

Lifts 'made to measure'



A range of lifts that meet the Machinery Directive 2006/42/EC

Quality tailored precisely to your needs – not a luxury with us: just routine.



Technical know-how delivers the all-important advantage.

Whether particular requirements such as minimalist facilities, luxury, the most demanding safety aspects (e.g. explosion hazards), extremely confined spaces or large loads – we respond to your needs. Our adaptable, vertically integrated production system, combined with many years of experience, has made us specialists in lift manufacturing, and this also enables us to supply components or replacement parts very quickly. Our systems are in use worldwide – on ocean-going ships, in river navigation, in hospitals, industrial plants and in private households.

Our adaptability is your advantage!

→ Optimum space utilisation:

- small shaft head dimensions (special safety packages)
- optimum shaft utilisation (custom fabrication)
- small shaft pit depth (10-40 cm, with individual safety packages, depending on the Directive)
- all forces are absorbed by the shaft pit
- no weight-bearing points in the shaft head
- versions without a machine room are feasible

→ Long service life & cost savings:

- motor life: > 20 years (with expected usage)
- oil life: > 10 years
- any ropes are just for direction-change (least wear)
- chains are practically wear-free
- if the cylinder head is kept clean, hydraulic cylinders will last > 40 years
- cost-saving soft starter (instead of inverter)
- no brake wear
- simple installation
- replacement parts are not high-cost items

→ Load capacity:

- approved for earthquake zones
- equipment variants for extreme demands
- no stresses on motor shafts
- extremely high loads are feasible (up to 35 t)

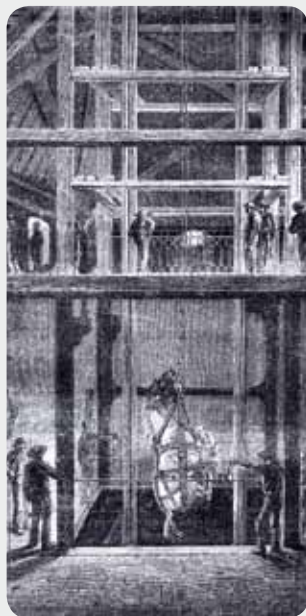
→ Low maintenance requirements:

- simple motor replacement (max. 4 hrs working time)
- control systems customised and open

→ User-friendliness:

- low noise (no "singing" of ropes)
- low accident risk (no pulleys in the shaft head or on the cabin)
- simple emergency release (downwards, via emergency release)

A heavy load is the mother of invention ...



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Goods lift, MRLG



Variant of an MRLB



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Cargo lift for:
goods, vehicles without driver

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Lift for people with disabilities:
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Pavement lift, MRLU

MD 2006/42/EC



Cargo lift

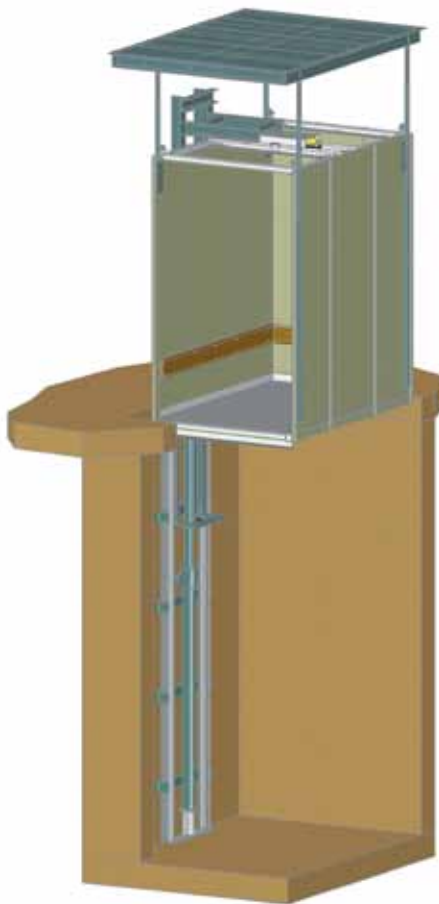
- goods
- vehicle without driver
- trained user group (between lower landings)
- people with disabilities, with/without accompanying person (official acceptance mandatory)
- vehicle with driver

- can be used
- in consultation with TÜV, Dekra, etc.
- is not available



1. MRLU fully raised
2. MRLU half raised, with rather unusual dimensions
3. MRLU fully raised, with optimum utilisation of the cabin volume, control column on the right

Schematic*



Technical data

Shaft frame	possible
Speed (max.)	0.3 m/s (without people), 0.15 m/s (with people)
Travel height (max.)	12 m
Rated load	to suit client
Cabin dimensions	freely selectable
Control units	upper landing - surface-mounted housing IP 65 - flush wall box - control column - lockable recessed-mounting box lower landing(s) - in door jamb - as flush wall box
Loading method	lift truck, manual, hand pallet truck, automated loading
Type of control	calling out of the ground: - from above only, via dead-man control with more than two landings, between lower landings: - call-and-send control from the respective landing
Canopy types	see pages 6-7

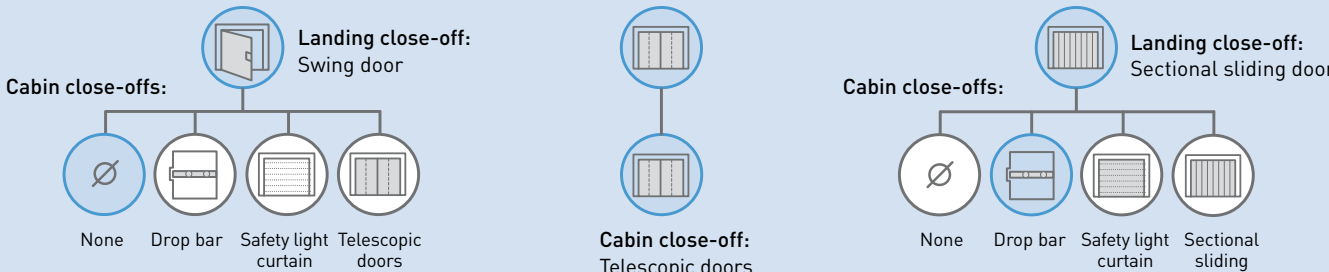
Information on equipment/fitments can be found starting on page 22.

Now you see me, now you don't.

Our busy beaver, specially intended for installation situations where there is no shaft at the top landing, or none is permitted. On the top landing floor, the shaft is covered by a canopy that is lifted up during travel to the top landing.

When closed, this shaft cover can be walked or driven on. Examples of potential installation locations are found outside buildings (in traffic areas), inside buildings (in production or storage areas), and anywhere that a lift shaft at the top landing would simply be in the way.

Possible door combinations



Most common combination More detailed information on the door functions as well as the cabin and landing close-offs can be found on pages 26/27.

*Design example only! Number and type of pistons, type of guides, possible re-direction of rope, etc. are customised for each installation!

