## EU TYPE-EXAMINATION CERTIFICATE

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

| Certificate No.: | EU-BD 777 |
| :---: | :---: |
| Certification Body of the Notified Body: | TÜV SÜD Industrie Service GmbH <br> Westendstr. 199 <br> 80686 Munich - Germany <br> Identification No. 0036 |
| Certificate Holder: | WARNER Electric Europe <br> 7, rue de Champfleur BP 20095 <br> 49124 Saint Barthélemy d'Anjou - France |
| Manufacturer of the Test Sample: (Manufacturer of Serial Production see Enclosure) | WARNER Electric Europe <br> 7 , rue de Champfleur BP 20095 <br> 49124 Saint Barthélemy d'Anjou - France |
| 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: | Type: ERS VAR15-02 <br> Size: FT2110/___, FT2110/____SY |
| Directive: | 2014/33/EU |
| Reference Standards: | EN 81-20:2014 <br> EN 81-50:2014 <br> EN 81-1:1998+A3:2009 |
| Test Report: | EU-BD 777 of 2016-03-04 |
| Outcome: | The safety component conforms to the essential health and safety requirements of the mentioned Directive as long as the requirements of the annex of this certificate are kept. |
| Date of Issue: | 2016-03-04 |
| Date of Validity: | from 2016-04-20 |



# Annex to the EU Type-Examination Certificate <br> No. EU-BD 777 of 2016-03-04 

## 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 forces and tripping speeds
1.1.1 Permissible brake forces and maximum tripping speeds (gliding speeds) of the brake disc when the braking device acts on the shaft of the traction sheave while the car is moving upward

| Size | Permissible brake force <br> per braking device (single brake) <br> $[\mathrm{N}]$ | Max. tripping speed (gliding speed) <br> on the middle friction diameter of the <br> brake disc [m/s] |
| :---: | :---: | :---: |
| FT2100/___- | $2157-3092$ | 3.25 |
| FT2100/___- | $1868-2694$ | 6.5 |
| FT2100/___SY | $2231-3111$ | 6.5 |

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 brake disc maximum tripping speed (gliding speed) as outlined above taking into account the middle friction diameter of the brake disk, traction sheave diameter and car suspension.

$$
\begin{array}{ll}
\mathrm{v}=\frac{\mathrm{DTS} \times \text { vBS }}{} & \begin{array}{l}
\mathrm{V}=\text { Tripping (rated) speed }(\mathrm{m} / \mathrm{s}) \\
\mathrm{D}_{\text {TS }}=\text { Diameter of the traction sheave from rope's centre to rope's centre }(\mathrm{m})
\end{array} \\
\mathrm{D}_{\mathrm{BS}} \times \mathrm{i} & \begin{array}{l}
\mathrm{D}_{\mathrm{BS}}=\text { middle friction diameter of the brake disk }(\mathrm{m}) \\
\mathrm{V}_{\mathrm{BS}}=\text { Gliding speed on middle friction diameter of the brake disk }(\mathrm{m} / \mathrm{s})
\end{array} \\
& \mathrm{i}=\text { Ratio of the car suspension }
\end{array}
$$

1.2 Use as braking element - part of the protection device against unintended car movement (acting in up and down direction) - permissible brake forces, tripping speeds and characteristics
1.2.1 Nominal brake forces and response times with relation to a brand-new brake element

