

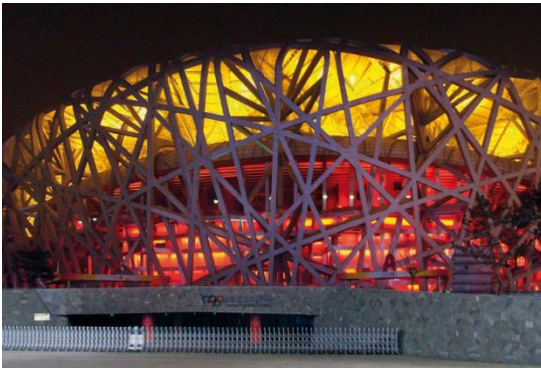


EN81-71 Cat. 2 Vandal Resistant Car and Doors Solution for Lift Installation in the Public Transportation Market

Thomas Lernet
Corporate Director R&D Doors

Potential vandalism is everywhere

Different type of elevators



Different type of users



Why vandal resistant norm?

Elevators are used in different ways



Elevators are built and designed according to different standards

- LD 95/16/EC
- EN 81-1/2 A3
- EN 81-58



EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 81-71:2005+A1

December 2006

ICS 91.140.90

Supersedes EN 81-71:2005

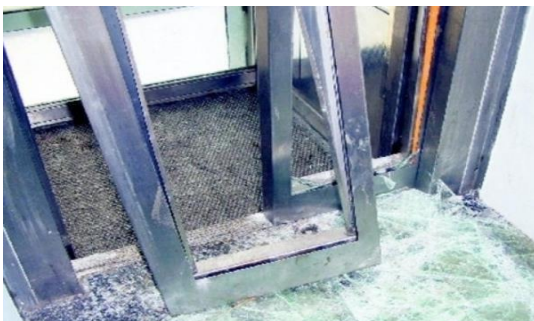
English Version

Safety rules for the construction and installation of lifts -
Particular applications to passenger lifts and goods passenger
lifts - Part 71: Vandal resistant lifts

⇒ Cat. 0 ⇒ Cat. 1 ⇒ Cat. 2

Most affected elevator components

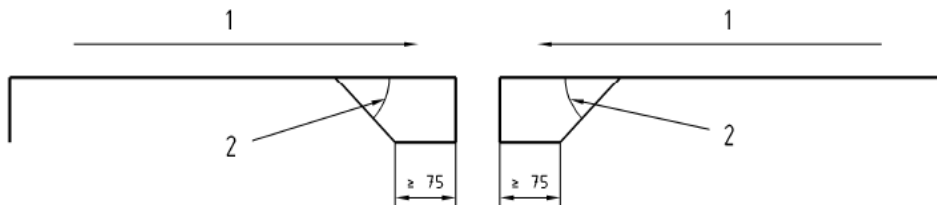
- Landing- and car doors
- Car
- Operating and signalization



Requirements on door construction Cat. 2

Automatically, power operated horizontally sliding landing and car doors

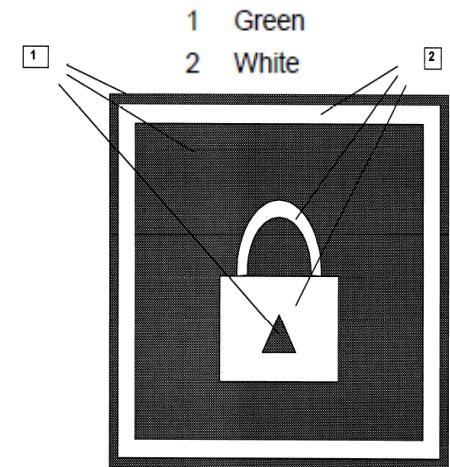
- Non combustible material for car and doors (panels and frame) (EN 13501-1 class 2)
- Soft pendulum shock test for car and landing door assemblies, together with their frames and fixings. The door assemblies shall remain after the test.
- Retaining devices for the doors are required to hold the door panels in position if the roller or guide shoe assemblies fail.
- Soft pendulum shock test with a falling height of 1400 mm without loss of integrity
- No vision panels shall be used
- Special door panel design is required



- A rod of 10 mm diameter should not be inserted between the door panels from the landing side of the entrance into the well.

