ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Industrie Service

# EC type-examination certificate

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|---|---|
| **Certificate no.:** | ABV 777/4 |
| **Notified body:** | TÜV SÜD Industrie Service GmbH<br>Westendstr. 199<br>80686 München - Germany |
| **Applicant/<br>Certificate holder:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthelemy D'Anjou - France |
| **Date of application:** | 2010-10-20 |
| **Manufacturer of the test sample:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthelemy D'Anjou - France |
| **Product:** | Braking device acting on shaft of the traction sheave, as part of the protection device against overspeed for the car moving in upwards direction |
| **Type:** | ERS VAR15-02 FT2110/_ _ _ _ |
| **Test laboratory:** | TÜV SÜD Industrie Service GmbH<br>Prüflaboratorium für Produkte der Fördertechnik<br>Prüfbereich Aufzüge und Sicherheitsbauteile<br>Westendstr. 199<br>80686 München - Germany |
| **Date and<br>number of the test report:** | 2010-12-03<br>ABV 777/4 |
| **EC-Directive:** | 95 / 16 / EC |
| **Result:** | The safety component conforms to the essential safety requirements of the Directive for the respective scope of application stated on page 1 - 2 of the annex to this EC type-examination certificate. |
| **Date of issue:** | 2010-12-06 |

Certification body for lifts and safety components
Identification number: 0036

Christian Rührmeyer

TÜV SÜD Industrie Service GmbH 00 36 Benannte Stelle

TÜV®

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# Annex to the EC type-examination certificate no. ABV 777/4 dated 2010-12-06

## 1 Scope of Application

1.1 Permissible brake force when the braking device acts on the shaft of the traction sheave while the car is moving upward — 2231 – 3111 N

The brake force refers to a single brake on the middle friction diameter of the brake disc (rotor).

1.2 Maximum tripping speed of the overspeed governor and maximum rated speed

The maximum tripping speed and the maximum rated speed must be calculated on the basis on the brake disc maximum tripping speed and maximum rated speed (gliding speed) as outlined in sections 1.2.1 and 1.2.2 taking into account the middle friction diameter of the brake disc, traction sheave diameter and car suspension.

$$v = \frac{D_{TS} = v_{BT}}{D_{BS} \times i}$$

| | | |
|---|---|---|
| v | = | Tripping (rated) speed (m/s) |
| $D_{TS}$ | = | Diameter of the traction sheave from rope's centre to rope's centre (m) |
| $D_{BS}$ | = | Middle friction diameter of the brake disc (m) |
| $v_{BT}$ | = | Gliding speed on the middle friction diameter of the brake disc (m/s) |
| i | = | Ratio of the car suspension |

1.2.1 Maximum tripping speed (gliding speed) on the middle friction diameter of the brake disc — 6.50 m/s

1.2.2 Maximum rated speed (gliding speed) on the middle friction diameter of the brake disc — 5.65 m/s

## 2 Conditions

2.1 In order to comply with the redundancy required in Section 9.10.2 of EN 81-1, at least two braking circuits (single brake actuator) must be used.

Where more than two braking circuits are used, redundancy requirements necessitate that a sufficient braking effect as outlined in section 12.4.2.1 of EN 81.1 is still maintained if one of the braking circuit fails. It is not assumed that two braking circuits will fail simultaneously

2.2 Since the brake device represents only a part oft the protection device against overspeed for the car moving in upwards direction an overspeed governor as per EN 81-1, paragraph 9.9 must be used to monitor the upward speed and the brake device must be triggered (engaged) via the overspeed governor's electric safety device.

Alternatively, the speed may also be monitored and the brake device engaged by a device other than an overspeed governor as per paragraph 9.9 if the device shows the same safety characteristics and has been type tested.

2.3 In order to recognise the loss of redundancy the movement of each brake circuit (each anchor plate) is to be monitored separately and directly (e.g. by micro switches). If a brake circuit fails to engage (close) while the lift machine is at standstill, next movement of the lift must be prevented.