| Size | Scope of application according to manufacturer specification | Min. nominal brake force* [N] | Intermediate nominal brake force* [ N ] | Max. nominal brake force* [ N ] | Max. tripping speed [m/s] | Maximum response times** [ms] <br> with / without overexcitation |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | $\mathrm{t}_{10}$ | $\mathrm{t}_{50}$ | $\mathrm{t}_{90}$ |
| FT2100/__-_ | 1 | $2 \times 1932=3864$ |  |  | 3.25 | 70 | 100 | 130 |
| FT2100/__-_ | 2 |  | $2 \times 2560=5120$ |  | 3.25 | 60 | 90 | 120 |
| FT2100/___- | 3 |  |  | $2 \times 2802=5604$ | 3.25 | 50 | 78 | 105 |
| FT2100/__ _ | 4 | $2 \times 1932=3864$ |  |  | 3.25 | 90 | 120 | 150 |
| FT2100/_-_- | 5 |  | $2 \times 2512=5024$ |  | 3.25 | 60 | 100 | 140 |
| FT2100/__-_ | 6 |  |  | $2 \times 3092=6184$ | 3,25 | 50 | 95 | 140 |
| FT2100/__-- | 7 | $2 \times 1643=3286$ |  |  | 6.5 | 85 | 108 | 130 |
| FT2100/_-_- | 8 |  | $2 \times 2222=4444$ |  | 6.5 | 60 | 83 | 105 |
| FT2100/__-_ | 9 |  |  | $2 \times 2512=5024$ | 6.5 | 50 | 75 | 100 |
| FT2100/__-_ SY | -- |  | $2 \times 2415=4830$ |  | 6.5 | 70 | 85 | 100 |

[^0]
# Annex to the EU Type-Examination Certificate 

No. EU-BD 777 of 2016-03-04

## Explanations:

* Nominal brake force:
** Response times:

Brake force assured for installation operation by the safety component manufacturer.
$t_{x}$ time difference between the drop of the braking power until establishing X\% of the nominal brake force, $\mathrm{t}_{50}$ optionally calculated $\mathrm{t}_{50}=\left(\mathrm{t}_{10}+\mathrm{t}_{90}\right) / 2$ or value taken from the examination recording
1.2.2 Assigned execution features

| Size | Type of <br> powering / <br> deactivation | Brake <br> control | Nominal <br> air gap <br> [mm] | Damping elements / <br> adhesive foil <br> integrated | Overexcitation |
| :---: | :---: | :---: | :---: | :---: | :---: |
| FT2100/___- | Continuous current / <br> continuous current end | serial | 0.6 | yes / yes | at double non- <br> release voltage |
| FT2100/____SY | Continuous current / <br> continuous current end | serial | 0.6 | yes / no | at double non- <br> 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 In order to comply with the redundancy required in section 5.6.6.2 of EN 81-20:2014 (D), at least two braking circuits (single brake actuator) must be used.
2.4 Where more than two braking devices are used (positioning according to approval drawing), redundancy requirements necessitate that a sufficient braking effect as outlined in section 5.9.2.2.2.1 of EN 81-20:2014 (D) is still maintained if one of the braking circuit fails. It is not assumed that two braking circuits will fail simultaneously.
2.5 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.
An evidence must be enclosed with the technical documentation of the lift.
2.6 The setting of the brake force has to be secured against unauthorized adjustment (e. g. sealing lacquer).
2.7 The respective identification drawing according to the following table shall be included to the EU type-examination certificate for the identification and information of the general construction and operation and distinctness of the approved type:

| Size | No. of the identification drawing | Date of stamp |
| :---: | :---: | :---: |
| FT2100/____ | $\mathrm{I}-112106967$ | 04.03 .2016 |
| FT2100/____SY | $\mathrm{I}-112108240$ | 04.03 .2016 |

2.8 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.

# Annex to the EU Type-Examination Certificate <br> No. EU-BD 777 of 2016-03-04 

## 3 Remarks

3.1 The brake force effectively adjusted of one brake circuit will be marked at the blank after the type designation ERS VAR15-02 FT2110/ $\qquad$ XX.
3.2 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.
3.3 Checking whether the requirements as per section 5.9.2.2 of EN 81-20:2014 (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 81-1:1998 + A3:2009 (D), Annex F. 7 and F. 8
- EN 81-20:2014 (D), part 5.6.6.11, 5.6.7.13
- EN 81-50:2014 (D), 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 <br> No. EU-BD 777 of 2016-03-04 

# Authorised Manufacturer of Serial Production - Production Sites (valid from: 2016-01-22): 

| Company | WARNER Electric Europe |
| :--- | :--- |
| Address | 7, rue de Champfleur |
|  | BP 20095 |
|  | 49124 Saint Barthélemy d'Anjou - France |
|  |  |
| Company | Altra Industrial Motion Shenzhen Co. Ltd. <br> Dabo Industry Zone |
|  | 18 Huanzhen Road <br> Bogang County, Shajing Town <br> Baoan District, Shenzhen City |
|  | 518104 Guangdong province - China (PRC) |




