TÜV SÜD
Industrie Service

EU TYPE-EXAMINATION CERTIFICATE

According to Annex IV, Part A of 2014/33/EU Directive

Certificate No.:	EU-BD 1056-1
Notified Body:	TÜV SÜD Industrie Service GmbH Westendstr. 199 80686 Munich - Germany Identification No. 0036
Certificate Holder:	Kendrion INTORQ GmbH Wülmser Weg 5 31855 Aerzen - Germany
Manufacturer of the Test Sample: (Manufacturer of Serial Production – see Enclosure)	Kendrion INTORQ GmbH Wülmser Weg 5 31855 Aerzen - Germany
Product:	Braking device acting on the shaft of the traction sheave, as part of the protection device against overspeed for the car moving in upwards direction and braking element against unintended car movement
Type:	BFK464-18R
Directive:	2014/33/EU
Reference Standards:	EN 81-20:2020 EN 81-50:2020
Test Report:	EU-BD 881-1, 1093-1 of 2024-02-22
Outcome:	The product conforms to the essential health and safety requirements of the mentioned Directive if the requirements of the annex to this EU-type examination certificate are kept.
Date of Issue:	2024-02-28

Achim Janocha

Notified Body LCC

TÜV SÜD Industrie Service GmbH
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Notified Body

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1 Scope of application

1.1 Use as braking device – part of the the protection device against overspeed for the car moving in upwards direction – permissible brake torques and tripping rotary speeds

1.1.1 Permissible brake torque when the braking device acts on the shaft of the traction sheave while the car is moving upwards

Nominal brake torque [Nm]	Maximum tripping rotary speed of the traction sheave [rpm]
340 - 560	900

1.1.2 Maximum tripping speed of the overspeed governor and maximum rated speed of the lift

The maximum tripping speed of the overspeed governor and the maximum rated speed of the lift must be calculated on the basis of the traction sheave's maximum tripping rotary speed as outlined above taking into account traction sheave diameter and car suspension.

$$v = \frac{D_{TS} \times \pi \times n}{60 \times i}$$

v = Tripping (rated) speed (m/s)
D_{TS} = Diameter of the traction sheave from rope's center to rope's center (m)
π = 3,14
n = Rotary speed (rpm)
i = Ratio of the car suspension

1.2 Use as braking element – part of the protection device against unintended car movement (acting in up and down direction) – permissible brake torques, tripping rotary speeds and characteristics

1.2.1 Nominal brake torques and response times with relation to a brand-new brake element

Intermediate values can be interpolated

Minimum brake torque* [Nm]	Maximum brake torque* [Nm]	Maximum tripping rotary speed [rpm]	Maximum response times** [ms] without / with overexcitation		
			t_{10}	t_{50}	t_{90}
2 x 170 = 340		900	69 / 86	113 / 129	156 / 172
	2 x 280 = 560		46 / 56	72 / 82	98 / 107

Explanations:

* **Nominal brake torque:** Brake torque assured for installation operation by the safety component manufacturer.

** **Response times:** t_X time difference between the drop of the braking power until establishing X% of the nominal brake torque, t_{50} optionally calculated $t_{50}= (t_{10}+ t_{90})/2$ or value taken from the examination recording

1.2.2 Assigned execution features

Type of powering / deactivation	continuous current / continuous current end
Brake control	serial / parallel
Nominal air gap	0.45 mm
Damping elements	YES
Overexcitation	2-fold non-release voltage

2 Conditions

2.1 Above mentioned safety component represents only a part at the protection device against overspeed for the car moving in upwards direction and unintended car movement. Only in combination with a detecting and triggering component in accordance with the standard (two separate components also possible), which must be subjected to an own type-examination, can the system created fulfil the requirements for a protection device.

2.2 The installer of a lift must create an examination instruction to fulfil the overall concept, add it to the lift documentation and provide any necessary tools or measuring devices, which allow a safe examination (e. g. with closed shaft doors).

2.3 The manufacturer of the drive unit must provide calculation evidence that the connection traction sheave – shaft – brake disc and the shaft itself is sufficiently safe, if the brake disc is not a direct component of the traction sheave (e. g. casted on). The shaft itself has to be statically supported in two points.

The calculation evidence must be enclosed with the technical documentation of the lift.

2.4 The setting of the brake torque has to be secured against unauthorized adjustment (e. g. sealing lacquer).

2.5 The identification drawing no. 5021979 (page 3 of 3), 5023876 (page 3 of 3) or 5032461 (page 3 of 3) including stamp dated 2024-02-22 shall be included to the EU-type examination for the identification and information of the general construction and operation and distinctness of the approved type.

