

## CERTIFICATE

### EU Type – Examination

According to Directive 2014/33/EU, (Module B, annex IV - A)

Certificate No: LF/KSA/A-C-0235/19

Identification No of Certification body:

MIRTEC s.a **CE** 0437

Name & Address  
of the Certificate Holder:  
of the Manufacturer:

**CEG MOTOR (SUZHOU) CO., LTD.**

NO.151, XIEYI ROAD, SHIPU, QIANDENG TOWN, KUNSHAN  
CITY, 215341, P.R.CHINA

Date of Submission for  
EU Type-Examination:

**30/07/2019**

Product of Safety Component:

**Electromechanical brake** as ascending safety  
device (ASD) to prevent uncontrolled upward movement  
of the car and as unintended car movement protection  
(UCMP) means

Type:

**ESB-E**

Applicable Standards:

2014/33/EU, annex I,  
EN81-50:2014 5.7 & 5.8  
EN81-20:2014 5.6.6 & 5.6.7, 5.9.2.2.2

Examination Period:

August , October 2019

Place of testing:

CEG MOTOR (SUZHOU) CO., LTD.  
NO.151, XIEYI ROAD, SHIPU, QIANDENG TOWN, KUNSHAN  
CITY, 215341, P.R.CHINA

Date & No of laboratory Report:

LF/KSA/A-TR1-0235/19, 22/10/2019

Documents annexed:  
to the Certification:

Product description, Calculation book, Drawings,  
Installation & maintenance instructions, Material list

Field of application:

ANNEX 1, ANNEX 2

#### Validation conditions / Additional instructions:

The production of the brake falls under random inspections from the certification body.

For all changes on the materials, drawings and production-assembly methods the certificate holder must inform the certification body.

The Certificate holder issues a declaration of conformity according to the basic requirements of the relative directive and places the CE marking with his own responsibility. The product must be accompanied by installation & maintenance instructions adjustment.

The brake should have a label with the necessary information (name of manufacturer, type examination certificate number, field of application, serial number, date etc).

#### Result of the examination - Declaration:

**Here with we certify that the type of the products mentioned above, meet the requirements of the Directive 2014/33/EU.**

Only the products detailed in the test report have been subjected to tests.

Date of issue:

**02.09.2019**

Date of reissue:

**15.11.2019**

For MIRTEC S.A.

Certification department for lifts

I. DIMITRIADIS  
Lead Auditor, Inspector of Lifts

G. SPILIOPOULOS  
Inspector of Lifts

EBETAM A.E.  
CERT – safecomp / EN 02 (5.0 / 10.2.17)

AET: 33712

# CERTIFICATE

## EU Type – Examination

According to Directive 2014/33/EU, (Module B, annex IV - A)  
Certificate No: **LF/KSA/A-C-0235/19**

Identification No of Certification body:

MIRTEC s.a  0437

Name & Address  
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Date of Submission for  
EU Type-Examination:

**30/07/2019**

Product of Safety Component:

**Electromechanical brake** as ascending safety  
device (ASD) to prevent uncontrolled upward movement  
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(UCMP) means

Type:

**ESB-E**

Applicable Standards:

2014/33/EU, annex I,  
EN81-50:2020 5.7 & 5.8  
EN81-20:2020 5.6.6 & 5.6.7, 5.9.2.2.2

Examination Period:

August, October 2019, August ~ September 2023

Date & No of examination report:

LF/KSA/A-R1-0235/19, 20/09/2023

Place of testing:

CEG MOTOR (SUZHOU) CO., LTD.  
NO.151, XIEYI ROAD, SHIPU, QIANDENG TOWN, KUNSHAN  
CITY, 215341, P.R. CHINA

Date & No of laboratory Report:

LF/KSA/A-TR1-0235/19, 22/10/2019  
LF/KSA/A-TR2-0235/19, 12/09/2023

Documents annexed:  
to the Certification:

Product description, Calculation book, Drawings,  
Installation & maintenance instructions, Material list  
ANNEX 1, ANNEX 2

Field of application:

### Validation conditions / Additional instructions:

The production of the brake falls under random inspections from the certification body.

For all changes on the materials, drawings and production-assembly methods the certificate holder must inform the certification body.

The Certificate holder issues a declaration of conformity according to the basic requirements of the relative directive and places the CE marking with his own responsibility. The product must be accompanied by installation & maintenance instructions adjustment.

The brake should have a label with the necessary information (name of manufacturer, type examination certificate number, field of application, serial number, date etc).

### Result of the examination - Declaration:

**Here with we certify that the type of the products mentioned above, meet the requirements of the Directive 2014/33/EU.**

Only the products detailed in the test report have been subjected to tests.

Date of issue:

**02.09.2019**

Date of reissue:

**20.09.2020**

For MIRTEC S.A.