## ThyssenKrupp Aufzugswerke

thyssenkrupp
Certificate concerning the examination of traction sheave shaft calculation including shaft to collar connections

## Lift machine type:

Brake type:

Manufacturer:
Object examined:
Examination basis:

## PMC145S2/XS2

ERS VAR 15-02 - $\mathbf{2 x} 250 \mathrm{Nm}$ according

- EC-Type - Examination ABV 777/x
- EC-Type - Examination EU-BD 777/x

ThyssenKrupp Aufzugswerke GmbH
Bernhäuser Str.45, 73765 Neuhausen a.d.F.
Calculation of traction sheave shaft including shaft to collar connections
DIN743, DIN743, machine elements Niemann/Winter/Höhn (2005)


Design drawing:
Material:
62510000217 (PMC145S2), 62510000216 (PMC145XS2)
C45R+N (1.1201)
Load data:

| Lift machine type | Distance Traction sheave c | Bearing Distance La | Max. Shaft load $\mathrm{F}_{\mathrm{t}}$ | Nominal brake torque $\mathrm{T}_{\mathrm{Br}}$ | Max. brake torque $2,0 \times \mathrm{T}_{\mathrm{Br}}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | (mm) | (mm) | (kN) | ( Nm ) | ( Nm ) |
| PMC145S2 | 60,5 | 158 | 14 | $2 \times 250=500$ | 1000 |
| PMC145XS2 | 70,5 | 206 | 15 |  |  |

## Examination result:

For the examination calculations were carried out based on the examination basis.
The result was that the traction sheave shaft and the shaft to collar connections were designed according the maximum load data. The remarks in the maintenance instructions are to be observed.
The conditions mentioned in annex the EC Type-Examination Certificate no. ABV777/x respectively EC TypeExamination Certificate EU BD 777/x are herewith fulfilled.


ThyssenKrupp Aufzugswerke GmbH

## WARNER Electric Europe

7, rue de Champfleur
49124 St. Barthélemy d'Anjou
France
Our reference/name
IS-FT1-MUC/cr
Christian Rührmeyer

| Tel.-Extension/E-Mail | Fax-Extension |
| :--- | :--- |
| +49 $895791-3450$ | $+49895791-3337$ |
| christian.ruehrmeyer@tuev-sued.de |  |


| Date | Page |
| :--- | :--- |
| 2016-03-21 | 1 of 3 |
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Fulfillment of requirements concerning type-examinations of ascending car overspeed protection means (ACOP) and protection devices against unintended car movement according to the harmonized standard EN 81-50:2014 (D) by (EC) type-examination certificates according to Directive 95/16/EC

Dear Sirs,
For the products listed below were issued (EC) type-examination certificates according to Directive 95/16/EC. Test basis was the harmonized standard EN 81-1. In the meantime EU type-examination certificates according to Directive 2014/33/EU were issued for the tested products. So far as relevant, additional requirements of the harmonized standard EN 81-20:2014 (D) were taken into consideration.

| Type: | (EC) <br> type-examination certificate | EU <br> type-examination certificate |
| :---: | :---: | :---: |
| ERS VAR08 <br> Size: $\begin{array}{ll}\text { SZ600/__-, SZ1050/_---' } \\ & \text { SZ1700I__-_- }\end{array}$ | ABV 590/3, ESV 590/5 ABV 818/1, ESV 818/2 ABV 880, ESV 880 | EU-BD 590 |
| ERS VAR09 Size: $\begin{aligned} & \text { SZ200/__, SZ800/__-- } \\ & \\ & \\ & \text { SZ1700/_-_-_ }\end{aligned}$ | ABV 817/1, ESV 817 <br> ABV 729/2, ESV 729/1 <br> ABV 591/5, ESV 591/8 <br> ABV 591/6, ESV 591/9 | EU-BD 591 |

