔ during the brake downtime

When calculating the friction work, please keep in mind that the nominal torque is subject to a tolerance depending on the speed of the brake (see Table 2 "Graduation of the Nominal Braking Torque", page 5)

Climate Conditions

The electromagnetic brake is suitable for mounting / operation on electromotive elevator machinery in enclosed places of installation with an ambient temperature of between -5 °C and +40 °C. At temperatures < 10 °C there is an increase in switching noise.

Reduction in braking torque possible

Condensation can form on the brake & cause a loss in braking torque.

- Due to fast temperature change
- Surrounding temperature under freezing point the brake can freeze over & will not release on applying voltage.

User is responsible for taking appropriate countermeasures e.g., forced convection, heating, drain screw. The brake function must be checked by the user after longer downtimes.

At high temperatures and in high humidity or with occurring dampness, the rotors can seize up to the friction surface after longer downtimes. Temperatures of over 65°C on the brake mounting flange can have a negative effect on the switching times, the braking torque levels, and the noise damping behavior.

Class of Insulation F (+155 °C):

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

Protection:

(Mechanical with cover) IP30: Protected against penetration of solid foreign bodies > 2.5 mm diameter. No protection against water.

Electrically brake confirms IP55 requirement: 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 -5 °C up to +40 °C.
 - Do not store in direct sunlight or UV light.
 - Do not store aggressive, corrosive substances (solvents / acids / salts / oils / etc.) near to the brakes.
- For longer storage of more than 1.5 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 attachments has taken place** as well as **after longer system downtimes**, to prevent the drive starting up against possibly seized linings.

Users should take protective measures:

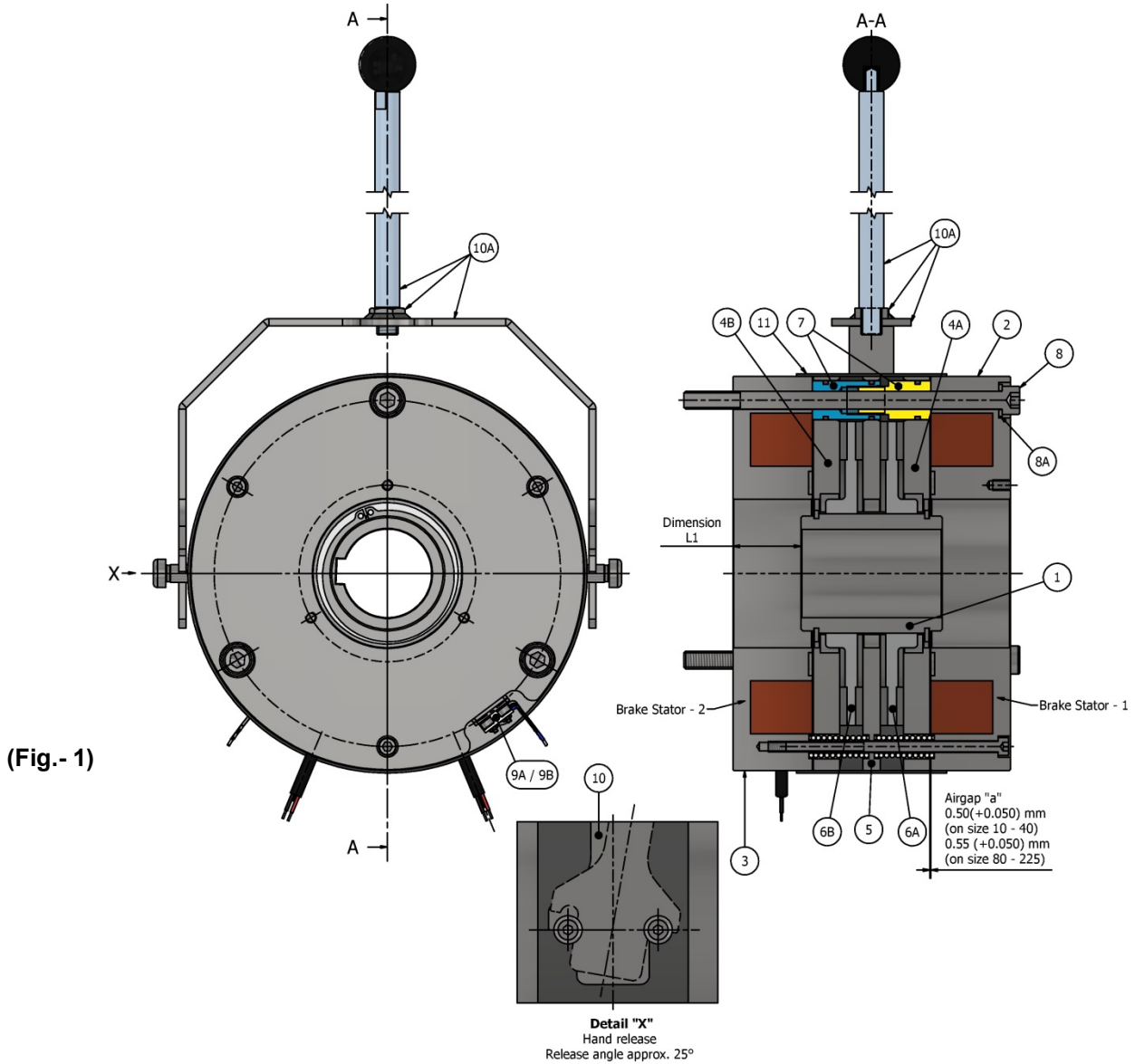
- To cover moving parts to protect **against injury through seizure**.
- Place a cover on the magnetic part to protect **against injury through high temperatures**.
- Take precautions **against freeze-up of the friction surfaces** in high humidity and at low temperatures.

