

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

Westendstr. 199

80686 Munich - Germany Identification No. 0036

Certificate Holder:

WARNER Electric Europe

7, rue de Champfleur

BP 20095

49124 Saint Barthélemy d'Anjou - France

Manufacturer

of the Test Sample:

WARNER Electric Europe 7, rue de Champfleur

(Manufacturer of Serial Production see Enclosure)

BP 20095

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

Size: FT2110/_ _ _ , FT2110/ _ _ SY

Directive:

2014/33/EU

Reference Standards:

EN 81-20:2014

EN 81-50:2014

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

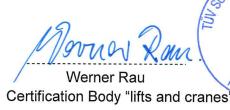
annex of this certificate are kept.

Date of Issue:

2016-03-04

Date of Validity:

from 2016-04-20



Annex to the EU Type-Examination Certificate 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
- Permissible brake forces and maximum tripping speeds (gliding speeds) of the brake disc when the 1.1.1 braking device acts on the shaft of the traction sheave while the car is moving upward

Size	Permissible brake force per braking device (single brake) [N]	Max. tripping speed (gliding speed) on the middle friction diameter of the 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.

$$V = \frac{DTS \times VBS}{DBS \times i}$$

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 disk (m)

v_{BS} = Gliding speed on middle friction diameter of the brake disk (m/s)

= 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 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]	spo wit	ximum nse tim [ms] h / with rexcita	es** out
	- Specimoution					t ₁₀	t ₅₀	t ₉₀
FT2100/	1	2 x 1932 = 3864			3.25	70	100	130
FT2100/	2		2 x 2560 = 5120		3.25	60	90	120
FT2100/	3			2 x 2802 = 5604	3.25	50	78	105
FT2100/	4	2 x 1932 = 3864			3.25	90	120	150
FT2100/	5		2 x 2512 = 5024		3.25	60	100	140
FT2100/	6			2 x 3092 = 6184	3,25	50	95	140
FT2100/	7	2 x 1643 = 3286			6.5	85	108	130
FT2100/	8		2 x 2222 = 4444		6.5	60	83	105
FT2100/	9			2 x 2512 = 5024	6.5	50	75	100
FT2100/ SY			2 x 2415 = 4830		6.5	70	85	100

Interim values can be interpolated

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



Explanations:

* Nominal brake force: Brake force 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 force, t_{50} optionally calculated t_{50} = $(t_{10}+t_{90})/2$ or value taken from

the examination recording

1.2.2 Assigned execution features

Size	Type of powering / deactivation	Brake control	Nominal air gap [mm]	Damping elements / adhesive foil integrated	Overexcitation
FT2100/	Continuous current / continuous current end	serial	0.6	yes / yes	at double non- release voltage
FT2100/SY	Continuous current / continuous current end	serial	0.6	yes / no	at double 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 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.
- 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/	I-1 12 106967	04.03.2016
FT2100/SY	I-1 12 108240	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 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/ 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 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.

Address Dabo Industry Zone

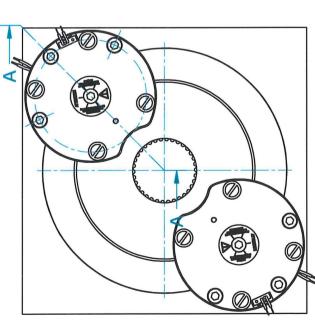
18 Huanzhen Road

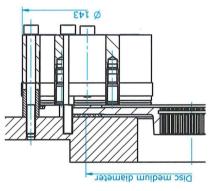
Bogang County, Shajing Town Baoan District, Shenzhen City

518104 Guangdong province - China (PRC)

- END OF DOCUMENT -

Based on: e-mail from Warner Electric Europe of 2016-01-15





300

280

240 260 Disc medium diameter (mm)