2.4 In cases where the lift machine moves despite the brake being engaged (closed), the lift machine must be stopped at the next operating sequence at the latest and the next movement of the lift must be prevented. (The car may, for example, be prevented from travelling by querying the position of the micro switch which is used to monitor the mechanical movement of the brake circuits, should both brake circuits fail to open).

**Note:** The English text is a translation of the German original. In case of any discrepancy, the German version is valid only.

2.5 According to EN 81-1, paragraph 9.10.4 d a braking device must act directly on the traction sheave or on the same shaft on which the traction sheave is situated in the immediate vicinity thereof.

If the braking device does not act in the immediate vicinity of the traction sheave on the same shaft on which the traction sheave is situated, the standard is not complied with. In cases involving shaft failure in the extended area between the traction sheave and the braking device, safety would no longer be ensured by the latter if the lift car made an uncontrolled upward movement.

Shaft failure in the extended area must therefore be ruled out by appropriate design and sufficient dimensioning. In order to eliminate or reduce influencing factors which may lead to failure wherever possible, the following requirements must be satisfied:

- Minimization of bending length between traction sheave and braking device or traction sheave and the next bearing (the next bearing must form part of the drive unit)
- Static defined bearing (e. g. 2-fold borne shaft) otherwise measures are required to obtain a defined loading
- As far as possible, prevention of a reduction in load-bearing capacity in the area of reversed bending stress (reduction in load-bearing capacity caused, for example, by stress concentration and cross-sectional reductions)
- Between traction sheave and braking device the shaft must be continuous (made from one piece)
- Cross-sectional influences on the shaft are only permitted if they act on the following connections: traction sheave – shaft, braking device – shaft, torque of the transmitting component – shaft (situated between traction sheave and braking device).

The manufacturer of the drive unit must provide calculation evidence that the connection traction sheave - shaft and the shaft itself is sufficiently safe. If necessary, evidence must be provided for the intended measures, too (see static undefined bearing).

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

## 3 Remarks

3.1 The permissible brake forces must be applied to the lift system in such a manner that they do not decelerate more than 1 $g_n$, if the empty car is moving upwards.

3.2 In the scope of this EC 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.

This EC type-examination only refers to the requirements pertaining to brake devices as per EN 81-1, paragraph 9.10.

Checking whether the requirements as per paragraph 12.4 have been complied with is not part of this EC type-examination.

3.3 In order to provide identification, information about the basic design and it's functioning and to show which parts have been tested pertaining to the tested and approved type, drawing no. I-1 12 106967 with certification stamp dated 2010-12-06 is to be enclosed with the EC type-examination certificate and the Annex thereto. The installation conditions and connection requirements are presented or described in separate documents (e.g. assembly and operating instructions).

3.4 The EC type-examination certificate may only be used in connection with the pertinent annex and the list of the authorized manufacturers (according to enclosure). This enclosure shall be updated and re-edited following information of the certificate holder.

Industrie Service

# Enclosure of EC type - examination certificate No. ABV 777/4 dated 2010-12-06

**Authorised manufacturer – Production sites (Stated: 2010-05-03):**

**WARNER Electric Europe**
7, rue de Champfleur
BP 20095
49124 St. Barthelemy D'Anjou - France

**Altra Industrial Motion Shenzhen Co. Ltd.**
Dabo Industry Zone
18 Huanzhen Road
Bogang County, Shajing Town
Baoan District, Shenzhen City
518104 Guangdong province - China (PRC)