Liability:

Emco will not be liable 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.

Parts List (Only use *EMCO* original parts)



Item	Name	Pcs.
1	Hub	1
2	Coil stator assembly 1	1
3	Coil stator assembly 2	1
4A	Armature plate 1	1
4B	Armature plate 2	1
5	Intermediate plate	1
6A	Rotor 1	1
6B	Rotor 2	1
7	Wear adjustment bolts	6
8	Socket head cap screw	3
8A	Spring washers	3
9A / 9B	Micro-switch for brake release & wear monitoring	2
10	Hand release bow	1
10A	Hand release bracket assembly	1
11	Dust seal	1

Table 1: Technical Data

Size			10		12		14		16		17		18	
Nominal Braking torque Nm (+60 %)	maximum	[Nm]	16		32		64		120		200		400	
	reduced	[Nm]	13		28		58		100		180		380	
	minimum	[Nm]	10		24		52		80		160		360	
Maximum speed ¹		[rpm]	5000		5000		5000		4700		4100		3400	
Nominal voltage		[V]	24	207	24	207	24	207	24	207	24	207	24	207
Coil capacity (at 20 °C)		[W]	2x36	2x36	2x38	2x38	2x45	2x45	2x55	2x55	2x65	2x65	2x80	2x80
Nominal airgap "a" (+0.05)		[mm]	0.5		0.5		0.5		0.55		0.55		0.55	
Max. permitted airgap "a"		[mm]	1.0		1.0		1.0		1.0		1.0		1.0	
Switching noises in new condition (AC-side switching)			< 60 dB (A)											
Protection (mechanical)			IP30											
Protection (electrical)			IP55											
Protection of micro-switch			IP67											
Mass moment of inertia (2 rotors + hub) max		[kgm ²]	0.0010		0.00025		0.00065		0.00110		0.00236		0.00700	
Fixing screw Item 8	Number of pieces		3		3		3		3		3		3	
	Thread		M5		M6		M6		M8		M8		M10	
	Length	[mm]	100		110		120		140		150		170	
	Property class		8.8		8.8		10.9		10.9		10.9		10.9	
	Tightening torque	[Nm]	5		9		13.2		32		36		71	
Ambient temperature		[°C]	-5 to +40											

1) Please observe the percentage reduction of the nominal braking torque depending on the speed according to Table 2 "Graduation of the "Nominal Braking Torque".