I. DIMITRIADIS  
Lead Auditor, Inspector of Lifts

Certifying department for lifts

C. SPILIOPOULOS  
Inspector of Lifts





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## ANNEX 1

Part of the EU-Type examination LF/KSA/A-C-0235/19

Technical characteristics					
Model	ESB-E		Type of stopping element		Synchronous motor brake
Acting position	On the same shaft in the immediate vicinity of the traction sheave		Action method		Acting when power supply loss
Material of friction element	Synthetic material		Type of elastic element		Compression spring
Number of friction surfaces	2		-		-
Airgap	0.30 ~ 0.40 mm				
Brake torque (Nm)	2 × 250	2 × 350	2 × 550	2 × 702	2 × 900
Number of springs	6	8	12	12	12
Spring type (mm)	3.5 × 14.3 × 7 × 40.3				
Diameter of brake drum(mm)	253				
Motor rated torque (Nm)	200	280	440	561	668

### A. Brake as ascending safety device (ASD) to prevent uncontrolled upward movement of the car

Brake torque (Nm)	2 × 250	2 × 350	2 × 550	2 × 702	2 × 900
Rated load(kg)	Max. 450	450~675	630~1050	300~1050	300~1250
Weight of car (kg)	240~960	360~1110	504~1500	450~1575	450~1875
System mass(kg)	1450~2890	2033~3533	2933~4925	1020~3675	1020~4375
Rated speed(rpm)	279			298	
Max. tripping speed (rpm)	371			355	
Balance coefficient	0.4 ~ 0.5				
Traction ratio	2:1				
Notes	<p>The range of the system mass and weight of car and rated load are determined according to the type-examination sample with the suspension ratio of 2:1, the values of other actual suspension ratios can be obtained by the following formulas:</p> <p>1) The applicable system mass=type-examination system mass × actual suspension ratio ÷ suspension ratio in type-examination;</p> <p>2) The applicable weight of car=type-examination weight of car × actual suspension ratio ÷ suspension ratio in type-examination;</p> <p>3) The applicable rated load=type-examination rated load × actual suspension ratio ÷ suspension ratio in type-examination.</p>				

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The maximum tripping speed of the lift and the nominal speed of the lift are being calculated based on the maximum tripping rotational speed and the nominal rotational speed of the traction sheave. Taking into account for this calculation the traction sheave diameter and the car suspension.

$$v = \frac{D * \pi * n}{60 * i}$$

$D$  = diameter of the traction sheave (m)

$\pi = 3,14$

$n$  = rotational speed ( $\text{min}^{-1}$ )

$i$  = ratio of car suspension

$V$  = lift speed (m/sec)

### Remarks

- The permissible braking moments must be applied to the lift system in such a way that during the stopping phase, the braking element shall not allow a retardation of the car in excess of 1g for upwards movement with empty car.
- The installation conditions and connection requirements are described in the operating instructions.

### Conditions

- The braking element also functions as a brake for normal operation. In the scope of this type examination, it was found out that there is built-in redundancy. For meeting the requirements to be used also as ascending safety device (ASD) to prevent uncontrolled upward movement of the car, must also has self-monitoring of correct operation.
- Self-monitoring could include verification of correct lifting or dropping of the mechanism or verification of the breaking force. This must apply on both brakes individually. If a failure is detected, car and landing doors shall be closed and the normal start of the lift shall be prevented.
- The braking element must impact directly on the traction sheave or on the same shaft in the immediate vicinity of the traction sheave. If the braking element does not impact on the traction sheave or on the same shaft in the immediate vicinity of the traction sheave, a deviation from the norm exists.
- The tests of the type examination sample performed with the suspension ratio of 2:1 and the range of the system mass, weight of car and rated load referred to the table are determined according this ratio. For use for other suspension ratio, the values of other actual suspension ratios can be obtained by the formulas referred to the notes in the table.

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## ANNEX 2

Part of the EU-Type examination LF/KSA/A-C-0235/19

### B. Brake as unintended car movement protection (UCMP) means

#### Field of application

Field of application					
Brake torque (Nm)	2 × 250	2 × 350	2 × 550	2 × 702	2 × 900
Rated load(kg)	Max. 450	450~675	630~1050	300~1050	300~1250
Weight of car (kg)	240~960	360~1110	504~1500	450~1575	450~1875
System mass(kg)	1450~2890	2033~3533	2933~4925	1020~3675	1020~4375
Rated speed(rpm)	279			298	
Max. tripping speed (rpm)	371			355	
Balance coefficient	0.4 ~ 0.5				
Traction ratio	2:1				
Notes	<p>The range of the system mass and weight of car and rated load are determined according to the type-examination sample with the suspension ratio of 2:1, the values of other actual suspension ratios can be obtained by the following formulas:</p> <p>1) The applicable system mass=type-examination system mass × actual suspension ratio ÷ suspension ratio in type-examination;</p> <p>2) The applicable weight of car=type-examination weight of car × actual suspension ratio ÷ suspension ratio in type-examination;</p> <p>3) The applicable rated load=type-examination rated load × actual suspension ratio ÷ suspension ratio in type-examination.</p>				