- END OF DOCUMENT -

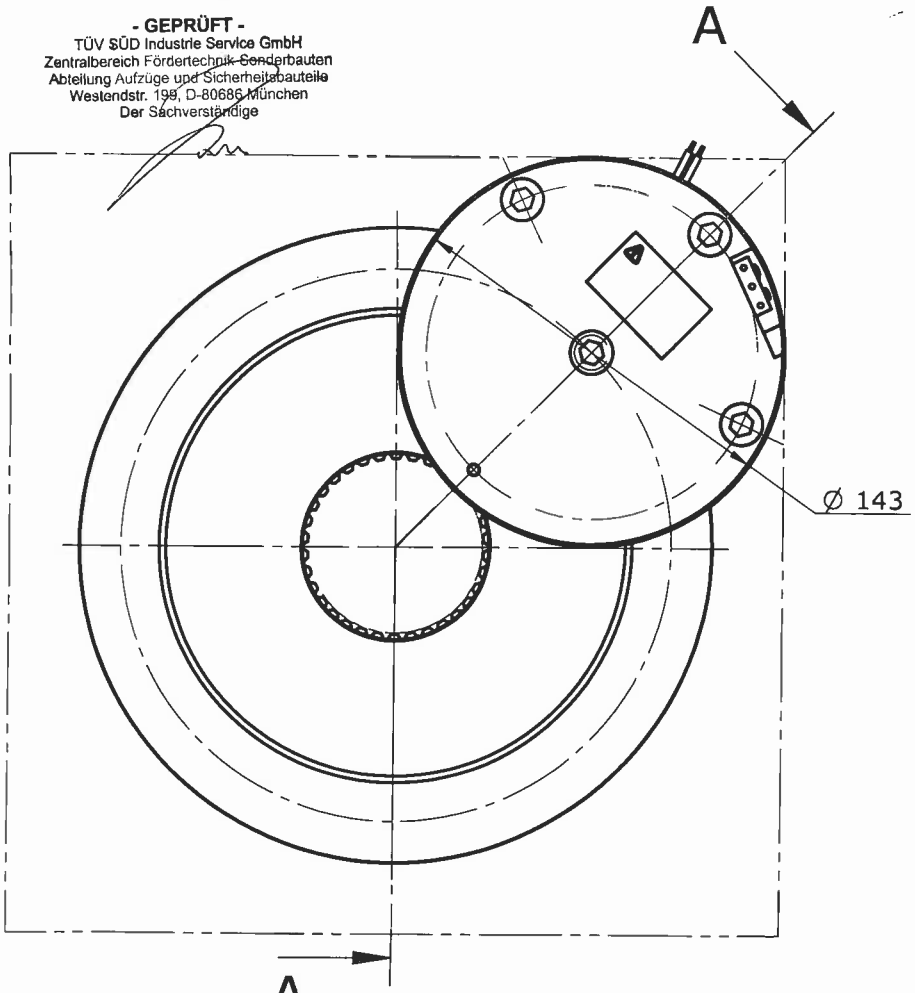
Base: Letter of WARNER Electric Europe dated 2009-12-02