Table 2: Graduation of the Nominal Braking Torque

Size			10		12		14		16		17		18	
Percentage reduction of the nominal braking torque dependent on the speed		[%]	100		100		100		100		100		100	
	Up to speed	[rpm]	2500		2000		1600		2000		1800		1500	
		[%]	85		85		85		80		80		80	
	Up to speed	[rpm]	3600		2800		2400		3000		2500		2200	
		[%]	-		-		70		70		70		70	
	Up to speed	[rpm]	-		-		3400		3200		2800		2400	
		[%]	70		70		60		60		60		60	
	Up to speed	[rpm]	5000		5000		5000		4700		4100		3400	

Table 3: Max. Permitted Friction Work

Size		10					12					14				
Speed	rpm	1250	2500	3500	4000	5000	1000	2000	2900	4000	5000	850	1700	2500	3400	5000
Max. permitted friction work	J	15000	12000	6000	4500	2400	28000	24000	19000	4000	4000	44000	38000	26000	9000	9000

Size		16					17					18				
Speed	rpm	800	1500	2200	3000	4700	750	1500	2000	2500	4100	700	1500	1900	2200	3400
Max. permitted friction work	J	56000	40000	34000	23000	23000	85000	64000	46000	36000	36000	92000	65000	48000	41000	41000

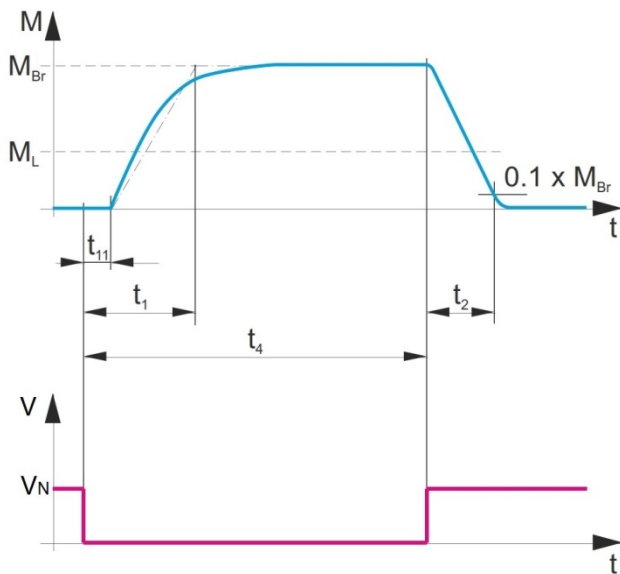
Table 4: Switching Times

Size	Nominal braking torque	Switching times [ms]					
	[Nm]	Disengagement	Engagement AC		Engagement DC		
	MN	t ₂	t ₁₁	t ₁	t ₁₁	t ₅₀ *	t ₉₀ *
10	16	55	140	310	20	25	30
	10	40	160	330	25	30	36
12	32	90	190	370	23	30	36
	24	75	240	420	27	35	40
14	64	130	240	450	29	38	46
	52	110	270	500	33	42	52
16	120	180	240	520	40	50	65
	80	150	330	590	50	60	75
17	200	210	320	600	46	64	85
	160	190	370	700	58	68	90
18	365	250	400	750	55	75	120
	260	220	480	820	70	85	135

*Referring to the nominal braking torque

The specified switching times are guideline values which are subject to tolerances, at nominal voltage, nominal air gap and room temperature. They can only be achieved using the respective correct electrical wiring. This also refers to the protection circuit for brake control and the response delay times of all control components. If the brake is operated using overexcitation, the respective switch-on and switch-off times for overexcitation must be considered. The use of varistors for spark quenching increases the DC-side switching times.

Torque-Time Diagram



Key

- M_{Br} = Braking torque
- M_L = Load torque
- t₁₁ = Response delay on engagement
- t₅₀ = Engagement time until reaching 50 % of the nominal braking torque M_N
- t₉₀ = Engagement time until reaching 90% of the nominal braking torque M_N
- t₁ = Engagement time
- t₂ = Disengagement time
- t₄ = Slip time + t₁₁
- V_N = Coil nominal voltage

(Fig.- 2)

Application

- Emco stage machinery brake is to be used as a holding brake with occasional EMERGENCY STOP braking actions.
- The max. permitted speed and friction work (see Technical Data page - 5) must be observed.

