

TECHNICAL SPECIFICATIONS

ELECTRIC LIFT

UHe

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1. General description

1.1. Application

Lift for the vertical transportation of passengers between defined landings in houses, commercial premises and public buildings.

The lift has been designed for installation in shafts of reduced size in buildings where a machine room is not available. It is appropriate both for the replacement of outdated lifts and for the installation of new lifts in existing buildings.

1.2. Regulations

The lift is compliant with the 2014/33/EU Lifts Directive and may, therefore, be marketed in any country of the European Union. Conformity by way of compliance with harmonised Standard EN 81-20, with some exceptions.

Any deviations from the standards of reference are indicated in the corresponding sections of the document. An EU Design Examination certificate issued by AENOR is available for compliance with the Directive.

1.3. Features

Rated load (Q) 225, 300, 400, 450 or 630 kg

Rated speed (s) 1.0 m/s with three-phase power supply.
0.5 m/s with single-phase power supply.

Landings Up to 10 stops. Enquire with regard to a larger number of stops.

Travel (R) Up to 30 metres. Enquire with regard to longer travel.

Type of drive Electric adhesion traction.

Electrical specifications It features two independent circuits: one main circuit and another one for both car and shaft lighting. Each of these circuits requires a separate connection with the features described below.

Main circuit: possibility of three-phase or single-phase power supply. Maximum full-load currents and motor power depend on both the power supply and the lift load, and may reach the values listed below.

Three-phase power supply 400 V $\pm 5\%$ 50/60 Hz (other voltages possible):

Q (kg)	Motor (kW)	Current (A)
225	2.2	4.6
300		5.9
400	2.8	8.1
450	3.4	9.1
630	4.4	13.8

Single-phase power supply 230 V \pm 5% 50 Hz (other voltages possible):

Q (kg)	Motor (kW)	Current (A)
225	1.1	5.3
300		7.3
400	1.4	10.8
450	1.7	10.7
630	2.2	14.0

Lighting circuit: 230 V \pm 5% single-phase 50/60 Hz (other voltages possible).
Depending on the lift travel, the power consumed may reach 300 W.

2. Detailed description

2.1. Drive and guiding

Electric adhesion traction drive with counterweight and suspension with a 2:1 ratio by means of 3, 4, 5 or 6 cables, depending on the load or the car size and options. The cables feature 6.5 mm in diameter, a 8x19W-IWRC composition and 1770 N/mm² resistance wires. An EU Design Examination certificate issued by AENOR is available for compliance with the 2014/33/EU Lifts Directive.

Rucksack-type sling with guide shoes for a rated load equal to or less than 450 kg or with a roller at the bottom and a guide shoe at the top for a rated load equal to 630 kg.

Guiding by means of calibrated lift guides; two T70 guides are used for guiding the car and two T45 for the counterweight.

2.2. Installation

The guides are supplied as standard in 5-metre sections and optionally in 2.5-metre sections and are intended to be attached to the shaft using brackets every 1500 mm maximum.

Standard assembly includes attaching of both the car and counterweight guides to one of the walls of the lift shaft. All the material required to attach the guide rails using brackets and mechanical anchors is supplied. The anchors are suitable for both concrete and hollow or solid brick walls. Enquire about the possibility of another type of anchorage or attachment to another type of support.

Installation conditions

The shaft shall be used exclusively by the lift and shall meet the following requirements:

- It shall be fully enclosed with imperforate walls, floor and ceiling. The finish shall be smooth, with no protrusions and with vertical alignments of less than 1:1000.
- The walls of the shaft to which the guide rails are attached shall be made of structural concrete (minimum C20/C25) for mechanical anchors to be used.
- It shall be permanently ventilated at the top, with a minimum cross-section area of the shaft of 2.5%.
- The pit shall be impervious to infiltration of water and its bottom shall be levelled and smooth.

A hook or beam shall be provided in the shaft ceiling that withstands at least 1000 kg and placed within the vertical projection of the guide rails to handle the different parts during assembly. This hook shall be marked with its maximum working load.

Small spaces

Solutions are available for lift installation in existing buildings that do not have the permanent upper or lower refuge spaces required by harmonised Standard EN 81-20.

Bottom of shaft	Reduced pit solution with a safety system for detecting shaft access and blocking the car by means of a speed limiter. An EU Design Examination certificate issued by AENOR is available for compliance with the 2014/33/EU Lifts Directive.
Top of shaft	Enquire about the possibility of solutions for reduced headroom.

2.3. Machinery

It is designed for installation without a machine room, with the installation of the machine and the main parts of the control system foreseen as described below.

Machine

Gearless-type machine supported by a bench which is mounted on the guide rails at the top of the shaft. This is a machine with a permanent magnet synchronous motor, a fan, a disc brake and a 240-mm diameter pulley for up to 6 6.5-mm diameter cables. The cable diameter and the ratio between pulley and cable diameter do not comply with the requirements of harmonised Standard EN 81-20. Special, highly flexible cables that have been tested by the manufacturers are used to ensure an equivalent safety level.

Electric board

The main elements of the lift control system are distributed in two different boards, both located at the top of the assembly.

The electric landing board is located in a metal cabinet measuring 300 x 800 x 120 mm (width x height x depth), next to the door frame of the last landing and outside the shaft, on a 1100-mm high base. This cabinet includes the main switch, the rescue actuator plate, the control and frequency inverter consoles as well as the terminals for the electrical connections.

The electrical power board measuring 520 x 500 x 260 mm (width x height x depth) is installed inside the shaft, above the door of the upper landing level. It includes the frequency inverter, the control boards, the contactors as well as the motor and brake connection terminals. The braking resistor is installed in the upper part of the board. The uninterruptible power supply is installed next to the electrical power board, but also inside the lift shaft.

2.4. Structure and enclosure

Possibility of supplying a steel structure that allows the shaft to be enclosed, which is necessary for the lift operation, without subsequent brickwork. The lift may be installed against a courtyard wall or in a staircase.

The structure is designed to be attached to the pit floor and to the floor slabs of each landing level. The structure is also intended to be attached at the top, either to the ceiling or laterally to a structural element (see "3.3. Front structure dimensions"). All the material necessary for fixing the structure to the building and the guide rails to the structure is supplied. There is no need for intermediate fixings.

Modular structure made up of profiles made of folded sheet metal and with screwed joints without the need for welding.

The structure may be supplied for mounting the main entrance landing doors either on the structure itself or on the building slab.

Finish RAL7035 grey epoxy-polyester paint as standard finish.

Options Enclosure panels to be placed on the profiles as enclosure, made of folded sheet metal or glazed with clear or tinted glass.

Available in other RAL colours.

Highly corrosion-resistant finish using galvanised sheet metal and polyester paint.

Closure of the upper end of the structure by means of roofing.

2.5. Electrical installation

The electrical car and shaft elements are supplied wired and with pluggable terminals to connect to the electric board and to the connection box located on the car ceiling.

Supply of shaft lighting by means of optional LED strip upon request. The LED strip and all the material necessary for its installation and connection to the electric board are included.

2.6. Car

Walls

Panels made of plastic-coated sheet metal, stainless steel or laminate.