Canopy types – pavement lift, MRLU

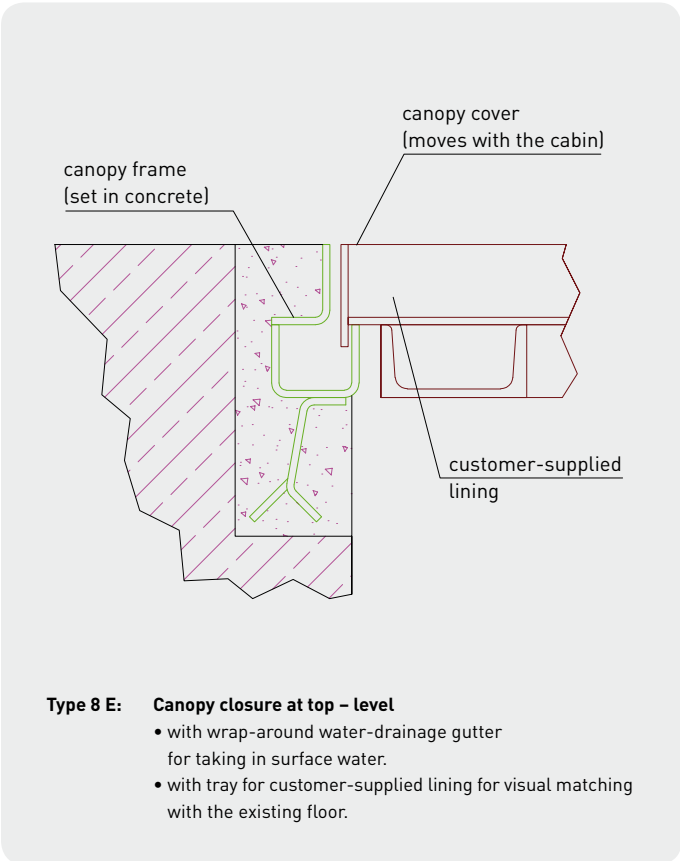
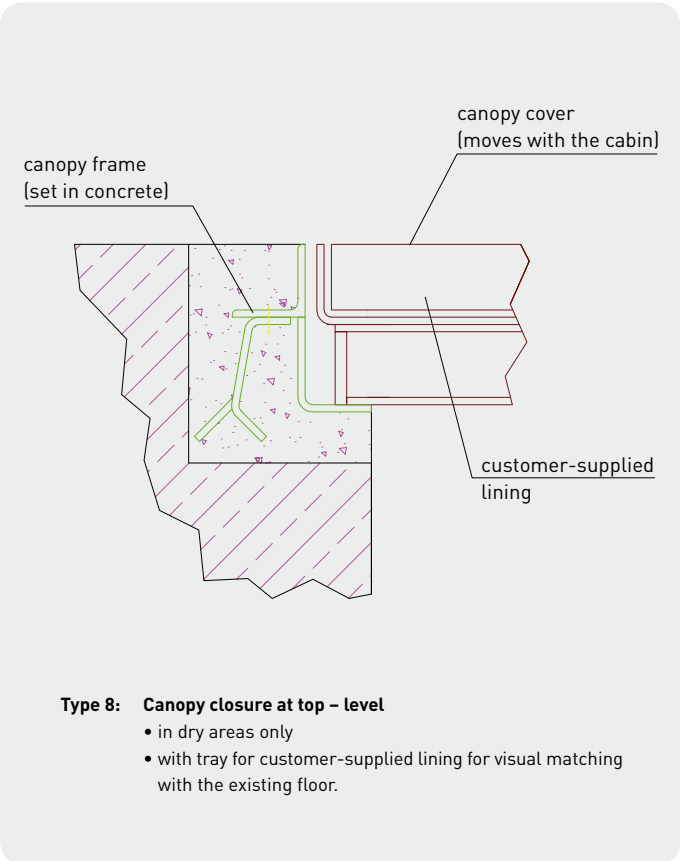
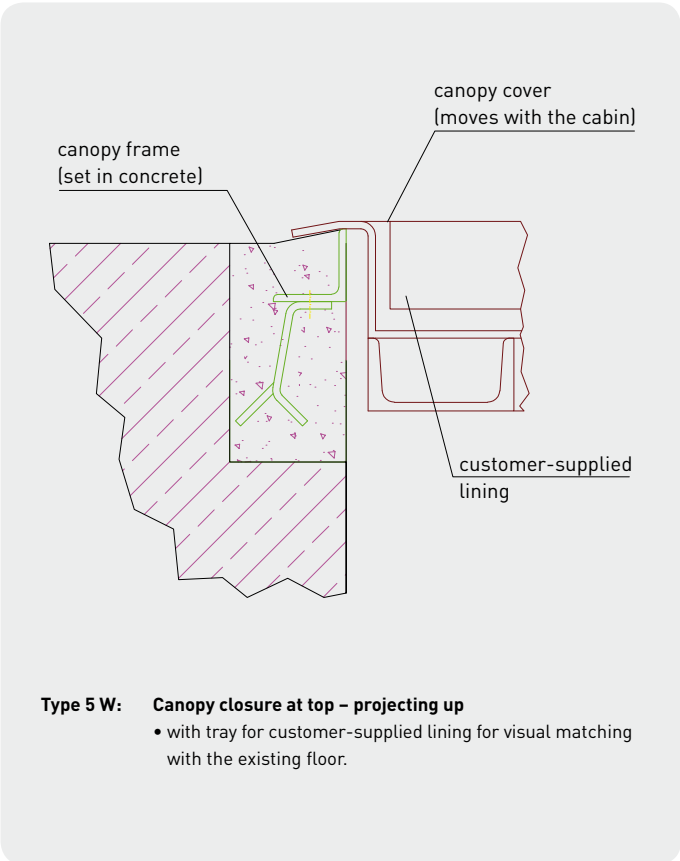
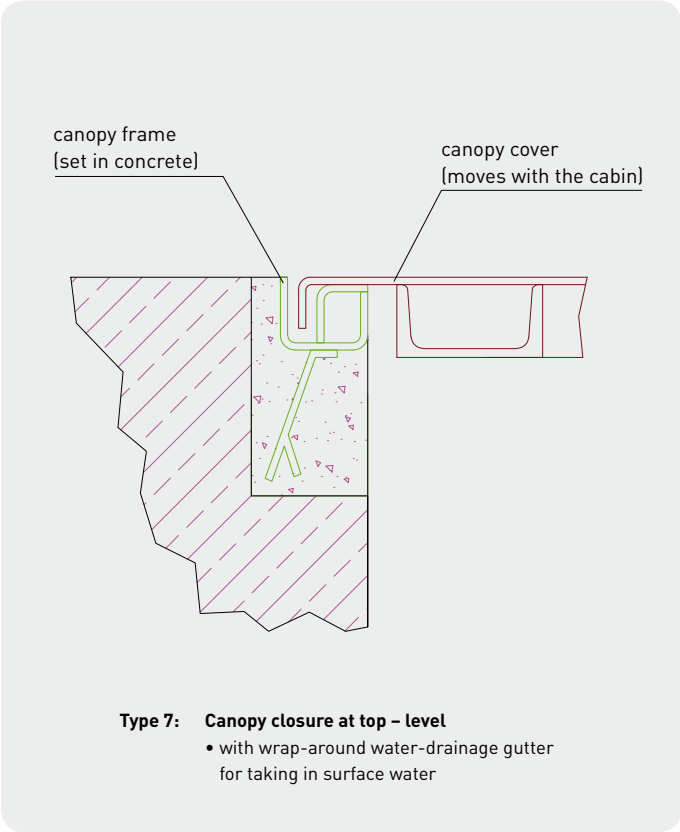
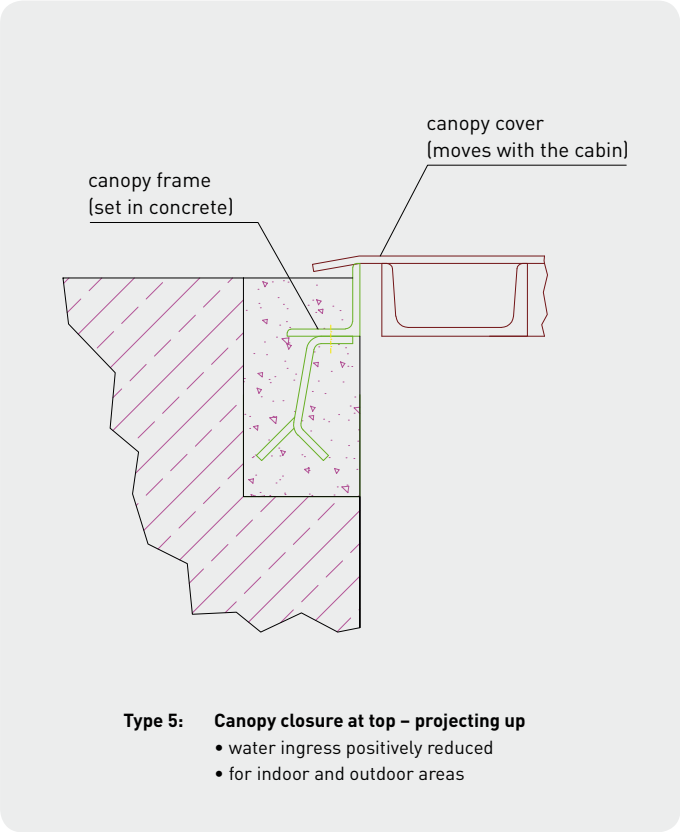
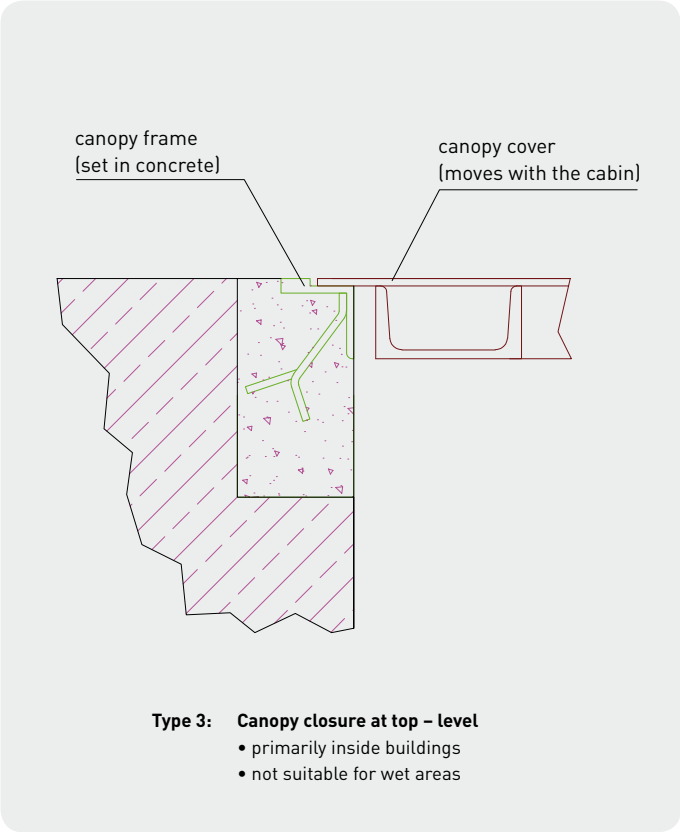
MD 2006/42/EC

Type/finish variants

- primed
- hot-dip galvanised
- zinc-powder primed
- finish-painted as per RAL
- checker plate
- wrap-around water gutter
- tray for customer-supplied lining
- thermally insulated
- wheel loads and custom load rating
- Special designs can always be supplied



The various types



All drawings are schematic illustrations – subject to change.

Goods lift, MRLG

MD 2006/42/EC · Standard: EN 81-31 or EN 81-3 (variations via risk assessment)



Cargo lift

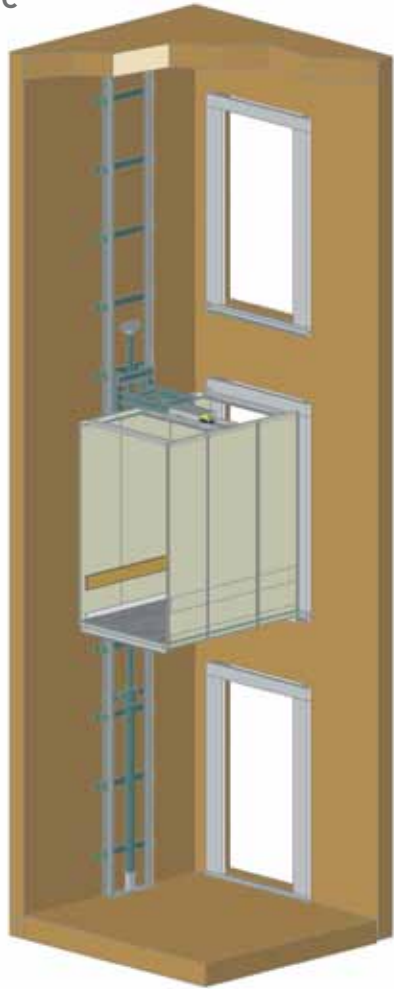
- goods
- vehicle without driver

- can be used
- in consultation with TÜV, Dekra, etc.
- is not available



1. MRLG in stainless steel with door windows and cargo restraint (drop bar)
2. MRLG in stainless steel with stainless steel doors
3. MRLG with cargo restraint (drop bar) and lift-up gate
4. MRLG with powder-coated doors and hardwood bumper strip