Requirements on door construction Cat. 2 (II)




- The linkage of door panels shall be designed that it cannot be disengaged by a user, with an item as described in Annex E within a period of 60 sec. from opening
- The leading edge profile of car and landing doors shall be formed as an integral part of the door.
- At any floor where the elevator is not present, a security system shall prevent opening the landing door with an emergency unlocking key or by using an item as described above
- A device to manually activate and de-activate the system should be there and marked with pictogram
- In the unlocking zone it shall not be possible to de-couple the car and landing doors by hand or the use of items
- A protective device for reversing the car doors when closing shall be positioned such as to be inaccessible to unauthorized persons
- The car door shall always be provided with a mechanical locking
- It shall not be possible to manipulate the door operator and locks within 60 sec. from opening



Pegasus EN81-71 vandal resistant door

- Compliant with EN81-71 Cat. 1 and 2
- Extra thick mechanism plate
- Holding brackets for door truck
- Special execution shoes
- Not accessible reclosing device
- Integrated car door lock



| CERTIFICATION ANTIVANDAL | EN 81-71 CAT. 1 + 2 | | EN 81-71 CAT. 1 | |
|---|---------------------|-----------|-----------------|-----------|
| | | | GLASS FRAMED | |
| | CO (mm) | CH (mm) | CO (mm) | CH (mm) |
|  | 800-1400 | 2000-2600 | 800-1400 | 2000-2600 |
|  | 800-1400 | 2000-2600 | 800-1400 | 2000-2600 |
|  | 800-1100 | 2000-2600 | | |
| for other dimensions and configurations please refer to Wittur | | | | |

| CERTIFICATION COUNTRY | CERTIFICATION | PANEL EXECUTION | 01/C | 11/R-L | 71/R-L |
|-----------------------|-------------------|---|------|--------|--------|
| EUROPE | EN81-58 E 60' | Steel works panels | X | X | X |
| EUROPE | EN81-58 E 90' | Steel works panels | X | X | X |
| EUROPE | EN81-58 E 120' | Steel works panels | X | X | X |
| EUROPE | EN81-58 EI 120' | Steel works panels | X | X | X |
| EUROPE | EN81-58 EW 30' | Steel works panels | X | X | X |
| EUROPE | EN81-58 EW 30' | Glass framed panels | X | X | |
| EUROPE | EN81-58 E 90' | Glass framed panels | X | X | |
| | | Steel works panels(also with vision panels) | | | |
| UK | BS 476-22 FR 120' | | X | X | |
| UK | BS 476-22 FR 60' | Glass framed panels | X | X | |
| DE | DIN 18091 | Steel works panels | X | X | |
| MARINE | A0-A60 | | X | | |