Possibility of a glazed car wall.

Floor

Vinyl flooring or artificial stone.

Possibility of supplying the car ready for any type of 12-mm thick flooring to be installed by the installer (not supplied).

Ceiling

Sheet metal with matt white epoxy-polyester paint. Possibility of false ceiling in black sheet metal or grinded stainless steel associated with some of the lighting options.

Lighting

Four LED spotlights built into the ceiling as standard.

Emergency lighting by means of a recessed ceiling light on the push button panel. This comes on automatically in the event of a fault in the electricity supply and has a battery to provide 1 hour of lighting.

Possibility of false ceiling in painted sheet metal or grinded stainless steel with the following lighting options: indirect through fluorescent tubes, LED spotlights or LED panel.

Emergency lighting in car ceiling with surface-mounted LED light. This comes on automatically in the event of a fault in the electricity supply and has a battery to provide 1 hour of lighting.

Push button panel

Push button panel integrated into a stainless steel plate column located on one side of the car.

Options

Straight or curved stainless steel handrail on one side or at the back of the car.

Half mirror or column-type mirror on one side or at the back of the car.

Dimensions

Width (A): between 800 and 1100 mm (between 850 and 1250 mm for cars with single entrance and back guide rails)

Depth (B): between 900 and 1400 mm (between 800 and 1000 mm for cars with single entrance and back guide rails)

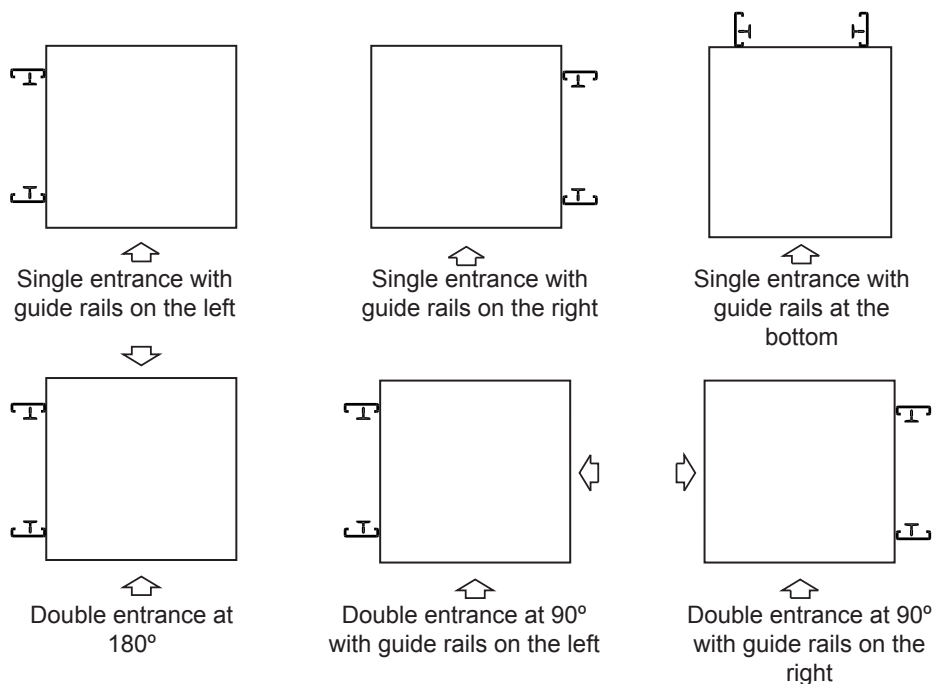
Height (H): 2100 mm

Maximum surface area depending on the rated load (Q):

Q (kg)	A·B (m ²)
225	0.70
300	0.90
400	1.17
450	1.30
630	1.66

Entrances

Single, double at 180° or double at 90°.



Car doors

Automatic “bus”-type folding doors with vision panel or glazed and stainless steel plate finish.

Automatic two- or three-leaf telescopic doors with side opening and stainless steel plate finish.

2.7. Landing doors

Types

Semi-automatic swing doors with vision panel or glazed.

Two- or three-leaf telescopic doors with side opening, operating at the same time as car doors.

Finish

RAL7032 grey epoxy paint as standard. Possibility of stainless steel plate telescopic doors.

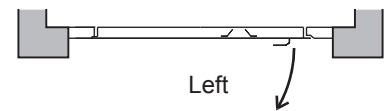
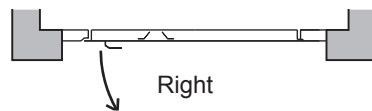
Dimensions

Clear height (HL): 2000 mm.

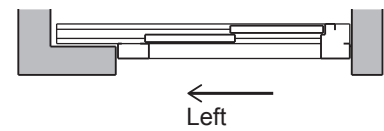
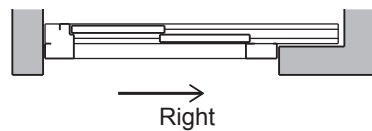
Clear opening (FP): 700, 800, 900 mm.

Hand

Swing doors:



Telescopic doors:



2.8. Control

The lift has a control push button panel on each landing level and a push button panel inside the car.

Landing push button panel

Push button panels to be built into the door frame on each landing level. These are flush-mounted push button panels with control elements assembled on a stainless steel plate.

The following elements are included in the push button panels:

- Call push button with call confirmation indicator on outer lit ring.
- Call push button with key as option.

Possibility of supplying landing position indicators for flush mounting in the wall.

Car push button panel

Control elements flush mounted at a height suitable for operation by wheelchair users.

The push button panel includes the following elements:

- Push buttons for each stop, with call confirmation indicator on outer lit ring.
- Push buttons with optional key.
- Open doors push button.
- Push button to trigger the alarm and the emergency alarm device at the same time.
- Emergency telephone or intercom (optional).
- Position and overload indicator.
- Backlit nameplate on the top of the column indicating load, use, logo and reference. This nameplate also includes emergency lighting.

Main operating features

- Electronic control with microprocessor.
- Configuration console for selecting the type of operation and setting other parameters, such as times and functions. Fault signalling by means of a display on the console and storage of the recent fault history.
- Detection of stops and speed changes by means of magnetic detectors.
- Photoelectric barrier to detect obstacles in the doors. A photocell can be optionally supplied instead of a photoelectric barrier (solution not compliant with 2014/33/EU Lifts Directive).
- Automatic timed switching off of car lighting to save energy.
- Motor control by means of frequency variation.

2.9. Safety features

Among all the safety measures included in the lift, the following are listed below:

General

- Progressive roller safety gear as a safety measure against the car's free fall due to breakage of the suspension cables and against its overspeed both during ascent and descent. It is operated by means of a speed limiter installed on the car and driven by a toothed belt.
- Doors with electric control of both closure and the lock interlocking.
- Car doors with electric closure control.
- Brake status monitoring system to protect against uncontrolled car movement, when the doors are not closed and locked.
- Upper and lower limit switches.
- Maximum motor operating time control.
- Temperature relay as a safety measure against overheating of control board components.
- Thermistors as a means of protection against motor overheating.
- Phase absence or reversal detection on the power supply.

