

## PLANNING GUIDELINES FOR CAR LIFTS

### TRAFFICO® and CARRICO®

- Small shaft dimensions
- Variable speeds
- Automated trip
- Car detection
- Convenient operation

## CONTENTS

Product finder	3
BIM-Configurator	4
Lift shaft	5
Lifting height	5
Shaft width/cabin width/door width	5
Shaft depth/cabin depth	6
Headroom/cabin height/door height	11
Pit/clearing under lift	12
Door reveal	13
Internal insulation	14
Lift cabin	16
Machine room	19
Nominal load/drive types	22
Number of trips per hour	23
Noise insulation/fire protection	24
Overview equipment options	25

## PRODUCT FINDER

Which criteria are critical with regard to your car lift?  
Choose from the criteria listed below.

	PEGASOS®	CARRICO®	TRAFFICO®
Low pit			
Low headroom			
Shaft width/shaft depth			
Max. door width			
Machine room			
Max. speed			
Possible number of trips per hour			
Internal insulation			
Noise emissions			
Fire protection			
Connection current values			
Operating costs			
Ease of operation			
Operation method	Hold & Run	Automatic drive	Automatic drive
Type-tested in accordance with	Machinery Directive 2006/42/EC DIN EN 81-41	Machinery Directive 2006/42/EC DIN EN 81-41	Lifts Directive 2014/33/EC DIN EN 81-20

### Note on speed:

The PEGASOS® and CARRICO® car lifts are certified in accordance with Machinery Directive 2006/42/EC; in line with this, the maximum nominal speed is limited to 0,15 m/s.

### Note on operation method:

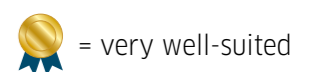
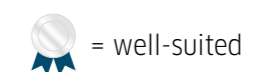
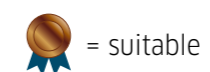
The PEGASOS® is only available with the "Hold & Run" operation method.

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We reserve the right to make technical changes to the planning guidelines for the CARRICO® and TRAFFICO® car lift.

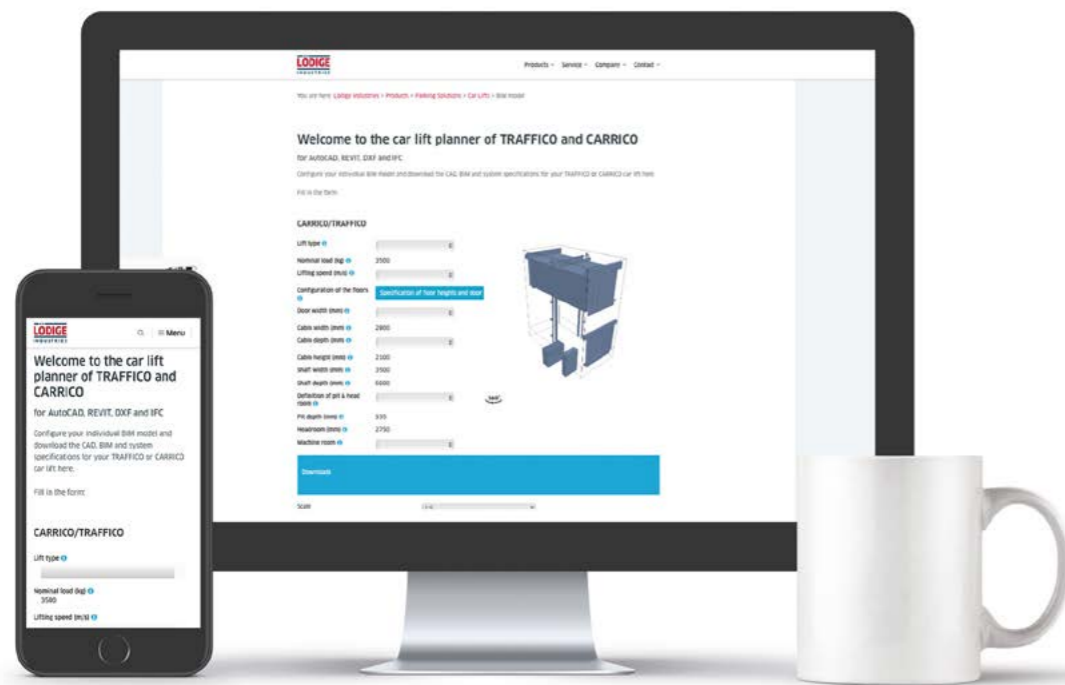


## BIM-CONFIGURATOR

Architects and planners can now easily create the hydraulic car lifts CARRICO® and TRAFFICO® with the help of our configurator. In the first step, determine your desired elevator type. Different nominal speeds are also possible with the TRAFFICO® car lift. In the second step you can specify the number of stops and entrances. The lifting height is determined by the distances between the individual floors. When defining the entrances and floors, the silence package and/or the fire protection doors according to EN 81-58 can be selected as additional options. Next, you define the size of the cabin using the selected door width and cabin depth. Finally, you define the shaft pit and the shaft head for your configuration. Here you specify one of the two dimensions according to the standard

values given in the planning guide, i.e. when you specify the shaft pit, the standard values for the pit from the planning guide are taken into account in the configuration and the shaft head is determined depending on the head. This also applies vice versa. The undefined value is always calculated. Finally, different machine rooms can be selected. The versions correspond to those in the planning guide. For your first planning steps, 2D drawings and 3D models of your configuration can be downloaded and inserted directly into your construction plans. Several file formats are available for this: 2D & 3D DWG, 2D & 3D DXF, REVIT and IFC. It is also possible to select the scale that suits you. We wish you lots of fun with your Carrico® or Traffico® car lift.

[Link to BIM-configurator](#)



## LIFT SHAFT

The lift shaft is of crucial importance with regard to planning and the technical design of the lift and must be manufactured from concrete with a minimum strength class of C 25. So that all fitted shaft components or dowels can be used correctly, the wall must be at least 150 mm thick. All requirements in relation to the structural analysis, fire protection, sound insulation and construction law must be taken into account when designing the shaft walls.

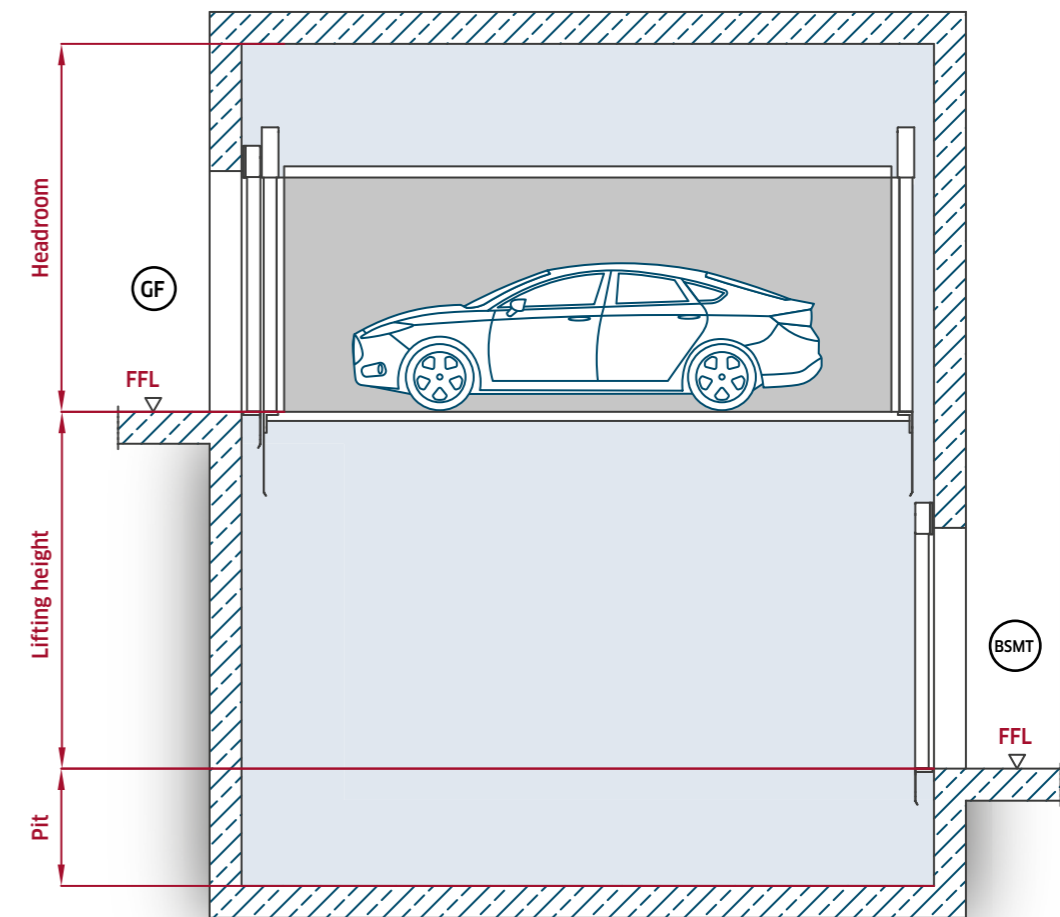
When constructing the shaft, building construction tolerances in accordance with DIN 18202 must be observed. All surfaces must be flat and level as well as right-angled and perpendicular. If, however, brickwork is used (such as existing walls), such walls must be agreed upon with us in advance in order to establish how the lift technology is to be mounted. Any equipment not associated with the lift must not be located in the lift shaft.

All lift-related reference dimensions are explained in more detail below.

## LIFTING HEIGHT

The overall distance covered by a lift is referred to as the lifting height. This is calculated from the finished floor level (FFL) of the lowest stop to the FFL of the highest stop. The lifting height is important in relation to the technical design of the lift as well as the calculation of the shaft dimensions, such as the dimensions of the pit and headroom.

The lifting height, number of stops and the layout of the entrances must be specified in order for us to prepare a quote. The maximum possible number of stops is 8 with a maximum of 16 entrances. The maximum lifting height of the CARRICO® and TRAFFICO® car lift is 25 m.



FFL = finished floor level

Note: For cabin heights of 2.100 mm and superimposed accesses, the minimum floor distance is 2.740 mm.