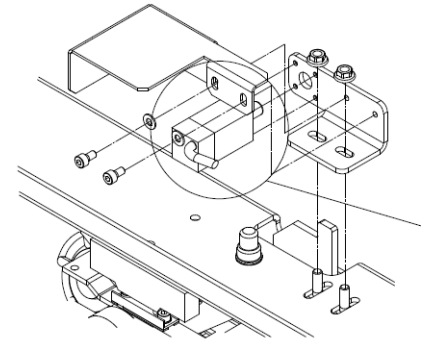
Pegasus EN81-71 vandal resistant door

Samples for Cat. 2 door components

Mechanism cover plate



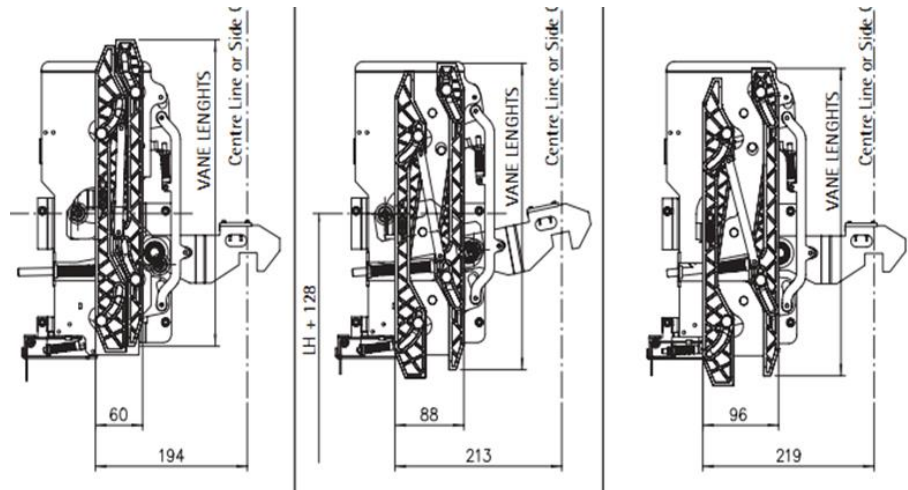
Protection device for door emergency opening keys