Schematic*



Technical data

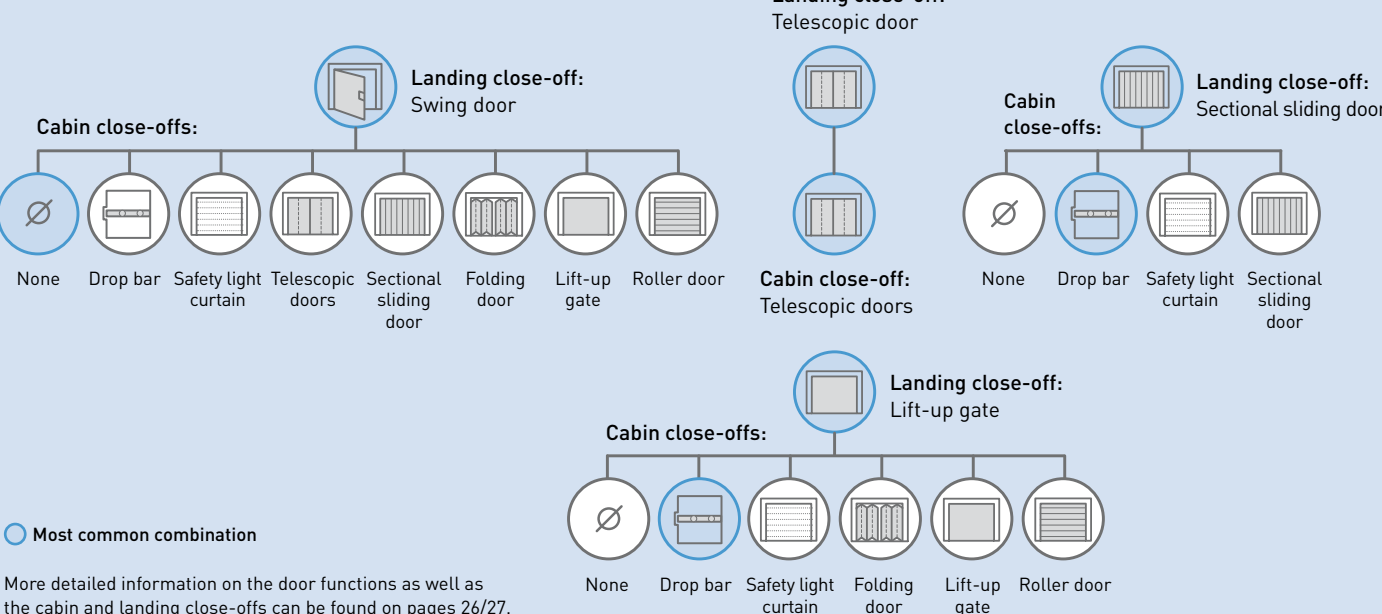
Shaft frame	 possible
Speed (max.)	 0.3 m/s
Travel height (max.)	 25 m
Rated load	 to suit client
Cabin dimensions	 freely selectable
Control units	 - in door jamb - as flush wall box - as surface-mounted box
Loading method	 lift truck (cabin blocking device), manual, hand pallet truck, automated loading
Type of control	 call-and-send control from the respective landing

Information on equipment/fitments can be found starting on page 22.

This contender takes every punch, and then comes back for more.

Our adaptable Multi-Talent that can be matched to every job. Assembled and equipped to your precise requirements and expectations. Supplied for your existing shaft or new build, or complete with shaft frame. With our proven 'shoehorn method', we can utilise the last square inch of your shaft. Want to come along for the ride? Please turn the page!

Possible door combinations



*Design example only! Number and type of pistons, type of guides, possible re-direction of rope, etc. are customised for each installation!



Goods lift for use by a trained group of users

- goods
- trained user group
- vehicle with/without driver

- can be used
- in consultation with TÜV, Dekra, etc.
- is not available



1. MRLP with passenger capability
- equipped with safety light curtain and interior control panel
 - in shaft frame
 - view: standing at the top landing
2. MRLP
- in shaft frame
 - view: bottom landing
 - shown here for loading with hand pallet truck (alternatively pit or ramp.)
3. MRLP
- Control unit in the cabin:
Panel with key and raised stop switch

Schematic*



Technical data

Shaft frame	possible
Speed (max.)	0.15 m/s
Travel height (max.)	12 m
Rated load	to suit client
Cabin dimensions	freely selectable
Control units	cabin
	- panel with key switch and stop switch
	- external control units
	- in door jamb
	- as flush wall box
	- as surface-mounted box
Loading method	lift truck (cabin blocking device), manual, hand pallet truck,
Type of control	call-and-send control:
	- from the respective landing
	- from the cabin, with dead-man control

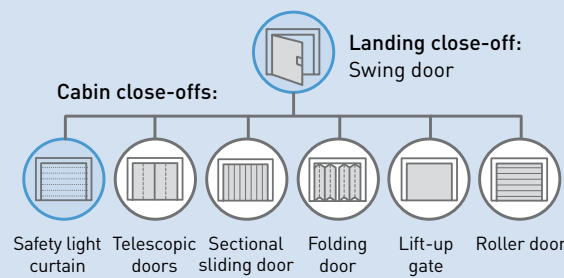
Information on equipment/fitments can be found starting on page 22.

Granted – your ticket to ride.

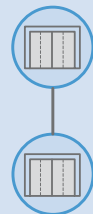
For dual missions – a goods lift that can also take passengers. Every bit as adaptable and talented as its brother the MRLG, this lift is designed for transporting goods AND accompanying personnel who are trained in the use of the lift. Ideal in all situations where, in addition to the goods, an employee also wants or needs to move to a different floor. But everything is 'can', nothing is 'must' – even without passengers, this lift can be despatched and called from any floor just like an ordinary goods lift. Key-controlled operation ensures that unauthorised persons cannot use the lift.

The cabin close-off is usually in the form of a safety light curtain (instead of a cabin door), so only trained users are allowed to travel in the lift.

Possible door combinations

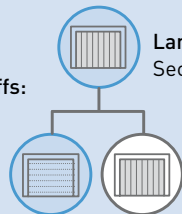


Landing close-off:
Telescopic door



Cabin close-off:
Telescopic doors

Cabin close-offs:



Safety light curtain
Sectional sliding door

Landing close-off:
Sectional sliding door

○ Most common combination

More detailed information on the door functions as well as the cabin and landing close-offs can be found on pages 26/27.

*Design example only! Number and type of pistons, type of guides, possible re-direction of rope, etc. are customised for each installation!

Lift for people with disabilities, MRLB

MD 2006/42/EC · Standard: EN 81-41



Lift for people with disabilities

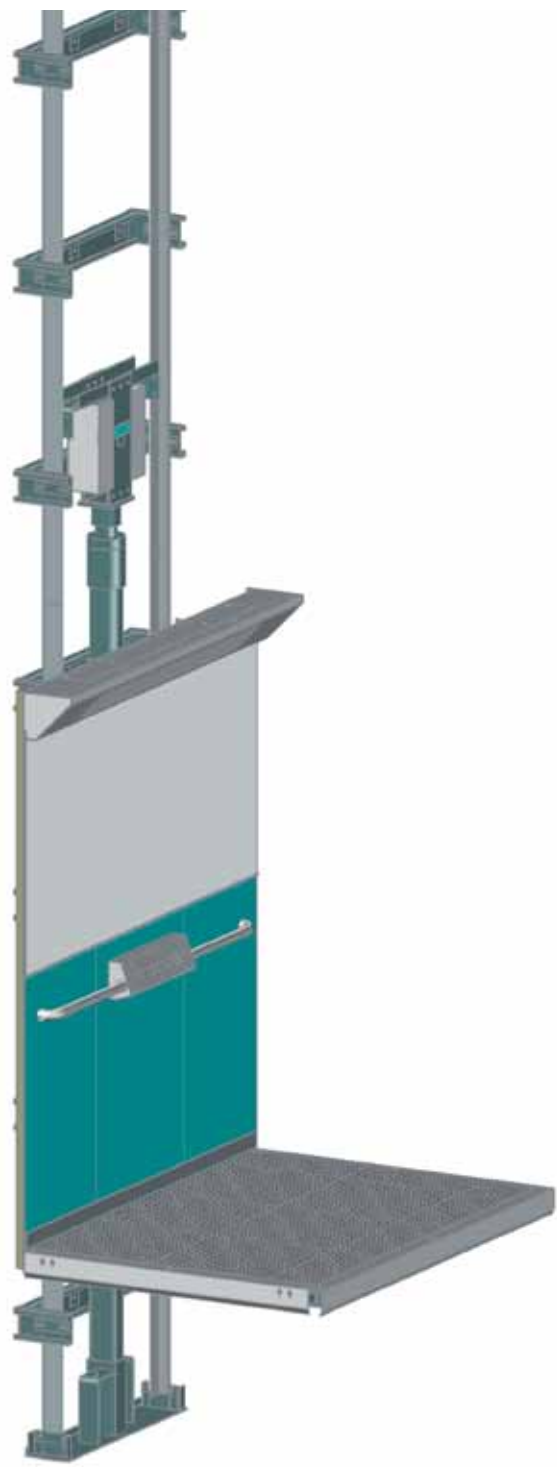
- one single person
- trained user group
- people with disabilities, unaccompanied
- people with disabilities, with accompanying person

- can be used
- in consultation with TÜV, Dekra, etc.
- is not available



1. MRLB in masonry shaft
2. MRLB in shaft frame
3. MRLB as a platform

Schematic*



Technical data

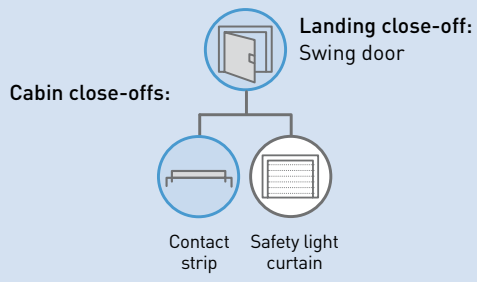
Shaft frame	possible
Speed (max.)	0.15 m/s
Travel height (max.)	12 m
Rated load	500 kg
Cabin dimensions	freely selectable, max. 2 m²
Control units	cabin
	- control console of V2A/304 integrated into the handrail, disability-friendly as per DIN 18024-2
	- panel with key switch and stop switch
	external control units
	- in door jamb
	- as flush wall box
	- as control column
	- as surface-mounted box
Type of control	call-and-send control:
	- from the respective landing
	- from the cabin, with dead-man control

Information on equipment/fitments can be found starting on page 22.

A little bit of quality of life.

Specifically tailored to the needs of people with disabilities, this lift can be installed in private homes as well as in public and semi-public areas. This type can only be operated with a key and is therefore protected from misuse.

Possible door combinations



○ Most common combination
More detailed information on the door functions as well as the cabin and landing close-offs can be found on pages 26/27.

*Design example only! Number and type of pistons, type of guides, possible re-direction of rope, etc. are customised for each installation!