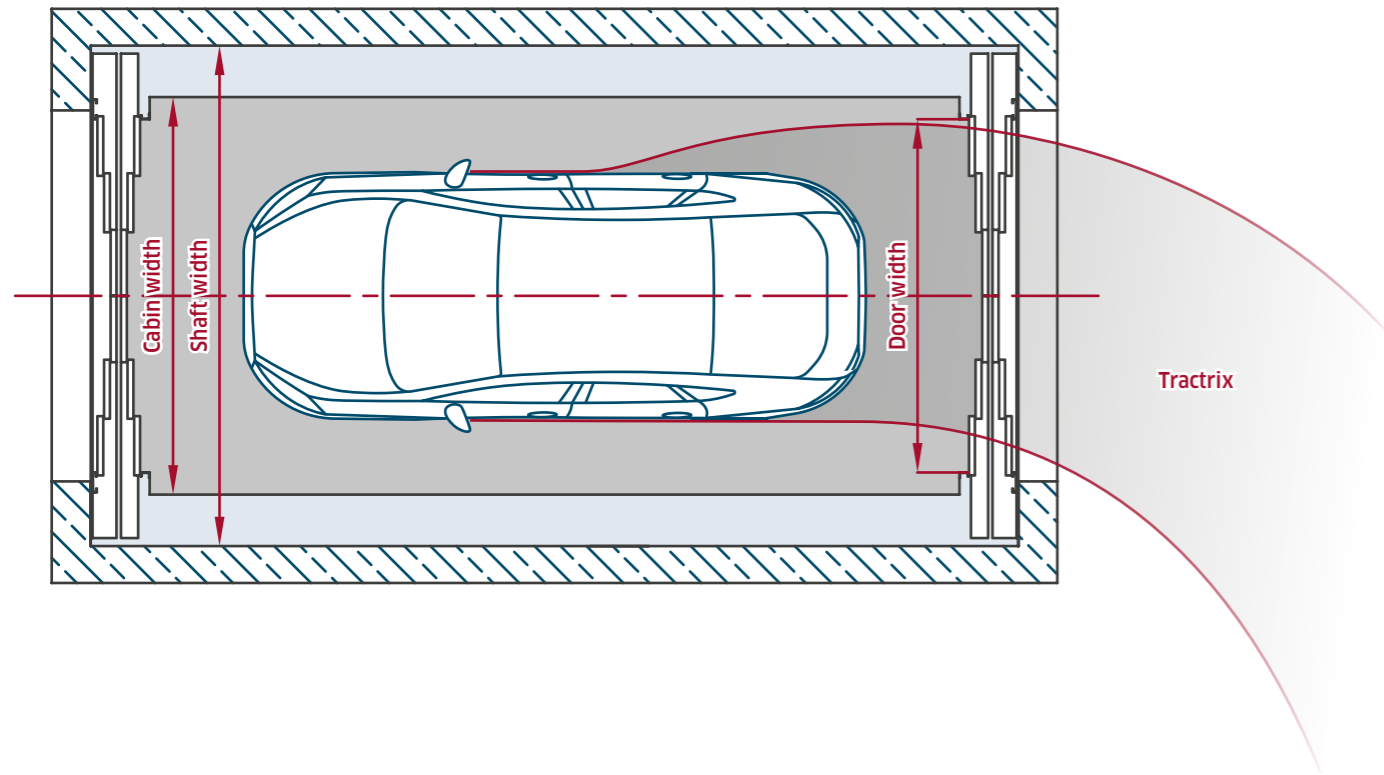
## SHAFT WIDTH/CABIN WIDTH/DOOR WIDTH

The greater the dimensions of the cabin and doors for the car lift, the easier it is for users to safely manoeuvre their vehicle into and out of the lift cabin. The installation space available for the car lift is definitively determined by the shaft width. The shaft width is the distance between the two lateral shaft walls in the lift shaft.

In addition to the clear inner cabin width, particular emphasis is also placed on the clear inner door width, which determines the shaft width required. Cabin width refers to the clear inner distance between the inner side walls of the lift cabin. The door width refers to the clear inner clearance width of the door available when a vehicle is driven into and out of the cabin.

In order for the cabin and door width for the lift system to be designed in line with the respective requirements, the vehicle-specific tracterices calculated by the planner must also be taken into account. Upon request, we can use tracterices to simulate how your specified vehicle type will enter and exit the lift cabin and determine the right lift cabin and door width for you.

In general, we can adapt the dimensions of our car lifts (width x length x height) to meet your various requirements. We are happy to develop special solutions for very long vehicles or higher vehicles, such as vans.



### Important note regarding internal shaft insulation:

As lift shafts for car lifts are usually unheated spaces, additional internal shaft insulation can be planned for in accordance with the latest energy saving requirements for heated rooms adjacent to the shaft. To fulfill the latest energy saving requirements, continuous insulation is required within the lift shaft. There are two options for internal shaft insulation. For more information on this, please refer to the "Internal insulation" section.

### Regarding noise emission:

To avoid mechanical noise transmission, we recommend that you position the elevator shaft separately from the residential building.

## SHAFT WIDTH/CABIN WIDTH/DOOR WIDTH

During the initial steps of your planning process, you can refer to the following table, which covers common dimensions according to current information. We will then gladly review your planning documents.

To simplify the process, important details, such as calculated vehicle tracterices and the width of the vehicle lane in the entrance and exit area, are not taken into account in this planning guide.

If the door width on a floor is found to be too small while investigating the vehicle tractrix, we can provide horizontally opening panelled sliding doors as an option. In this case, the door width and cabin width dimensions can be adapted to give you a convenient entrance area. The biggest advantage of this door solution is that the width of the shaft is not modified.

Minimum shaft width	Maximum cabin width			Maximum door width
	Lifting height less than 6,000 mm	Lifting height 6,000-9,000 mm	Lifting height 9,000-25,000 mm	
3.400 mm	<b>2.700 mm*</b>	2.600 mm	2.450 mm	2.400 mm
3.450 mm	2.750 mm	2.650 mm	2.500 mm	2.400 mm
3.500 mm	<b>2.800 mm*</b>	<b>2.700 mm*</b>	2.550 mm	2.450 mm
3.550 mm	2.850 mm	2.750 mm	2.600 mm	2.500 mm
3.600 mm	2.900 mm	<b>2.800 mm*</b>	2.650 mm	2.550 mm
3.650 mm	2.950 mm	2.850 mm	<b>2.700 mm*</b>	2.600 mm
3.700 mm	3.000 mm	2.900 mm	2.750 mm	2.600 mm
3.750 mm	3.000 mm	2.950 mm	<b>2.800 mm*</b>	2.650 mm
3.800 mm	3.000 mm	3.000 mm	2.850 mm	2.700 mm
3.850 mm	3.000 mm	3.000 mm	2.900 mm	2.700 mm
3.900 mm	3.000 mm	3.000 mm	2.950 mm	2.750 mm
3.950 mm	3.000 mm	3.000 mm	3.000 mm	2.800 mm
4.000 mm	3.000 mm	3.000 mm	3.000 mm	2.850 mm
4.100 mm	3.000 mm	3.000 mm	3.000 mm	2.900 mm
4.150 mm	3.000 mm	3.000 mm	3.000 mm	2.950 mm
4.200 mm	<b>3.000 mm**</b>	<b>3.000 mm**</b>	<b>3.000 mm**</b>	3.000 mm

\*Standard dimensions, special dimensions on request, insulation is to be added

\*\*The door width corresponds to the cabin width

To ensure that users can conveniently manoeuvre their vehicle into and out of the lift cabin without any problems, we recommend allowing a 400 mm width either side between vehicle and the internal cabin wall.

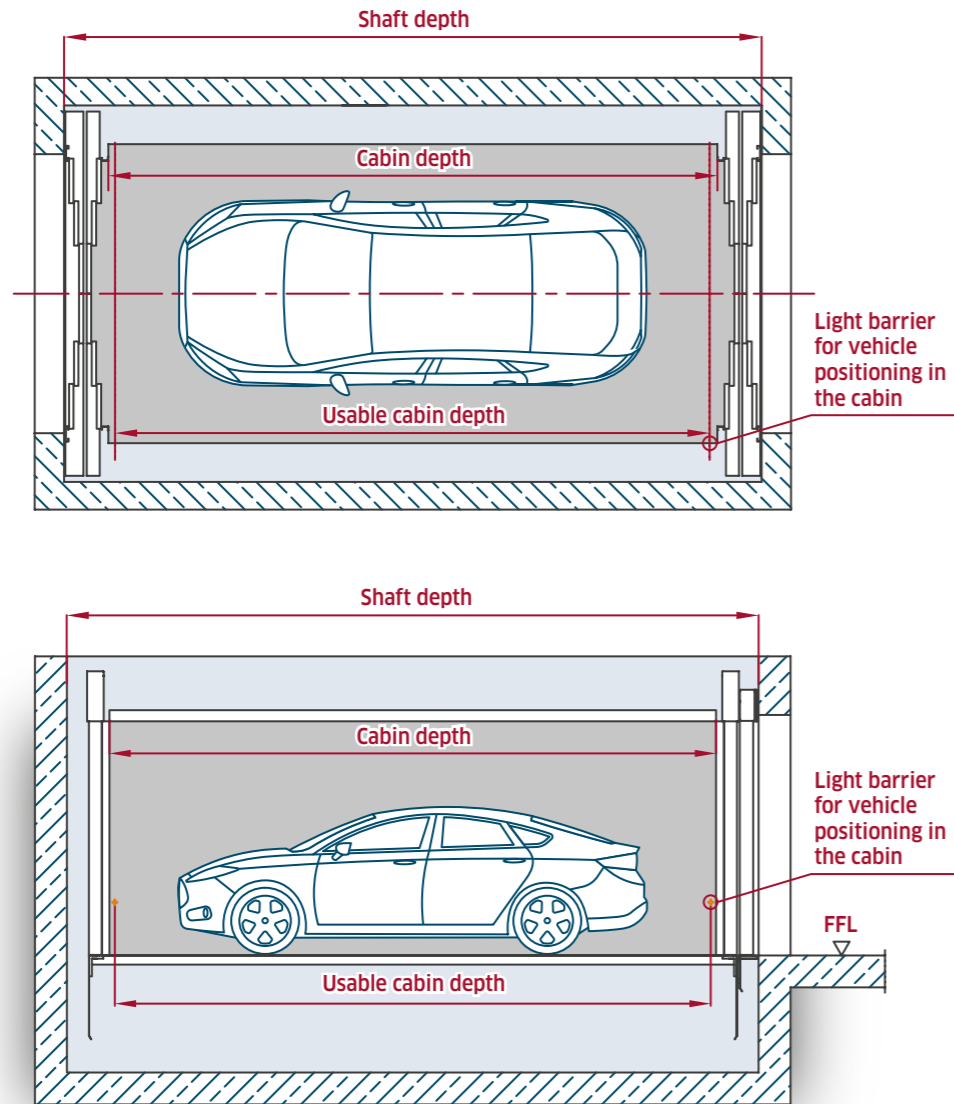
You can find further documents and informational material on our car lifts online in the download centre at the following link:

[Link to download centre](#)

## SHAFT DEPTH/CABIN DEPTH

A few points need to be considered regarding the cabin depth, which, based on our many years of experience, are critical. Cabin depth is the distance between the entrances and can be used for manoeuvring the vehicle into the cabin. There is also another dimension: the useable cabin depth. The useable cabin depth is the area between the two

light barriers for vehicle positioning. In order for the lift to move, the vehicle must be positioned between these two light barriers. Insure that the useable cabin depth is sufficient to transport the vehicles. The various dimensions are shown in the figures below.



In the case of car lifts **with a front- and rear-opening design**, the dimensions are as follows.\*

Usable cabin depth = cabin depth - 100 mm

In the case of car lifts **with a front-opening design**, the dimensions are as follows.\*

Usable cabin depth = cabin depth - 130 mm

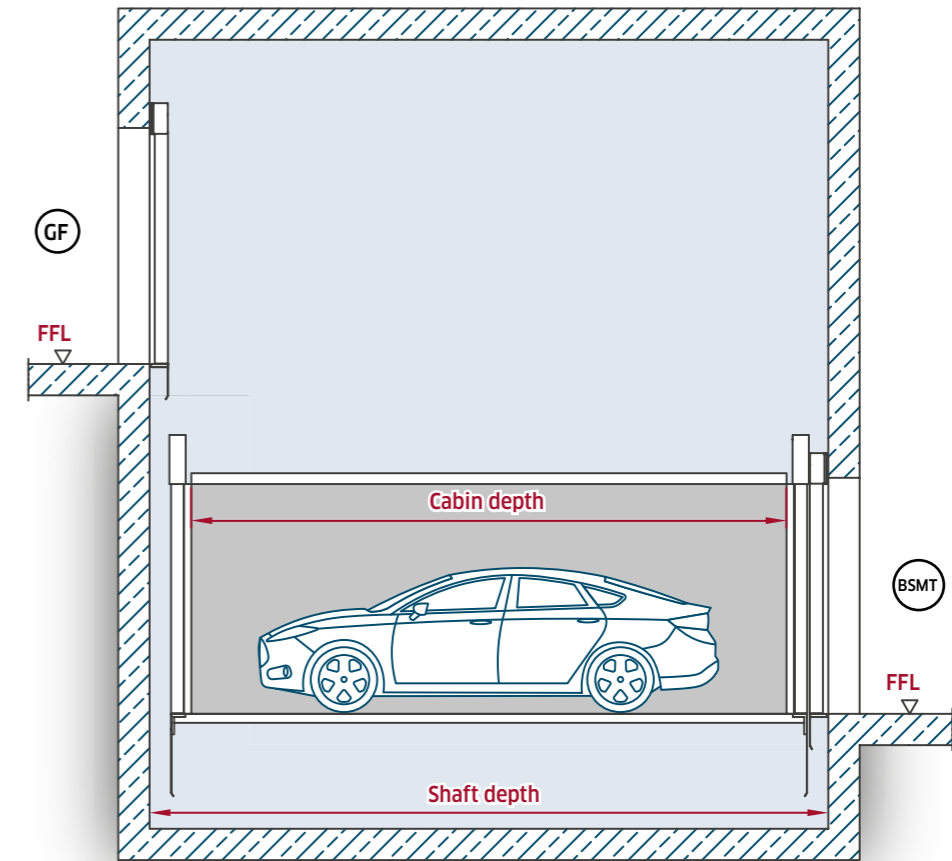
\*Reference dimension is always the cabin depth between the entrance panels.