Re-enforced door panels with tamper-preventing back profile

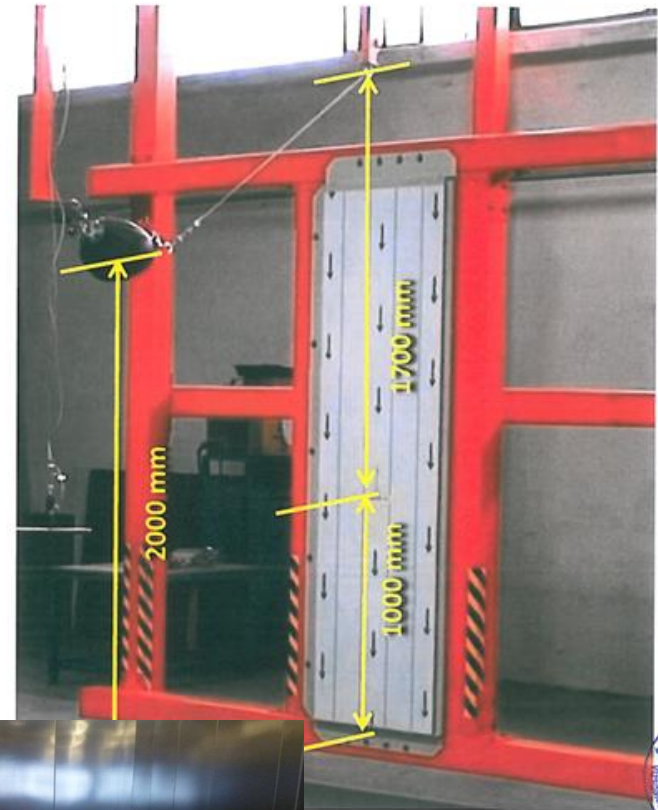


Car door lock engaged when the car is outside the landing door area



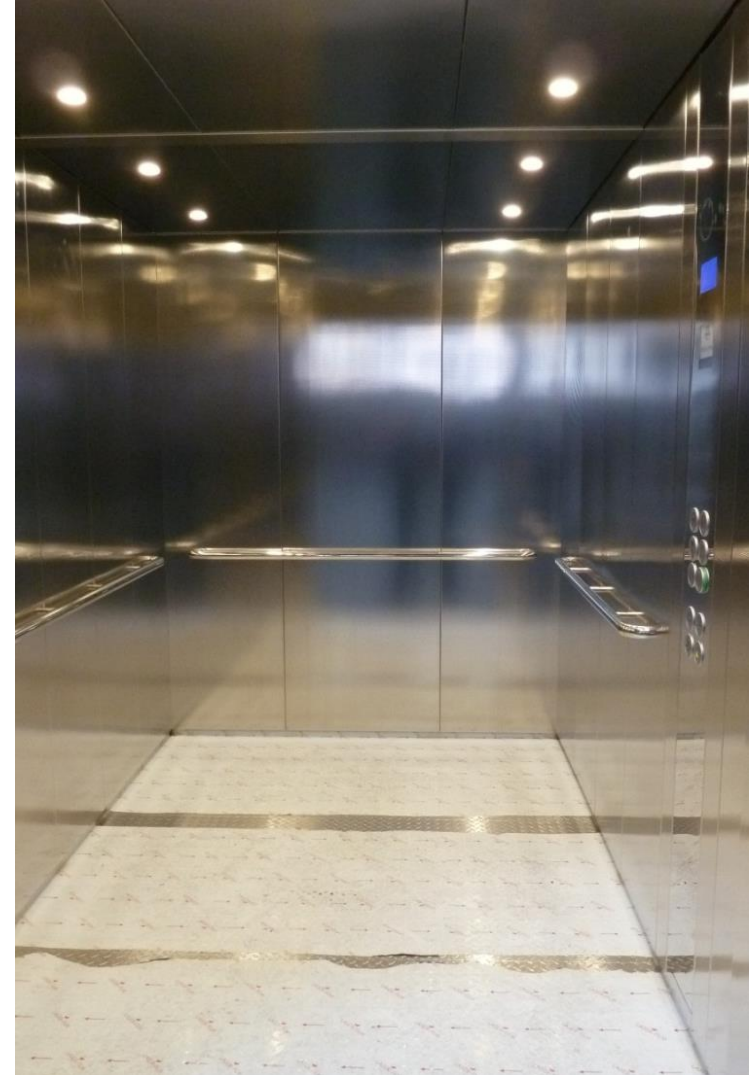
EN81-71 Cat. 2 Requirements on car construction

- Car walls with same mechanical strength as doors
- Ceiling without suspension points
- Non-combustible materials (EN 13501-1 class 2)
- Car bodywork resistant to cutting (Annex E)
- Flooring resistant to cutting to prevent tripping
- Handrail tested for 2500 N applied in any direction



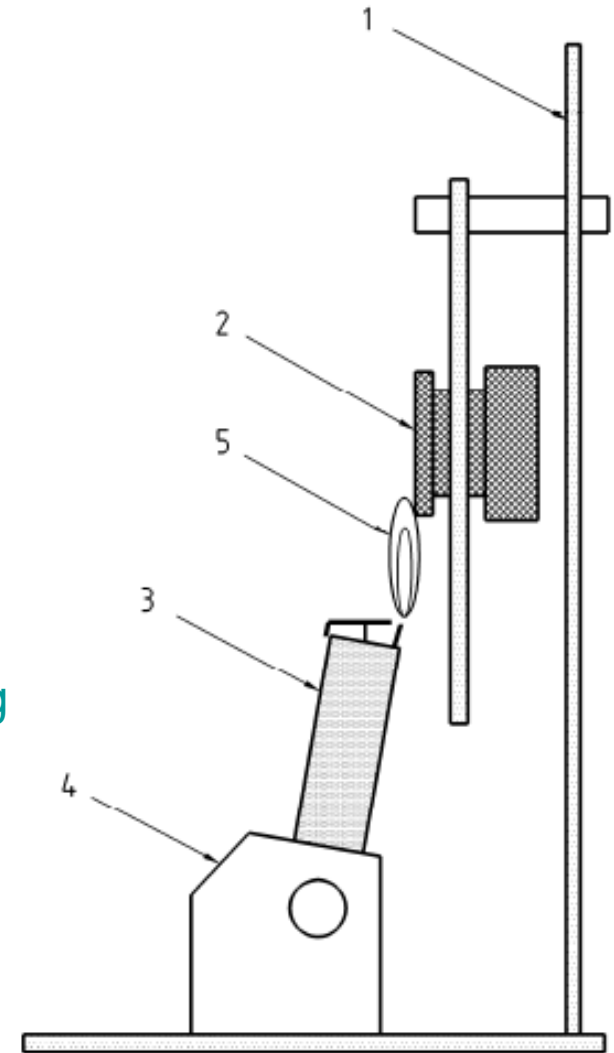
EN81-71 Cat. 2 Requirements on car construction (II)