A lift for "at home"

- people
- people with disabilities, unaccompanied
- people with disabilities, with accompanying person

- can be used
- in consultation with TÜV, Dekra, etc.
- is not available



1. MRLH with automatic cabin doors
2. MRLH interior view of cabin
3. MRLH control unit as disability-friendly console in handrail

Schematic*



Technical data

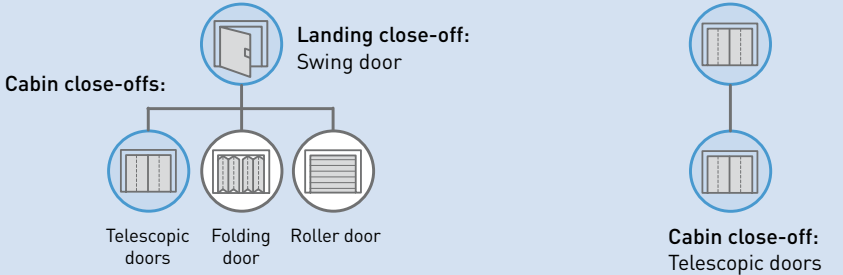
Shaft frame	possible
Speed (max.)	0.15 m/s
Travel height (max.)	12 m
Rated load	to suit client
Cabin dimensions	freely selectable
Control units	cabin - panel with key switch - console with key switch external control units - in door jamb - as flush wall box - as surface-mounted box
Type of control	latching mode from the landings and in the cabin

Information on equipment/fitments can be found starting on page 22.

My home, my car, my lift!

Whether you are already thinking about later life, you don't enjoy lugging the shopping back home and up the stairs, you need to take the baby buggy with you, or personal circumstances make stairs difficult for you or a family member, this is your dependable home helpmate. Comfortable and quiet, up and down, it tirelessly carries everything that you hold dear.

Possible door combinations



Most common combination More detailed information on the door functions as well as the cabin and landing close-offs can be found on pages 26/27.

*Design example only! Number and type of pistons, type of guides, possible re-direction of rope, etc. are customised for each installation!

LiftUp, MRLL

MD 2006/42/EC · Column-mounted platform



Cargo lift

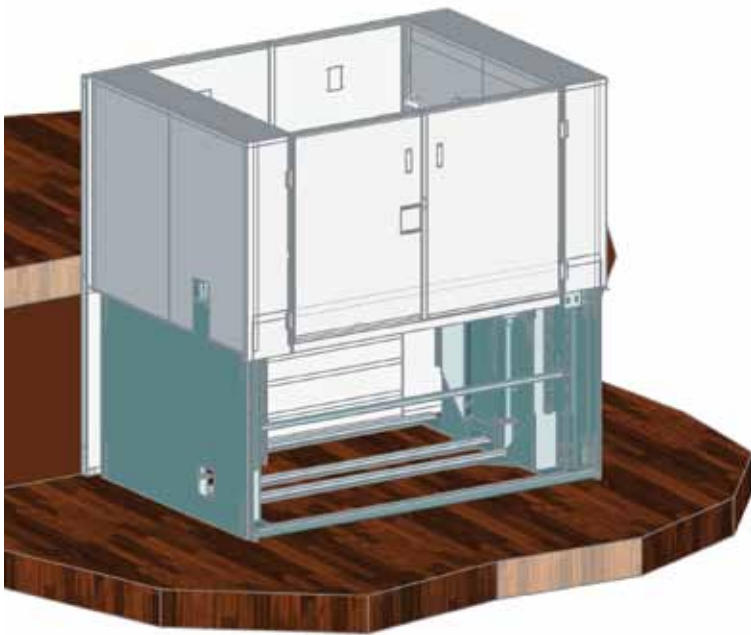
- goods
- people
- people with disabilities, with/without accompanying person
- vehicle with/without driver

- can be used
- in consultation with TÜV, Dekra, etc.
- is not available



1. MRLL in stainless steel with door windows and impact protection (hospital beds)
2. + 3. MRLL in stainless steel with stainless steel doors (parking garage)
4. MRLL, powder coated and with round door window

Schematic*



Technical data

Shaft frame	possible
Speed (max.)	0.15 m/s
Travel height (max.)	2.99 m
Rated load	to suit client
Cabin dimensions	freely selectable
Control units	cabin - panel with key switch and stop switch - console with key switch external control units - in door jamb - as flush wall box - as control column
Loading method	manual, hand pallet truck
Type of control	dead-man control: - from the respective landing - from the cabin optional: latching after consultation with TÜV/Dekra

Information on equipment/fitments can be found starting on page 22.

Small steps – big impact.

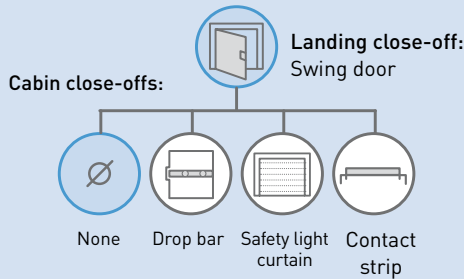
This sturdy carryall is ideal for people, for vehicles and also for heavy loads – and it goes without saying that, on request, it can be fitted out for people with disabilities.

Although not a lift in the usual sense, the LiftUp is impressively versatile in terms of who and what can be carried, rated

load, dimensions and equipment levels. It is used for height differences of less than 3 m in an open shaft, the upper of the two landings always being on the opposite side to the lower. A classic installation situation for the LiftUp is a loading dock, or with a vertical offset in a parking garage or building in order to cope with 'half floors'.



Possible door combinations



Alternatively: The lower swing door as travelling shaft door (= cabin door) plus safety roller curtain (see Photo 3).

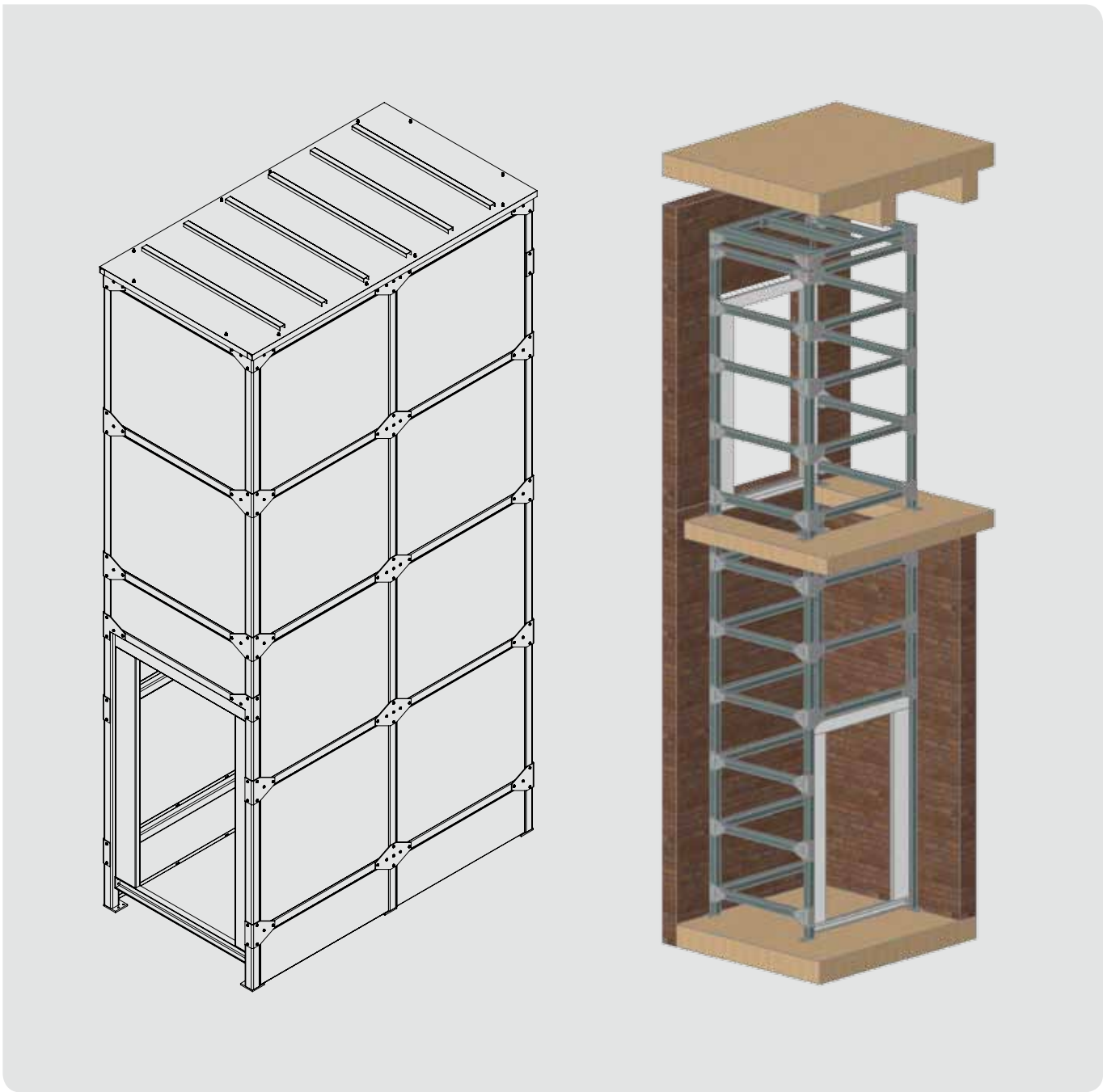
Most common combination

More detailed information on the door functions as well as the cabin and landing close-offs can be found on pages 26/27.

*Design example only! Number and type of pistons, type of guides, possible re-direction of rope, etc. are customised for each installation!

