

APPLICANT :

**THYSSENKRUPP ELEVATOR MANUFACTURING FRANCE**  
**Rue de Champfleür – ZI ST Barthélemy**  
**BP 126**  
**49001 ANGERS CEDEX 01**

# EC TYPE-EXAMINATION CERTIFICATE

## N° 0060-V-B-037P-04-2010-REN 01

This EC type examination certificate is issued to the applicant for the lift model defined below in application of point 5 of paragraph B of appendix V (module B) of directive 95/16/EC of 29 June 1995 on the approximation of the laws of the Member States relating to lifts.

Lift model	:	NC91A00 to NC91A40 – NC91B00 to NC91B40 Lift without machine room
Specificities	:	Rated load (Q): 450 kg to 1050 kg Rated speed (Vn): ≤ 1,00_m/s Automatic telescopic or centre opening doors
Engineering characteristics and extension limits	:	See appendices to certificate 12 pages: - Sheet : DAM1 (04/10 – Update 10/10, 04/11, 11/11, 05/12, 03/12, 10/13) CS1 (04/10 – Update 10/10, 04/11, 10/11, 11/11, 05/12, 03/12, 10/13) DCE1 (04/10 – Update 10/10, 04/11, 05/12, 03/12, 10/13) MCRR1 (04/10 – Update 10/10, 11/11, 05/12, 03/12, 10/13) - Drawings : PS01 / D (04/10 - Update 07/11, 06/12, 02/12, 10/13) PS02 / C (04/10 - Update 06/12, 02/12, 10/13) PS03 / B (04/10 - Update 06/12, 02/12, 10/13)
Date of original issue	:	16 April 2010
Date of the renewal	:	11 April 2013
Date of update	:	19 november 2013
Validity expiry	:	11April 2016
Files references :	:	APAVE Parisienne – 10.201.803.08043.00.M / 13.201.EGC.08348.00.J THYSSENKRUPP : Certification File – SYNERGY Réf : 10/372/2584/YB/CM of 14 April 2010 Réf : 10/372/2604/YB/CM of 29 October 2010 Réf : 11/372/2637/YB/CM of 27 July 2011 Réf : 11/372/2642/YB/CM of 7 October 2011 Réf : 11/372/2647/YB/CM of 25 November 2011 Réf : 12/372/2659/YB/CM of 14 May 2012 Réf : 13/372/2688/YB/CM of 05 April 2013 Réf : 13/372/2702/YB/CM of 8 november 2013

The lift model defined in the appendices enclosed with the certificate fulfil the essential requirements of health and safety as defined in appendix I of Directive 95/16/EC of 29 June 1995.

According to section 2.2 of Annex I to the Lifts Directive, the application of alternative measures to prevent the risk of crushing above and underneath the car is restricted to installations where the requirement for free space or refuges is impossible to fulfil and may be subject to prior approval by national authorities.

Paris, the 19 november 2013

On behalf of APAVE head office

Jérôme THOMAS



Stamp of the notified body



191 rue de Vaugirard  
75738 Paris Cedex 15

**Note :**

In conformity with point 6 of paragraph B of appendix V of Directive 95/16/EC, the applicant of the lift must inform the notified body of any alterations, even of a minor nature, which he has made or plans to make to the approved lift, including new extensions or variants not specified in the original technical dossier.

Two copies of this certificate are supplied to applicant in French, English and German language.  
No duplicate shall be issued.

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### APPENDIX

#### DESCRIPTION OF LIFT MODEL

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Lift without machine room «NC91A00 to NC91A40 – NC91B00 to NC91B40»

450 kg ≤ Q ≤ 1050 kg - Vn ≤ 1,00 m/s

Lift model = Basic lift with possible extensions

(Without modification of safety components)

#### Tested lift :

Type of lift	Electric traction lift
Rated load	630 kg
Number of passengers	8 passengers
Rated speed	1.00 m/s ( frequency variation CPI )
Travel height	20.10 metres
Number of served levels	8
Clear opening	900 x 2000 mm (Side opening automatic telescopic door M2T S11)
Car mass	785 kg
Counterweight mass	1037 kg (40 %)
Pit depth	400 mm
Headroom height	2600 mm
Machine room	without