## SHAFT DEPTH/CABIN DEPTH

### THROUGH-LOADING/FRONT- AND REAR-OPENING DESIGN

In the case of front- and rear-opening lifts, an entrance and exit are located on opposite sides. This is the most convenient solution for users, as it significantly reduces the amount of manoeuvring required. If the construction

project allows it, we therefore recommend opting for the front- and rear-opening car lift design. If a courtyard is used for bicycles, bins etc., it is possible to plan for a second access point on ground floor level.



Minimum shaft depth	Maximum cabin depth	Minimum shaft depth	Maximum cabin depth
6.300 mm	<b>5.500 mm *</b>	6.700 mm	5.900 mm
6.350 mm	5.550 mm	6.750 mm	5.950 mm
6.400 mm	5.600 mm	6.800 mm	6.000 mm
6.450 mm	5.650 mm	7.050 mm	6.250 mm
6.500 mm	5.700 mm	7.300 mm	6.500 mm
6.550 mm	5.750 mm	7.550 mm	6.750 mm
6.600 mm	<b>5.800 mm *</b>	7.800 mm	7.000 mm
6.650 mm	5.850 mm		

\*Standard dimensions, special dimensions on request

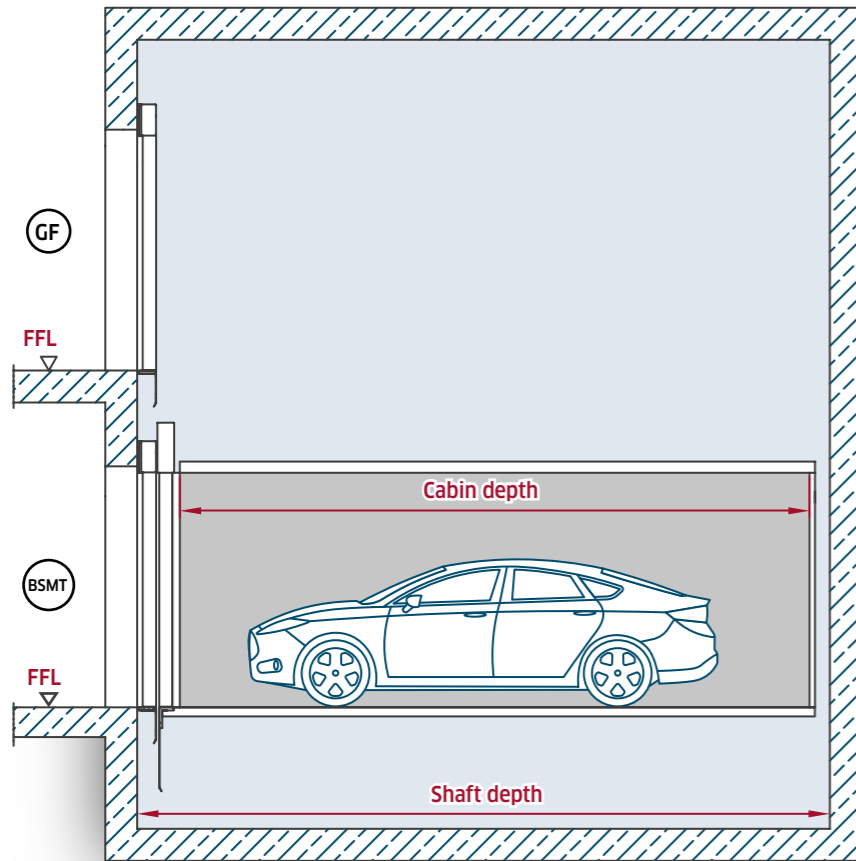
To ensure that users can conveniently manoeuvre their vehicle into and out of the lift cabin without any problems, we recommend a cabin depth of **at least 5.800 mm** and a cabin width of **at least 2.800 mm** for lifts with a front- and rear-opening design.

## SHAFT DEPTH/CABIN DEPTH

### FRONT-OPENING DESIGN

With regard to a front-opening lift design, the increased amount of manoeuvring required in front of the lift needs to be taken into account and efforts must be made to reduce this. The clear inner door width (and thereby also the entrance width) must be generously set so that all users

are able to reverse into and out of the cabin safely and conveniently – even with bigger vehicle classes. It is beneficial to keep the area facing the entrance of the lift in the underground car park clear for manoeuvring, as this enables users to drive directly into and out of the lift.



Minimum shaft depth	Maximum cabin depth	Minimum shaft depth	Maximum cabin depth
6.000 mm	<b>5.500 mm *</b>	6.400 mm	5.900 mm
6.050 mm	5.550 mm	6.450 mm	5.950 mm
6.100 mm	5.600 mm	6.500 mm	6.000 mm
6.150 mm	5.650 mm	6.750 mm	6.250 mm
6.200 mm	5.700 mm	7.000 mm	6.500 mm
6.250 mm	5.750 mm	7.250 mm	6.750 mm
6.300 mm	<b>5.800 mm *</b>	7.500 mm	7.000 mm
6.350 mm	5.850 mm		

\*Standard dimensions, special dimensions on request

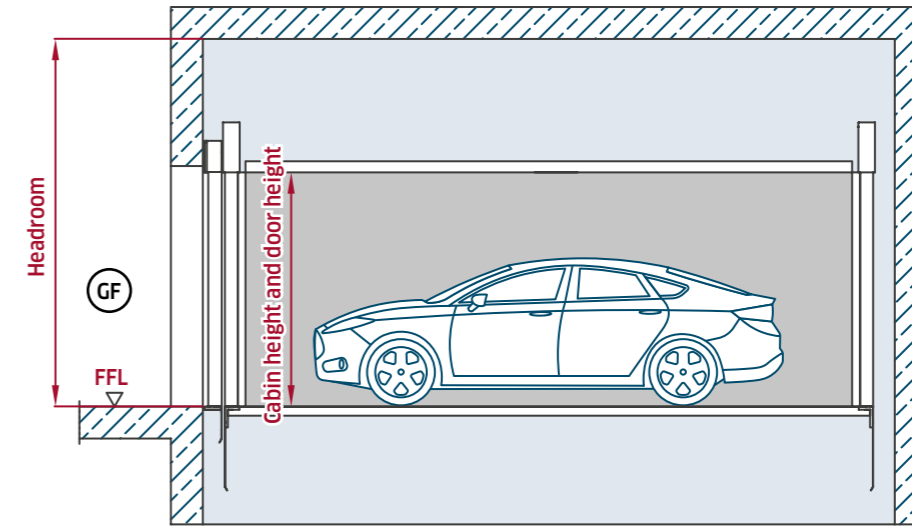
To ensure that users can conveniently manoeuvre their vehicle into and out of the lift cabin without any problems, we recommend a cabin depth of **at least 5,800 mm** and a cabin width of **at least 2,800 mm** for lifts with a front-opening design.

## HEADROOM/CABIN HEIGHT/DOOR HEIGHT

The headroom (passage) designates the distance from the finished floor level (FFL) of the highest stop to the lower edge of the shaft ceiling.

Reducing the size of the headroom may entail changes to other shaft dimensions – particularly the pit.

Note on insulation: The shaft ceiling can be insulated to protect any rooms above it from a thermal bridge. In this case, you will need to add the dimensions of your planned insulation system to the headroom height that we have determined.



### CABIN AND DOOR HEIGHT

The standard height of the doors and cabin for car lifts is 2.100 mm. This measurement is based on the height of the car park and underground car park and is suitable for all common vehicle classes, including VW buses. If you

are planning on higher vehicles, such as vans, using the lift, then we will also gladly produce higher cabins. If the height of the cabin and door is reduced to 2.000 mm, the headroom can also be reduced by a further 100 mm.

### REDUCING THE HEADROOM

In order to accommodate the lift in the building structure (e.g. penthouse), the headroom must be significantly reduced in some cases. The following table displays the decreased headroom dimensions depending on the lifting height. The headroom of the car lift is the smallest clear inner height, i.e. from the FFL of the top floor to the lower edge of the shaft ceiling. If insulation is added to the

shaft ceiling, the headroom height is measured from the FFL to the lower edge of the respective insulation. If the reduced dimension is not sufficient, the entrance to the car lift can be lowered or the cabin and door height can be decreased to 2.000 mm to ensure the required height for the headroom.

Lifting height	TRAFFICO®		CARRICO®	
	Headroom Standard	Headroom on request	Headroom Standard	Headroom on request
up to 3.000 mm	3.350 mm	2.715 mm	2.700 mm	2.670 mm
3.000–6.000 mm	3.400 mm	2.765 mm	2.750 mm	2.720 mm
6.000–9.000 mm	3.500 mm	2.865 mm	2.850 mm	2.850 mm
9.000–25.000 mm	3.450 mm	2.815 mm	2.875 mm	2.800 mm

The headroom depends on a number of factors, including the planned pit, and can increase in size if a silence package is used.

## PIT/CLEARING UNDER LIFT

The pit (clearing under lift) designates the distance from the finished floor level (FFL) of the lowest stop to the upper edge of the lift shaft floor.

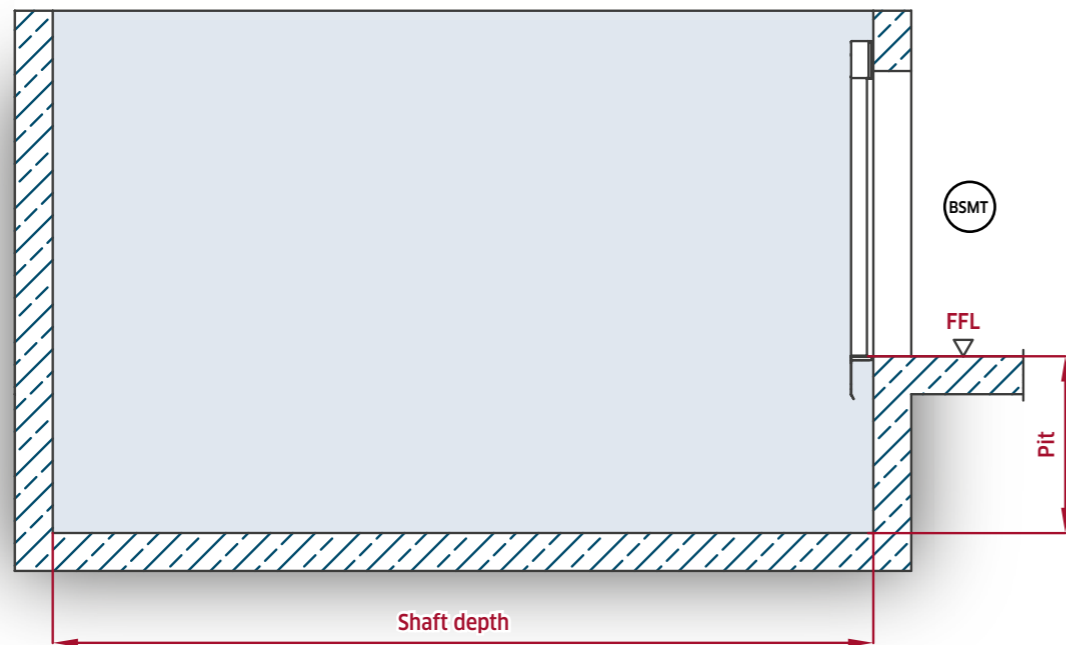
Reducing the size of the pit may entail changes to other shaft dimensions - particularly the headroom.