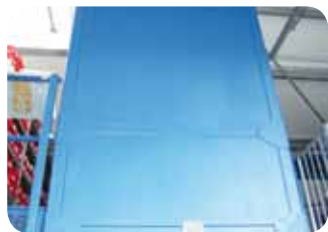
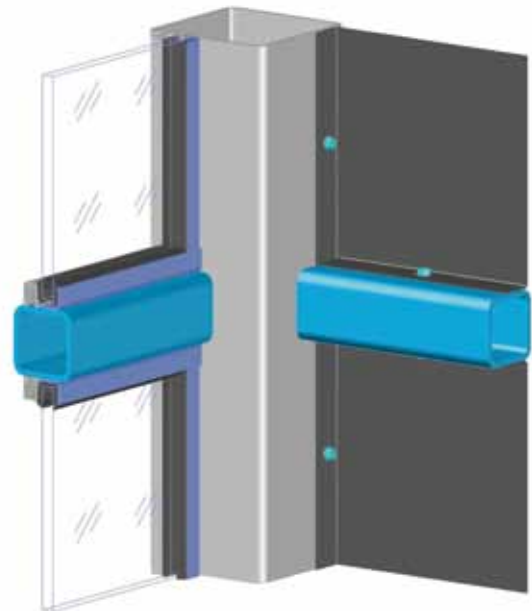
Design, material and colour
all of your choice

- completely flexible dimensions
 - lift shaft can be partially or completely enclosed
 - free-standing, or attached to existing parts of the building
 - modular system with flow-drilled holes (instead of rivet nuts) for optimum stability
 - also in existing shafts – for example, when fitting anchor dowels in brickwork or similar material is not possible
- various cladding options can be combined: glass, Isowall, sheet metal cladding in plain sheet, trapezoidal sheet, stainless steel, optionally finish-painted in RAL colours, primed, hot-dip galvanised
 - inside or outside of buildings
 - optionally with individual design-calculations check



Schematic drawing of shaft frame
with sheet metal cladding, 6 columns

Construction of the shaft frame



Shaft frame is optionally:

- with/without sheet metal cladding
- primed, galvanised, V2A/304 or finish-painted
- with/without glass insert

Sheet metal cladding is optionally:

- untreated sheet or primed (for on-site coating)
- hot-dip galvanised, V2A/304 or finish-painted as per RAL
- with trapezoidal sheet or ISO-wall
- prepared to your requirements or for on-site cladding



Construction-site lift
sheet metal panels of galvanised sheet, frame struts primed



Shaft frame with glass/Plexiglas inserts
painted in RAL 9010 pure white, corner brackets in RAL 5019 Capri blue

Planning phase

The basis: Things you should think about in advance.

Checklist:

To make sure that what you get is what you really need, the following points should be clarified:

→ Location of the elevator?

- inside or outside the building
- weather protected / not weather protected

→ What is the installation situation?

- heated or unheated spaces
- number of floors
- layout of entrances (1-, 2-, 3-sided)

→ Shaft type?

- masonry shaft
- concrete shaft
- shaft frame to be included
- no shaft (connecting two levels)

→ Cargo?

- who or what is to travel in the lift?
- weight of the load that can be brought in all at once
- total cargo load per travel

→ Loading method?

- loading device (hand pallet truck, lift truck, individual trolley, etc.)
- automated loading (industrial trucks, rail vehicles, etc.)
- weight of the loading device
- goods on pallets



Site conditions: weatherproofing, installation situation



Shaft type: no shaft, connecting two levels



Cargo: Weight and type of the cargo



Loading method: Electric lift truck, goods on pallets

Extras: Other factors that must never be ignored.

Special conditions:

→ Environmental requirements

- **natural factors**
 - increased accumulation of surface water with exterior doors or in the area of canopies (e.g. due to unfavourable slope of the terrain)
 - exposed to wind and weather
 - salty air (near the sea)
 - road-salt area

· customer-related factors

- increased air humidity (e.g. from production processes)
- chlorine-containing air (e.g. in swimming pools)
- explosion-hazard areas or goods
- special fire-protection requirements

→ Special cargo

· sensitive goods

particular requirements for travel behaviour and stopping accuracy

· perishable goods

particular requirements regarding hygiene / cleaning of the cabin



Example of a lift shaft



Special environmental requirements



Special cargo: sensitive goods



Special cargo: perishable goods



Loading method: lift truck

Quality in the building-block principle



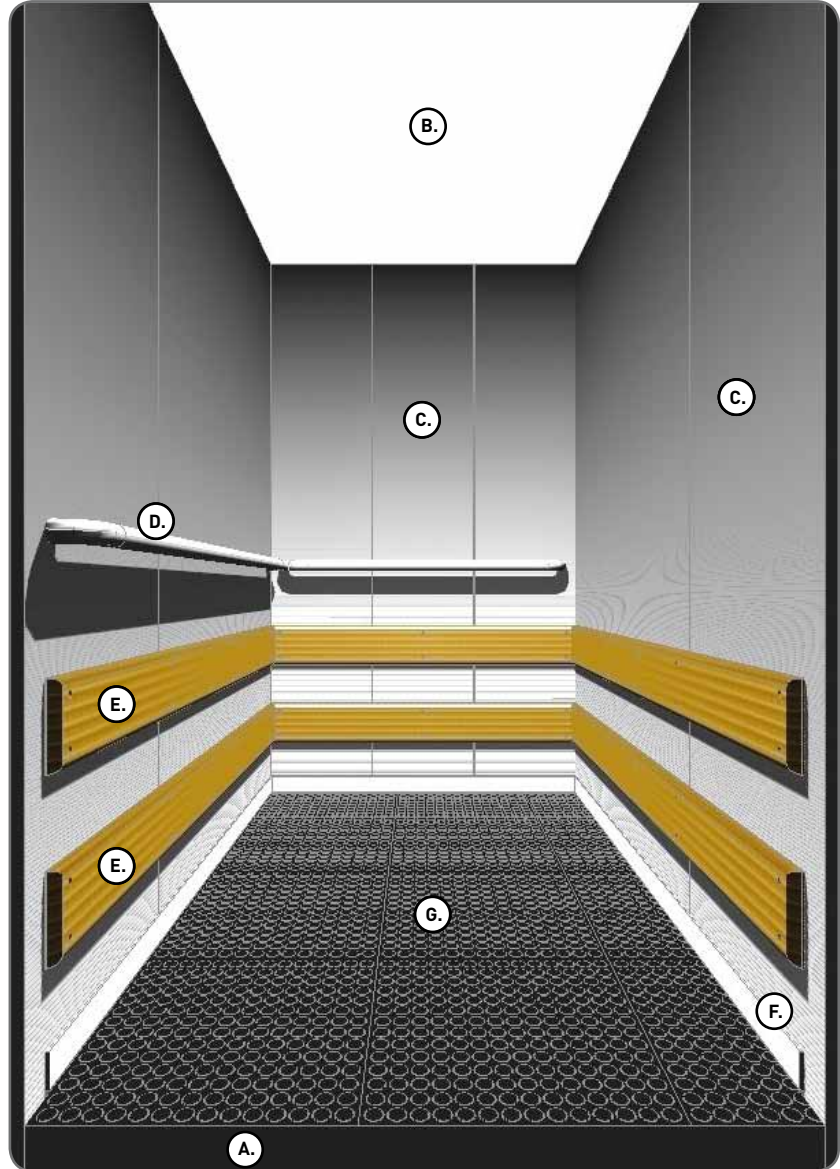
Basic structure and floor (checker plate) hot-dip galvanised, cabin walls hot-dip galvanised, no ceiling – only the roof frame, carriage zinc-powder primed



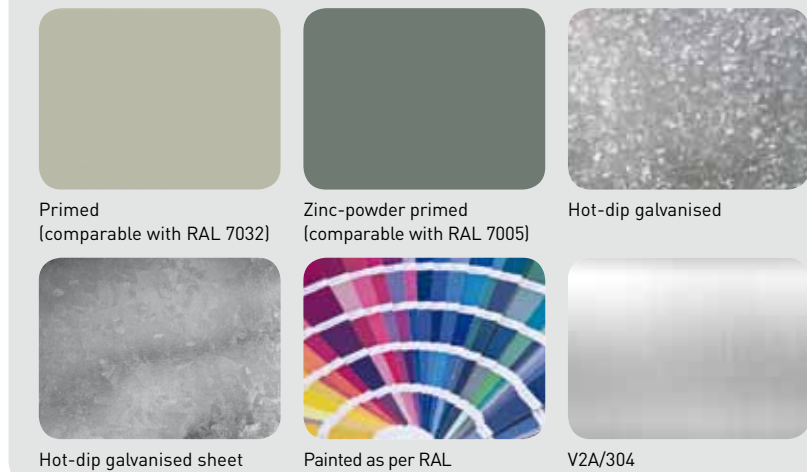
Floor as tray with customer-supplied lining, cabin walls and ceiling finish-painted in RAL 9010, handrail flat aluminium (all way around), impact protection black hard rubber (three sides, three rows)



Floor with PVC knobbed surface, cabin walls made of stainless steel (V2A/304), impact protection from hardwood with V2A/304 cladding (three sides, three rows), ceiling with white light grill



Surfaces and materials:



A. Basic cabin construction/
shaft parts

- 1. Standard: primed (approx. RAL 7032)
- 2. Hot-dip galv. (where not possible: zinc-powder primed)
- 3. V2A/304, V4A/316(Ti)

B. Ceiling

- 1. Standard: none/roof frame only, or – if present – painted in RAL 9010
- 2. Grid-form cover (aluminium or white plastic)
- 3. Walkable (possibly subject to approval)
- 4. Suspended ceiling in various designs
- 5. Zinc-powder primed (approx. RAL 7005)
- 6. Painted as per RAL
- 7. V2A/304, V4A/316(Ti), stainless steel design

C. Cabin walls

- 1. Standard: primed (approx. RAL 7032)
- 2. Zinc-powder primed (approx. RAL 7005)
- 3. Hot-dip galvanised sheet
- 4. V2A/304, V4A/316(Ti), stainless steel design
- 5. Finish-painted as per RAL

D. Handrail

- 1. Standard: none
- 2. V2A/304, V4A/316(Ti)
- 3. Aluminium

E. Impact protection

- 1. Standard: none
- 2. Hardwood
- 3. Hardwood clad with V2A/304
- 4. Plastic (PE)
- 5. Hard rubber
- 6. V2A/304