#### Limits use :

- Not to be used in an atmosphere presenting risk of explosion.
  - Do not expose to bad weather conditions (all equipments are IP 21 protection rating).
  - If for architectural reasons lift access is orientated towards the outside, appropriate physical protection must be provided so that the landing doors, human interfaces and work areas are not exposed to the weather. The solutions implemented must be validated by the person responsible for the final inspection according to Lifts Directive 95/16/EC annexes VI, X, XII, XIII or XIV.
  - The service box is located in preference on the top terminal level, and in the vicinity of the landing door. Installation is possible in the lower levels. It may be separated from the landing door or installed in an annex room accessible from communal areas.  
The nearest landing door must be within calling distance and in sight of service box, except if the service box is located in an annex room, in which case it must be equipped with an intercom system in accordance with EN 81-1:1998+A3 § 14.2.3.4.  
In all the cases, the access to the service box must be guaranteed without requiring entry into private premises (EN81-1:1998+A3 § 6.2.1 b)).  
(Free access and 500 x 700 mm working area per § 6.3.3.1 of EN 81-1:1998+A3).  
The service box and the technician undertaking an intervention inside the service box must not be exposed to severe weather conditions; the service box may be placed on an access door oriented outside the building if its placement is in compliance with this requirement. The specific arrangement must be validated by the person responsible for the final inspection according to Lifts Directive 95/16/EC, annexes VI, X, XII, XIII or XIV.
  - Shaft top ventilation in conformity with § 6.4.8 de EN 81-1:1998+A3.
  - Working temperature: 5° to 40° C (§ 0.3.15 de EN 81 -1:1998+A3).
  - Access under the pit possible if :
    - a) The base of the pit is design for an imposed load of at least 5000 N/m<sup>2</sup> (§ 5.5 of EN 81-1:1998+A3), and,
    - b) installation below the counterweight, a solid pier extending down to solid ground (§ 5.5 a) of EN 81-1:1998+A3) or installation of a counterweight equipped with safety gear (§ 5.5.b) of EN 81-1:1998+A3).
  - Manual battery backup emergency operation.
  - Optional : Automatic battery backup emergency operation (direction of movement depend from the car load ) (\*)
  - Optional : Automatic emergency operation with UPS (possibility of choosing an evacuation level) (\*)
- \* If any option "emergency control in case of fire" active, automatic emergency return to floor system, if it is provided, becomes inoperative.
- Installation in buildings open to the public. (In accordance with the regulations in force in the countries concerned).



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## DESCRIPTION OF LIFT MODEL (continued)

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Rated load (Q) (kg)	450 to 1050	
Max. rated speed (m/s)	$\leq 1$	
Travel height (H) (m)	$2 \leq H \leq 33$	$33 < H \leq 45$
Number of levels maxi. (HS)	16	
Max. mass. car side (P+Q) (kg)	2150	
Suspension	2/1	
Rated load balancing	40%	
Diameter of suspension ropes (mm)	6,0	
Number of suspension ropes	5 to 10 (5/6 if Q = 450 kg or 6/7 if Q = 630 kg or 9/10 if Q $\geq$ 1000 kg)	
Minimum breaking load (Rt min kN)	25.9 of ropes PAWO 819W (WOLF)	
Minimum breaking load (Rt min kN)	26.8 of ropes DRAKO 250T	
Compensation chain max. (kg/m)	-	1.5 (if Q $\leq$ 630 kg) 3 (if Q $\geq$ 1000 kg)
Diameter of overspeed governor rope and safety rope for safety gear activation on counterweight (mm)	6.5	
Minimum breaking load of overspeed governor and safety rope for safety gear activation on counterweight (Rt min kN)	$\geq 25.8$	
Traction sheave diameter (mm)	240	
Grooves	Grooves U under cut angle of size $\beta$ 100 ° (angle of groove $\gamma$ 15°)	
Wrapping angl (°)	180	
Deflection car sheave diameter (mm)	240	
Deflection counterweight sheave diameter (mm)	150	
Type of guide rails	Car	T 70 A (70 x 65 x 9) – Cold drawn or T 70 B (70 x 65 x 9) – Machined
	Counterweight	T 50 A (50 x 50 x 5) – Cold drawn
	If safety counterweight	T 70 A (70 x 65 x 9) – Cold drawn or T 70 B (70 x 65 x 9) – Machined
Rail brackets distance (mm)	2040 to 3100	
Number / type car buffers :		
(if pit depth SG < 1100 mm)	2 / Ø100 x 80 (if Q $\leq$ 630kg) or 2 / Ø125 x 80 (if Q $\geq$ 1000kg)	
(if pit depth SG $\geq$ 1100 mm)	1 / Ø165 x 80 (if Q $\leq$ 1050 kg)	
Number / type counterweight buffers	1 / Ø 100 x 80 (if Q = 450 kg) or 1 / Ø125 x 80 (if Q = 630kg) or 1 / Ø165 x 80 (if Q $\geq$ 1000kg)	2 / Ø100 x 80 (if Q $\leq$ 1050 kg)
Car width KB (mm)	1000 mini to 1100 maxi	
Car depth KT (mm)	1250 mini to 2100 maxi <sup>(1)</sup>	
Car height KH (mm)	2100 to 2500	

<sup>(1)</sup> 2100 mm for Q = 1000 kg with single or double access

### Pit depth (SG):

Minimum pit dept SG (mm) <u>without</u> additional safety measures for safety spaces	1100 mm	
Minimum pit dept SG (mm) <u>with</u> additional safety measures for safety spaces	400 mm with BS <sup>(2)</sup> ( $\leq 3,5$ mm or 400 + BS if > 3,5 mm (maxi = 25 mm)	Incompatible with compensation chain

<sup>(2)</sup> BS: Thickness car floor covering

### Headroom height (SK):

Minimum headroom height SK (mm) <u>without</u> additional safety measures for safety spaces	3300 ( $\geq$ KH + 1200 with PFG <sup>(3)</sup> = 90 mm) or 3400 ( $\geq$ KH + 1300 with PFG = 150 mm)
Minimum headroom height SK (mm) <u>with</u> additional safety measures for safety spaces	2600 ( $\geq$ KH + 500)