220

200

235 mm 253 Nm 363 Nm

Min permissible brake moment Max permissible brake moment

230

330

207 mm 223 Nm 320 Nm

Min permissible brake moment

Medium Ø

Disc Ø237 mm - torque level

Min permissible brake force

Maximum tripping speed

Tripping Speed N°1

A-A

mum rated speed

Max permissible brake force

Max permissible brake momen

Disc Ø270 mm - torque level

Medium Ø

norque - Nm

Torque mini - FT = 2157 N Torque maxi - FT = 3092 N

480 430 380

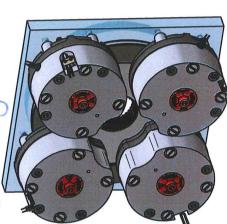
3.25 m/s 2.83 m/s 2157 N 3092 N

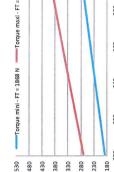
Torque vs disc medium diameter

GEPRÜFT / APPROVED

Prüflaboratorium für Produkte der Fördertechnik TÜV SÜD Industrie Service GmbH Westendstraße 199

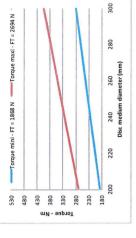






6.5 m/s 5.65 m/s 1868 N 2694 N

Torque vs disc medium diameter



207 mm 193 Nm 279 Nm

Min permissible brake moment

Medium Ø

Disc Ø237 mm - torque level

Min permissible brake force Max permissible brake force

Maximum tripping speed Maximum rated speed

Tripping Speed N°2

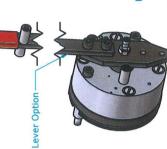
Max permissible brake moment

Disc Ø270 mm - torque level

Medium Ø

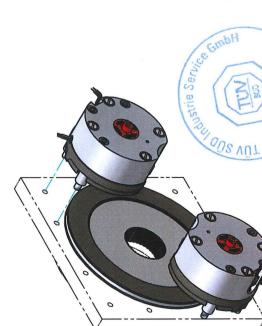
235 mm 219 Nm 317 Nm

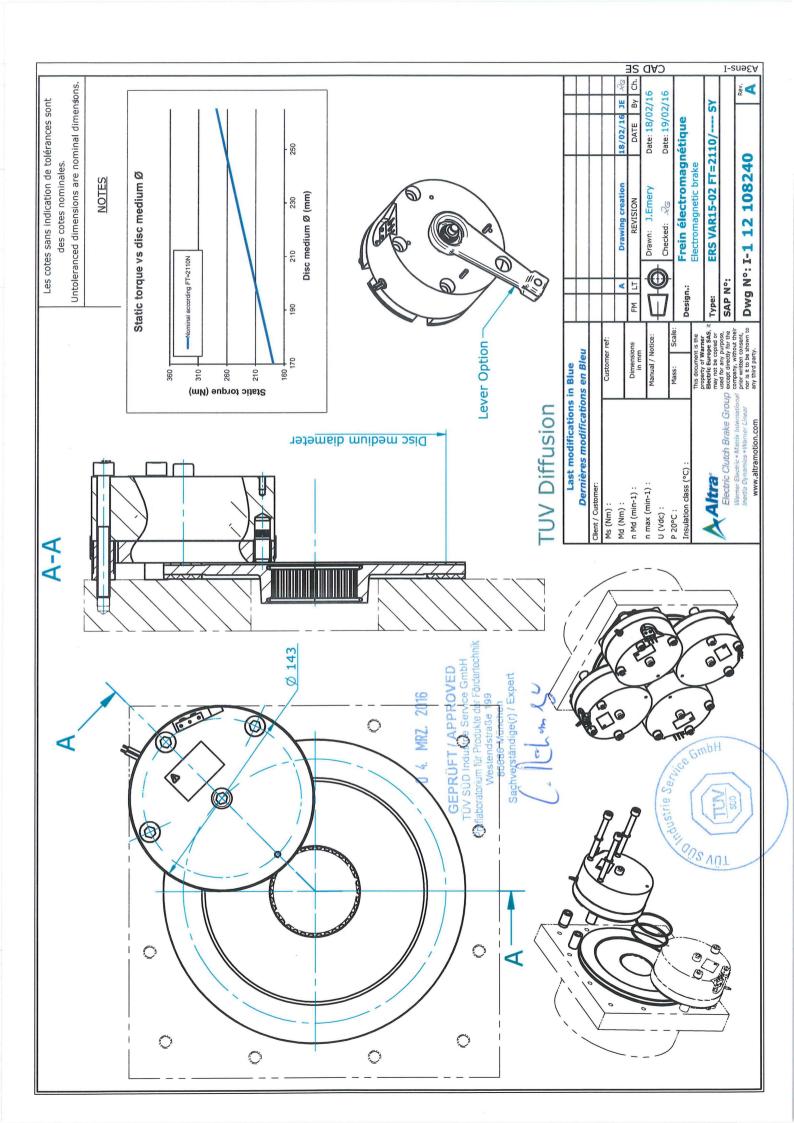
Min permissible brake moment Max permissible brake moment