Use

- Overload control system by means of a compression load cell installed at the point where the cables are fixed to the machine bench.
- Photoelectric barrier to detect obstacles in the event of telescopic doors.
- Restricted door closing strength and door reopening in the event of obstacles.
- Alarm triggered by the alarm push button on the car push button panel to call for external assistance, if trapped in the car due to a fault.
- Remote emergency alarm device, according to Standard EN 81-28, to ensure two-way voice communications in permanent contact with a rescue service via a telephone line or GSM mobile network, triggered using the alarm push button on the car push button panel. As option, an intercom can be supplied instead for own line, so that the car can communicate with a fixed point (solution not compliant with 2014/33/EU Lifts Directive).
- System for communication with the machinery area via a conventional telephone.

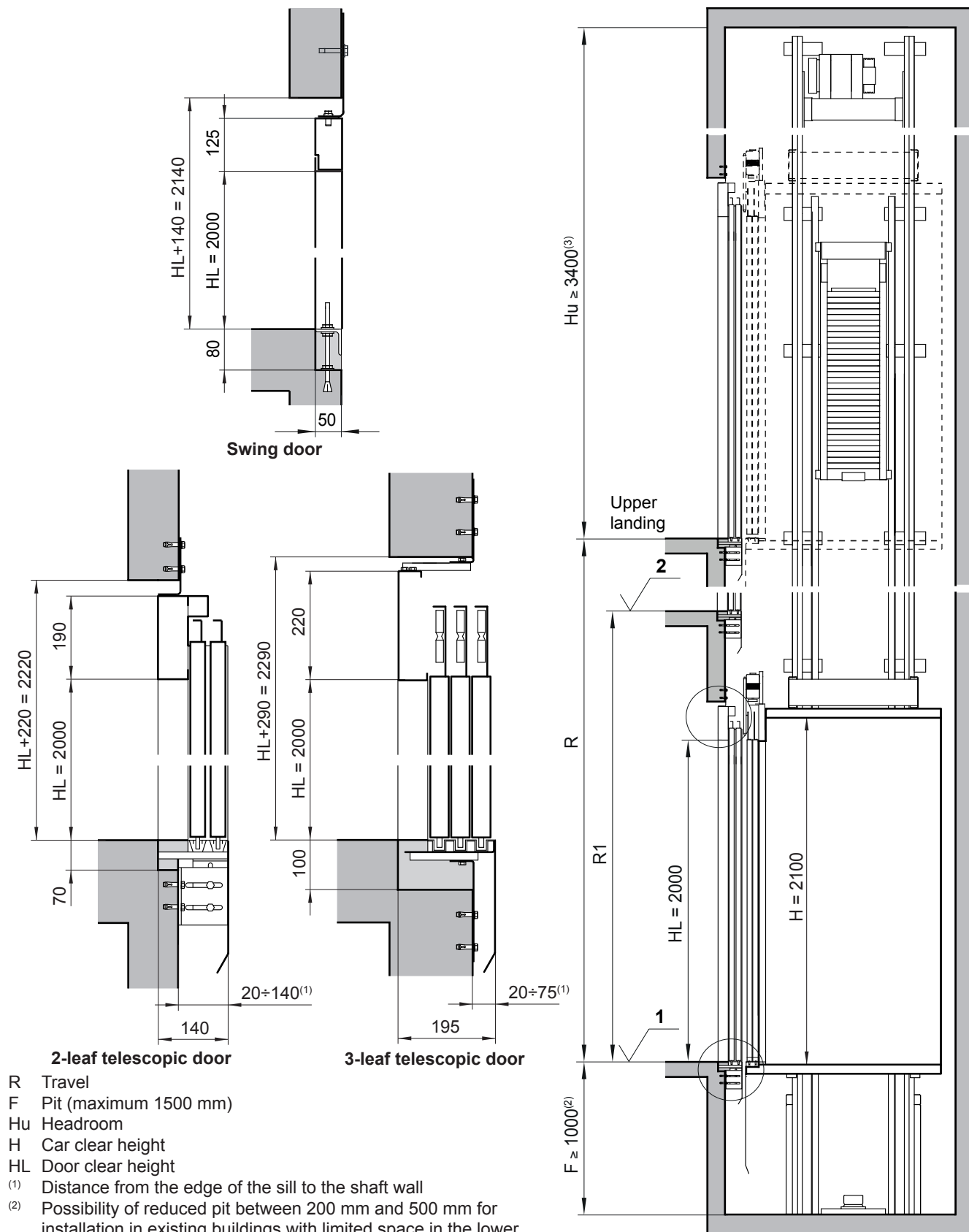
- Non-linear energy accumulation-type car buffers and counterweight.
- Electrical emergency control system for levelling the car for rescue operations. The control system works by load decompensation and features movement speed control.
- Possibility of automatic car movement system to the nearest landing level, with door opening in case of power failure. Movement by load decompensation and with uninterrupted power supply system.
- Manual door opening using a triangular safety key for rescue in the event of failure.
- Car doors with between-floors mechanical lock mechanism. The car door may only be opened in the unlocking area of each landing level.
- Signalling of the door unlocking area and of the car movement speed and direction for the rescue operation. In cases with limited space at the bottom of the shaft, the lift has low-height skirting so that the door interlocking mechanism prevents rescue, except when the car is located on a landing level.

Maintenance

- Emergency stop push button in pit and on ceiling.
- Pit access detection system for maintenance on installations with limited space at the bottom of the shaft. The system is tripped when opening of the lower landing door using the triangular emergency key is detected and the regular lift movement is prevented. It includes a visual warning. The reset push button located outside the shaft in the control cabinet is used to return to normal operation.
- Pre-actuation stop system by blocking the speed limiter and the safety gear to ensure the necessary safety spaces for maintenance operations in the pit for installations with limited space at the bottom of the shaft.
- Possibility for the supply of a pit access ladder for maintenance work.
- Push buttons under car and on car ceiling to trigger the alarm and the emergency alarm device as a safety measure in the event of being trapped in the pit or on the car ceiling.
- Possibility of supplying car ceiling handrails to carry out maintenance tasks safely from the ceiling with distances to the wall greater than or equal to 300 mm.