F. Skirting boards

- 1. Standard: none
- 2. V2A/304, V4A/316(Ti)
- 3. PVC

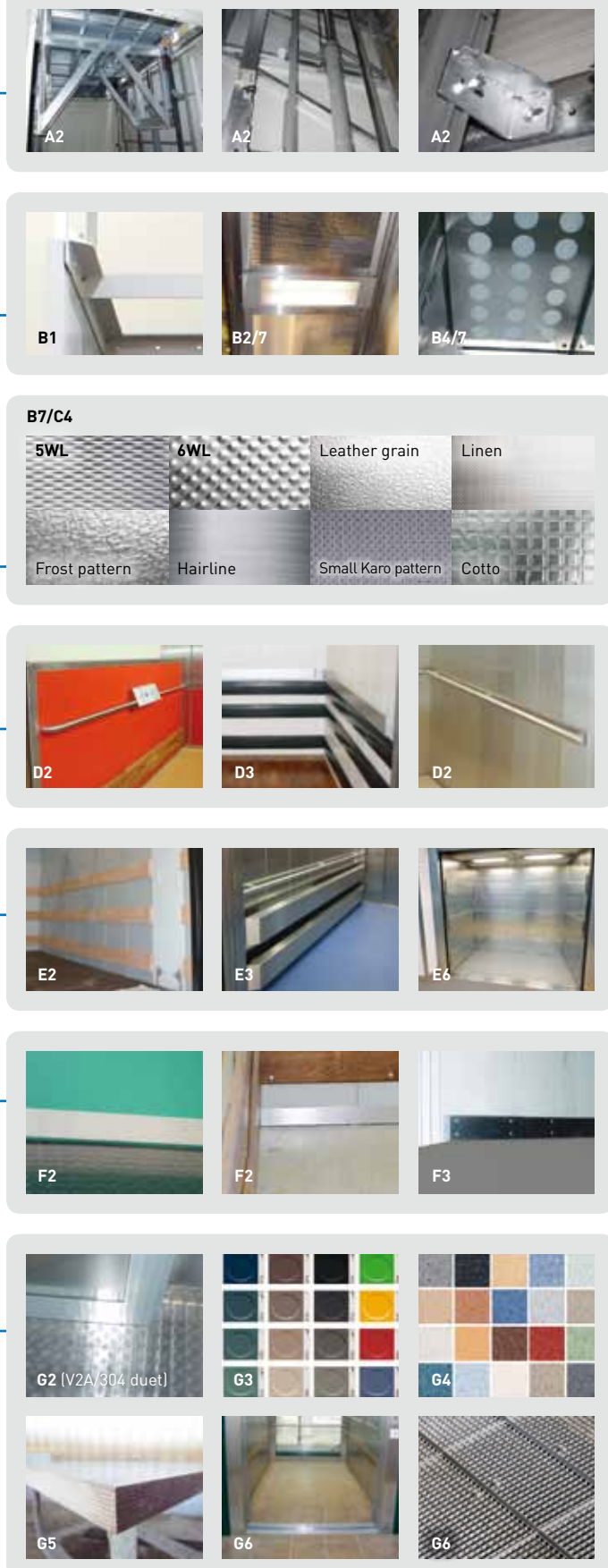
G. Floor

- 1. Standard: primed checker plate (approx. RAL 7032)
- 2. Checker plate (zinc-powder primed, approx. RAL 7005, hot-dip galvanised, V2A/304, V4A/316(Ti), alu.)
- 3. Rubber covering with/without knobs (colour samples)
- 4. PVC covering (colour samples)
- 5. Hardwood
- 6. With tray (for customer-supplied lining or gratings)
- 7. For loading with lift truck/with pallet truck
- 8. Reinforced door sill

H. Extras (no pictures)

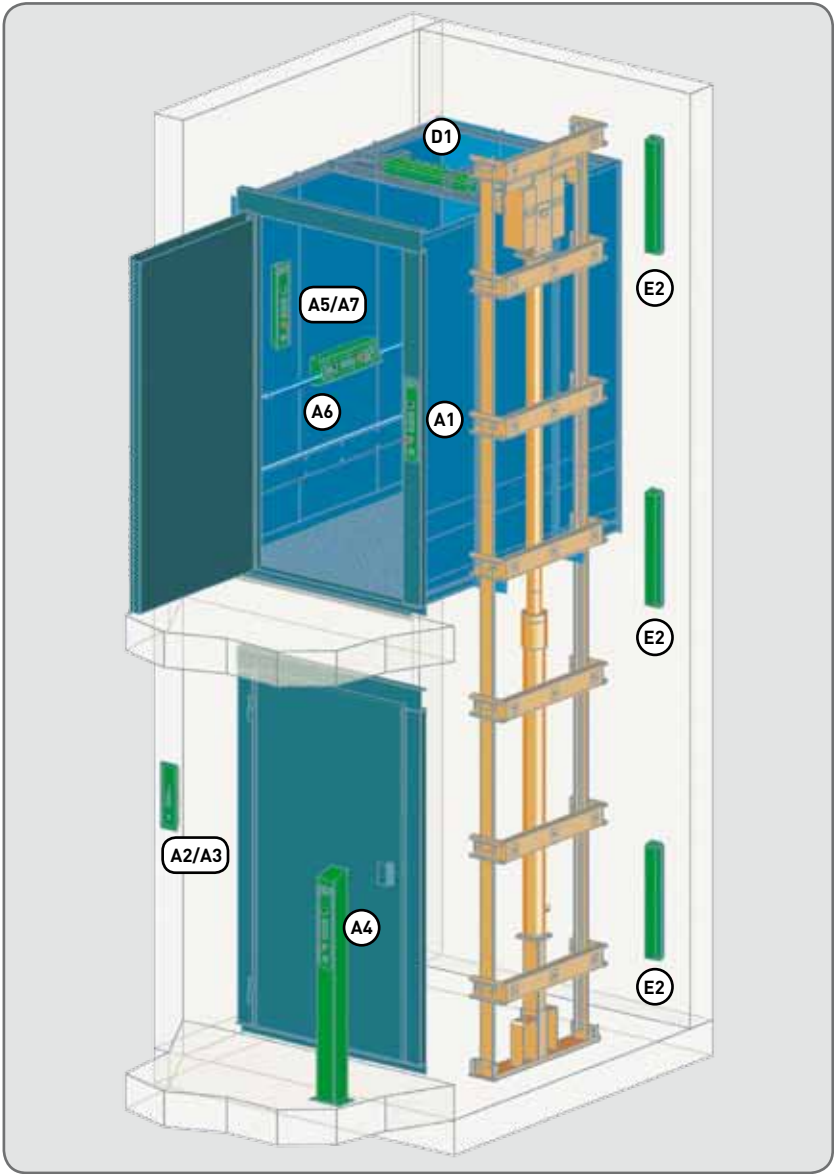
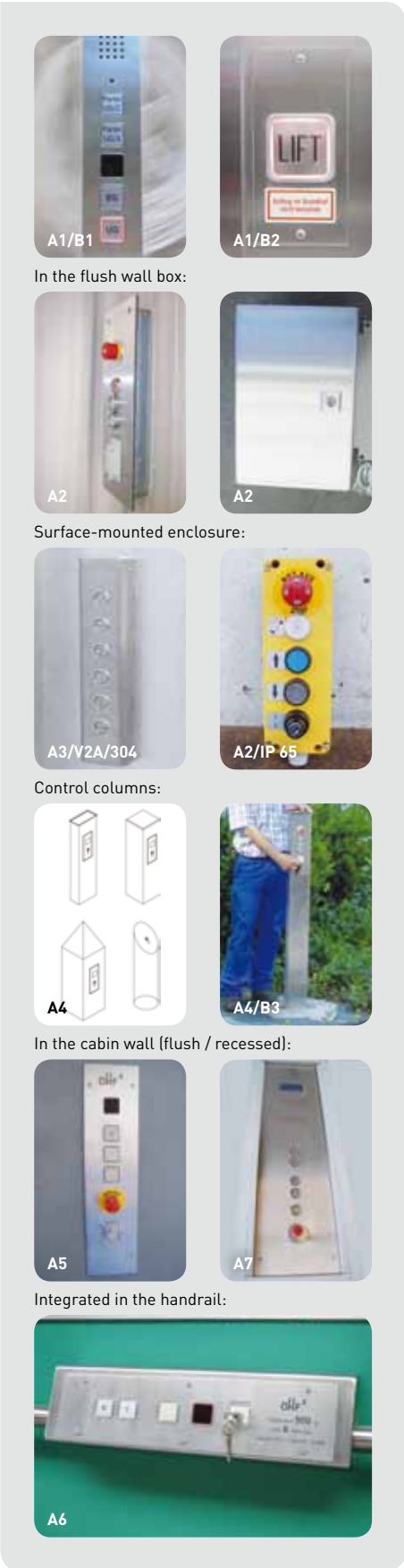
- 1. Mirrors
- 2. Anti-resonance lining

Some examples of possible combinations and materials (further information on request):



Availability and style of the respective equipment options may also be dependent on lift type, system parameters and nature of the cargo.

A. Controls (location):



B. Controls (design variants):



Texts, markings etc. exactly according to your requirements and in any desired language.

Controls:

A. Where? – location (see fig. on left page)

- At the landings
 - 1. Door jamb
 - 2. Flush wall box (open/lockable)
 - 3. Surface-mounted enclosure (V2A/304 open, V2A/304 lockable, plastic IP 65)
 - 4. Control column (flush wall box integrated in column)
- In the cabin
 - 5. Flush with the wall (portrait/landscape)
 - 6. Integrated in handrail (landscape)
 - 7. Recessed in cabin wall (portrait/landscape)

B. How? – Variants (see fig. on left, bottom)

- 1. Standard
- 2. Disability-friendly design (optional: tactile, Braille text)
- 3. IP 54, IP 65
- 4. Vandal-proof
- 5. Explosion-proof

C. What? – Standard components and optional components/functions (Fig. right)

- 1. Call buttons, as needed for the installation
- 2. Overload (standard from 1000 kg)
- 3. Key switch for disabling landing calls (standard on MRLP and MRLB)
- 4. Key switch for enabling the control unit (standard on MRLU at upper landing)
- 5. Key switch for switching off the system
- 6. Emergency call button (standard on MRLP and MRLB)
- 7. Door-open button (standard on MRLH)
- 8. Door-close button
- 9. "Out of service" indicator
- 10. Voice communication between the landings
- 11. Arrival gong (no picture)
- 12. "Busy" indicator
- 13. Emergency lighting
- 14. Emergency stop