Design

Emco stage machinery brake is a spring applied, electromagnetically releasing dual circuit safety brake, which applies a defined braking effect after the voltage is switched off or after a voltage failure.

Function

Emco stage machinery brakes are spring applied, electromagnetic safety brakes.

Spring applied function (brake):

In de-energized condition, compression springs press against the armature disks (4A and 4B). The rotors (6A and 6B) are held between the armature disks (4A and 4B) and the intermediate disk (5). The braking torque is introduced into the drive line (shaft) via the splines of the rotors (6A and 6B) and the hub (1).

Electromagnetic function (release):

Due to the magnetic force of the coils in the coil stator (2 and 3), the armature disks (4A and 4B) are attracted against the spring pressure to the coil stator (2 and 3). The brake is released and the rotors (6A and 6B) with the hub (1) can rotate freely.

Safety brakes:

Emco stage machinery brake is reliable and safe in the event of a power switch-off, a power failure or an EMERGENCY STOP.

Scope of Delivery / State of Delivery

The stage machinery brake is manufactured-assembled is ready for installation and set to the braking torque specified on order.

The release monitoring device (9A) and the wear monitoring device (9B) are mounted and set at Emco-side.

The following are included loose in delivery: - Cap screws (8) - Washers (8A) - Hand release (10 / must be ordered separately if required)

Please check the scope of delivery as well as the state of delivery immediately after receiving the goods. *Emco* will not take any responsibility for belated complaints. Please report transport damage, incomplete delivery and obvious defects immediately to Emco.

Adjustment

The brakes are equipped completely at Emco-side with the respective springs for the braking torque stated on the name plate. Adjustment is not necessary. Adaptions or modifications are not permitted by the user. This rule also applies to the manufacturer-side adjusted noise damping. The micro switches are also adjusted at Emco-side. Despite great care taken during the manufacturer-side adjustment, re-adjustment might be necessary after installation due to transportation and handling. Please observe the sections Release Monitoring and Wear Monitoring.

Noise Damping

The noise damping is set and adjusted at Emco-side. However, this component is subject to aging dependent on the application or operating conditions (torque adjustment, switching frequency, ambient conditions, system vibrations etc.). Replacing the damping element is only permitted by Emco.

Installation Conditions

Dimension L1 = 29.5 mm for Size 10,

Dimension L1 = 29 mm for Size 12,

Dimension L1 = 29.5 mm for Size 14,

Dimension L1 = 34 mm for Size 16,

Dimension L1 = 36 mm for Size 17,

Dimension L1 = 39 mm for Size 18,

must be observed (see Fig. 1, page 4).

Shaft tolerance: h6

- 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 cap screws (8) 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 **0.065 mm**. The reference diameter is the pitch circle diameter for securement of the brakes. Larger deviations can lead to a drop in torque, and continuous grinding on the rotors (6A and 6B) will lead to overheating of brake.

Installation

Emco brake is delivered assembled including the centred hub (1). For additional safety, we recommend applying Loctite 243 into the threaded holes for fastening the brake.

1. Push the entire brake with the hub (1) over the shaft with key (fixing holes should align with the bores in the machine wall).
2. Insert the cap screws (3 x Item 8) with the washers (8A) into the coil stator (3) and screw evenly into the machine wall until the brake is lying against it.
3. Tighten the cap screws (8) all around evenly **using a torque wrench to a tightening torque acc. Table 1**.
4. Secure the hub using a locking ring.

Air Gap Inspection

1. Energize the coil stator 1 (Item 2).
2. Check air gap "a" between the armature disk (Item 4A / brake circuit 2) and the coil stator (3), see Fig. 1. The nominal air gap acc. Table 1 must be given.
3. On reaching the maximum air gap acc. Table 1 due to wear, the brake must be replaced (see section "Maintenance").

Electrical Connection and Wiring

DC current is necessary for operation of the brake. The coil voltage is indicated on the brake name plate as well as on the brake body ($\pm 10\%$ 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 VDE 0580). Their observance must be guaranteed and double-checked.

Supply Voltage Requirements

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, a switch-mode mains adaptor) are not suitable for operation of the brake.