3. Installation dimensions

3.1. Minimum shaft dimensions, front view



R Travel

F Pit (maximum 1500 mm)

Hu Headroom


H Car clear height

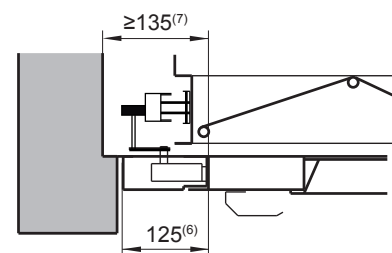
HL Door clear height

(1) Distance from the edge of the sill to the shaft wall

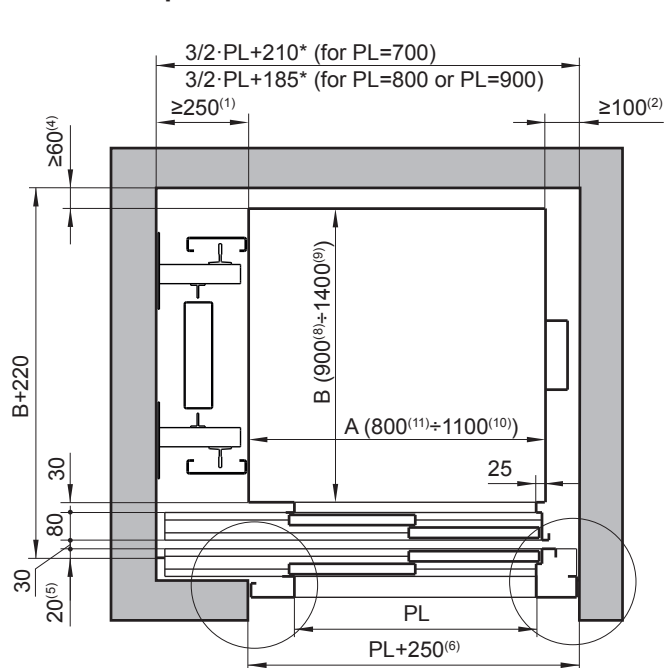
(2) Possibility of reduced pit between 200 mm and 500 mm for installation in existing buildings with limited space in the lower part (minimum 220 mm for rated load 630 kg and 250 mm for 3-leaf telescopic door)

(3) Enquire about possibility of reduced headroom

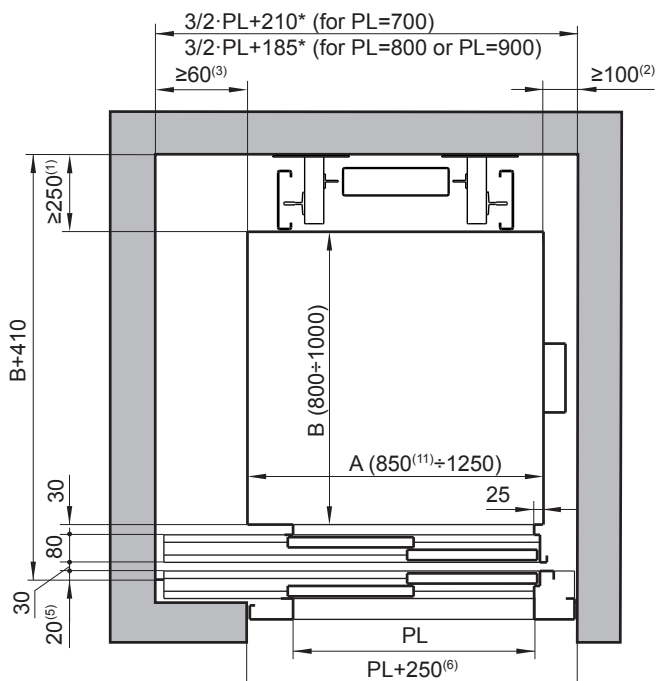
- 
- Technical drawing showing a cross-section of a platform edge detail. The drawing includes a vertical wall on the left and a platform edge on the right. A dimension line indicates a height of $\geq 135^{(7)}$ mm for the wall. Another dimension line indicates a height of 125⁽⁶⁾ mm for the platform edge. A small component, likely a handrail or safety device, is shown mounted on the wall. A note (9) is present in the drawing area.



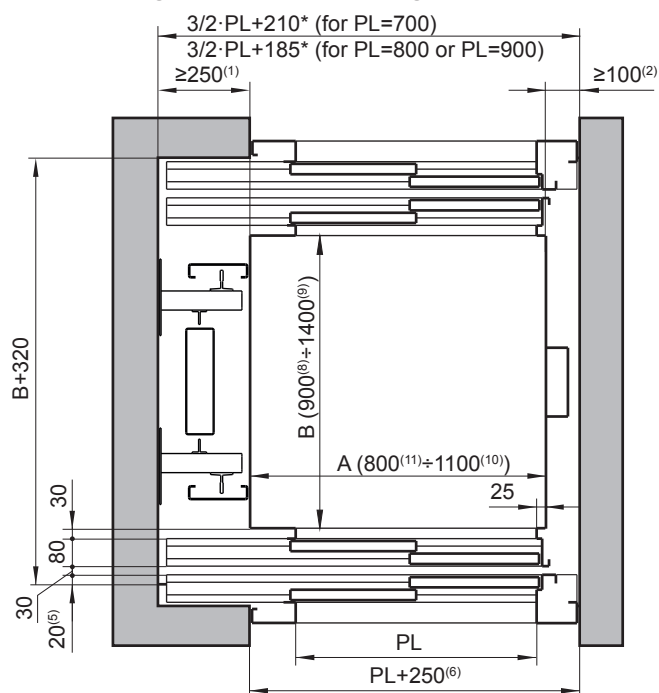
2-leaf telescopic door



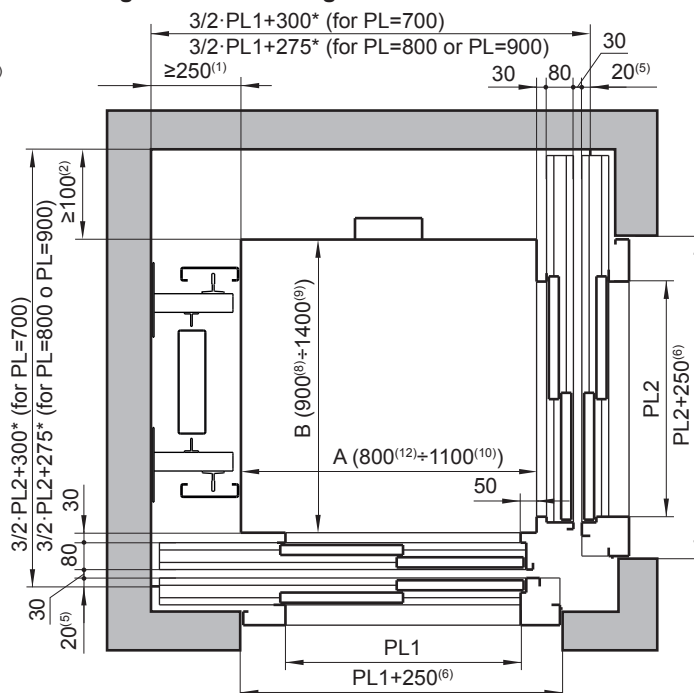
Single entrance with side guide rails



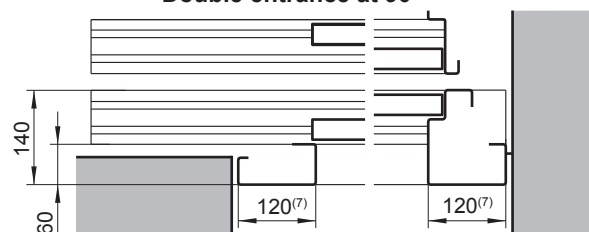
Single entrance with guide rails at the bottom⁽¹³⁾



Double entrance at 180°



Double entrance at 90°



A Car width

B Car depth

PL Clear opening (maximum A-100 mm)

PL1 Clear opening (maximum A-100 mm)