<sup>(3)</sup> PFG: Clearance under the counterweight

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Rated load (Q) (kg)	450 to 1050
Max. rated speed (m/s)	≤ 1
Type of doors	Side opening automatic telescopic doors or centre opening (conformity to § 7 of EN 81-1:1998+A3)
Entrance width TB (mm)	800 and 1000
Entrance height TH (mm)	2000 to 2300
Surface of doors	Painted or stainless steel covered door frame Painted, stainless steel covered, or glassed panels (glass in conformity with appendix J – Table J2 of EN 81-1:1998+A3) <sup>(1)</sup>
Mounting position of doors	In shaft, recess or on landing
Access	Single (450 kg) – Single / double (≥ 630 kg)
Fireman functionality	Optional possible with additional equipments (in accordance with the regulations in force in the countries concerned)

<sup>(1)</sup> For landing and car doors with glass panel, protection against dragging of children fingers by either reducing the operational gap or installing a plastic ring (see instruction manual for relevant door)

#### Shaft structure / Fixings :

- The structure of the shaft must resist the efforts indicated on the installation drawing and comply to the guides deformation required in the §10.1.2.2 of EN81-1:1998+A3. (These deformations are of the guide rail and not of the structure. If for specific materials used for the shaft structure a serious deformation of the structure had to be assumed then this deformation has to be combined with the deformation of guide rails and consequently the permissible deformation of guide rails has to be reduced. This might lead to shorter distance between brackets).
- The shaft must preferably be in concrete structure (mini class C20/25) with dowels (type Hilti HST, or equivalent approved by TKEMF, mini. M12) or Halfen or HILTI rails fixing elements, or other materials<sup>(2)</sup> complying with the requirements mentioned above. In this case, the choice of fixing elements must take in account the shaft material type and comply with the instructions of the supplier of the fixing elements.

<sup>(2)</sup> In the case of glazed shaft walls, they must be in conformity to EN 81-1: 1998+A3 § 5.3 and the national building regulations in force in the country in which the lift is installed.

#### List of regulations and applicable standards :

Lift directive 95/16/EC of June 1995  
Harmonized Standard EN 81-1:1998+A3 of December 2009  
Harmonized standard EN81-21 of September 2009  
Harmonized standard EN81-28 of June 2003  
Harmonized standard EN81-70 of May 2003 + A1 December 2004  
Harmonized standard EN81-58 of July 2003  
Harmonized standard EN81-73 of May 2005

**The building must be designed to handle the indicated loads and fulfil acoustic and fire constraints in conformity with regulations currently in force in the countries concerned.**



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#### SAFETY COMPONENTS

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Lift without machine room «NC91A00 to NC91A40 – NC91B00 to NC91B40»

450 kg ≤ Q ≤ 1050 kg - Vn ≤ 1,00 m/s

#### SAFETY GEAR – Vn ≤ 1.00 m/s

Type	Certificate	Total suspended mass (kg)	Type of guide rails
TK-3	ATI / LD-VA / M160 / 07	687 à 2521	Cold drawn - Oiled
	or ATI / LD-VA / M160A - 1 / 09		
	or ATI / LD-VA / M160A - 2 / 11	654 à 2663	
TK-3 B	ATI / LD-VA / M171 / 07	716 à 2502	Machined - Oiled
	or ATI / LD-VA / M171A - 1 / 11	769 à 2720	
TK-3AD	ATI / LD-VA / M178 / 08	647 à 2184	Cold drawn - Dry
	or ATI / LD-VA / M178A - 1 / 11	612 à 2290	

#### ASCENDING CAR OVERSPEED PROTECTION MEANS – Vn ≤ 1.00 m/s

Type	Certificate	Force braking (Nm)	Observations
RSR / 8010 size 200 et and 400 "short or long"	ABV 766 / 2 or ABV 766 / 3	200 – 560 (200) (if Q = 450 kg) 420 – 840 (400 "short") (if Q = 630 kg) 750 – 1200 (400 "long") (if Q ≥ 1000 kg)	Braking force acceptable (applied on 1 brake)
ERS VAR 15 - 02		2231 – 3111 (if Q = 450 kg)	
ERS VAR 07 SZ 420 / ____ or SZ 600 / ____	ABV 843 (SZ 420 / ____)	603 – 1070 (if Q = 630 kg)	
	ABV 844 (SZ 600 / ____)	811 – 1688 (if Q ≥ 1000 kg)	

#### NON-LINEAR ENERGY ACCUMULATION-TYPE BUFFERS – Vn ≤ 1.00 m/s

Types / Dimensions	Certificate	Impact speed	Permissible weight (kg)
ACLA A300401 Ø 100 mm x height 80 mm	08 / 208 / AP 001 / 300401	maxi. 1,15 m/s	Maxi. : 1000 Mini. : 190
ACLA A300402 Ø 125 mm x height 80 mm	08 / 208 / AP 001 / 300402		Maxi. : 1250 Mini. : 325
ACLA A300403 Ø 165 mm x height 80 mm	08 / 208 / AP 001 / 300403		Maxi. : 2534 Mini. : 568

#### OVERSPEED GOVERNOR – Vn ≤ 1.00 m/s

Types	Certificate	Rated engagement speed	Observations
GBTK 6023 F	AGB 219 / 1	Vn ≤ 1,00 m/s / Vd max. ≤ 1,30 m/s	Remote activation 2 directional engagement
SG 200	ATI/LD-VA / M156 / 06	Vn ≤ 1,00 m/s / Vd max. ≤ 1,40 m/s	