TRAFFICO®			CARRICO®	
Lifting height	Pit Standard	Pit on request	Pit Standard	Pit on request
up to 9.000 mm	1.250 mm*	500 mm	850 mm	350 mm
9.000-25.000 mm	1.250 mm*	1.000 mm	1.250 mm	950 mm

The pit depends on a number of factors, including the planned headroom; special designs are available on request

\*The *Pit Standard* (1250 mm) requires the shaft wall below the shaft door to be doubled. See the Traffico sample shaft drawing.

[Link to TRAFFICO® sample shaft drawing](#)

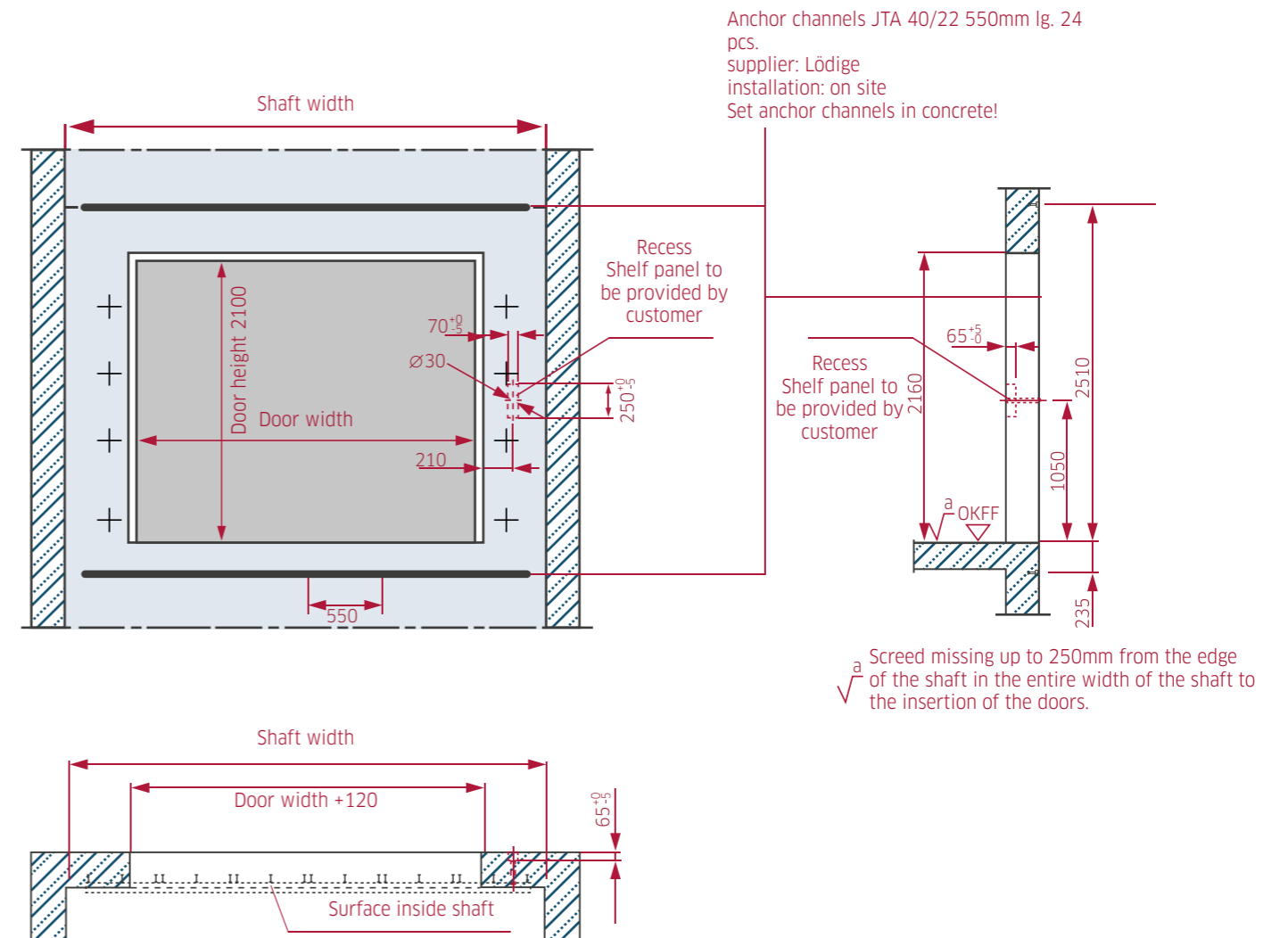


Note on the Traffico:  
It may be necessary to double the shaft wall on site in the area of the shaft pit below the shaft door. See sample shaft drawing Traffico.

## DOOR REVEAL

In our hydraulic car lifts Carrico and Traffico, we use 6-part, centrally opening telescopic sliding doors as standard. The shaft doors are installed hanging in the shaft so that no niche is required. In order to additionally support you in your preliminary planning, you can use the drawings listed below for planning the door reveal in the on-site concrete or wall shaft.

The drawings consider a 6-part, centrally opening telescopic sliding door and a door height of 2.100 mm. Installation in wall niches is possible on request.



## INTERNAL INSULATION

Additional internal insulation in lift shafts can be planned for in accordance with the latest ENEC requirements for heated rooms adjacent to the shaft.

Please note that you can use insulation of varying thicknesses on the various shaft walls. Doors, hydraulic cylinders and guide rails must always have a fixed connection to the solid shaft wall. As a rule, thermal insulation is affixed on site once the lift has been installed.

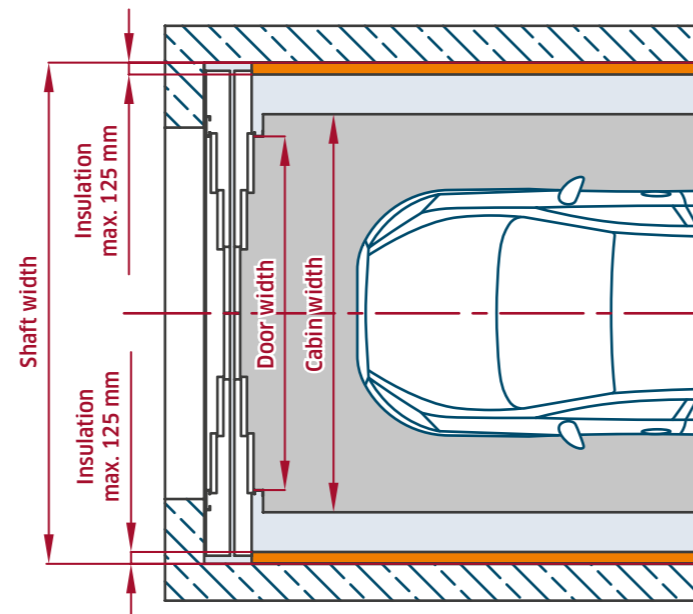
The following areas can be insulated:

- Shaft side walls
- Front-facing shaft walls (except for in the area of the door)
- Shaft ceiling (headroom must always be extended by the thickness of the insulation)

### INSULATION - OPTION 1 (NON-CONTINUOUS INSULATION IN DOOR AREA)

If the width of the shaft is not fully extended proportional to the thickness of the insulation system, the lateral thermal insulation system is decreased in the areas of the doors, hydraulic cylinders and guide rails.

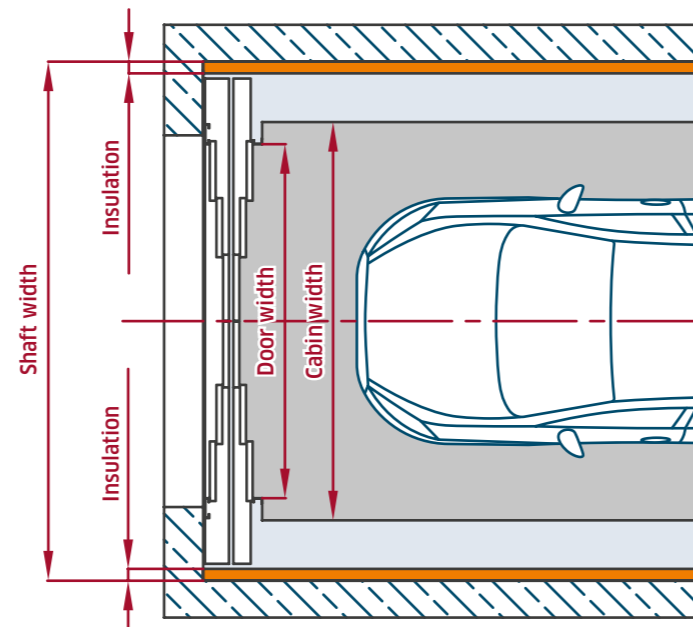
Insulation no more than 125 mm thick can be attached to the front shaft walls - except for in the area of the doors - without having to modify the planned shaft depth.