PL2 Clear opening (maximum B-100 mm)

(1) Distance for guide rail housing (maximum 380 mm)

(2) Car-wall distance on the side next to the entrance with push button panel (115 mm with pit access ladder)

(3) Car-wall distance on the side next to the entrance (115 mm with pit access ladder)

(4) Car-wall distance on the bottom side

(5) Distance sill edge to wall (maximum 140 mm)

(6) Gap in wall for door

(7) Width of door frame

(8) Minimum 1200 mm for rated load 630 kg

(9) Maximum 1250 mm for rated load up to 450 kg

(10) Maximum 1000 mm for rated load up to 450 kg

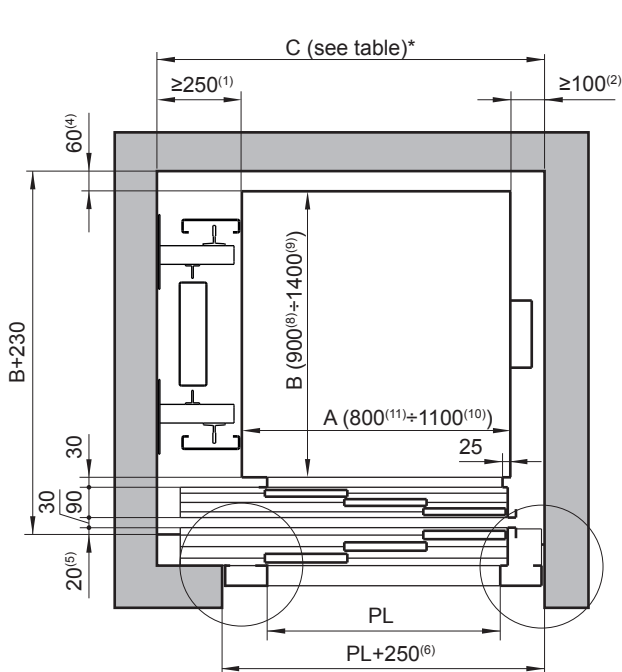
(11) Minimum 900 mm with ceiling handrails

(12) Minimum 850 with pit access ladder

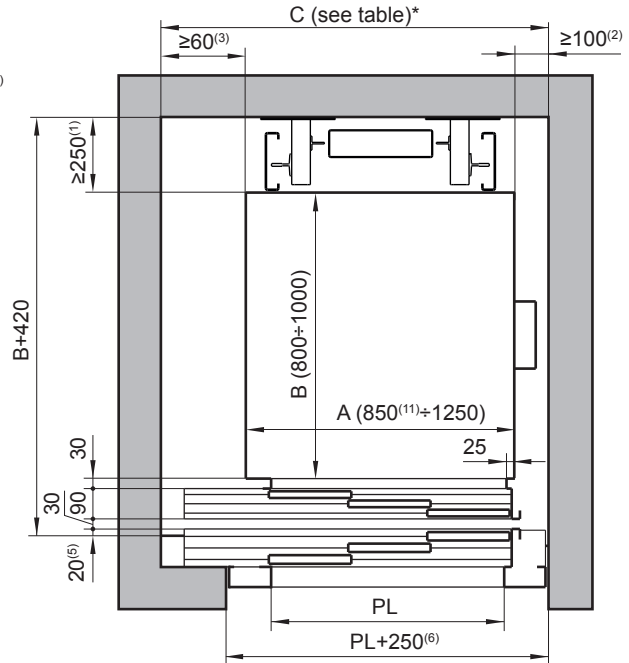
(13) Not available for rated load 630 kg