Phone: $+49895791-0$
Fax: $+49895791-1550$
www.tuv-sud.com/is
TUV ${ }^{(1)}$ TUV ${ }^{(1)}$

|  | ABV 817/1, ESV 817 <br> ABV 809/3, NL 11-400-1002-153-01 (R2) <br> ABV 809/2, NL 11-400-1002-153-01 (R1) <br> ABV 729/2, ESV 729/1 <br> ABV 811/2, NL 11-400-1002-153-02 (R2) <br> ABV 591/5, ESV 591/8 <br> ABV 591/6, ESV 591/9 <br> ABV 591/4, ESV 591/6 | EU-BD 591/1 |
| :---: | :---: | :---: |
| ERS VAR10  <br> Size: SZ1010I_--- <br>  SZ2500I <br>  SZ5000 | ABV 592/3, ESV 592/2 ABV 604/3, ESV 604/3 ABV 829/1, ESV 829/1 | EU-BD 592 |
| $\begin{aligned} & \text { ERS VAR15-02 } \\ & \text { Size: } \quad \text { FT2110/__-_SY } \\ & \\ & \\ & \text { FT2110I___-_S } \end{aligned}$ | ABV 777/5, ESV 777/5 <br> ABV 777/3, ESV 777/3 | EU-BD 777 |
| ERS VAR07 <br> Size: SZ300/__ SZ420/ $\qquad$ | ABV 819/2, ESV 819/1 ABV 826/2, ESV 826/1 ABV 843/1; ESV 843/1 ABV 844/1, ESV 844/1 | EU-BD 819 |
|  | ABV 819/2, ESV 819/1 ABV 826/2, ESV 826/1 ABV 843, ESV 843 ABV 843/1; ESV 843/1 ABV 844, ESV 844 ABV 844/1, ESV 844/1 | EU-BD 819/1 |
| ERS FENIX 08 <br> Size: 06-___, 10- $\qquad$ | ASBV 905/1 ASBV972 | EU-BD 905 |
| ERS FENIX 09 Size: $06-10-\ldots$ | ASBV 906/1 ASBV 973 | EU-BD 906 |
| ERS FENIX 10 <br> Size: 12-__, 20- | ASBV 907/1 ASBV 974 | EU-BD 907 |

According to the new standard EN 81-50:2014 (D) there are new requirements for the type-examination of the braking devices as part of the ascending car overspeed protection means (ACOP) and against unintended car movement (UCM) respectively the requirements have changed. But these requirements already have been considered in the past. For this reason additional tests were not necessary. The content of the EC type examination certificates was formally adapted. The safety components mentioned above fulfill the requirements of the harmonized standard EN 81-50:2014 (D) already.

For the function as safety component as part of the ascending car overspeed protection means (ACOP) the transitional regulation according to Article 44 of the Directive 2014/33/EU is fully applicable.

In the future protecting devices against unintended car movement (UCM) will be safety components according to Annex III of the Directive 2014/33/EU.

Furthermore according to Article 44 of the Directive 2014/33/EU the making available on the market of safety components for lifts covered by Directive 95/16/EC which are in conformity with that Directive and which were placed on the market before 20 April 2016 shall not be impeded. To avoid problems in the meantime with document NB-L/2015-061 of 2015-07-06 Notified Bodies Lift (NB-Lift) suggested to apply Article 44 for components of protecting devices against unintended car movement (UCM) analogously. A definitive statement of NB-Lift respectively the European Commission is planed, but is pending. After
consideration a transformation of the existing type-examination certificates in EU type-examination certificates is possible.

For this reason, additional formal requirements and due to the validity of the new Lift Directive 2014/33/EU from 2016-04-20, EU type-examination certificates already may be issued, but they are valid from 2016-04-20 only.