### INSULATION - OPTION 2 (CONTINUOUS INSULATION)

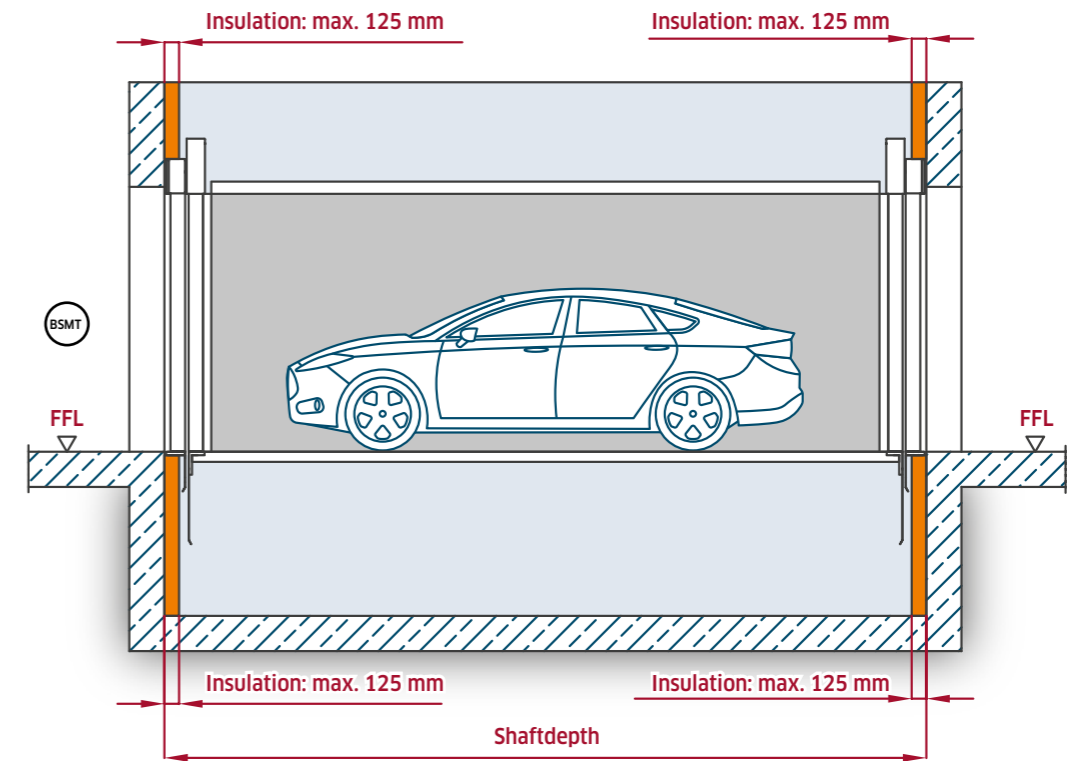
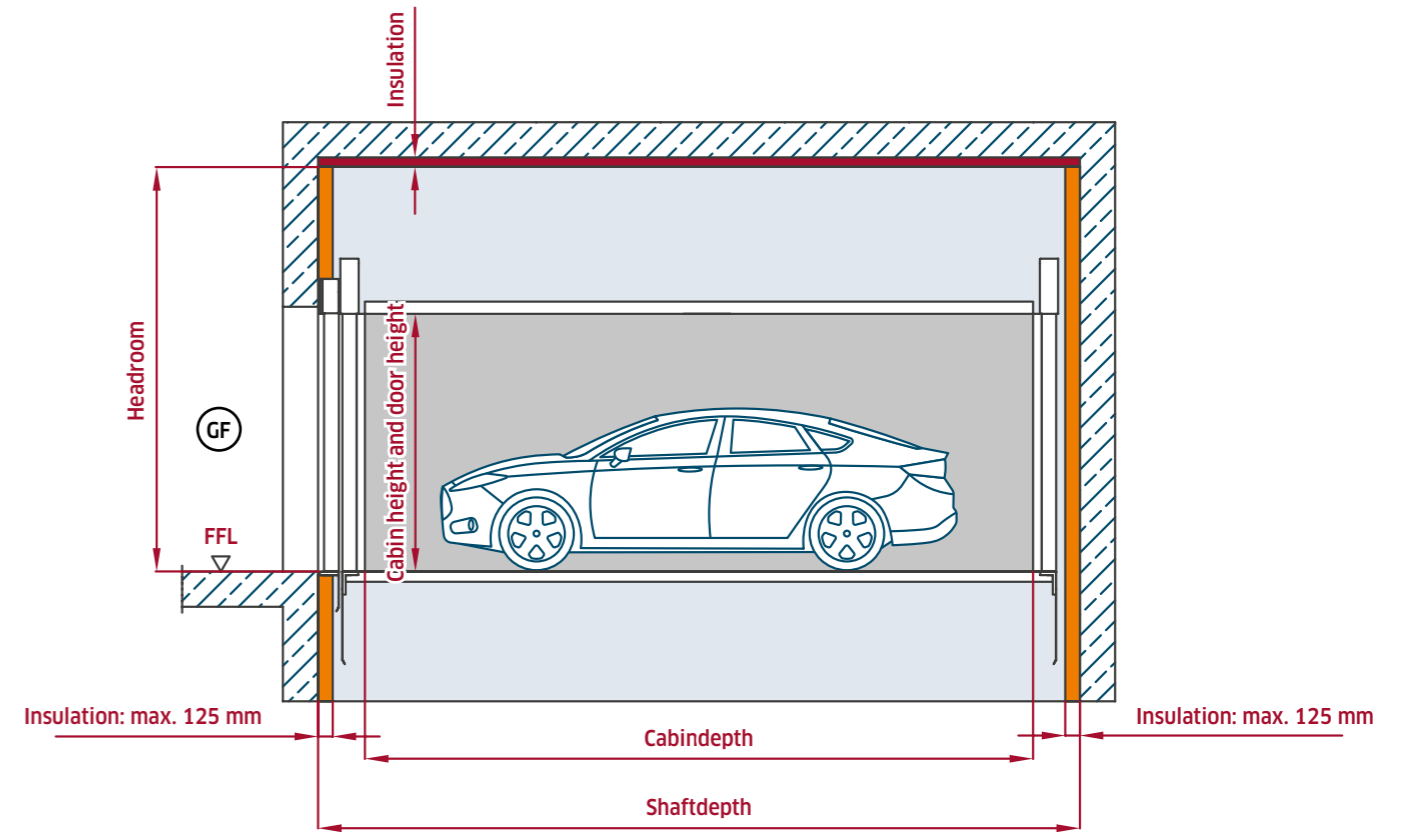
If insulation of a uniform thickness is intended for the shaft side wall, the necessary shaft width must be extended by the thickness of the insulation fitted.

Insulation no more than 125 mm thick can be attached to the front shaft walls - except for in the area of the doors - without having to modify the planned shaft depth.

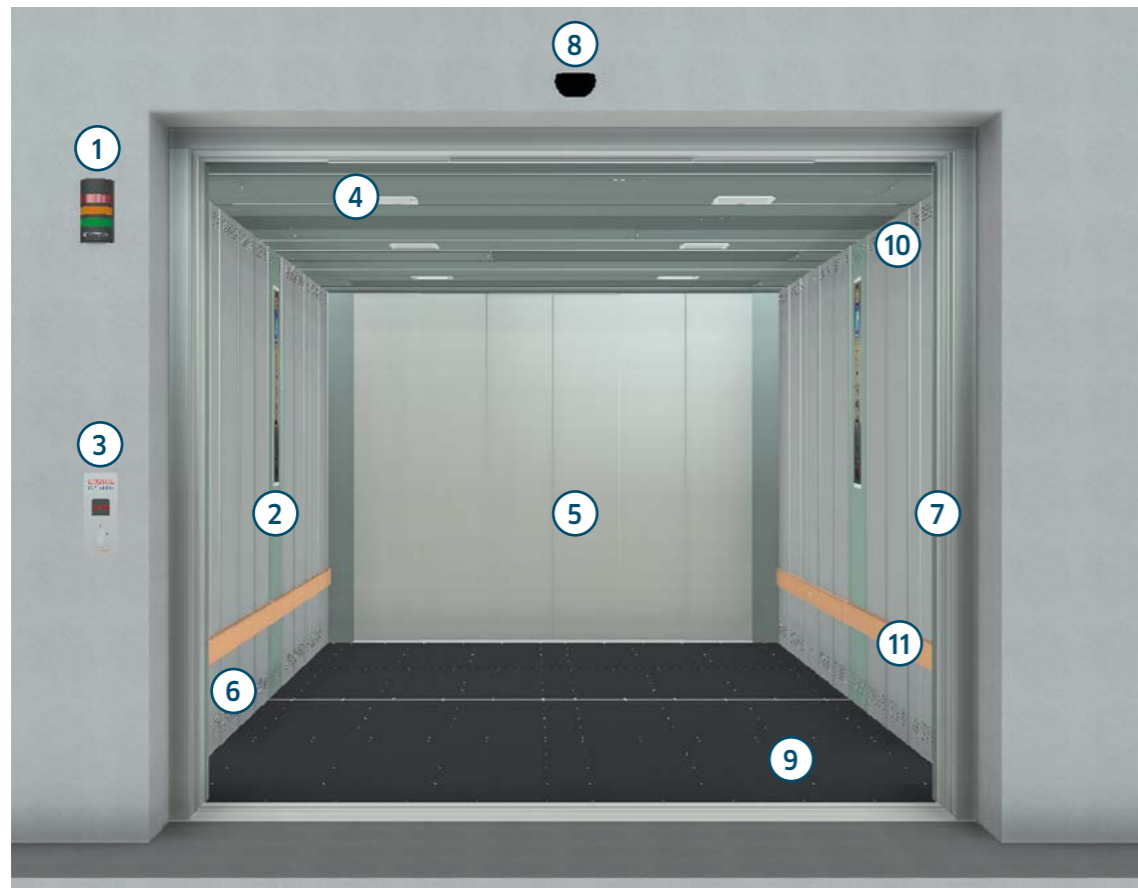


## INTERNAL INSULATION

INSULATION - FIGURES APPLY TO OPTION 1 AND OPTION 2







LEGEND

- |                                                    |                                     |
|----------------------------------------------------|-------------------------------------|
| 1. Signal lights (IP65)                            | 6. Light barriers for car detection |
| 2. Operating panel including positioning indicator | 7. Light grid in entry area         |
| 3. Call button panel                               | 8. Radar entrance monitoring system |
| 4. LED ceiling light panel                         | 9. Cabin floor                      |
| 5. Lift doors                                      | 10. Cabin ceiling/cabin walls       |
|                                                    | 11. Deflector strips                |

1. SIGNAL LIGHTS (IP65)

The availability of the lift is simply displayed to users in colour via LED signal lights, preventing unnecessary manoeuvring and traffic disruptions. The signal lights are installed in a clearly visible position in front of the shaft doors at every stop. The traffic light has an IP protection rating of IP65 and is therefore protected against the ingress of dust and water.

Meaning of the various signal lights:

**All signal lights are out - lift is "ready"**  
Lift is stationary at parking level.  
The lift can be called at any time.

**Signal light flashes red - lift "occupied"**  
Clear the entrance area/cabin occupied.

**Signal light illuminates red - lift "coming"**  
Cabin is empty, call is being processed.

**Signal light illuminates green - "Enter"**  
Door fully open, vehicle may enter.

2. OPERATING PANEL INCLUDING POSITIONING INDICATOR

As a rule, two cabin operating panels are installed in our TRAFFICO® and CARRICO® car lifts. The cabin operating panels are made from stainless steel and are integrated into the side walls of the cabin. The diagonal alignment means that it is always easy for drivers to operate the panel from their vehicle.

Positioning indicators (2) are integrated into our cabin operating panels as standard. If one of the two directional arrows of the positioning indicator illuminates, the vehicle must be moved in the direction shown. If the correct position is reached, the directional arrow goes out and the "STOP" panel illuminates. The doors then close automatically and the lift travels to the stop selected by the operator.

For systems with only two stops, fully automatic travel is standard. This means that the driver does not have to select the stop; instead, the desired stop is automatically approached once the doors close. For systems with more than two stops, the lift begins to move once the floor button (3) has been selected or via a handheld transmitter.

Once the destination floor has been reached, the doors open automatically in both cases and the directional arrow pointing in the direction of the exit illuminates.

In addition, a 7" large display (1), emergency call button (4), "Door open" button (5) and key switch (6) [to be operated by the respective caretaker] are installed as standard.



3. CALL BUTTON PANEL

In the TRAFFICO® and CARRICO® car lifts, the call button panels are made of stainless steel and are always on the left-hand side of the door. The outside panel in the floor area has an IP protection class of IP54.

If the lift can be accessed from outdoors, the function of the call button is replaced by a key switch (2). It is also possible to call the lift via handheld transmitters functioning as a wireless remote control system, ceiling pull switches or operator consoles on the respective parking levels. The light field (1) shows the status of the elevator. If the elevator is in use and is therefore not available, this is indicated by means of "occupied" in the light field.



## LIFT CABIN

### 4. LED CEILING LIGHT PANEL

Square, energy-saving LED panels are installed in our car lifts as standard. The LED panels in the cabin ceiling ensure high-quality, long-lasting illumination. In addition, LEDs reduce energy consumption and have a service life ten

times longer than that of conventional fluorescent lamps. The light is 840 neutral white and the colour temperature is 4.000 K. Each LED panel has an output of 18 W and a light current of 1.200 lm.

### 5. LIFT DOORS

Our lift doors are manufactured by a well-known German manufacturer and fulfil the requirements of the EN 81-58 standard. Our doors are therefore suitable for installation in fire-resistant shafts in accordance with DIN 4102.

powder coating for outdoor use. On request, we can offer you the powder-coated steel plate variant or a stainless steel variant.