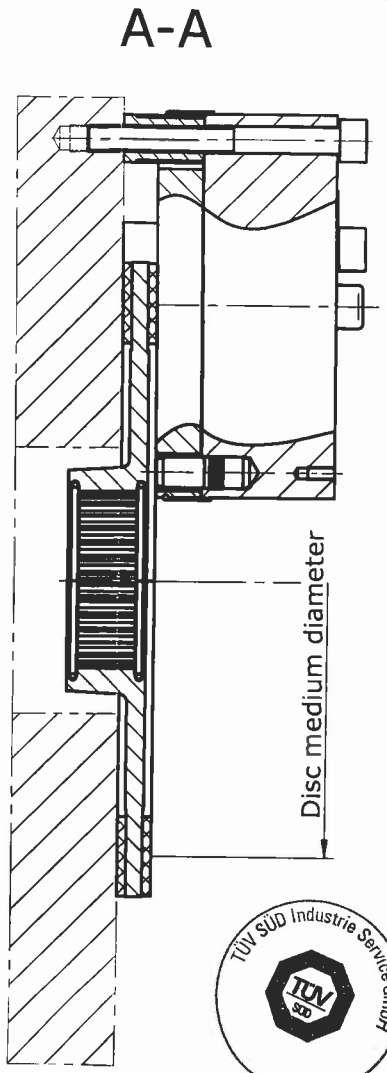
0 6. Dez. 2010

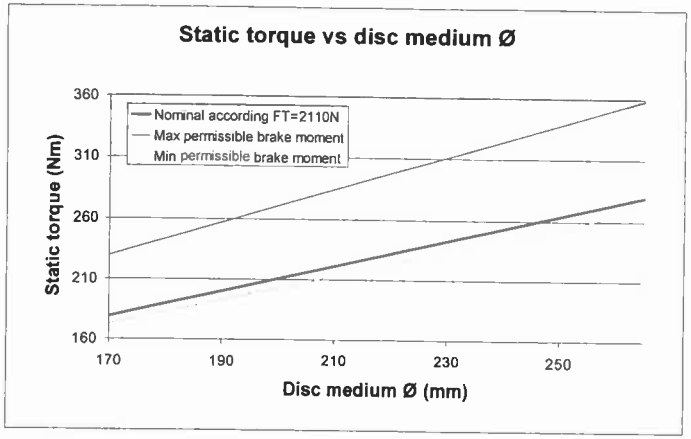
- GEPRÜFT -
TÜV SÜD Industrie Service GmbH
Zentralbereich Fördertechnik-Sonderbauten
Abteilung Aufzüge und Sicherheitsbauteile
Westendstr. 199, D-80686 München
Der Sachverständige

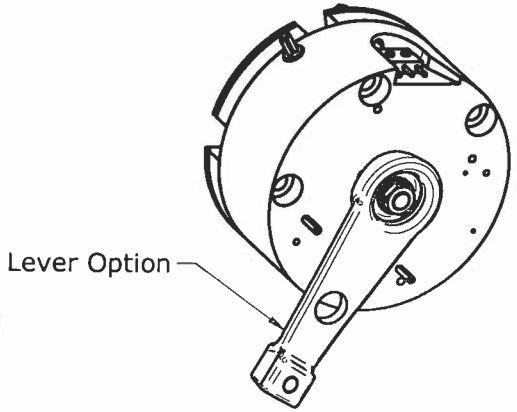
Les cotes sans indication de tolérances sont des cotes nominales.
Untoleranced dimensions are nominal dimensions.

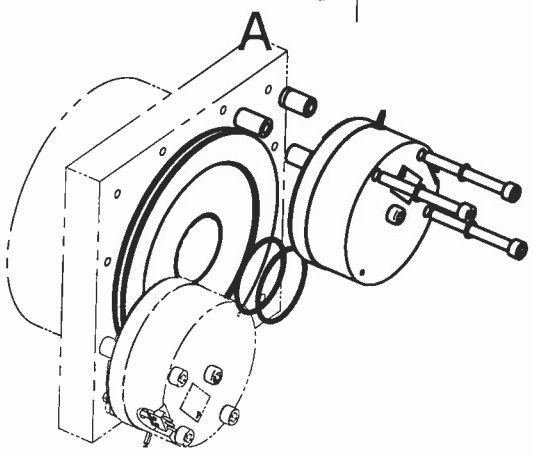
NOTES

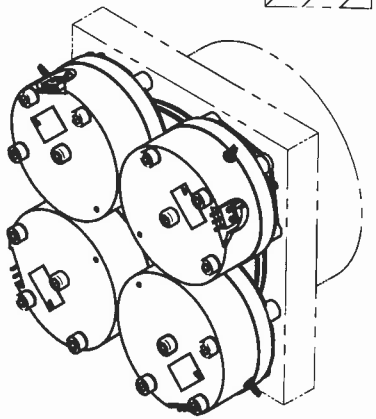


TUV diffusion

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|---|---|---|---|---|---|
| | B | Type description updated | 11-10-10 | JC J | GFE |
| | A | Drg updated with new modifs | 28-06-10 | JC J | GFE |
| FM | LT | REVISION | DATE | By | Ch. |

Client/customer:

Ms (Nm) :
Md (Nm) :
n Md (min-1) :
n max (min-1) :
U (Vdc) :
P20°C (W) :
Insulation class (°C):

Customer ref :
Dimensions in mm
Manual/Notice : SM 382
Mass :
Scale: /

Drawn : MENAGER Date: 07-11-05
Checked: Date:



Warner Electric Europe

Design.: **Frein électromagnétique**
Electromagnetic brake

Type: **ERS VAR15-02 FT2110/- - - -**

N° **I-1 12 106967** B

CAD SE A3