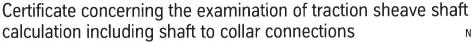
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ThyssenKrupp Aufzugswerke



Neuhausen, den 14. Januar 2016

Lift machine type:

PMC145S2/XS2

Brake type:

ERS VAR 15-02 - 2x250Nm according
EC-Type - Examination ABV 777/x
EC-Type - Examination EU-BD 777/x

Manufacturer:

ThyssenKrupp Aufzugswerke GmbH

Bernhäuser Str. 45, 73765 Neuhausen a.d.F.

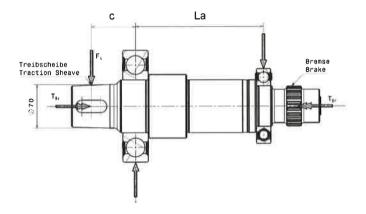
Object examined:

Calculation of traction sheave shaft including shaft to collar

connections

Examination basis:

DIN743, DIN743, machine elements Niemann/Winter/Höhn (2005)



Design drawing:

6251 000 0217 (PMC145S2), 6251 000 0216 (PMC145XS2)

Material:

C45R+N (1.1201)

Load data:

Lift machine type	Distance Traction sheave c	Bearing Distance La	Max. Shaft load F _t	Nominal brake torque T _{Br}	Max. brake torque 2,0 x T _{Br}	
	(mm)	(mm)	(kN)	(Nm)	(Nm)	
PMC145S2	60,5	158	14	2x250=500	1000	
PMC145XS2	70,5	206	15	23200-000	1000	

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 Type-Examination Certificate EU BD 777/x are herewith fulfilled.

xecutive board)

(Engineering CCU-TD)

ThyssenKrupp Aufzugswerke GmbH Company domicile: Neuhausen a.d.F., Commercial register: Stuttgart HRB 213575 Postal address: P.O. Box 23 03 70, 70623 Stuttgart, Germany

Chairman of the Supervisory Board: Alexander Keller Executive Board: Jürgen Kern (CEO), Jörg Schulz

[Certificate traction sheave shaft PMC145S2-XS2_Warner VAR 15-02_14-01-2016.doc]

Seite 1 von 1



TÜV SÜD Industrie Service GmbH · 80684 Munich · Germany

Choose certainty.
Add value.

WARNER Electric Europe 7, rue de Champfleur 49124 St. Barthélemy d'Anjou France



Your reference/letter of

Our reference/name

Tel.-Extension/E-Mail

Fax-Extension

Date

Page

IS-FT1-MUC/cr Christian Rührmeyer +49 89 5791-3450

+49 89 5791-3337

2016-03-21

1 of 3

christian.ruehrmeyer@tuev-sued.de Warner_Bestätigung_EN81-20_50_160321_en.docx

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)	EU
туре.	type-examination certificate	type-examination certificate
ERS VAR08	ABV 590/3, ESV 590/5	
Size: SZ600/ , SZ1050/ ,	ABV 818/1, ESV 818/2	EU-BD 590
SZ1700/	ABV 880, ESV 880	
EDC VADOO	ABV 817/1, ESV 817	
ERS VAR09 Size: SZ200/, SZ800/,	ABV 729/2, ESV 729/1	E11 DD 501
SZ1700/	ABV 591/5, ESV 591/8	EU-BD 591
32,700,	ABV 591/6, ESV 591/9	