The 4 or 6-part central opening telescopic sliding doors are provided with a hot-dip zinc-magnesium coating by default and thus offer a very high level of corrosion protection. We always recommend using an additional

For installation in confined spaces, we can offer you our lamella sliding doors as a space-saving alternative. Our lamellar sliding doors are made of aluminum and powder-coated in RAL 9006 as standard. All common RAL colors are possible on request.

### 6. LIGHT BARRIERS FOR CAR DETECTION

The light barriers detect the exact position of the vehicle. The positioning display (see point 2. *Cabin panel incl.*

*positioning display*) guides in the correct position with directional arrows.

### 7. AND 8. LIGHT GRIDS IN ENTRY AREA AND RADAR ENTRANCE MONITORING SYSTEM

Light grids between the cabin and shaft doors as well as the radar entrance monitoring system prevent the doors

of the lift from closing when a vehicle is driving into the lift cabin.

### 9. CABIN FLOOR

The cabin floor is manufactured from a smooth steel sheet or steel sheet with lug pattern (or optionally an aluminium sheet with lug pattern) or can be finished with a two-component anti-slip coating if desired. This is an epoxy-resin-based, solvent-free, slip-resistant coating that is sprinkled and sealed with quartz sand with a grain size of 0,3-0,8 mm. The same cabin flooring used for our PEGASOS®

car lift can also be used for our TRAFFICO® and CARRICO® solutions. This flooring features extruded aluminium sections with a transversely profiled surface. Using aluminium profiles for the cabin floor as well as skirting and a cabin sill made of stainless steel ensures effective corrosion protection.

### 10. CABIN CEILING/CABIN WALLS

The standard TRAFFICO® and CARRICO® designs impress with visually appealing features. The cabin walls and cabin ceiling are manufactured from Sendzimir-galvanised sheet steel and are constructed using a lamellar construction

method. The structure and Sendzimir galvanisation process offer adequate protection against weather conditions. These are also available painted as well as in stainless steel.

### 11. DEFLECTOR STRIPS

Our deflector strips are made from multi-layered hardwood boards or plastic and reliably protect the lift cabin

and vehicle doors against damage.

## MACHINE ROOM

The switch cabinet and drive unit are located in the lift machine room. As a rule, the machine room is to be located adjacent to the lift shaft. The main room and lift shaft are connected via hydraulic lines and electrical cables, which can be routed through a wall opening.

Alternatively, it is also possible for the machine room to be located up to 12 m from the lift shaft. In this case, following consultation, two empty conduits are to be provided on-site as the connection between the machine room and lift shaft.

The dimensions, geometry and position of the access door to the machine room can be set in accordance with the client's requirements. Three options are shown as examples. Depending on the drive output and set-up selected (e.g. oil cooler), the clear inner dimensions of the machine room can vary (at least 4-5 m<sup>2</sup>). The machine

room must be dry and well ventilated. The room temperature must be 10°C-30°C. If required, an oil cooler and an oil-fired heating system can be installed.

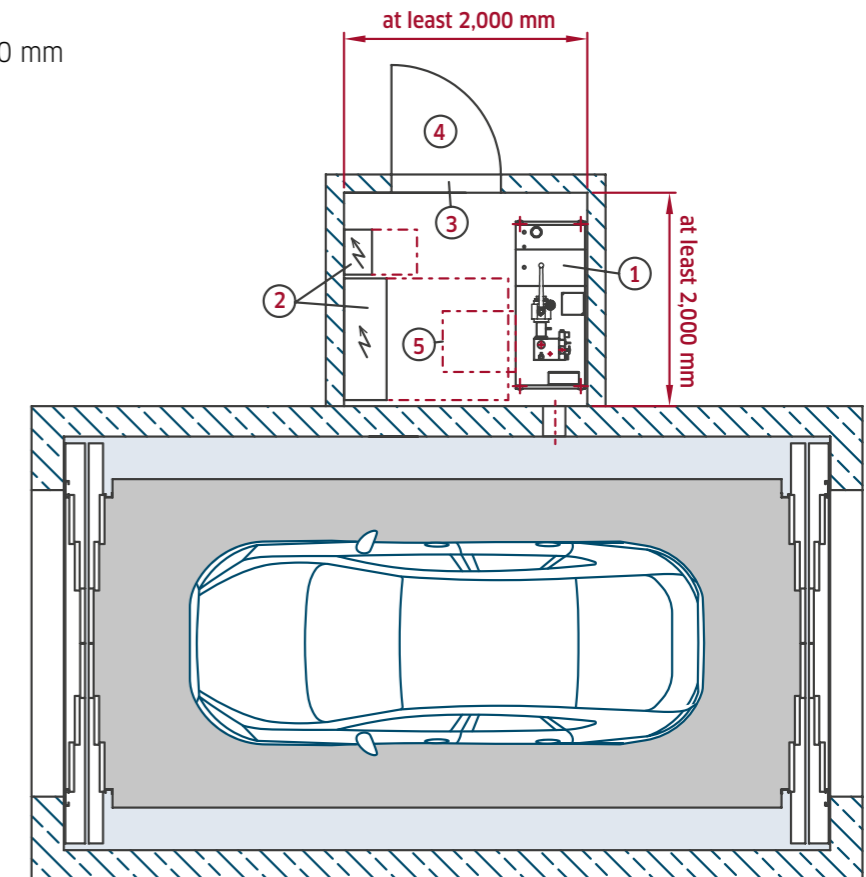
Other space-saving options can be implemented if a machine control cabinet is fitted (see options 4 and 5). The drive unit and control system are located in the machine control cabinet. If a machine control cabinet is fitted, a separate machine room is no longer necessary. The machine control cabinet can also be set into the shaft wall so that edges do not protrude from the shaft.

However, the use of a machine control cabinet is only advisable for designs with speeds up to max. 0.15 m/s and solutions intended for a generally low number of trips.

### OPTION 1 - MACHINE ROOM

Machine room  
Surface area: min. 2.000 mm x 2.000 mm  
Height: min. 2.100 mm

1. Drive
2. Control system
3. Oil sill
4. Door opens outwards
5. Required clearance

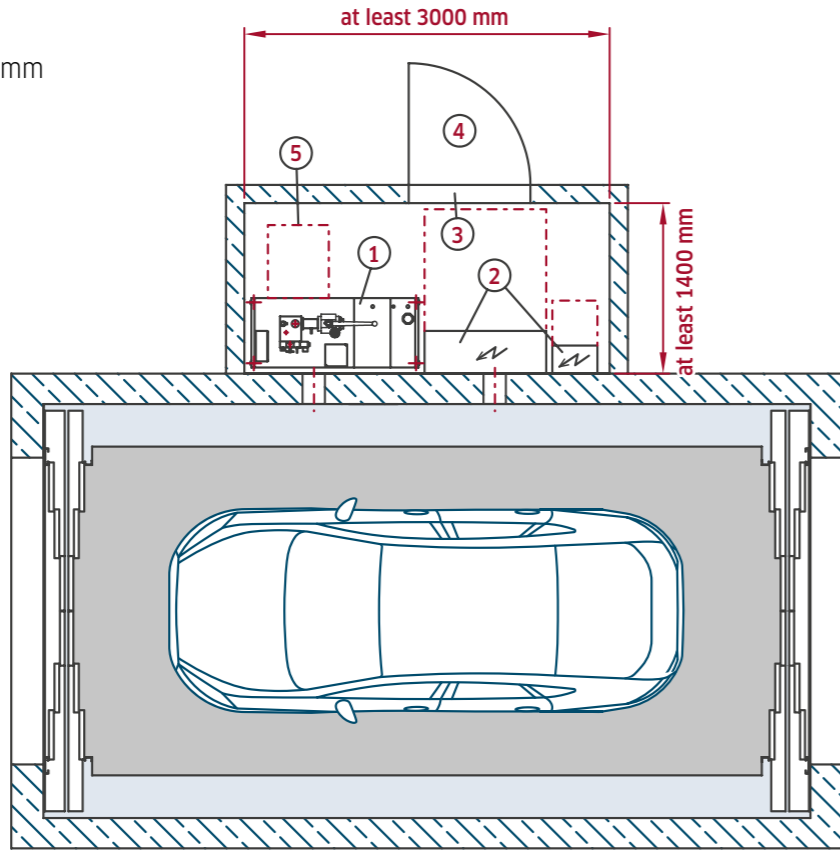


## MACHINE ROOM

### OPTION 2 - MACHINE ROOM

Machine room  
Surface area: min. 3.000 mm x 1.400 mm  
Height: min. 2.100 mm

1. Drive
2. Control system
3. Oil sill
4. Door opens outwards
5. Required clearance



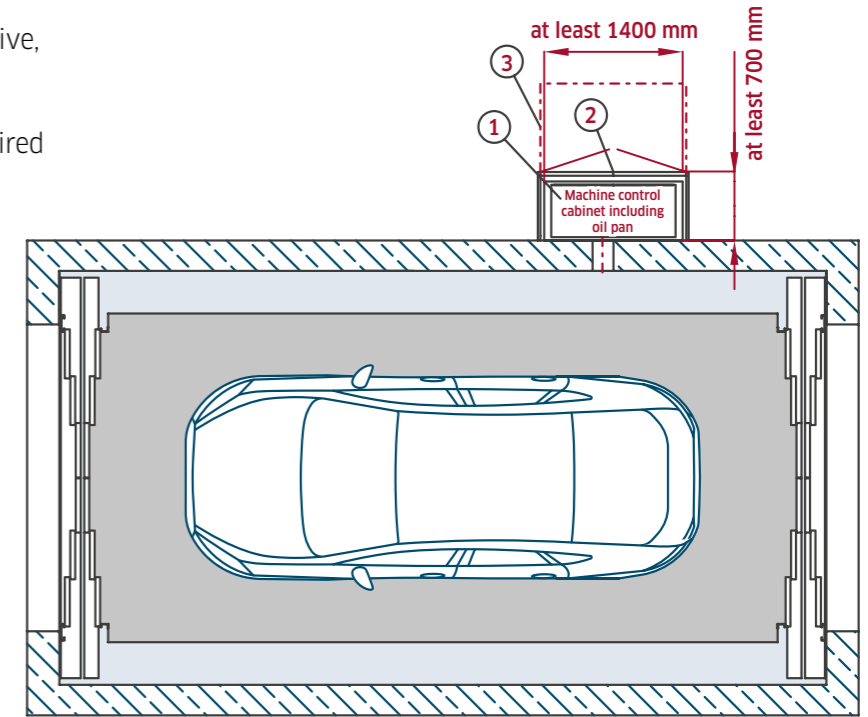
## MACHINE ROOM

### OPTION 4 - MACHINE CONTROL CABINET (ONLY POSSIBLE FOR CARRICO®)

Machine control cabinet  
Surface area: min. 1.400 mm x 700 mm  
Height: min. 2.100 mm

1. Machine control cabinet with drive, control system and oil pan
2. Door opens outwards
3. At least 700 mm clearance required

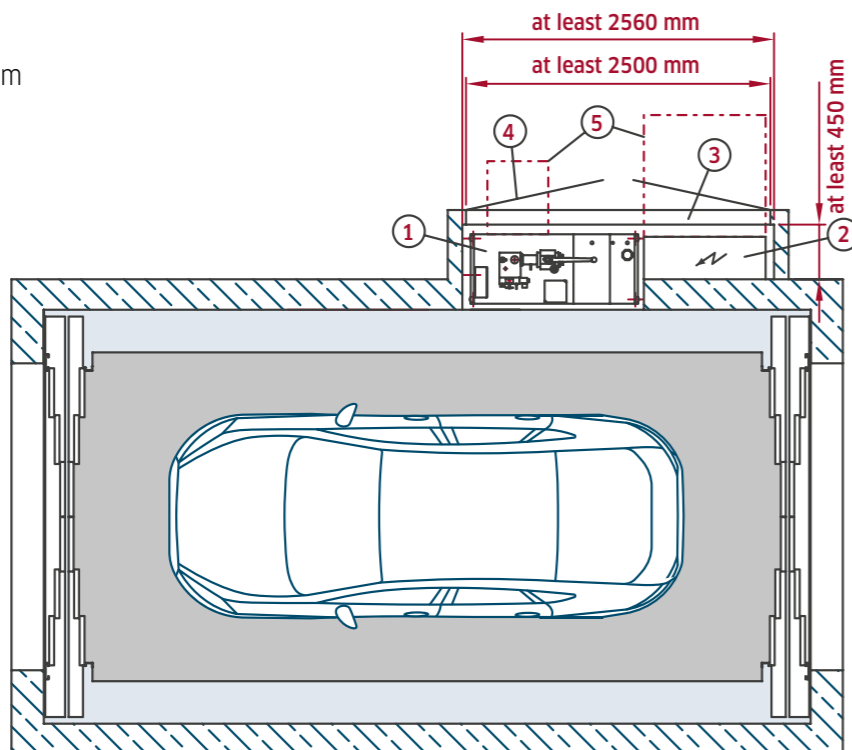
(Only possible for speed up to 0,15 m/s.)