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#### ELECTRONIC COMPONENTS

Types	Certificate	Operation
SR 2 (Optional)	01 / 208 / 5A / 0411 / 1813	Leveling and Re-leveling door open safety circuit
MS, MS1, MS2 & MQ	01 / 208 / FWB / 0211 / 1504Ae2	Landing heards
MH 4 - SI	01 / 208 / 5A / 0411 / 1815Ae1	Information picking on safety circuit
RFS 2	01 / 208 / 5A / 0411 / 1814	Safety circuit for additional measures

#### LANDING DOOR LOCKING DEVICES

Types		Certificate	Operation
THYSSEN	M2T S8	ATV 570	2 panel telescopic opening (L and R)
	M2Z S8	ATV 571	2 panel centre-opening
	M2T S8 A	ATV 718	2 panel telescopic opening (L and R)
	M2Z S8 A	ATV 719	2 panel-centre-opening
	M2T / M2Z S11	0071 / 0406 / 12	2 panel telescopic (L and R) or central opening
	M2T C14 - ECD	ATI / LD-VA / M165 / 07	2 panel telescopic opening(L and R)
		ATI / LD-VA / M165A-2 / 08	
	M2Z ECD	ATV 762	2 panel centre-opening

#### Other components outside Lifts Directive 95/16/EC:

In case of safety gear activation on counterweight (optional), use of a system with safety rope.

Car door locking devices:

- RT 301; Attestation of conformity file H016894 – Document CQPE / 8, or,
- VF 300/400 or VF11/21; Attestation of conformity file K010224 – Document DE / 2.



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#### DEFINITION OF CAR AND DRIVE

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**Lift without machine room «NC91A00 to NC91A40 – NC91B00 to NC91B40»**  
**450 kg ≤ Q ≤ 1050 kg – Vn ≤ 1,00 m/s**

#### Car and car door

Surface area in conformity with § 8.2.1 of EN 81-1:1998+A3.

Position and type of landing and car operating panels (button and indicator) in conformity with EN 81-70.

Telealarm device for lift in conformity with EN 81-28.

Ventilation surfaces in conformity with § 8.16.2 of EN 81-1:1998+A3.  
(Mechanical ventilation optional)

Dimensions and locking of the car trapdoor (optional) in conformity with § 8.12 of EN 81-1:1998+A3.

Lighting ensuring a minimum 50 Lux at floor level in conformity with § 8.17.1 of EN 81-1:1998+A3.

Car walls, floor, and ceiling of the car in conformity with § 8.3 of EN 81-1:1998+A3.

The structural panels, painted, electrozinc, plastic-coated, laminated stainless steel sheet or glass panel have mechanical strength in conformity with § 8.3.2.1 of EN 81-1:1998+A3 and appendix J of EN81-1:1998+A3.

Painted or electrozinc sheet panels can be covered with plastic-coated or stainless steel sheet, melamine panels, laminate mounted on wood, PVC sandwich panels, marble, solidwood, (etc), supplied with a fire resistance report in conformity with the regulations in force in each country concerned.

Car top in sheet metal, designed to comply with the requirements of § 8.13 of EN 81-1:1998+A3.

Car roof balustrade in conformity with § 8.13.3 of EN 81-1:1998+A3.

(A extendable car roof balustrade is possible with additional safety measure - see § 2.6 appendix MCCR1 page 3/3).  
(A retractable car roof balustrade collapsed Ht = 700 mm and deployed Ht = 1100 mm possible depending on the configuration of the building).

The car door is a two-panels type with side opening sliding horizontally or centre opening.  
(conforming to § 8.6 of EN 81-1:1998+A3)

Car door panels in painted or stainless steel or glazed. (EN 81-1:1998+A3 – Appendix J – table J2)  
(Clearance between car door and wall in conformity with § 11.2 of EN 81-1:1998+A3)

The maximum loaded suspended weight on car side is 2150 kg. (including cladding and accessories)

(maximum suspended weight without load 1150 kg for Q = 1000 kg)

(maximum suspended weight without load 830 kg for Q = 630 kg)

(maximum suspended weight without load 720 kg for Q = 450 kg)

#### Drive and controller

Machine: Gearless DANAHER-KOLLMORGEN / THYSSENKRUPP

Power motor : for the lift Q = 450 kg : 2,8 kW (PMC145 S 1 or S2)

for the lift Q = 630 kg: 3,9 kW (PMC 145 M 1 or M 2)

for the lift Q ≥ 1000 kg: 6,0 kW (PMC 145 L 1 or M 2)

Speed maxi. : 159 revolutions per minute

THREE-PHASES power supply 400 V + N – 50/60 HZ

Traction drive

Sheave ø 240 mm – Grooves U under cut angle of size β 100° (angle of groove γ 15°),

5 to 10 steel ropes ø 6,0 mm (depending on the load)

Integrale collective TCM (MC 3) with frequency converter CPI 09FS / 15FS / 26FS or RPI 5.5 / 7.5 or Integrale collective E.COR (MHC) with frequency converter CPI 09FS / 15FS / 26FS or RPI 5.5 / 7.5.

Work area 700 mm deep in front of the controller per § 6.4.2.1 of EN 81-1:1998+A3.

(Light in this area at least 200 lux at a height of 1 m from floor)

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#### ADDITIONAL SAFETY MEASURES FOR REDUCED SAFETY SPACES

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Lift without machine room «NC91A00 to NC91A40 – NC91B00 to NC91B40» with reduced safety spaces

$450 \text{ kg} \leq Q \leq 1050 \text{ kg} - V_n \leq 1,00 \text{ m/s}$

Description of the additional safety devices implemented when the bottom and top safety spaces doesn't comply with specifications of the EN81-1:1998+A3.