- Flush fitted laminated mirror
- Inaccessible fixings for all components
- Emergency trap doors according to 8.12.4 of EN 81-1 with a security system
- Protected ventilation ducts
- Permanently installed electric lighting (100 lux at floor level)
- Flush fitted light fixtures with inaccessible fixings



EN81-71 Cat. 2 Requirements on signalization

- IPX3 pushbuttons and indicators (EN 60529)
- Minimum gap between the bezel and the pushbutton
- Control button assemblies, indicators and other fixtures tested in accordance with Annex B
- Cutting resistant control buttons, indicators and other fixtures
- Fire resistant buttons, indicators and other fixtures
- Cutting resistant car operating panel(s) and landing control stations
- Impact test according to Annex B for car operating panel(s) and landing control stations



VRC: Vandal Resistant Car according to EN81-71

Budapest Underground VRC Wittur Cars EN81-71 Cat. II



ZERTIFIKAT ♦ CERTIFICATE ♦ CERTIFICATO ♦ CERTIFICADO ♦ CERTIFICAT

Type-examination certificate



Industrie Service

Certificate no.: E71-002
Notified body: TÜV SÜD Industrie Service GmbH
 Westendstr. 199
 80686 München - Germany
Applicant/
Certificate holder: WITTUR Deutschland Holding GmbH
 Rohrbachstr. 26 - 30
 85259 Wiedenzhausen - Germany
Date of application: 2011-08-19
Manufacturer of the test
sample: WITTUR Asanor Sanayi ve Ticaret Limited Şirketi
 Dudullu Organize Sanayi Bölgesi No.13 Ümraniye
 34776 İstanbul - Turkey
Authorized manufacturers: See enclosure of the certificate
Product: Car according EN 81-71:2005+A1:2006, Category 2.
 Rated load: 320 kg – 5000 kg
 Number of passengers: 4 – 67
 Clear car width: 700 mm – 5000 mm
 Clear car depth: 700 mm – 5000 mm
 Clear car height: 2000 mm – 3000 mm
 Car entrances
 - one entrance: front side, flanked
 - two entrances: opposite entrances or over corner
 entrances
Type: VRC (Vandal Resistant Car)
Test laboratory: TÜV SÜD Industrie Service GmbH
 Zentralbereich Fördertechnik-Soederbauer
 Abteilung Aufzüge und Sicherheitsbauteile
 Gottlieb-Daimler Str. 7
 70794 Filderstadt - Germany
Date and
number of the test report: 2011-09-23
 E71-002
Basis of examination: EN 81-1:1998+A3:2009 „Safety rules for the construction
 and installation of lifts - Part 1: Electric lifts“
 EN 81-2:1998+A3:2009 „Safety rules for the construction
 and installation of lifts - Part 2: Hydraulic lifts“
 EN 81-21:2009 „Safety rules for the construction and in-
 stallation of lifts - Part 21: New passenger and goods lifts
 in existing buildings“
 EN 81-71:2005+A1:2006 „Safety rules for the construction
 and installation of lifts - Part 71: Vandal resistant lifts“
 (especially Number 5.4 – Car)
Result: For the intended use the subject of examination conforms to
 the requirements of the basis of examination if the re-
 spective scope of application and the conditions stated in
 the annex to this type-examination certificate are kept.
Validity: 2016-09-29
Date of issue: 2011-09-30

Certification body for lifts and safety components

Chadi Nouredine
 Chadi Nouredine

Note:
 TÜV SÜD Industrie Service GmbH is the notified body
 according to the LRT Directive 95/16/EC, identification number 0038



TUV®

EN81-71 Wittur solution advantages



Wide range of VRC car dimensions and rated load from 320 to 5.000 kg

Wide range of certified Pegasus door dimensions

Heavy duty design of car and doors

Waterproof execution available

Energy efficient design using VDI 4707-2 certified components

Enhanced ride comfort through big door rollers

Integrated car door lock with no adaptation on the landing

Thank you for your time and attention!



....I am very pleased to invite you to visit our booth in hall 7 / stand 7136
We'll be there!



Thomas.Lernet@wittur.com
Phone: +49 8134 18 116