### OPTION 3 - MACHINE ROOM

Machine room  
Surface area: min. 2.560 mm x 450 mm  
Height: min. 2.100 mm

1. Drive
2. Control cabinet
3. Oil sill
4. Door opens outwards
5. At least 700 mm clearance required

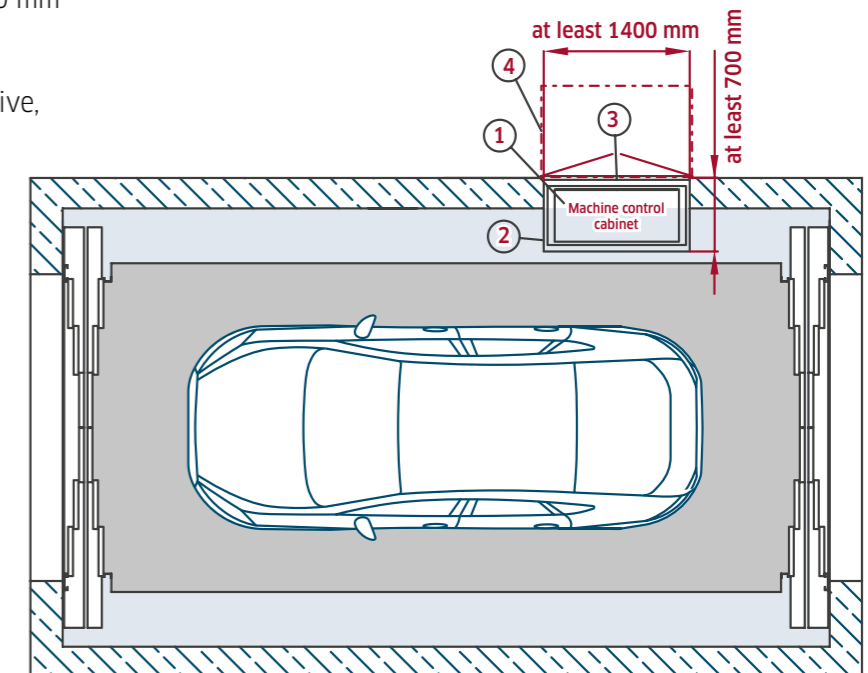


### OPTION 5 - MACHINE CONTROL CABINET (ONLY POSSIBLE FOR CARRICO®)

Machine control cabinet  
Surface area: min. 1.400 mm x 700 mm  
Height: min. 2.100 mm

1. Machine control cabinet with drive, control system
2. Platform
3. Door opens outwards
4. At least 700 mm clearance required

(Only possible for speed up to 0,15 m/s.)



## NOMINAL LOAD/DRIVE TYPES

Our hydraulic car lifts are designed for a nominal load of up to 3.500 kg. The lift is primarily approved for the transportation of passenger cars with/without passengers. The maximum axle load is set to 1.750 kg. Transporting lightweight items (such as rubbish containers, a bicycle) is also permitted. Greater nominal loads and cabin dimensions are always possible on request.

In the standard design, the hydraulic units are run with a cost-effective soft-start system (restriction of start-up currents) and operate with the current values shown as guide values in the table.

The current data specified in the table must be taken into account in advance when calculating the power requirement for rating the service connections. Optionally, a superior, frequency-controlled drive can also be used.

Based on the type test, the nominal speed of the CARRICO® car lift is limited to maximum 0,15 m/s.

### CAR LIFT DRIVE VALUES (NOMINAL LOAD: 3.500 KG)

Lifting height	Speed	Motor output	Nominal current*	Rated fuse current
up to 3.000 mm	0,15 m/s CARRICO®	15 kW	36 A	50 A
	0,30 m/s TRAFFICO®	33 kW	74 A	80 A
up to 6.000 mm	0,15 m/s CARRICO®	16 kW	40 A	50 A
	0,30 m/s TRAFFICO®	33 kW	76 A	80 A
	0,45 m/s TRAFFICO®	47 kW	109 A	125 A
	0,60 m/s TRAFFICO®	77 kW	152 A	160 A
up to 9.000 mm	0,15 m/s CARRICO®	16 kW	38 A	50 A
	0,30 m/s TRAFFICO®	33 kW	82 A	100 A
	0,45 m/s TRAFFICO®	47 kW	105 A	125 A
	0,56 m/s TRAFFICO®	60 kW	134 A	160 A
	0,60 m/s TRAFFICO®	80 kW	178 A	200 A
up to 25.000 mm	0,15 m/s CARRICO®	20 kW	42 A	50 A
	0,30 m/s TRAFFICO®	47 kW	98 A	100 A
	0,45 m/s TRAFFICO®	60 kW	125 A	125 A
	0,60 m/s TRAFFICO®	80 kW	178 A	200 A

\*Current at full load, technical changes possible, cabin: 5,8 m x 2,8 m, special design available on request

## NUMBER OF TRIPS PER HOUR

The number of trips results from the travel time, the door running times and the time taken for a vehicle to enter and exit the cabin. However, the actual number of vehicles that can be moved in a direction of travel per hour per lift system depends on a wide range of factors. The key factors that have a significant impact on the number of trips per hour are the lifting height, nominal speed and number of stops. Due to varying nominal speeds, the travel time of the TRAFFICO® car lift differs.

Other influencing factors include vehicle trajectories on entry and exit, the clear inner cabin and door widths and repeated use of the lift by a group of users in contrast to those who use the lift only once. Automatic vehicle detection and thereby automatic lift travel (only if there are two stops) is hugely convenient and has a positive impact on the number of trips. Whether the car lift is equipped with doors on both sides - a front- and rear-opening design

- or whether users have to reverse out of a front-opening lift also plays a role. In light of this, all the factors must be considered as a whole; just focusing on the nominal speed is not productive from a technical and economic point of view.

Higher speeds always entail higher costs.

Several car lifts operated via a group control system enables the volume of traffic in one direction of travel to be handled much more efficiently.

**If you would like to optimise your traffic analysis, please get in touch.**

### CYCLE TIMES - TRAFFICO®/CARRICO®

Lifting height in mm	Speed m/s	Door opening times in s	Door closing times in s	Pure travel time in s	Entrance/exit time in s	Total cycle time in s	Vehicles per hour
3.000	0,15	5	7	24	every 15	102	35
	0,3			14		82	44
6.000	0,15			44		142	25
	0,3			24		102	35
	0,45			17		89	41
	0,6			14		82	44
9.000	0,15			64		182	20
	0,3			34		122	30
	0,45			24		102	35
	0,56			20		94	38
	0,15			171		395	9
25.000	0,3			87		229	16
	0,45	60	173	21			
	0,6	46	145	25			

The basis for the calculation for TRAFFICO®/CARRICO®: nominal load 3.500 kg, door width 2,5m, front- and rear-opening design, two stops.

Calculating "total cycle time" and "vehicles per hour": The values specified apply to the transportation of a vehicle in one direction of travel based on average empirical values. User profiles can vary. An increase in door width leads to an increase in cycle times.

A cycle is defined as follows: lift door opens - vehicle enters (approx. 15 s) - lift door closes - lift travels to uppermost stop (ground floor) - lift door opens - vehicle exits (approx. 15 s) - lift door closes - lift travels back to undermost stop (basement) - lift ready for next vehicle.

## NOISE INSULATION/FIRE PROTECTION

In order to protect the occupants from health hazards, the legislator has laid down the minimum requirements for sound insulation in buildings with exact decibel values for each type of building and room in DIN 4109. In addition, VDI Guideline 4100 applies to building construction; it specifies sound insulation levels from normal to high comfort requirements in residential buildings.

When lifts are operated, noise is generated that is introduced into the building as airborne and structure-borne sound. We will be happy to support you and your building physics planner as early as the planning phase in order to coordinate the topic of sound insulation with you. In order to achieve the limit values for adjacent rooms requiring protection, measures must be taken on the building side to reduce noise propagation, e.g. through optimised floor plans or double-shell construction.

In order to provide you with the best possible support in reducing airborne and structure-borne noise, we offer you several Silence Packages. The use of our Silence Packages can support the effect of the construction measures. For this purpose, insulation elements are used on selected components, e.g. on the lifter as well as the corresponding brackets. Furthermore, pulsation dampers are used between the lifter and the unit. The use of the silence packages can have an effect on the required shaft geometries (e.g. raised shaft head/shaft pit).

### SILENCE PACKAGE I & II - FOR HYDRAULIC SYSTEM

These two Silence Packages include two upgrades/measures that serve to reduce the airborne and structure-borne noise of the hydraulic drive and its system components.

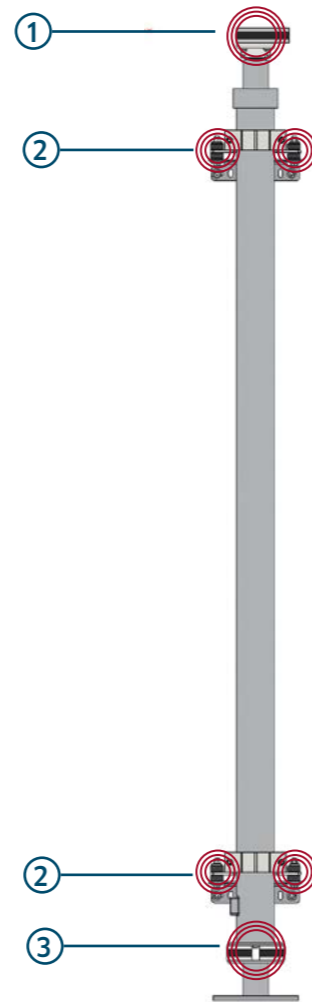
### SILENCE PACKAGE III - WHISPER ROLLERS FOR TELESCOPIC SLIDING DOORS

This Silence Package includes the use of whisper rollers for our telescopic sliding doors. This allows the sound emission to be reduced from approx. 54 dB(A) to approx. 49 dB(A) (measured under laboratory conditions according to DIN 8989 requirements).

Further information and recommendations, as well as effects on the structural dimensions, can be found in the equipment options section of the individual Silence Packages.

If fire protection has to be taken into account in your planning, this is no problem with our TRAFFICO® & CARRICO® car lifts. Our lift doors are from a well-known German manufacturer and comply with EN 81-58, which means that the car lift can be installed in fire-resistant shafts in accordance with DIN 4102.