2.6 The EU-type examination certificate may only be used in combination with the corresponding annex and enclosure (List of authorized manufacturer of the serial production). The enclosure will be updated immediately after any change by the certification holder.

3 Remarks

3.1 In the scope of this type-examination it was found out, that the brake device also functions as a brake for normal operation, is designed as a redundant system and therefore meets the requirements to be used also as a part of the protection device against overspeed for the car moving in upwards direction and as braking element as part of the protection device against unintended car movement.

3.2 In the scope of this type-examination, it was determined, that the braking device was designed without a switching status control to evaluate the position of the anchor plates.

The brakes should be monitored as follows

   a. through microswitches or proximity switches on both brakes that are connected to the lift control, or

   b. through a built-in brake monitoring system of the lift control to ensure the correct opening and closing of both brakes before each start or stop of the elevator, or

   c. through an automatic system specified by the lift manufacturer to check or ensure the correct braking torque. This test procedure must be carried out at least once daily.

3.3 Checking whether the requirements as per section 5.9.2.2 of EN 81-20:2020 (D) have been complied with is not part of this type examination.

3.4 Other requirements of the standard, such as reduction of brake moment respectively brake force due to wear or operational caused changes of traction are not part of this type examination.

3.5 This EU-type examination certificate was issued according to the following standards:

   – EN 81-20:2020, part 5.6.6.11, 5.6.7.13
   – EN 81-50:2020, part 5.7 and 5.8

3.6 A revision of this EU-type examination certificate is inevitable in case of changes or additions of the above-mentioned standards or of changes of state of the art.

Enclosure to the EU-Type Examination Certificate
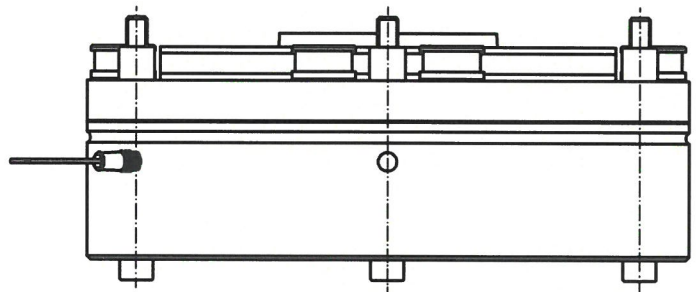## No. EU-BD 1056-1 of 2024-02-28

Authorised Manufacturer – Production Sites (valid from: 2024-02-07):

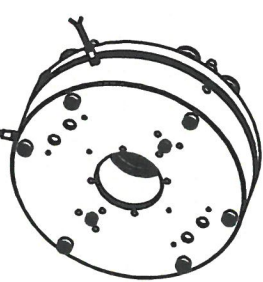|	
Company	Kendrion INTORQ GmbH
Address	Wülmser Weg 5
	31855 Aerzen - Germany

Company	Kendrion (China) Co., Ltd.
Address	No. 10 Huipu Road, Suzhou Industrial Park,
	215021 Suzhou, P.R. China

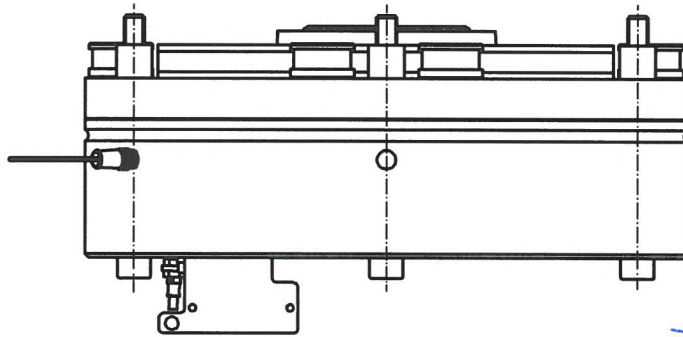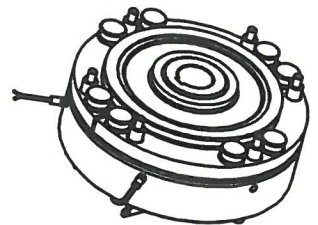- END OF DOCUMENT -