#### 1) Conditions of use :

Headroom (SK) :	SK "standard" if $SK \geq KH^{(1)} + 1200 \text{ mm}$ with $PFG^{(2)} = 90 \text{ mm}$ or $SK \geq KH + 1300 \text{ mm}$ with $PFG = 150 \text{ mm}$
	SK "reduced" if $SK < KH + 1200 \text{ mm}$ with $PFG = 90 \text{ mm}$ or $SK < KH + 1300 \text{ mm}$ with $PFG = 150 \text{ mm}$

(1) KH: Car height

(2) PFG: Clearance under the counterweight

Pit depth (SG) :	SG "standard" if $SG \geq 1100 \text{ mm}$
	SG "reduced" if $SG < 1100 \text{ mm}$

	SK reduced SG reduced NC91 A/B 40	SK standard SG reduced NC91 A/B 10	SK reduced SG standard NC91 A/B 30	SK standard SG standard NC91 A/B 00	§ concerned
1- Upper landing door (or trap door) opening detection device	1*	1*	1**	0	2-1)
2- Lowest landing door (or any other access) opening detection device. (Any access with a threshold altitude $\leq 2,5\text{m}$ from the pit).	1	1	0	0	2-2)
3- Positive Overspeed governor	1	1	1	0	2-3)
4- Automatic stopping device (located on the car roof).	1	0	1	0	2-4)
5- Car roof detection device.	1	0	1	0	2-5)
6- Extendable car roof balustrade	1	0	1	0	2-6)
7- Car door apron at manually extendable	1	1	0	0	2-7)
8- Manual pit buffer	1	1	0	0	2-8)
9- Counterweight protection screen	0	0	1	1	

\* All doors which have their sill positioned at a height  $> 2,5\text{m}$  from the pit

\*\* All doors which have their sill positioned at a height  $> SG$

#### 2) General Descriptions :

**2-1) Upper landing door (or trap door) opening detection device (Any doors located above the doors mentioned in 2-2)).**

Access into the shaft by any landing doors (or trap doors) located above the lowest landing door is electrically detected through a safety contact (according to EN81-1 §14.1.2) located on the manual door unlocking device. These safety contacts are linked together in a safety circuit 12V with battery backup.

- The safety circuit neutralizes the Normal, Recall and manual emergency Operation.

- Only Inspection Operation is allowed with additive following conditions : automatic stopping device (see 2-4)) and the movable car roof handrail in the active position (see 2-6)).

- Return to Normal\*, Recall or manual Emergency Operations only possible from outside the shaft by systematic voluntary manual intervention in the service box. Reset is only possible with closed and locked doors.

\* The normal running mode and automatic emergency operation (on Batteries or UPS) are conditioned by the same functioning rules.



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**ADDITIONAL SAFETY MEASURES FOR REDUCED SAFETY SPACES (continued)**

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**2-2) Lowest landing door (or any other access) opening detection device (Any access with a threshold altitude  $\leq$  2,5m from the pit).**

Access into the shaft by any landing doors (or any other access) giving access to the pit is electrically detected through a safety contact located on the door unlocking device. These safety contacts are linked together in a safety circuit 12V.

- The safety circuit neutralized all electrical operations: Normal, Recall, Inspection, manual emergency Operation and automatic emergency Operation.
- Return to Normal, Recall, Inspection, manual Emergency Operations or automatic emergency Operation only possible from outside the shaft by systematic voluntary manual intervention on a device located in the vicinity of the lowest landing door (e.g: key switch integrated in the landing push button station) . Reset is only possible with closed and locked doors.

**2-3) Positive overspeed governor.**

A positive\* overspeed governor (located at the top of the shaft) is systematically pre-triggered as soon as the devices above mentioned in 2-1) and 2-2) detect a door opening.

(\*) « Positive » means the governor is in the pre-triggered position if any electrical power failure (this device is battery backup monitored).

- This device will activate the safety gear if any uncontrolled downward car movement.
- This device will activate the automatic stopping device mentioned in 2-4) if any uncontrolled upward car movement has been detected by the activation of the overspeed safety switch.

**2-4) Automatic stopping device (located on the car roof).**

The 2 automatic stopping devices located on each side of the car roof insure a safety distance of 1,20 m between the car roof and the ceiling of the shaft by mechanical stop on stopping plate fixed on the car guides.

- An activation of the devices described in 2-3) and 2-5) or an electrical power failure operate automatically the automatic stopping device in the active position (this device is battery backup monitored).

If necessary (due to failure of the above mentioned devices), a manual activation from the car roof shall be also possible.

- The active position of each stopping device is monitored by a safety switch.
- The Inspection operation is only possible when both automatic stopping devices are in the active position (NB: inspection operation requires also, in addition, the devices 2-6) in the active position).
- Reset of the stopping devices to the non active position is automatically launched with the return to Normal operation except if an intrusion into the shaft has been detected (see 2-1) and 2-2)) or presence on the car roof has been detected (see 2-5)).
- This device is equipped with a over travel safety contact which will neutralize the electrical operation before the mechanical car stop.

**2-5) Car roof detection device.**

A movable platform is located on the car roof to detect people presence. This detection will activate the device 2-4) in the active position. The platform sensibility shall make possible the people detection on every point of the platform.