Page 2 of 3 Our reference/Date: IS-FT1-MUC/cr / 2016-03-21 Dokument: Warner_Bestätigung_EN81-20_50_160321_en.docx



ERS VAR09 Size: SZ200/, SZ600/,	ABV 817/1, ESV 817 ABV 809/3, NL 11-400-1002-153-01 (R2) ABV 809/2, NL 11-400-1002-153-01 (R1) ABV 729/2, ESV 729/1 ABV 811/2, NL 11-400-1002-153-02 (R2) ABV 591/5, ESV 591/8 ABV 591/6, ESV 591/9 ABV 591/4, ESV 591/6	EU-BD 591/1
ERS VAR10 Size: SZ1010/, SZ2500/, SZ5000/	ABV 592/3, ESV 592/2 ABV 604/3, ESV 604/3 ABV 829/1, ESV 829/1	EU-BD 592
ERS VAR15-02 Size: FT2110/, FT2110/, SY	ABV 777/5, ESV 777/5 ABV 777/3, ESV 777/3	EU-BD 777
ERS VAR07 Size: SZ300/, SZ420/, SZ600/, SZ800/	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
ERS VAR07 Size: SZ300/, SZ420/, SZ420/ SY, SZ600/, SZ600/ SY, SZ800/, SZ800/ AZ	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 Size: 06, 10	ASBV 905/1 ASBV972	EU-BD 905
ERS FENIX 09 Size: 06, 10	ASBV 906/1 ASBV 973	EU-BD 906
ERS FENIX 10 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

Our reference/Date: IS-FT1-MUC/cr / 2016-03-21
Dokument: Warner_Bestätigung_EN81-20_50_160321_en.docx



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

Achim Janocha

Leiter der Zertifizierungsstelle für Produkte der Fördertechnik

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



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 N°	Drawing N°	Voltage (Vdc)	Torque or Tangential Force	EU type exar + NB		T10 (ms)	T90 (ms)
ERS VAR07 SZ420/350 SY	30315184	I-112107260	103/72	2x350Nm	EU-BD819/1	NB0036	95	160
	30315418	I-112107763	103/72	2x350Nm	EU-BD819/1	NB0036	95	160
ERS VAR07 SZ600/550 SY	30315185	I-112107261	103/72	2x550Nm	EU-BD819/1	NB0036	80	135
	30315419	I-112107764	103/72	2x550Nm	EU-BD819/1	NB0036	80	135
ERS VAR08 SZ1700/1700	To Create	I-112108241	180/90	1700Nm	EU-BD590	NB0036	70	250
ERS VAR09 SZ1700/1250	30351931	I-112108213	103/52	2x1250Nm	EU-BD591	NB0036	80	230
ERS VAR09 SZ1700/1700	30315074	I-112106605-R	103/72	2x1700Nm	EU-BD591	NB0036	50	160
ERS VAR10 SZ2500/2500	30343591	I-112108034	180/90	2500Nm	EU-BD592	NB0036	70	170
ERS VAR10 SZ2500/3000	30343588	I-112108036	180/90	3000Nm	EU-BD592	NB0036	70	230
ERS VAR10 SZ5000/5000	30348450	I-112108167	180/90	5000Nm	EU-BD592	NB0036	125	255
ERS VAR15-02	30315189	I-112107265	103/72	2415N	EU-BD777	NB0036	70	100
FT2110/2415N SY	30315417	I-112107762	103/72	2415N	EU-BD777	NB0036	70	100
ERS FENIX 09 10-1200	30343444	I-112108053	103/72	2x1200Nm	EU-BD906	NB0036	100	185

Warner Electric Europe

7, rue Champfleur B.P. 20095

49182 St Barthélemy d'Anjou

DECLARATION OF CONFORMITY TO THE DIRECTIVE 2014/33/EU



WARNER ELECTRIC EUROPE

A9182 ST.BARTHELEMY D'ANJOU CEDEX

E-mail: warnerelectric-eu.com

Year of manufacture :

See brake label

Manufactured by:

Warner Electric Europe

That has obtained the UE type examination N° *[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°2002/2820/013D 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: Name:

Operation Quality Manager Ms Lucie Godicheau

Date:

Visa:

1964/16