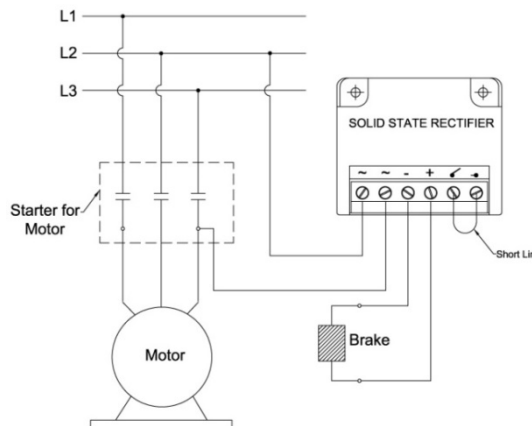
Switching Behaviour

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 disks (4A or 4B) and the coil stator (2 or 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 (4A & 4B) to the coil stator (2 and 3) and releases the brake. Brake release can only be guaranteed if both coil carriers (2 and 3) are energized.

AC-side switching

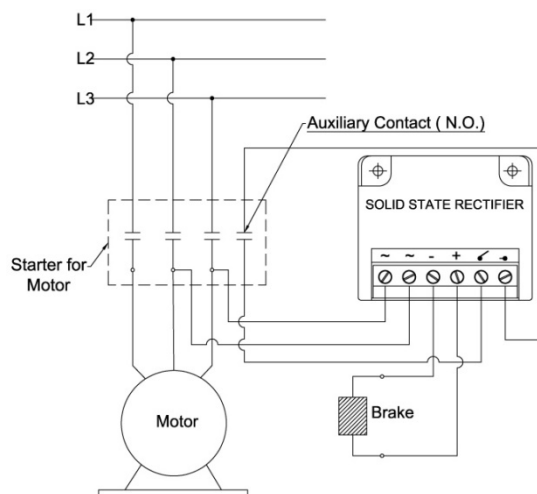


(Fig.- 3)

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 the coil and the 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 switching), use for non-critical braking times.

DC-side Switching



(Fig.- 4)

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 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

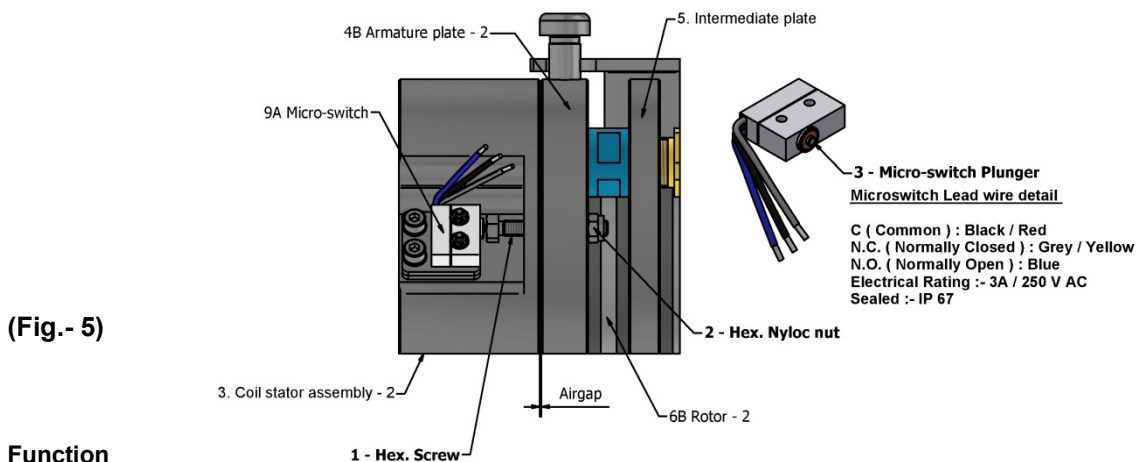
When using DC-side switching, the coil must be protected by a suitable protection circuit according to VDE 0580, which is integrated in Emco rectifiers. To protect the switching contact from consumption when using DC-side switching, additional protective measures are necessary (e.g., series connection 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. Emco spark quenching unit, half-wave and bridge rectifiers), although this may of course then alter the switching times.

Release Monitoring (9A)

To ensure smooth functioning & adjustment of Micro-switch below mentioned procedures are to be followed.