- The people detection is monitored by 2 safety contacts. Moreover, the presence of the platform on the car roof is monitored by 1 or 2 safety switches depending if the CRD is designed in 1 or 2 parts.
- Only Inspection operation is allowed when the platform is activated (NB: inspection operation possible only if the devices 2-4) and 2-6) are in the active position).

**EC TYPE EXAMINATION CERTIFICATE**  
**N° 0060-P-V-B-037-04-2010-REN 01**  
**APPENDIX**

**ADDITIONAL SAFETY MEASURES FOR REDUCED SAFETY SPACES (continued)**

**MCRR 1 – 04/10**  
**Update – 10/10, 11/11**  
**Update – 05/12, 03/13**  
**Update – 10/13**  
**Page 3/3**

**2-6) Extendable car roof balustrade.**

A movable car roof handrail (manually extendable by rotation) is provided on each side and rear car where the requirement of the EN81-1:1998+A3 § 8.13.3 cannot be fulfilled (where horizontal distance from the shaft wall to the car panel is more than 300mm or less according to national regulations).

- The active position of the car roof handrail is monitored by a safety contact.
- The Inspection operation is allowed only when the car roof handrail is in the active position (NB : inspection operation requires also, in addition, the devices 2-4) in the active position).

**2-7) Car door Apron.**

A manually extendable car door apron is provided in the case of lift without Re-leveling and a manually and automatically extendable car door apron with electronic rotary latch is provided in the case of lift with Re-leveling:

- In the case of lift without Re-leveling, if the apron is not in the retracted position, normal operation of the lift shall be neutralized by means of an electrical safety switch.
- In the case of lift with Re-leveling, if the apron is not in the retracted position, all landing calls and car destination requests are neutralized by means of an electrical safety switch.
- In the both cases (with or without Re-leveling), Inspection, Recall and manual emergency operations are allowed whatever the position of the Apron.
- Reset of the apron to the retracted position is automatically launched with the return to Normal operation in the case of lift with Re-leveling.
- The car door shall be equipped with a locking device in conformity with EN81-1:1998+A3 §8.9.3.

**2-8) Manual pit buffer.**

A manual pit buffer implemented from the pit will insure a minimum safety distance of 1m between the pit and the bottom part of the car.

- Only the non active position (lying position) is monitored. Normal / Inspection / Recall operations are allowed only in this position.

**2-9) Notices and Warnings**

Some notices located into the service box, on the car roof, in the pit, on the apron will remind the main instructions to follow for using these additional safety devices.

**Other security systems : apply with or without reduced safety spaces**

**2-10) Final limit switches & Inspection limit.**

- The final limit switches for the top and the bottom of the shaft shall be safety contacts.
- The final limit switch for the bottom of the shaft will be fixed below the car frame and will be directly activated by the pit buffer just before buffer compression.
- The top and bottom inspection limits are determined by the software of controller.
- The top inspection limit is located to ensure a safety distance of 1,80 m between the car roof and the shaft ceiling.
- The bottom inspection limit is located to ensure the car is stopped 250 mm before the lowest landing and minimum distance of 500 mm between the bottom pit and lowest parts of the car.
- Only a downward movement is possible if the car is located above the top inspection limit.
- Only an upward movement is possible if the car is located below the bottom inspection limit.

**2-11) Protection against unintended car movement.**

-The devices included in the technical file enable the requirements of EN81-1:1998+A3 for lifts with or without Re-leveling to be met.



**2 panel side opening door on landing  
(door in shaft)**



UUG = Counterweight runby  
= PFG (Clearance under counterweight) +  
72 (buffer compression)

$$\begin{aligned} \text{UUF} &= \text{Car runby} \\ &= \text{PFF (clearance under car)} + \\ &\quad 72 \text{ (buffer compression)} \end{aligned}$$

Technical drawing of a shaft pit with dimensions and labels:

- Counterweight safety screen only if pit > 1100
- Shaft lighting
- Ladder for standard pit
- 1000 x 600 x 500 mm
- Safety area
- Dimensions: 1000 (width), 600 (height)
- Labels: P10, P9, P7, PB, P7, P10
- Material specifications:
  - Type of concrete as per P183
  - Average strength 25 MPA
  - Concrete grade ENV 206 C20

Type of concrete as per P18305 B25  
Average strength 25 MPA  
Concrete grade ENV 206 C20/25

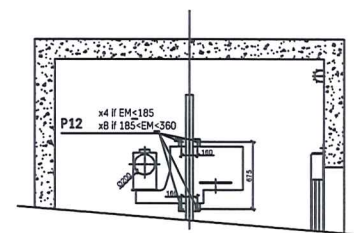
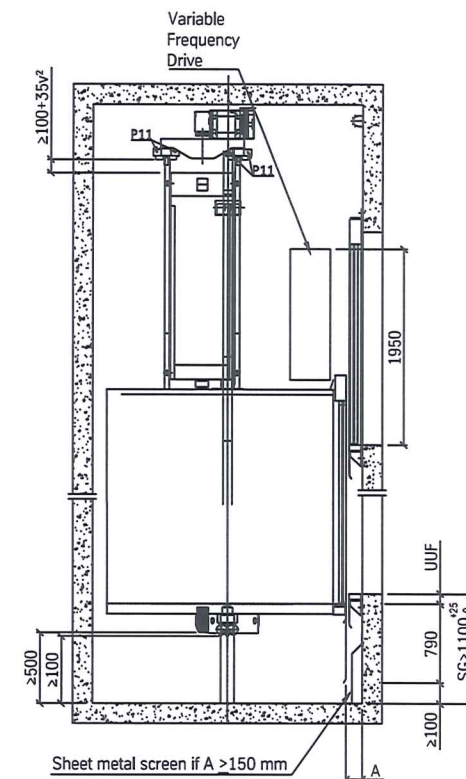
(kN) Q(kg)	P7	P8	P9 (**)	P10	P11		P12	
					shear hor. / ver.	trac.	shear hor. / ver.	trac. (*) EM=50 / EM=185 / EM=360 / EM=460
450	16	48	37	16	1 / 1	3,5	3,5 / 2,0	2,5 / 6,5 / 9,5 / 8,5
630	20	59	43,5	18,5	1 / 1	4,5	4,5 / 2,5	3,5 / 9,0 / 9,0 / 9,0
1000	29	86	62	28,5	1,5 / 2,0	6	8,0 / 4,5	8,0 / 13,5 / 13,5 / 13,5