## Best regards


C. Noms
Christian Rührmeyer Niederlassung München Abteilung Fördertechnik

Warner Electric Europe
7, rue Champfleur
B.P. 20095

49182 St Barthélemy d’Anjou

DECLARATION OF CONFORMITY TO THE DIRECTIVE 2014/33/EU

AWarmer
Electric-Europe

This is to declare that the following safety device listed in appendix III point 2 of the directive 2014/33/EU

Product: Braking system

According to the following specification:

| Brake type | Part ${ }^{\circ}$ | Drawing ${ }^{\circ}$ | Voltage (Vdc) | Torque or Tangential Force | $\begin{aligned} & \text { EU type examination } \\ & + \text { NB } \end{aligned}$ |  | $\begin{gathered} \mathrm{T} 10 \\ \text { (ms) } \end{gathered}$ | $\begin{aligned} & \text { T90 } \\ & \text { (ms) } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ERS VAR07 SZ420/350 SY | 30315184 | I-112107260 | 103/72 | $2 \times 350 \mathrm{Nm}$ | EU-BD819/1 | NB0036 | 95 | 160 |
|  | 30315418 | I-112107763 | 103/72 | $2 \times 350 \mathrm{Nm}$ | EU-BD819/1 | NB0036 | 95 | 160 |
| ERS VAR07 SZ600/550 SY | 30315185 | I-112107261 | 103/72 | $2 \times 550 \mathrm{Nm}$ | EU-BD819/1 | NB0036 | 80 | 135 |
|  | 30315419 | I-112107764 | 103/72 | $2 \times 550 \mathrm{Nm}$ | EU-BD819/1 | NB0036 | 80 | 135 |
| ERS VAR08 SZ1700/1700 | To Create | I-112108241 | 180/90 | 1700 Nm | EU-BD590 | NB0036 | 70 | 250 |
| ERS VAR09 SZ1700/1250 | 30351931 | I-112108213 | 103/52 | $2 \times 1250 \mathrm{Nm}$ | EU-BD591 | NB0036 | 80 | 230 |
| ERS VAR09 SZ1700/1700 | 30315074 | I-112106605-R | 103/72 | $2 \times 1700 \mathrm{Nm}$ | EU-BD591 | NB0036 | 50 | 160 |
| ERS VAR10 SZ2500/2500 | 30343591 | I-112108034 | 180/90 | 2500 Nm | EU-BD592 | NB0036 | 70 | 170 |
| ERS VAR10 SZ2500/3000 | 30343588 | I-112108036 | 180/90 | 3000 Nm | EU-BD592 | NB0036 | 70 | 230 |
| ERS VAR10 SZ5000/5000 | 30348450 | I-112108167 | 180/90 | 5000 Nm | EU-BD592 | NB0036 | 125 | 255 |
| $\begin{gathered} \text { ERS VAR15-02 } \\ \text { FT2110/2415N SY } \end{gathered}$ | 30315189 | I-112107265 | 103/72 | 2415N | EU-BD777 | NB0036 | 70 | 100 |
|  | 30315417 | I-112107762 | 103/72 | 2415N | EU-BD777 | NB0036 | 70 | 100 |
| ERS FENIX 09 10-1200 | 30343444 | I-112108053 | 103/72 | $2 \times 1200 \mathrm{Nm}$ | EU-BD906 | NB0036 | 100 | 185 |


| Warner Electric Europe | DECLARATION OF CONFORMITY TO |  |
| :--- | :---: | :---: |
| 7, rue Champfleur | THE DIRECTIVE 2014/33/EU | Electric-Europe |
| B.P. 20095 |  |  |
| 49182 St Barthélemy d'Anjou |  |  |


| Year of manufacture : | See brake label |
| :--- | :--- |
| Manufactured by : | Warner Electric Europe |

That has obtained the UE type examination $N^{\circ}$ (see table above) by the following notified body :
Notified body (NB)
TÜV SÜD Industrie Service GmBh
Westendstr. 199
D 80686 MÜNCHEN

Covered par the Quality Insurance attestation Module E N ${ }^{\circ} 2002 / 2820 / 013$ D delivered by the following body :

AFNOR Certification NB 0333
11 rue Francis de Pressenssé
93571, La pleine St Denis Cedex France
Is compliant with the Directive 2014/33/EU and applied the harmonized standard EN81-20:2014 and EN81-50:2014

| Function: | Operation Quality Manager |  |
| :--- | :--- | :--- |
| Name: | Ms Lucie Godicheau |  |
| Date: | 1964116 |  |
| Visa: |  |  |


[^0]:    Interim values can be interpolated