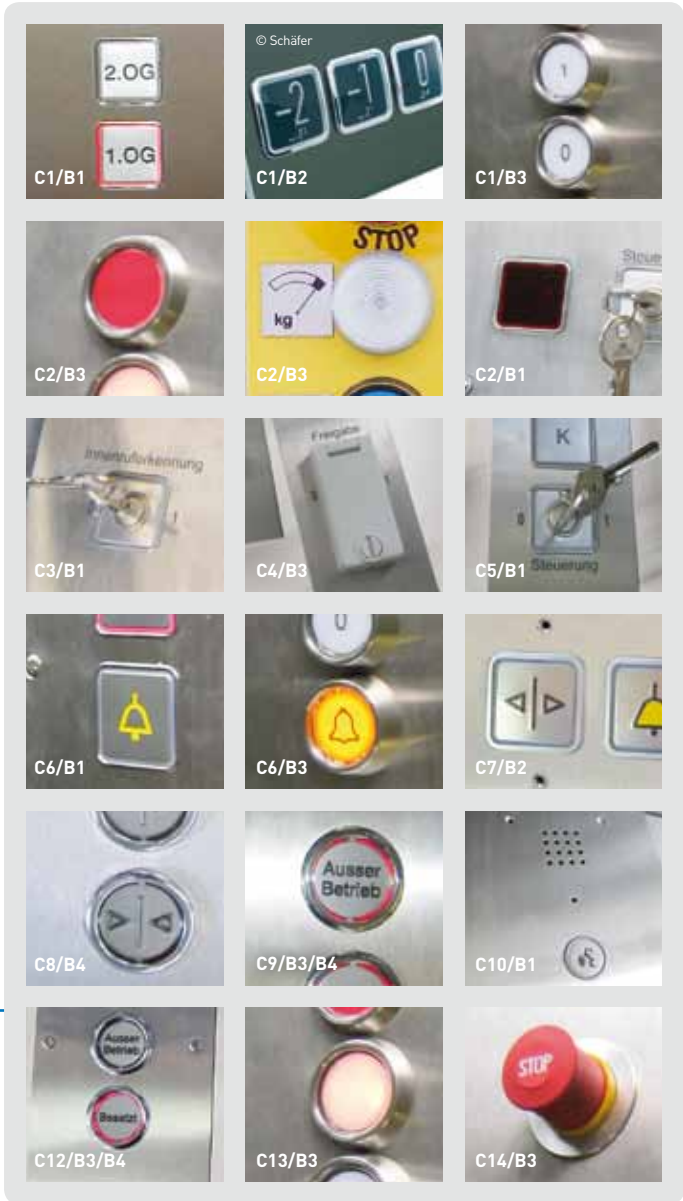
D. Cabin lighting

- 1. Basic version with a simple lamp in the ceiling frame
- 2. On the side wall panel
- 3. In the cabin ceiling (if fitted)
- 4. To customer requirements

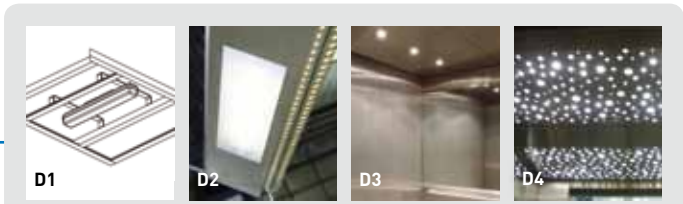
E. Other options

- 1. RCD switch (lighting, control, complete installation)
- 2. Shaft lighting
- 3. Halogen-free wiring
- 4. Explosion-proof components

C. Controls (standard components and options):



D. Cabin lighting:



E. Other options:



Availability and style of the respective equipment options may also be dependent on lift type, system parameters and nature of the cargo.

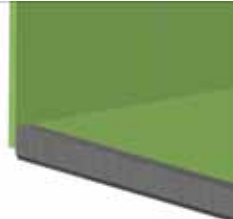
→ All possible combinations of landing close-off/cabin close-off can be found under the individual lift types.

Doors and gates

Type	Swing door	Lift-up gate	Telescopic door	Sectional sliding door	Folding door	Roller door
Symbol						
Standard:	→ More options for opening/closing see also next double page					
Can be used as landing close-off	•	•	•	•	-	-
Cabin close-off	-	-	•	•	•	•
Door-opening method	- by hand - optionally automatic	automatic (with dead-man control)	automatic	automatic	automatic	automatic
Opening direction of the doors						
No. of wings/leaves	1 - 6	1	2 - 6	1 - 2	2 - 4	1
Max. dimensions W x H	6500 mm x 5000 mm	2500 x 3000 mm	3200 x 3000 mm 5000 x 5000 mm (industrial design)	4500 x 4500 mm (as landing door 8000 x 5000 mm)	B 2600 mm	2600 x 2600 mm
Standard model	- primed (RAL 7032) - handle outside - hinges external	- primed (RAL 7032)	- galvanised	- painted in RAL 9006	- matt-brushed aluminium - recessed grips inside	- anti-friction coated aluminium

Options:						
Material and surface	- primed (RAL 7032) - zinc-powder primed (RAL 7005) - from V2A/304 or V4A/316(Ti) - covered with V2A/304, V4A/316(Ti) or design sheets - finish-painted/ powder coated as per RAL - from hot-dip galvanised sheet	- primed (RAL 7032) - zinc-powder primed (RAL 7005) - from V2A/304 or V4A/316(Ti) - covered with V2A/304, V4A/316(Ti) or design sheets - finish-painted/ powder coated as per RAL - from hot-dip galvanised sheet	- primed (RAL 7030) - galvanised - clad, e.g. with stainless steel - painted as per RAL - powder-/specially coated, - with etched or sandblasted patterns	- visible side covered with stainless steel - painted as per RAL	- painted as per RAL - visible side covered with stainless steel (e.g. 5 WL, leather grain, linen, Karo 21)	-
Windows	- round - square - rectangular - extensively glazed	-	- extensively glazed - all-glass	-	- glazed inspection apertures	-
Other items	- thermally insulated - industrial design (spot welds visible/covered) - as a portal (larger jamb-/header dimensions) - asymmetric - IP 54 / IP 65 - DIN 18090/18091 - DIN EN 81 - 58 - suitable for explosion-proof zones	- thermally insulated - IP 54	- reinforced sill - IP 54 - suitable for explosion-hazard areas - E 30 / E 60 / E 90	- reinforced sill - IP 54	- IP 54 - asymmetric	- IP 54
Illustration (as an example)						

Other items

Cargo restraint: drop bar	Collision detection on the shaft wall: safety light curtain	Crush protection: contact strip
		
-	-	-
•	•	•
by hand	-	-
	-	-
-	-	-
B 2000 mm	Monitored area max. 8000 x 1900 mm	no restriction
- to suit the respective cabin	- 16 beams	- V2A/304
- to suit the respective cabin	-	- painted as per RAL - V4A/316(Ti)
-	-	-
- suitable for explosion-hazard areas - IP 54 and IP 65	- IP 54 and IP 67	- suitable for explosion-hazard areas - IP 54
		

Swing doors

Further options and details

Criteria for selection:

→ Number of wings

- **1 wing**
 - door stop DIN L
 - door stop DIN R
- **2 wings**
 - active wing left
 - active wing right
- **2 wings with 3-6 leaves**
- **asymmetric wing division**

→ Hinges

- **internal** (opening angle approx. 100°)
- **external** (opening angle up to max. 180°)
 - two-piece (standard)
 - three-piece
 - three or more hinges per wing

→ Windows

- **rectangular** (100 x 300 mm, 100 x 600 mm, custom)
- **round**
- **extensively glazed**
- **all-glass**

→ Opening and closing

- **manually operated**
 - **inside** - only for passenger transport
 - recessed grip (V2A/304, galvanised, polypropylene)
 - rotary recessed grip
 - **outside**
 - handle
 - bow handle
 - bar handle
- **automatic**
 - electromagnetic locking
 - electromagnetic hold-open
 - electrical door drive
 - mechanical closure (torsion rod)
 - fire-protection closure
 - full-width locking flap
- **lockable (e.g. for doors leading into the open)**
 - bascule lock with rotary knob
 - mortise deadlock

→ Frames

- **without header**
- **as a portal**

Number of door wings



One wing (DIN L)



Two wings, active wing on right



Two wings, four leaves



Two wings, asymmetric

Hinges



Two-piece



Internal



Three-piece



3 hinges per door wing

Windows



Rectangular (100 x 300 mm)



Rectangular, custom



Round



Extensively glazed

Opening and closing – manually operated



Handle (aluminium)



Bar handle (V2A/304)



Bow handle (V2A/304)



Recessed grip (V2A/304)



Recessed grip (PP)



Rotary recessed grip

Opening and closing – automatic



Fire-protection closers



Door drive at top



Full-width locking flap

Opening and closing – lockable



Mortise deadlock



Bascule lock



Cover for profile cylinder



Rotary knob

Examples:



One-wing door: V2A/304 finish-painted in RAL 9005, internal hinges, extensively glazed, bar handle over the full door height, without header



One-wing door: all-glass with V2A/304 frame, special hinges, rotary knob, without header



Two-wing door of V2A/304: internal hinges, rectangular windows, bar handles, with fire-protection closers (with control of closing sequence)

Control systems

Drive unit as standard type, or as special design

Control system benefits at a glance:

→ For trouble-free operation and high system availability:

- standard commercial components
- standard commercial PLC
- connection to building management system is possible
- plain text operating display is optional
- short delivery times for all spare parts

→ For installation and maintenance:

- fast assembly thanks to plug-in connections
- safety circuit type-approved to EN 81
- controllers almost identical construction for all lift types
- magnet placement the same for all lift types

Hydraulic system benefits at a glance:

→ For trouble-free operation and high system availability:

- standard commercial components
- space-saving design
- 'no machine room' is possible
- oil-immersed motor/screw pump for silent operation

→ For installation and maintenance:

- hand pump is integrated
- pipe-rupture test device is integrated
- control block can be set/adjusted without tools

Space-saving and adaptable

Our control units and hydraulic units are compactly designed and housed together in a lockable cabinet. If you add an oil pan and a mantle hose over the hydraulic line, a machine room will never be needed. Even in a stairwell, for example, the power unit can be situated next to the lift.

With small lifts (up to 750 kg), the noise level generated is so low that no adverse effects should be expected in such a situation. If required, this compact unit can also be supplied in IP54, and in an industrial area it can be positioned free-standing next to the shaft without problem. Thanks to the varied shapes and sizes in which the units are produced, where necessary they can also be fitted into a wall niche (minimum depth 24 cm) or directly into the shaft wall. The controller can also be built into a door jamb.