\* EM = Distance between the back of the guide rail and the shaft wall.

\*\* If compensating chain, 2 buffers instead of 1 and  $P9 / 2$ .

Technical drawing of a door frame assembly showing dimensions and formulas for various components:


- Top Section:**
  - Overall width:  $\geq 300 + 35\sqrt{2}$
  - Top horizontal distance:  $\text{GH} = 700$
  - Top vertical distance:  $\geq 100 + 35\sqrt{2}$
  - Top horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Top vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Top horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Top vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Top horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Top vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Top horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Top vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
- Bottom Section:**
  - Overall width:  $\geq 300 + 35\sqrt{2}$
  - Bottom horizontal distance:  $\text{KH} \geq 2100$
  - Bottom vertical distance:  $\geq 100 + 35\sqrt{2}$
  - Bottom horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Bottom vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Bottom horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Bottom vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Bottom horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Bottom vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Bottom horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Bottom vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
- Right Section:**
  - Overall height:  $\text{SK} \geq \text{KH} + 1300$  (Configuration according to appendix (DAM1))
  - Overall width:  $\text{SK} \geq \text{KH} + 1200$
  - Right horizontal distance:  $\text{UUG}$
  - Right vertical distance:  $\text{SG} \geq 1100$
  - Right horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Right vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Right horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Right vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Right horizontal distance (inner):  $\geq 100 + 35\sqrt{2}$
  - Right vertical distance (inner):  $\geq 100 + 35\sqrt{2}$
- Other Dimensions:**
  - Top horizontal distance (inner):  $500$
  - Bottom horizontal distance (inner):  $500$
  - Right horizontal distance (inner):  $500$
  - Right vertical distance (inner):  $500$
  - Right horizontal distance (inner):  $500$
  - Right vertical distance (inner):  $500$
  - Right horizontal distance (inner):  $500$
  - Right vertical distance (inner):  $500$



EC TYPE NC91A00 to NC91A40 - NC91B00 to NC91B40 EXAMINATION CERTIFICATE

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## APPENDIX

D	24/10/2013		A3		
C	25/02/2013			DATE: 24/10/2013	NAME: V. COUSIN
B	11/06/2012			ThyssenKrupp Elevator Manufacturing France 	
A	18/07/2011				
-	13/04/2010				
INDEX					
TEDOC013-11/94					

**CERTIFICATION DRAWING**  
**Shaft plans**

450 kg ≤ rated load ≤ 1050 kg - V ≤ 1.00 m/s  
Safety spaces in conformity with EN81-1  
Side and central opening door

NC91A00 to NC91A40 LIFT  
NC91B00 to NC91B40 LIFT

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Technical drawing of a car roof layout showing dimensions and safety areas. The drawing includes the following labels and dimensions:

- Top dimensions:** 360 min, +25, -25, KB= 1000 to 1100, 140 min, +25, -25
- Left dimension:** KT= 1250 to 2100
- Bottom dimension:** 800
- Internal dimension:** 500
- Bottom dimension:** TB= 800 - 1000
- Annotations:**
  - Trap door in car roof min 500 x 350 according to national regulation
  - Safety area (car roof) 500 x 600 x 800 mm
  - working area 600 x 500 mm
  - KT = Car depth
  - KB = car width
  - TB = Clear opening width

Technical drawing of a concrete slab cross-section. The drawing shows a rectangular slab with a central horizontal reinforcement bar. The total width of the slab is 360 mm, with a central section of 390 mm. The height of the slab is 800 mm. The reinforcement bar is labeled with a diameter of 25 mm and a length of 1000 mm. The drawing also shows the placement of the reinforcement bar within the slab, with a distance of 25 mm from the top and bottom edges. The drawing is labeled with dimensions and reinforcement details.

Technical drawing of a shaft pit showing safety features and dimensions. The drawing includes a cross-section of the pit with a width of 1000 mm and a height of 600 mm. The pit is surrounded by a concrete structure. Safety features include a counterweight safety screen, a manual pit buffer, a ladder, and shaft lighting. The drawing also shows a 1000 x 600 x 500 mm safety area. The drawing is labeled with various points (P10, P9, P8, P7, P6) and dimensions (1000, 600). The drawing is titled 'V ≤ 1.00 m/s'.