- Release Hex screw (1) from the MS plunger (3) by rotating it in clock wise direction.
- Connect micro switch wire **Black / Red** (C) & Blue (NO) with the continuity tester /multimeter.
- Release brake by applying DC volt to brake coil.
- Rotate Hex screw (1) slowly in anti-clockwise direction till it touches & presses micro switch plunger (3) which changes its state from "NO" to "NC".
- Fine tune hex screw (1) such that ¼ to 1/2 turn rotation of screw in clockwise direction changes micro-switch condition from "NO" to "NC".
- Fix hex screw (1) by tightening nyloc nut (2) so that micro switch setting is fixed & doesn't get disturbed.
- Now remove DC voltage from brake, micro switch should now show "NO" condition.
- Test the brake for few numbers of "ON-OFF" operations to ensure that micro-switch setting doesn't get disturbed.

The customer is responsible for a signal evaluation of both conditions.



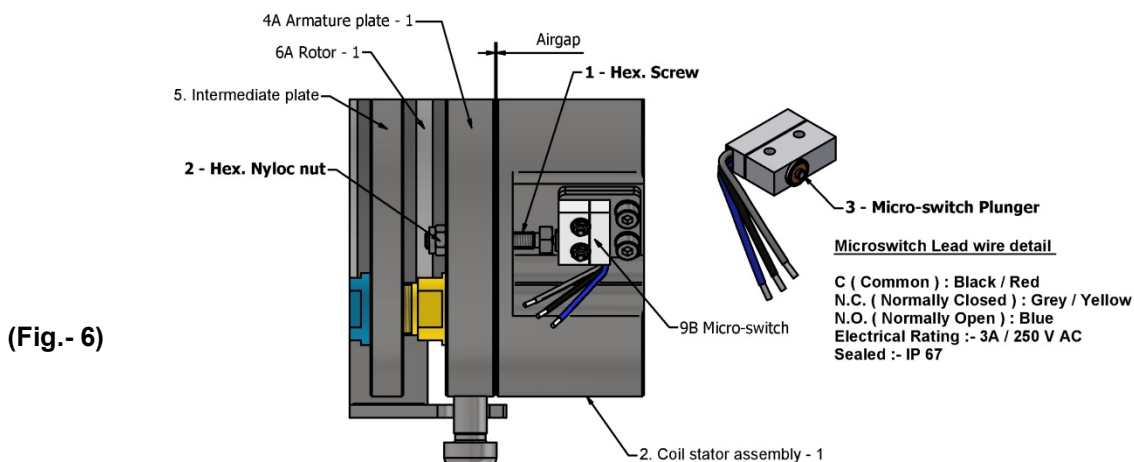
Function

When the magnetic coil is energized in the coil stator (2 and 3), the armature disks (4A & 4B) are attracted to the coil stator (2 and 3). The micro switch (9) emits a signal, the brake is released. When actuating the hand release (10), a switching signal of the release monitoring device (9) cannot be guaranteed.

Wear Monitoring (9B)

To ensure smooth functioning & adjustment of Micro-switch below mentioned setting instructions are to be followed.

- Release Hex screw (1) from the MS plunger (3) by rotating it in clock wise direction.
- Connect micro switch wire **Red / Black** (C) & Yellow (NC) with continuity tester/multimeter.
- While setting the micro switch does not release brake by applying DC voltage.
- Rotate Hex screw (1) slowly in anti-clockwise direction till it touches & presses micro switch plunger (3) which changes its state from "NC" to "NO".
- Fine tune hex screw (1) such that ¼ to 1/2 turn rotation of screw in clockwise direction changes micro-switch condition from "NO" to "NC".
- Fix hex screw (1) by tightening nyloc nut (2) so that micro switch setting is fixed & doesn't get disturbed.
- Now release brake by applying DC voltage micro switch should now show "NO" condition on continuity tester / multimeter.
- Test the brake for few numbers of "ON-OFF" operations for ensuring that micro-switch setting doesn't gets disturbed.