Depending on the requirements, various performance criteria such as room closure (E), thermal insulation (I) and radiation (W) with corresponding classification times can be selected for the landing doors. As standard, our sliding landing doors are approved according to EN81-58 with classification E120. The heat transfer coefficient (U-value) for our telescopic sliding doors is 2,86 W/(m²K). For the fire protection doors, the U-value can be reduced to 0,85 W/(m²K) by using rock wool. Furthermore, the Carrico & Traffico car lifts are equipped with a static fire control system. This means that the elevator drives directly to a previously defined evacuation stop and remains there with the doors open. The command comes from an on-site fire alarm system. The Traffico car lift according to EN 81-20 complies with EN 81-73. At the Carrico this is possible on request.



1. Pair of MEGI-Rails between jack and support frame

2. Vibration damper between the jack and the bracket

3. Pair of MEGI-Rails between jack and jack support

## OVERVIEW OPTIONS

Various additional options are available for our CARRICO® and TRAFFICO® hydraulic car lifts. If you have any further wishes regarding the equipment, please contact us.

### SOUND INSULATION

By using our Silence Packages, the on-site measures can be supported in their effect.

#### Silence packages I & II - for the reduction of structure-borne noise on the drive system

By using our Silence Packages 1 or 2, the on-site measures can be supported in their effect. For this purpose, insulation elements are used on selected components, e.g. on the siphon as well as the corresponding brackets. Furthermore, pulsation dampers are used between the lifter and the unit. The use of the Silence packages can have an effect on the required shaft geometries (e.g. raised shaft head/shaft pit). Insulation is not possible in the area of doors, load hooks, HALFEN rails, fastening points and other lift parts. Insulation can only be applied after the lift has been installed. For the shaft ventilation / smoke extraction, appropriate measures for the required sound and heat insulation must be provided on site. Close openings with sound-absorbing material (mineral wool or similar).

#### Silence packages I

- Pump-motor unit isolated - swinging elements under the pump-motor unit tank
- Motor - pump combination decoupled with vibrating elements in the tank
- Control cabinet with special, insulated suspension of the mounting plate
- Pulsation damper in the hydraulic unit.

#### Silence packages II

- Insulation of the hydraulic jacks to the jack support / pit bottom - via MEGI - elements.
- Insulation of the hydraulic brackets to the shaft wall - fastening via rope spring buffers.
- Insulation of the hydraulics between the ball head and the support/crossbeam - via MEGI - elements.
- Hose clamps and hydraulic line - insulated against pit bottom - via rubber inserts.
- Door control for more precise and "softer" driving characteristics.
- Additional external pulsation damper on hydraulic unit.
- Design, supply and install.
- Increased space requirement min. approx. 100 - 150 mm in the area of the shaft head.

#### Silence Package III - Whisper rollers for telescopic sliding door

This Silence Package includes the use of rollers for our telescopic sliding doors, so-called whisper rollers. These can be used in building projects with special acoustic requirements with regard to sound emission. The running surfaces are coated with Vulkolan and are optimally adapted to the running track profile. As a result, the sound emission when opening and closing the landing doors can be reduced from approx. 54 dB(A) to approx. 49 dB(A) (determined on a 2-leaf, centrally opening door, 900x2100 mm in our supplier's soundproof room, according to the requirements of DIN 8989).

#### Note on sound emissions:

We expressly point out that even with the installation of our Silence Package, the sound pressure level LAF max. ≤ 30dB(A) required in accordance with DIN 4109 for residential rooms requiring protection is not currently achieved with single-shell construction of the shaft masonry. Architects and structural contractors must ensure compliance with the relevant guidelines and standards, e.g. DIN 4109. In order to achieve increased sound protection for e.g. rooms requiring protection, we recommend a double-shell construction of the lift shaft to prevent structure-borne sound transmission.

## OVERVIEW OPTIONS

### OPERATION:

#### Hand-held transmitter Radio remote control

The car lift is additionally equipped with a radio remote control. The radio remote control can be carried directly in the car. The user can request the lift without having to leave the car.

\*) max. cable length 10 m, cable length: 2m. If special fixings are required due to the construction situation, these must be provided by the customer.

#### App - Control

With our smartphone app solution users can call and operate car lifts via smartphone. The integrated administration tool lets you easily add or manage users and restrict or grant access saving time and cost. Up to 1,000 users can be created per elevator. As a completely Bluetooth-based system, the app works independently of any internet connection. Ranges of up to 30 meters from the elevator doors are possible with the app.

[Link to the smartphone app](#)



#### Pull switch

- Pull switch with console for ceiling mounting
- Switch with pull cord 2m long
- Plastic tube, electrical connection cable\* 10m from terminal box in shaft

### PLANNING:

#### Creation of the factory planning

At the customer's request, a factory planning of the installation can be prepared before the main order is placed. This includes all relevant information for the implementation of the project or the installation of the system and a schematic representation of the lift shaft with all lift components located in the shaft. In general, we recommend that you have a construction plan drawn up at an early stage of your project.

The big advantage:

This clarifies all relevant information/requirements for the installation and operation of the lift. The costs of the works planning will be credited to you in full when you place the order for the main contract.

The following points are considered/shown in the standard work planning:

- Schematic representation of the lift shaft, control cabinet on the shaft.
- All lift components located in the shaft
- Load hook
- Door openings and doors
- Verbal reference to shaft smoke extraction systems
- Installation scaffolding
- Forces acting
- Electrical connection values
- Machine room according to planning guidelines Variant 1 to 5

### INSTALLATION:

#### Load hooks for dowelling

The use of load hooks is always necessary for the assembly of the car lift. On request, we supply 2 load hooks for dowelling with rope eye incl. delivery and assembly and consideration of the acting forces from the works planning.

#### Assembly scaffolding

The use of assembly scaffolding is always necessary for the assembly of the car lift. On request, we can supply you with the required assembly scaffolding with scaffolding shoes for dowelling, including delivery, assembly, disassembly and removal.

## OVERVIEW OPTIONS

### FIRE PROTECTION:

#### Fire protection doors according to DIN EN 81-58

On request, the telescopic sliding doors can be ordered in accordance with the fire protection specifications of EN 81-58. The following fire protection classes are possible: E120, EW60, EW 30, EI60.

#### Full maintenance of lift system

- Maintenance frequency: according to manufacturer's specifications (2x or 4x per year)
- According to DIN13015
- Test of safety functions and system functions, adjustment work, lubrication maintenance and cleaning of operational contamination.
- Spare parts and repair service (only for reasons for which Lödige is responsible)
- Option for warranty extension

### CABIN EQUIPMENT

#### Cabin floor

Different versions of the cabin floor are optionally available.

- Extruded aluminum profiles\*\*
- Smooth sheet metal primed RAL 7032\*\*\*
- Aluminum bulb plate\*\*\*
- V2A stainless steel chequer plate\*\*\*I
- 2-component anti-slip coating\*, \*\*\*

\* Epoxy resin-based, solvent-free and non-slip coating, is sprinkled with quartz sand with a grain size of 0,3-0,8 mm.

\*\* Particularly suitable for difficult construction site situations with regard to space conditions, as this variant is only installed in the lift shaft on site.

\*\*\* Platform division possible.

#### Platform division (longitudinally divided)

On request, a platform division can be made in longitudinal direction. This is particularly recommended in difficult construction site situations, with regard to space conditions, in order to ensure the insertion of the platform into the lift shaft. This option is not required for the variant with extruded aluminum profiles.

#### Deflector rails

On request, deflector strips made of hardwood or plastic can be arranged on the car side walls in a 1-row or 2-row arrangement. This prevents damage to the lift cabin and your car.

#### Painted car ceiling and walls

Optionally, the cabin ceiling and cabin walls can be painted. You can select the colour you require from the RAL Classic colour table.

#### Powder-coated cabin ceiling and walls

Optionally, the cabin ceiling and cabin walls can be powder-coated. You can select the colour you require from the RAL Classic colour table.

## OVERVIEW OPTIONS

### REDUCTION OF THE SHAFT DIMENSIONS

#### Reduced shaft pit

At the customer's request, the depth of the shaft pit can be reduced with the aid of defined and type-tested measures/components. The reduction of the shaft pit depth depends on the head. A reduction of the shaft pit may cause changes in the other shaft dimensions, especially the shaft head dimension. For this reason, an internal technical inspection is always necessary for this option in order to determine the effect on the shaft head.

#### Reduced shaft head

In order to accommodate the lift in the building structure (e.g. staggered storey), the shaft head dimension must be significantly reduced in some cases. In case of inserted insulation at the shaft ceiling, the shaft head height applies from the OKFF to the lower edge of this insulation. The height of the shaft head depends on the headroom, the planned shaft pit and the Silence package.

At the customer's request, the height of the shaft head can be reduced with the help of defined and type-tested measures/components. A reduction of the shaft head may result in changes to the other shaft dimensions, especially at the shaft pit. Therefore, an internal technical inspection is always necessary for this option in order to record the effect on the planned shaft pit.

### DRIVE

#### Oil cooler

If higher nominal speeds and a high number of trips are required (e.g. 30 trips per hour or more), it may be necessary to use an oil cooler.

- Possible heat dissipation from the unit max. 8,5 kW\* (alternatively 13 kW)
- Required cooling capacity approx. 1,2 kW for 30 trips/hour
- Maximum cable length 2 m to the unit - Height max. 800 mm above oil level in the unit
- Room temperature max. 30° C

\*) Sufficient cross-ventilation of the engine room must be provided by the customer.

#### Tank heater

If the specified ambient temperature in the machine room cannot be maintained, we recommend the use of a tank heater.

- Oil heating, incl. thermostat (700 W / 230 V) in
- hydraulic unit

#### Machine cabinet (for CARRICO®)

A space-saving version of the machine room is available for the CARRICO® car lift. By using this option, the drive unit and the control unit can be accommodated in a compact machine cabinet (see variants 4 and 5). A separate machine room is no longer required. The machine cabinet can also be recessed into the shaft wall so that you do not have a protruding contour outside the shaft. The big advantage is that you save approx. 4 - 5 m<sup>2</sup> of required space for a machine room.

#### Higher nominal speeds

Nominal speeds of up to 0.6 m/s are no problem for our TRAFFICO® car lift. We will be happy to advise you on the selection of the suitable nominal speed, which should be chosen taking into account the conveying height and the desired throughput/positions.

## OVERVIEW OPTIONS

### DOORS

#### Slatted sliding doors (cabin & landing door)

The electric lamella sliding door is particularly suitable for confined installation situations. The following version can be offered as an alternative to our telescopic sliding doors:

- Automatic louvre doors, centrally opening
- 2 cabin and 2 landing doors: Slat surface aluminum powder-coated RAL 9006
- Door threshold/guide profiles made of U-steel, primed.
- Door frames made of sendzimir-galvanised sheet metal as connection to the structural opening, visible fastening with nail dowels in the wall reveal.
- Car door drive with direct current control, incl. door lock.
- Landing doors do not fulfil any fire protection requirements according to EN 81-58!

#### Threshold heating

Self-limiting heating tape for landing door thresholds located outside\* for safe operation of the lift system during the frost period.

### SERVICE

#### Standard maintenance lift system

- Maintenance frequency: 4x per year
- According to DIN13015.
- Test of safety functions and system functions, adjustment work, lubrication maintenance and cleaning of impurities caused by operation.

#### Full maintenance lift system

- Maintenance frequency: 4x per year
- According to DIN13015
- Test of safety functions and system functions, adjustment work, lubrication maintenance and cleaning of operational contamination.
- Spare parts and repair service (only for reasons for which Lödige is responsible)
- Option for warranty extension

### MORE OPTIONS

#### Key safe

In case of an emergency, accessibility to the system must be ensured, especially in case of personal rescue. A key safe is required for this purpose. On request, we offer a complete key safe with 3 keys, security card: Series 600 834 EFEFBF and wall anchor.

- Outer dimensions: 145 x 46 mm
- Internal dimensions: 78 x 36 mm

The key safe is installed on site by the customer. A core hole should be drilled for the installation during planning.

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