* May be larger, depending on car size

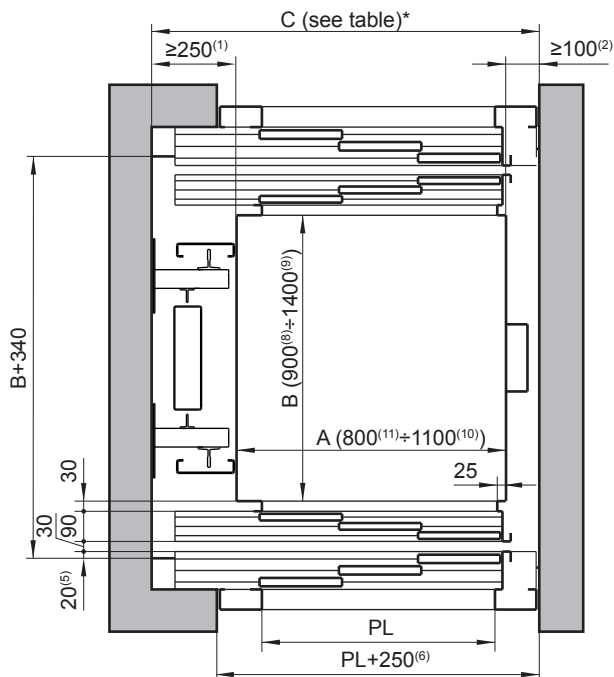
3-leaf telescopic door



Single entrance with side guide rails

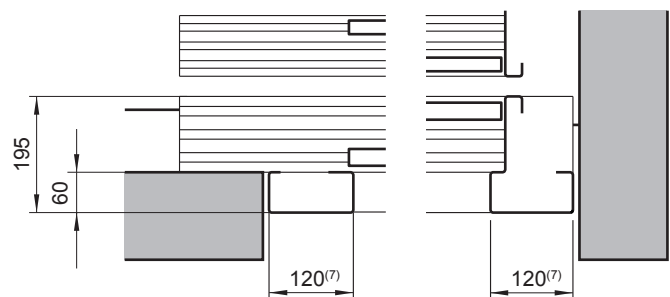


Single entrance with guide rails at the bottom ⁽¹²⁾



Double entrance at 180°

FP	C
700	1180
800	1280
900	1405

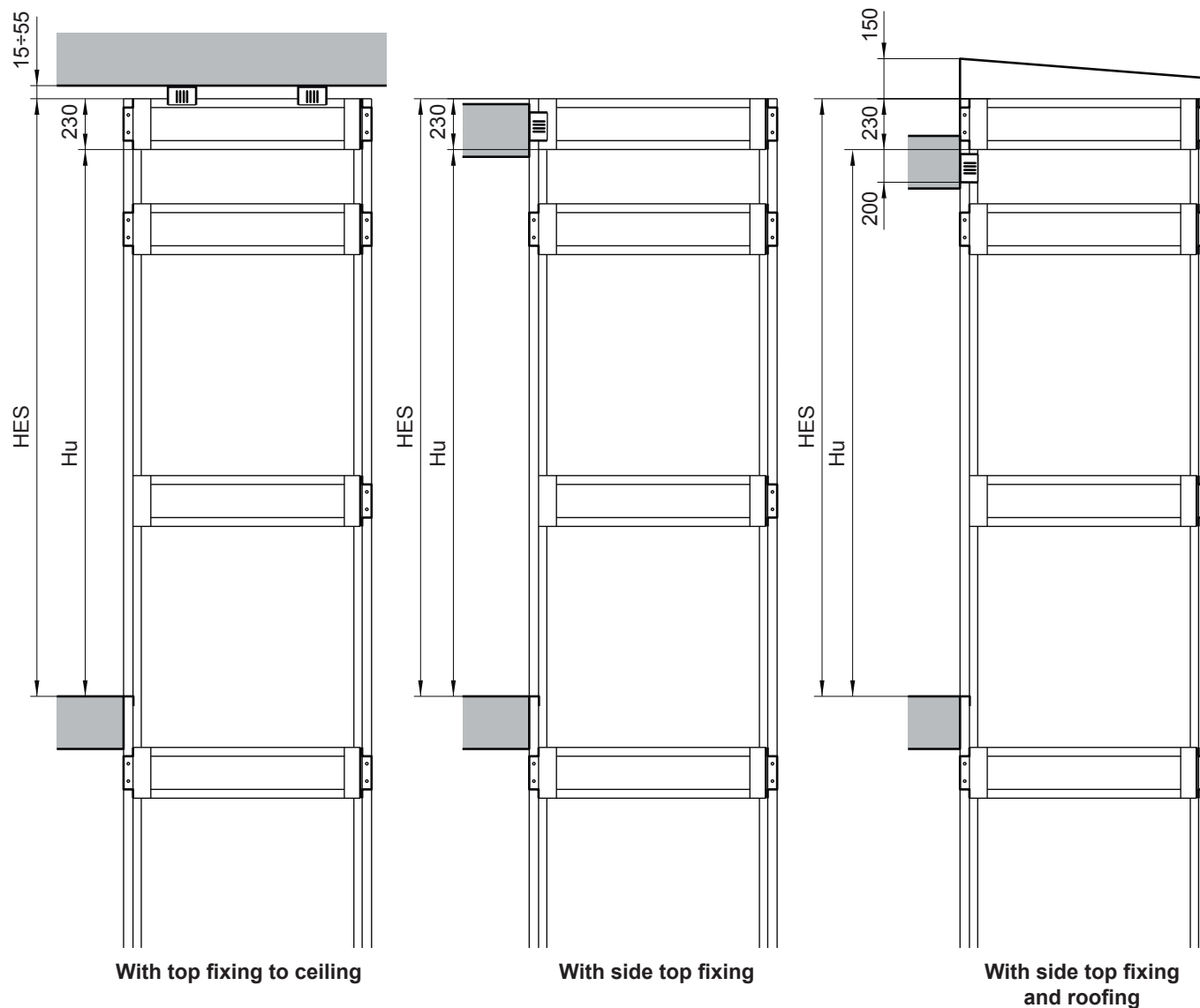


- A Car width
 B Car depth
 PL Clear opening (maximum A-100 mm)
 (1) Distance for guide rail housing (maximum 380 mm)
 (2) Car-wall distance on the side next to the entrance with push button panel (115 mm with pit access ladder)
 (3) Car-wall distance on the side next to the entrance (115 mm with pit access ladder)
 (4) Car-wall distance on the bottom side
 (5) Distance sill edge to wall (maximum 75 mm)
 (6) Gap in wall for door
 (7) Width of door frame

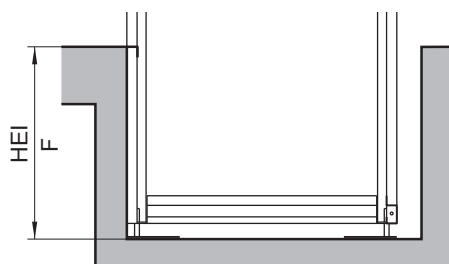
- (8) Minimum 1200 mm for rated load 630 kg
 (9) Maximum 1250 mm for rated load up to 450 kg
 (10) Maximum 1000 mm for rated load up to 450 kg
 (11) Minimum 900 mm with ceiling handrails
 (12) Not available for rated load 630 kg
 * May be larger, depending on car size

3.3. Front structure dimensions

Upper end



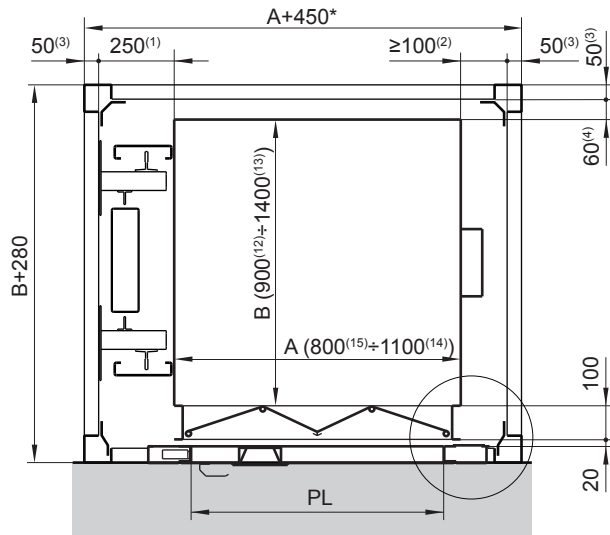
Lower end



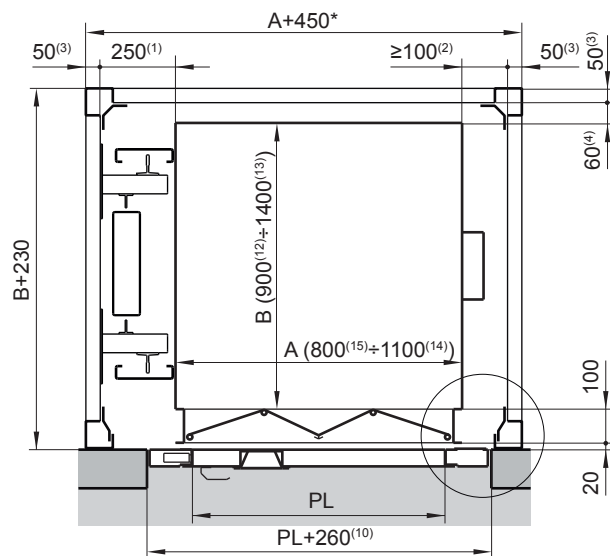
- HES Height of structure above upper landing level
- HEI Height of structure below lower landing level
- H_u Headroom
- F Pit

3.4. Top structure dimensions

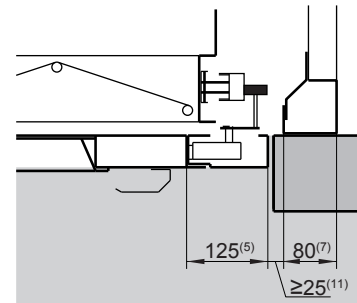
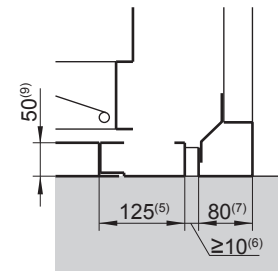
Folding bus-type car doors