Function

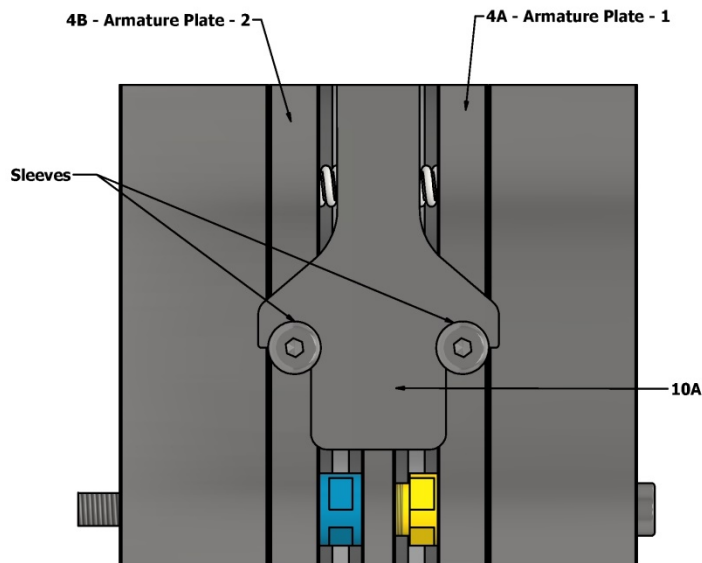
Due to wear on the rotors (6A & 6B), the air gap "a" between the coil stator (3) and the armature disk (4B) increases (air gap measurement is performed when brake circuit 1 is energized), or the distance between the micro switch (9B) and the adjusting screw (1) decreases.

Once the maximum air gap of 1.0 mm has been reached, the micro switch (9B) contact switches over, the signal is interrupted.

The brakes must be replaced. Factory overhaul is possible.

The customer is responsible for a signal evaluation.

Hand Release (10) (Emergency Release)



(Fig.- 7)

Stage machinery brakes are spring applied brakes. Electrical release of the brakes is not possible on power failure. However, on power failure, the brake can be released mechanically using the hand release bracket (10A), an optional part of the delivery, as follows:

1. Insert the open end of the hand release bracket (10A) up to its limit between the sleeves projecting out of the armature (4A & 4B) on both sides.
2. Following this, the brake can be emergency-released by carefully and slowly swinging the hand release bracket, during which a residual torque of approx. 5 % of the set braking torque can occur.

When actuating the hand release (10), a switching signal of the release monitoring device (9A) cannot be guaranteed.

After finishing the procedure, please remove the hand release bracket (10A).

Table 5: Release Angle, Release Force

Size	Release angle [°]	Release force [N] approx.
10	approx. 25 (releasing in both directions is possible)	40
12		75
14		130
16		140
17		180
18		240

Braking Torque

The (nominal) braking torque is the torque effective in the shaft train on slipping brakes, with a sliding speed of 1 m/s referring to the mean friction radius. The brake is loaded statically when used as a service brake and loaded dynamically in EMERGENCY STOP operation. Respectively, there are different speed values for the friction material, which in practice also leads to different friction values and therefore braking torques.

Amongst other things, the braking torque is dependent on the respective quality / condition of the friction surfaces (conditioning). Therefore, burnishing of the brake linings on newly installed brakes or on rotor replacement when mounted is required, considering the permitted loads: The following applies as a reference value for the burnishing of new brake linings. The load in new condition may not be more than 50 % of the max friction work, acc. Technical Data. This process is to be carried out at reduced speed, approx. 30 % of the operating speed. The burnishing should take place under works-specific conditions; user should contact us, so that we can provide the appropriate parameters.

Friction materials develop their optimum effect only under speed at the appropriate contact pressure, as continuous regeneration of the friction surface then takes place (torque consistency). Permanent grinding of the rotors can lead to overheating / damage to the brake linings, and therefore to a drop in braking torque.

Furthermore, friction materials are subject to wear, which is also influenced, among other things, by higher temperatures and other ambient influences. We recommend regular inspection of the braking torque (2 x per year) including the respective dynamic braking actions as a refresher.