#### Test results

Brake torque (Nm)	2 × 250	2 × 350	2 × 550	2 × 702	2 × 900
T <sub>10</sub> (ms)	56	64	54	65	58
T <sub>50</sub> (ms)	77	85	65	76	71
T <sub>90</sub> (ms)	118	121	98	114	150

T<sub>X</sub>: Corresponds to the values of the test results when the brake has established the X% of the nominal torque from the moment of the drop of the braking power. X=10%, 50%, 90%

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## Requirements

- The safety component as a braking element is only a part of a protection system against the unintended car movement. The complete system, apart from the braking element, also consists of a detecting element and a triggering element. These components are subjected to their own type examination too. Only the correct combination of the three parts can create a system which fulfills the requirements for protection against UCM in accordance with EN 81-20 paragraph 5.6.7.
- The machine brake used in this system is an electro-mechanical brake according to 5.9.2.2.2 of the standard EN 81-20 and is considered to have built-in redundancy. The brake also is self-monitored, so it meets the point 5.6.7.3.
- The brake is acting on the sheave directly or in the immediate vicinity of the sheave. So, it meets the point 5.6.7.4.
- The brake is activated by the loss of the power supply so it meets the point 5.6.7.12.
- The average retardation  $\leq 1\text{gn}$  so it meets the point 5.6.7.6.

## Conditions

- The tests have been made with the parameters and configuration that listed in this certificate. If these parameters or configuration have been changed, the tests must be done again and the certificate is no valid anymore.
- Self-monitoring, through the verification of correct lifting or dropping of the mechanism and verification of the breaking force, applied on both brakes individually. If a failure is detected, car and landing doors shall be closed and the normal start of the lift shall be prevented.
- The braking element must impact directly on the traction sheave or on the same shaft in the immediate vicinity of the traction sheave. If the braking element does not impact on the traction sheave or on the same shaft in the immediate vicinity of the traction sheave, a deviation from the norm exists.
- The installation conditions and connection requirements are described in the operating instructions.
- The tests of the type examination sample performed with the suspension ratio of 2:1 and the range of the system mass, weight of car and rated load referred to the table are determined according this ratio. For use for other suspension ratio, the values of other actual suspension ratios can be obtained by the formulas referred to the notes in the table.

Certification department of. MIRTEC S.A.

C. SPILIOTOPOULOS



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## Evaluation report for safety component for lifts

☐ For type approval (Annex IV A, 2014/33/EU)

☒ For conformity to type (Annex IX, 2014/33/EU)

**Examination Period: December, 2022**

**Notified body. Notification No: 0437**

**Technical File No: CEG ESB-E**

**Report No: LF/KSA/A-R-0235D/22**

**Owner:**

**CEG MOTOR (SUZHOU) CO., LTD**

No.151, Xieyi Road, Shipu, Qiandeng Town,  
Kunshan City, 215341, P.R. China

**Manufacturer:**

**CEG MOTOR (SUZHOU) CO., LTD**

No.151, Xieyi Road, Shipu, Qiandeng Town,  
Kunshan City, 215341, P.R. China

### Technical Characteristics

Type of Safety Component (SC):

Electromechanical brake as ascending safety device (ASD) to prevent uncontrolled upward movement of the car and as unintended car movement protection (UCMP) means / ESB-E

Examination Norm:

2014/33/EU, annex I,

EN81-50:2020 5.7 & 5.8

EN81-20:2020 5.6.6, 5.6.7 & 5.9.2.2.2

Drawing - Code:

5TTC.108.012, 5TTC.108.014, 8TTC.155.132,  
8TTC.155.134, 8TTC.155.127, 8TTC.155.130,  
SS-01

Characteristics:

Brake torque : 2 × 250 Nm / 2 × 350 Nm / 2 × 550 Nm

Nominal air gap: 0.30 - 0.40 mm

Compression Spring type: Ø 3.5 × Ø 14.3 × 40.3

Number of springs: 6 / 8 / 12

### Remarks

1. The random check performed by MIRTEC in CEG MOTOR (SUZHOU) CO., LTD. according to directive 2014/33/EU. All the results meet the requirements of standards.
2. The dimensions of the brake were measured and identified with the dimensions of the design drawings.
3. The completeness of the technical file was checked:
  - Drawings
  - Material list
  - Material certificates
  - Nameplate
  - Declaration of conformity

### Result of the examination:

**The safety component mentioned above meets the requirements of the standards and the directive and the certificate can be issued.**

Certificate to be issued:

YES ☒

NO ☐

The Inspector Lande Bai

Issue date: 07/12/2022



Verified by Christos Spiliotopoulos

Inspector of Lifts