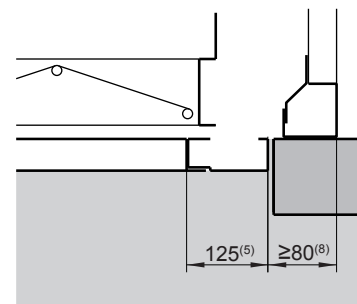
Door on structure



Door on building slab



Closing side

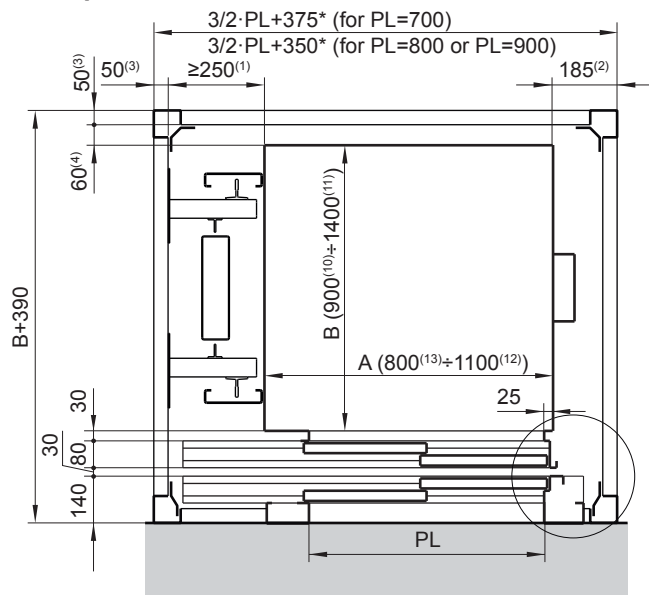


Hinge side

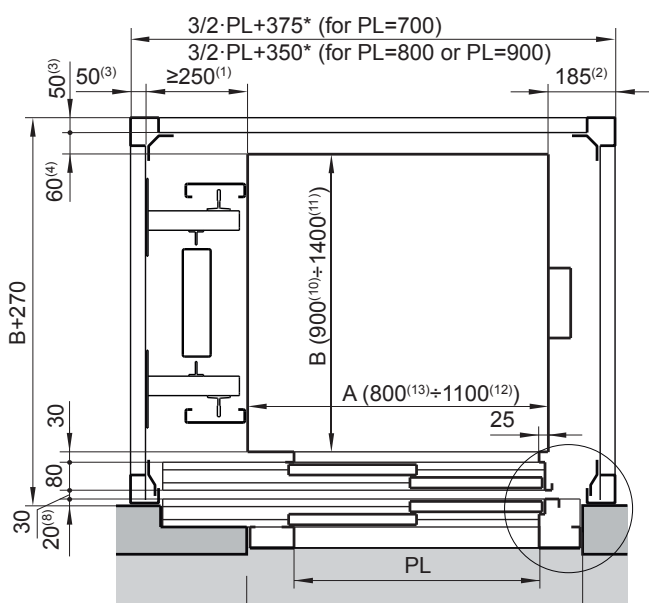
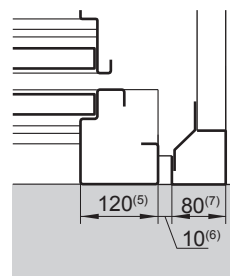
- A Car width
 B Car depth
 PL Clear opening (maximum A-100 mm)
- (1) Distance for guide rail housing
 (2) Car-crossbeam distance on the side next to the entrance with push button panel (115 mm with pit access ladder)
 (3) Structure crossbeam width
 (4) Car-crossbeam distance on bottom side
 (5) Door frame width
 (6) Door frame-structure column clearance with structure-mounted door
 (7) Structure column width
 (8) Door frame-external structure distance on the hinge side
 (9) Door frame depth

- (10) Gap in wall for door
 (11) Door frame-structure column clearance, closing side with slab-mounted doors
 (12) Minimum 1200 mm for rated load 630 kg
 (13) Maximum 1250 mm for rated load up to 450 kg
 (14) Maximum 1000 mm for rated load up to 450 kg
 (15) Minimum 900 mm with ceiling handrails
 * May be larger, depending on door features

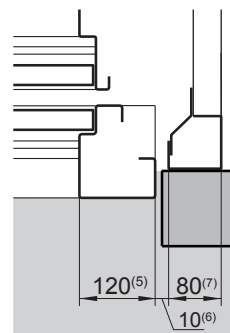
2-leaf telescopic doors



Door on structure



Door on building slab



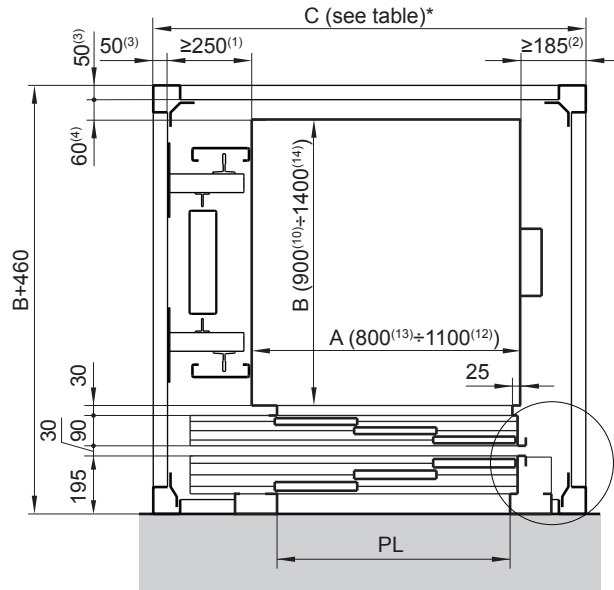
- A Car width
- B Car depth
- PL Clear opening (maximum A-100 mm)
- (1) Distance for guide rail housing (maximum 380 mm)
- (2) Car-external structure distance on door closing side
- (3) Structure crossbeam width
- (4) Car-crossbeam distance on bottom side
- (5) Door frame width
- (6) Door frame-structure column clearance
- (7) Structure column width
- (8) Distance sill edge to wall (maximum 140 mm)
- (9) Gap in wall for door
- (10) Minimum 1200 mm for rated load 630 kg
- (11) Maximum 1250 mm for rated load up to 450 kg

(12) Maximum 1000 mm for rated load up to 450 kg

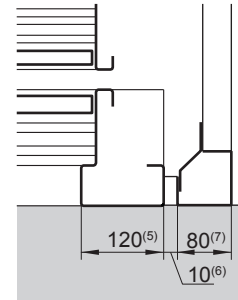
(13) Minimum 900 mm with ceiling handrails

* It may be greater, depending on the door features and the car size.