Projekt-Nr. / project-no.	40676		Allgemeintoleranzen / general tolerance		Oberflächen / surface DIN ISO 1302		Maßstab / scale		Gewicht / weight	
SAP Ident-Nr. / ID-no.					$\sqrt{x} = \sqrt{Rz\,25}$ $\sqrt{y} = \sqrt{Rz\,6.3}$ $\sqrt{z} = \sqrt{Rz\,1}$				Werkstoff-Nr. / material-no.	
Typ / type	BFK464	Baugröße / design size	18		Datum / date	Name / name			
				Bea / drn	13.02.2024	QUADFASELW	Dokumentbeschreibung / document description		
Version / version	AA	Status / status	40 released	Gepr / chkd	13.02.2024	STRATE	Federkraftbremse		
				Freig / appr	13.02.2024	STRATE	Spring-op-brake		
				KENDRION INTORQ			Dokument-Nr. / document-no.		
				Datei / file 5021978_IAM_000.iam			5032461		
Index / index	Anz. / quan.	Änder-Nr. / revision no.	Datum / date	Name / name			Ersatz fuer / back-up for	Blatt / sheet 3 von / of 3	

SAP Ident-Nr. / ID-no.	Projekt-Nr. / project-no.			Allgemeintoleranzen / general tolerance		Oberflächen / surface DIN ISO 1302			Gewicht / weight		Werkstoff-Nr. / material-no.
	40676					$\sqrt{x} = \sqrt{Rz\,25}$					
Typ / type	Baugröße / design size					$\sqrt{y} = \sqrt{Rz\,6,3}$			Dokumentbeschreibung / document description		
BFK464	18					$\sqrt{z} = \sqrt{Rz\,1}$			Federkraftbremse		
Version / version	Status / status				Datum / date	Name / name			Spring-op-brake		
AC	40 released			Bea / dm	13.02.2024	STRATE					
				Gepr / chkd	13.02.2024	STRATE			Dokument-Nr. / document-no.		
			Qua.	Freig / appr	13.02.2024	STRATE			5023876		
2	-	604732	Qua.			KENDRION INTORQ			Datei / file 5023875_JAM_000.jam		
1	-	603192	Name / name						Ersatz fuer / back-up for		Blatt / sheet
Index / index	Anz. / quan.	Änder-Nr. / revision no.		Datum / date							3 von / of 3

GEPRÜFT / APPROVED
TÜV SÜD Industrie Service GmbH
Prüflaboratorium für Produkte der Fördertechnik
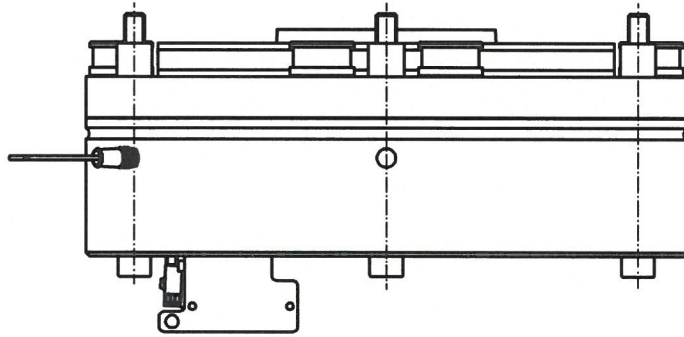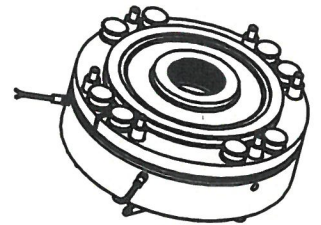Westendstraße 199
80686 München
Sachverständiger / Expert

2 2. FEB. 2024

TÜV SÜD Industrie Service GmbH

SAP Ident-Nr. / ID-no.	Projekt-Nr. / project-no. **40676**		Gewicht / weight
	Baugröße / design size **18**		Werkstoff-Nr. / material-no.
Typ / type **BFK464**	Status / status **40 released**		Maßstab / scale
Version / version **AG**			Werkstoff / material

	Datum / date	Name / name
Bea / drn	01.02.2024	QUADFASELW
Gepr / chkd	13.02.2024	STRATE
Freig / appr	13.02.2024	STRATE

Oberflächen / surface
DIN ISO 1302
$\sqrt{}= \sqrt{}$ Rz 25
$\sqrt{}= \sqrt{}$ Rz 6.3
$\sqrt{}= \sqrt{}$ Rz 1

Allgemeintoleranzen / general tolerance

Dokumentbeschreibung / document description
Federkraftbremse
Spring-op-brake

Dokument-Nr. / document-no.
5021979

Ersatz fuer / back-up for

Datei / file 5021978_JAM_000.iam

KENDRION INTORQ

Blatt / sheet **3**
von / of **3**

Index / index	Änz. / quan.	Änder-Nr. / revision no.	Datum / date	Name / name
2	-	604732	01.02.2024	Qua.
1	-	603192	01.10.2019	Qua.