$V \leq 1.00 \text{ m/s}$

Counterweight safety screen only if pit > 1100

Manual pit buffer if  $400 < \text{pit} < 1100$

Ladder if  $500 \leq \text{pit} \leq 1100$

Shaft lighting

1000 x 600 x 500 mm safety area

1000

600

P10

P9

P8

P7

P6

P10

P8

Type of concrete as per P18305 B25  
Average strength 25 MPA  
Concrete grade ENV 206 C20/25

[illegible]

UUG = Counterweight runby  
= PFG (Clearance under counterweight) +  
72 (buffer compression)

$$\begin{aligned} \text{UUF} &= \text{Car runby} \\ &= \text{PFF (clearance under car)} + \\ &\quad 72 \text{ (buffer compression)} \end{aligned}$$

Additional stopping plate (only on motor side)  
if  $KH + 500 \leq SK < KH + 800$

Tightening torque  
40 Nm

Automatic stopping device (x2)

P11

GH=700

$\geq 300+350^*$

$\geq 1200+(30)^*$

50

KH $\geq$ 2100

1950

$SK \geq KH + 500$

+25

30\*

\*(sliding distance)

Variable Frequency drive

Car on manual pit buffer (buffer compressed)

Manually extendable car door apron

790

$\geq 1000$

$\geq 1000$

500

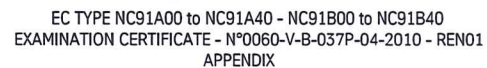
600

$\geq 100$

+25

SG  $\geq$  400.0

\* EM = Distance between the back of the guide rail and the shaft wall.



C	24/10/2013		
B	25/02/2013		
A	11/06/2012		
-	13/04/2010		
INDICE			
TEDOC013-11/94			

DATE: 24/10/2013 NAME: V. COUSIN

ThyssenKrupp Elevator  
Manufacturing France

450 kg ≤ rated load ≤ 1050 kg - V ≤ 1.00 m/s  
Safety spaces not in conformity with EN81-1  
Side and lateral opening door

NC91A00 to NC91A40 LIFT  
NC91B00 to NC91B40 LIFT

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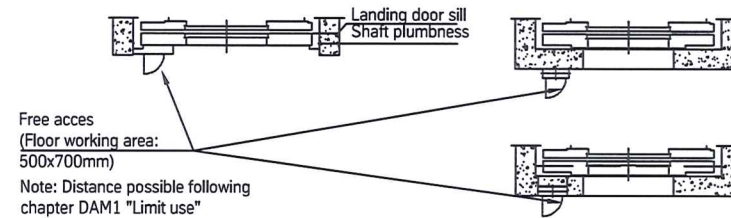
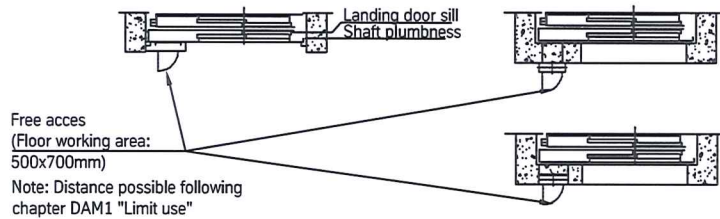
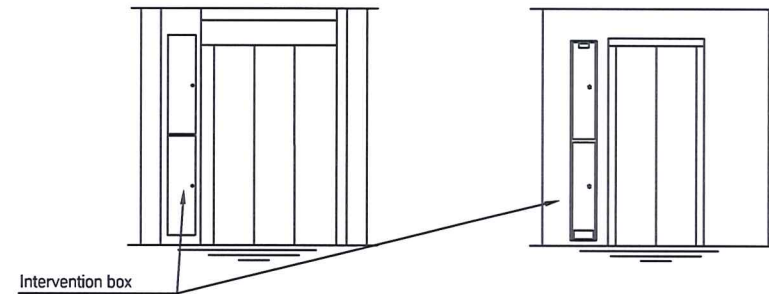
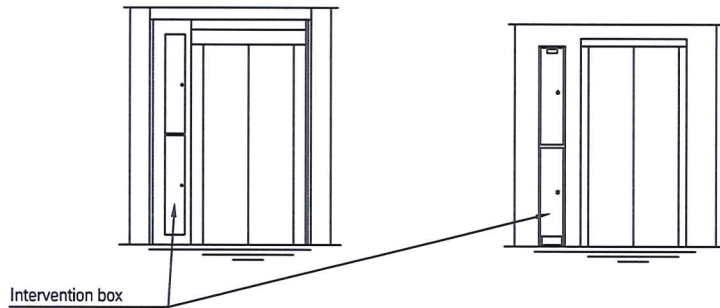
## Elevation of landing opening top terminal level

Side-opening door on landing  
in niche  
in shaft

Side-opening door in niche  
in shaft

Central-opening door on landing  
in niche  
in shaft

Central-opening door in niche  
in shaft



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APPENDIX

B	25/02/2013
A	11/06/2012
-	13/04/2010
INDICE	
TEDOC013-11/94	

A3

DATE: 25/02/2013 NAME: V. COUSIN  
ThyssenKrupp Elevator  
Manufacturing France



CERTIFICATION DRAWING  
Elevation of landing opening  
top terminal level  
450 kg ≤ rated load ≤ 1050 kg - V ≤ 1.00 m/s  
Side and central opening door

NC91A00 to NC91A40 LIFT  
NC91B00 to NC91B40 LIFT

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