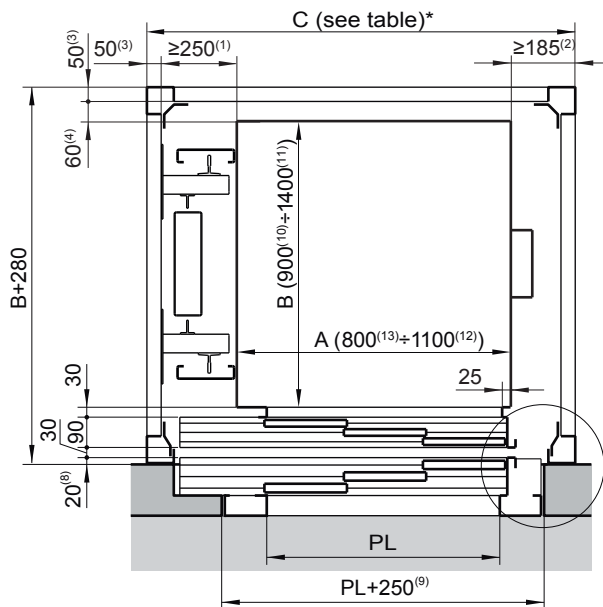
3-leaf telescopic doors



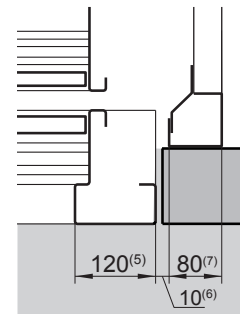
Door on structure



FP	C
700	1345
800	1445
900	1570



Door on building slab



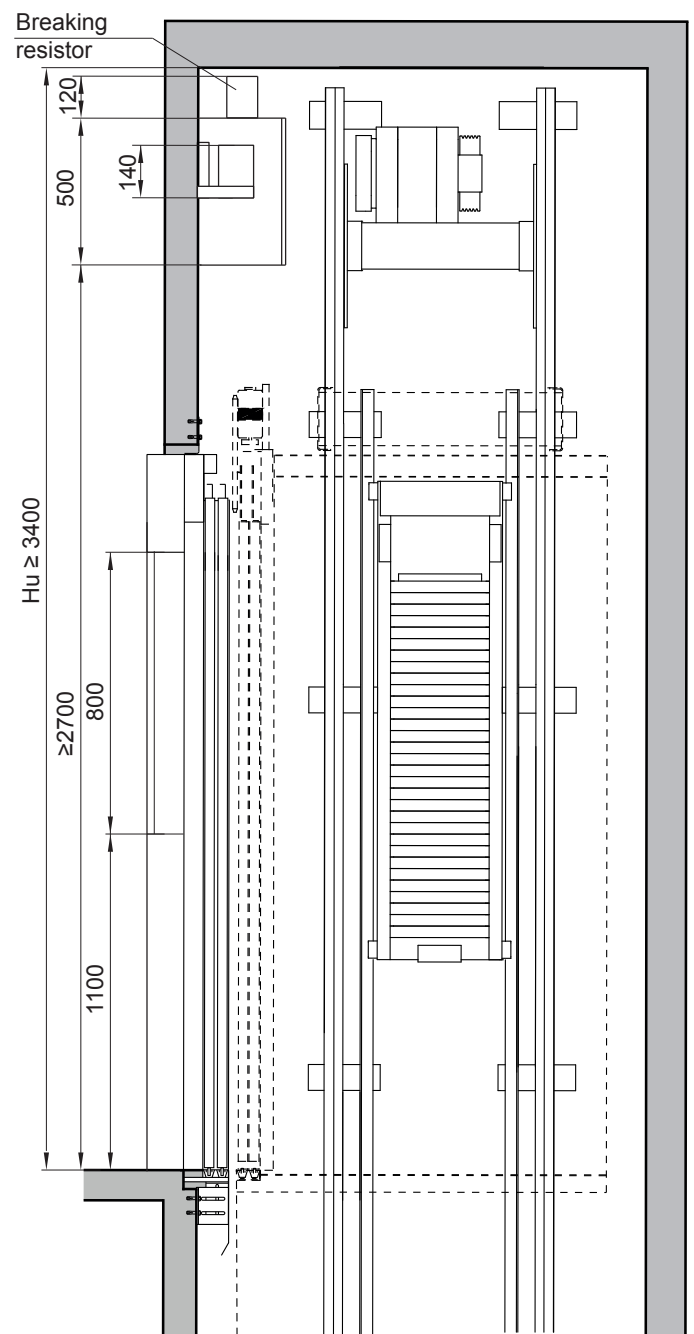
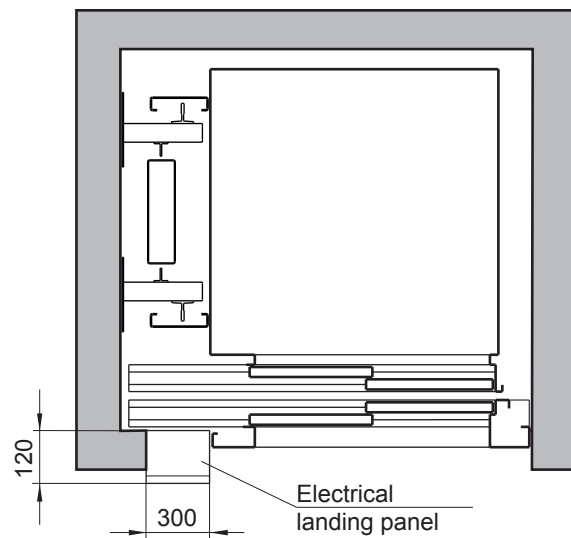
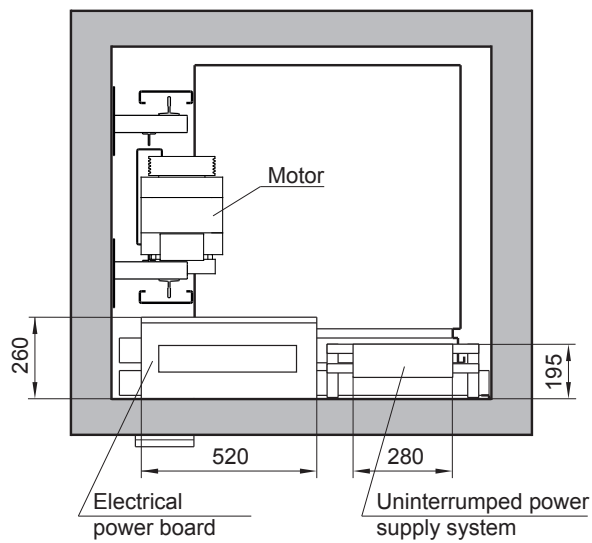
- A** Car width
B Car depth
PL Clear opening (maximum A-100 mm)
⁽¹⁾ Distance for guide rail housing (maximum 380 mm)
⁽²⁾ Car-external structure distance on door closing side
⁽³⁾ Structure crossbeam width
⁽⁴⁾ Car-crossbeam distance on bottom side
⁽⁵⁾ Door frame width
⁽⁶⁾ Door frame-structure column clearance
⁽⁷⁾ Structure column width
⁽⁸⁾ Distance sill edge to wall (maximum 75 mm)
⁽⁹⁾ Gap in wall for door
⁽¹⁰⁾ Minimum 1200 mm for rated load 630 kg
⁽¹¹⁾ Maximum 1250 mm for rated load up to 450 kg

⁽¹²⁾ Maximum 1000 mm for rated load up to 450 kg

⁽¹³⁾ Minimum 900 mm with ceiling handrails

* It may be greater, depending on the door features and the car size.

3.5. Machinery location





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