Brake Inspection (before brake initial operation)

- **Air gaps inspection (Fig. 1)** Measure the air gap "a" (brake 1 energized) several point on the circumference between the armature disk (4A) and the coil stator (3). The nominal air gap acc. Table 1 must be given.
- **Braking torque inspection** Please compare the requested braking torque with the torque stated on the name plate.
- **Release function inspection** by energizing both brake circuits, the brake is residual torque-free.
- **Switch function inspection of the release monitoring (9A) with micro switch.**
- **Hand release function inspection (option).**By deflecting the hand release bracket (10A) manually, the friction linings are relieved. The brake is free but for a residual torque of approx. 5 % of the set braking torque.

The braking torque is not achieved until after the run-in procedure (approx. 4 – 6 EMERGENCY STOP braking actions) has been carried out.

Dual Circuit Brake Functional Inspection

The Emco stage machinery brake is equipped with a double safety (redundant) braking system. This means that, should one brake circuit fail, the braking effect is still maintained.

Testing both brake circuits together and the individual circuits must be carried out as follows:

When carrying out brake circuit tests, under no circumstances persons are allowed to be under the moving loads. Please observe the accident prevention regulations. If the conveyor shows a significantly longer braking distance during the single circuit test than during the test of both brake circuits, the respective energized brake circuit must also be de-energized immediately. The dual circuit braking function is not guaranteed. Shut down the conveyor, dismantle the brake if necessary and check it (for air gap, switching function of the release monitoring, braking torque, and drive dimensioning). Please observe the warning in the section „Maintenance“.

Testing both brake circuits with test load for nominal speed:

1. Energize both brake circuits and put the drive into operation.
2. Trigger an emergency stop (de-energize both circuits) and check the stopping distance.

Inspection brake circuit 1:

1. Energize brake circuits 1 and 2 and put the drive into operation.
2. De-energize brake circuit 1 (= EMERGENCY STOP) and inspect the stopping distance. The stopping distance must be only slightly longer than when testing both brake circuits.
3. De-energize brake circuit 2.

Inspection brake circuit 2:

1. Energize brake circuits 1 and 2 and put the drive into operation.
2. De-energize brake circuit 2 (= EMERGENCY STOP) and inspect the stopping distance. The stopping distance must be only slightly longer than when testing both brake circuits.
3. De-energize brake circuit 1.

If a single circuit inspection is carried out that differs from the above description, the load may "sag". This could be the case if a brake circuit of a drive loaded with the test load is energized. When a brake circuit is released, there may be a brief drop in braking torque just below the nominal torque.

Maintenance

Emco stage machinery brakes are largely maintenance-free. The rotors (6A & 6B) are robust and wear-resistant, which leads to a long service lifetime of the brake. However, the rotors (6A & 6B) are subject to functional wear. Therefore, the air gaps and the micro switch (9) function must be checked at least 2 x per year. A functional inspection of the brake must be carried out after longer downtimes.

When replacing the brake, please observe.

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

Cleaning the Brake

Do not clean the brake using compressed air, brushes, or similar devices.

Disposal

Emco electromagnetic brake components must be disposed of separately as they consist of different materials. Please also observe the relevant authority regulations.

Malfunctions / Breakdowns

Malfunction	Possible Causes	Solutions
Brake does not release	<ul style="list-style-type: none"><input type="checkbox"/> Incorrect voltage on rectifier<input type="checkbox"/> Rectifier failure<input type="checkbox"/> Air gap too large (worn rotors)<input type="checkbox"/> Coil failed.	<ul style="list-style-type: none"><input type="checkbox"/> Apply correct voltage.<input type="checkbox"/> Replace rectifier.<input type="checkbox"/> Replace brake.<input type="checkbox"/> Replace brake.
Brake engagement delayed on EMERGENCY STOP	<ul style="list-style-type: none"><input type="checkbox"/> Brake is switched AC-side.	<ul style="list-style-type: none"><input type="checkbox"/> Switch DC-side
Release monitoring does not switch	<ul style="list-style-type: none"><input type="checkbox"/> Brake does not release.<input type="checkbox"/> Defective micro switch	<ul style="list-style-type: none"><input type="checkbox"/> Solution as above<input type="checkbox"/> Replace the micro switch. (Manufacturer-side)



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14.458.xx brakes
 also available in
 UL version 41.458.xx



Emco Dynatorq Pvt. Ltd.
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