Control cabinet (above) with hydraulic power unit (below) and oil pan, painted as standard in RAL 5019 (capri blue)



Open control cabinet. At the bottom, from left to right: pressure switches, control block and filling neck. In the middle, the control system; at top left the main switch

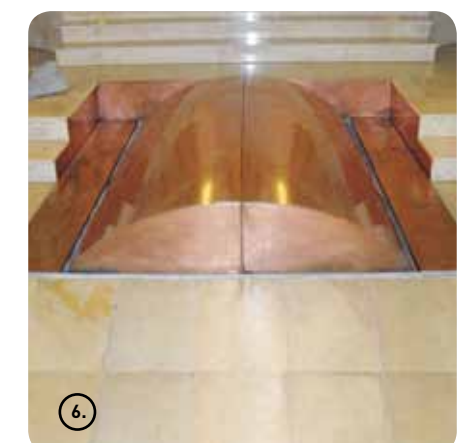
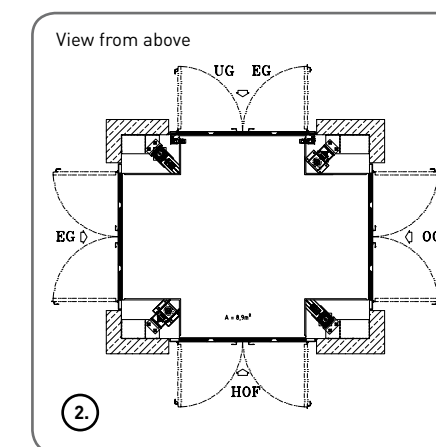
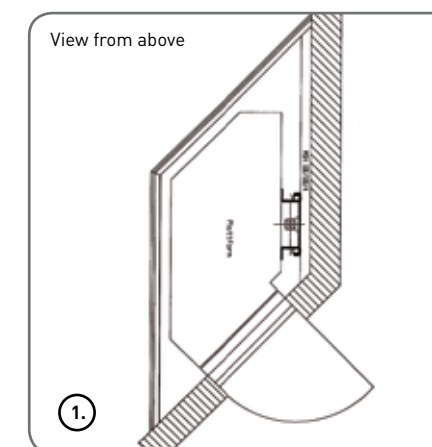
Special designs

30-31

Solutions diversity – as individual and unique as your requirements

We can also do "different".

- 1. Shaft shape** The lift is built to fit the building, and not vice versa
- 2. Number of doors** Entrances wherever YOU need them
- 3. Stability of large areas** Orchestra stages with 5 different heights of use ("landings") and special compensating/levelling pivots
- 4. Combination of different types** Below a goods/passenger lift, above a pavement lift.
- 5. "Impossible" installation situations** Where there's no floor, we conjure one up.
- 6. Design** A canopy of a very special kind: swinging aside instead of lifting.



Transport symbols

→ What/who can the lift be used for?



→ Colour coding (symbol is marked in this colour)

- can be used
- in consultation with TÜV, Dekra, etc.
- is not available

→ Trained user group

- The lift system is to be operated only by people who have been trained how to use it. In particular, this includes correct loading and specific points related to the safety light curtain and the operation of the system.

Materials and coatings

1. Steel sheet

→ a. Primed

- Given basic corrosion protection. In situations of increased air humidity, mechanical stress, high usage levels (cabin), etc., we strongly recommend additional protection for the affected parts of the system (see subsection d.) or a different (initial) coating (see subsections b, c, or e).

→ b. Zinc-powder primed

- Given a special primer coat that has a very high proportion of zinc and therefore provides a significantly higher corrosion protection compared with a standard primer.

→ c. Hot-dip galvanised

- The manufactured parts are batch-galvanised in a dip bath. This offers the highest corrosion protection (of all the one-layer processes), but not all parts of the system are suitable for the process.

→ d. Finish-painted

- Given a visually attractive paint finish:
 - I. Spray-painted** - The finish coat is applied with a spray gun
 - II: Powder-coated** - The paint is sprayed on as a powder and then fused in the drying oven to an even and tough surface (tougher than spray-painting).

→ e. Duplex system

- A combination of hot-dip galvanising and subsequent coating (finish-painting). Particularly long protection duration – between 1.2 and 2.5 times the sum of the protection durations of the individual coatings.

2. Hot-dip galvanised sheet

- After it has been produced in the rolling mill, the sheet metal is zinc-coated in a dip bath (and, in contrast to batch-galvanising, only then is it processed further). Items can be primed and finish-painted (see Item 1, Subitems a. and d.) with suitable paints.

3. V2A/304

- Stainless steel, Euronorm 1.4301, AISI 304 (high-quality stainless steel, very suitable for most applications)

4. V4A/316(Ti)

- Stainless steel, Euronorm 1.4571, AISI 316(Ti) (used when, for example, the effect of road salt or sea air must be taken into account, or the system must meet the high standards of hygiene associated with foodstuffs)

5. Stainless steel design

- Stainless steel with a visually attractive design (pattern, etc.)

Shaft and system parameters

→ Shaft pit

- The height from the bottom of the shaft to the finished floor of the bottom landing. The minimum depth is dependent on a number of parameters, such as shaft proportions, shaft head, rated load, selected cabin close-off, the standard to be used, structural height of the canopy (if fitted) and others; absolute minimum pit depth is 10 cm (except LiftUp: 4 cm).

→ Shaft head

- The height from the finished floor of the top landing to the bottom edge of the shaft ceiling. In the case of pavement-lifts, the free height above the canopy cover.

→ Travel height

- The height from the bottom landing to the top landing, finished floor height in each case.

→ Rated load/Nominal load

- The maximum overall load with which the car may be loaded. In accordance with EN81-1/2 Annex G, the load – including the weight of the transportation device – that is brought into the cabin during each loading operation must not exceed half the rated load. Ex.: rated load 5000 kg, lift truck 1500 kg: maximum cargo weight that can be brought in during each loading operation – 1000 kg. If that is insufficient, a cabin-blocking device will be needed.

Mechanical components and optional modules

→ Shaft frame

- Many lifts run in concrete or masonry shafts. Alternatively, it is possible to replace these entirely or partly with a steel shaft frame. These are individually adapted to the customer's needs and requests.

→ Canopy

- A canopy is the cover over the shaft of a pavement lift. It prevents a person from falling into the shaft and with outdoor installations it reduces the ingress of rainwater. The canopy cover can be customised to suit the local situation and the customer's needs; for example, with thermal insulation, corrosion-resistant design, drive-over capability, adaptation to terrain slope, and much more.

→ Cabin-blocking device

- During loading, the cabin is held in a fixed position. Using automatically extending bolts, the cabin is set down on abutments in the shaft. This is used especially when heavy loads are to be brought in with a single loading operation, and/or the transportation device for the load is itself very heavy. This bypasses the need for releveling the cabin during loading, which would otherwise exist due to the compression of the hydraulics/stretch of the ropes.

Car and landing close-offs:

→ Cabin close-off

- A boundary restriction that travels with the cabin and prevents a collision between people or goods within the cabin and the shaft wall.

→ Landing close-off

- A boundary restriction present at every landing, which prevents a fall into the shaft when the cabin is not at that landing.

→ Door stop DIN L

- Viewed from the outside, the hinges of the (one-wing) swing door are on the left side, i.e. the door opens outwards to the left.

→ Door stop DIN R

- Viewed from the outside, the hinges of the (one-wing) swing door are on the right side, i.e. the door opens outwards to the right.

→ Active wing

- In the case of two-wing swing doors, whichever of the two wings opens first.

→ Fixed wing

- In the case of two-wing swing doors, whichever of the two wings opens last.

→ Jamb

- The vertical parts of the door or gate frame on the right and left of the door / gate.

→ Header

- The horizontal part of the door or gate frame above the door/gate.

→ Portal

- A door frame, the jambs and/or header of which are significantly wider/higher than would be technically necessary, and/or enclose the walls, for example (for visually aesthetic reasons or to adapt to the installation situation).

→ Internal hinges

- In stainless steel doors, the hinges can be the internal type and are thus no longer visible from the outside. The opening angle of the door is then about 100°.

→ External hinges

- Depending on the on-site situation, can provide an opening angle of almost 180°. Larger (and therefore heavier) door wings can also be designed with three pieces rather than the two-piece design.

→ Bascule lock

- Push rods, which extend downwards, secure the door leaf. Mainly for the fixed wing in two-wing doors.

→ Mortise deadlock

- A deadlock into which a customer-supplied lock barrel is fitted. For single-wing doors, and in the active wing on two-wing doors in conjunction with a bascule lock.

→ Door interlocking

- Mounted in the door frame, in the case of swing doors. When the door is closed, a bolt (one for each door leaf) drops into the door leaf before the start of travel. This ensures that the door cannot be opened when there is no cabin at the landing.

→ Industrial design with full-width locking flap (type-approved)

- For large doors and with intensive operation. Particularly in an industrial setting, doors are often not treated gingerly. Lack of attention results in the leaves quickly becoming dented or warped due to collisions with cargo. Then the locking bolts can no longer drop correctly. In this design, robustly welded door wings are combined with a flap attached to the door header. The flap drops automatically when the door is closed. This provides for reliable locking, thus minimising the most common source of faults in harsh operating conditions (locking faults).

Glossary

Terminologies · Explanatory notes

Electrical components and designs

Types of control:

→ Dead-man control

- A type of control that, in accordance with the Machine Directive, is used for safety reasons when the cabin close-off / shaft close-off combination creates a theoretical risk of injury when transporting people. In this case, the cabin only moves as long as the operator in the cabin keeps pressing the call button.

→ Call-and-send control

- This is used in installations without passenger transportation (or when nobody actually travels with the cargo). Buttons for each floor are available at every landing door. Pressing one of these sends (or calls) the cabin to the relevant floor.

→ Latching mode

- In contrast to the dead-man control, the respective button needs to be pressed briefly just once. The system then maintains the signal by itself (as if the switch were being kept closed or "latched" like a door) until the cabin is at the selected floor. This type of control is used for all lifts with automatic doors.

Safety light curtain:

A light curtain that monitors itself and therefore satisfies particularly stringent safety requirements.

Control units:

→ At the landings

a: Panel in the door jamb

The control buttons needed at the landing are fitted into a recess in the door frame, and the recess is covered by a face plate.

b: Surface-mounted enclosure

A wall-mounted enclosure for the control units. The enclosure can also be a lockable version to prevent unauthorized access.

c: Flush wall box / recessed-mounting box

An enclosure for the operating units that is sunk into the wall. It can also be a lockable version to prevent unauthorized access. Used, for example, at the top landing of pavement lifts.

d: Control column

A column that the control units are mounted on. This is always a short distance away (e.g. 0.5 to 5 metres) from the front of the cabin entrance. This facilitates operation for people with disabilities and people in vehicles and is advantageous in the case of a swing door with automatic

drive, for example, which needs the space when opening. With pavement lifts, a column gives the all-round visibility that is necessary, particularly when retracting the cabin below ground, to ensure the safety of any people that might be in the vicinity.

→ Inside the cabin (not with all lift types)

a: Control panel in wall panel

The control panels including cover plate are fitted into a recess in one of the wall panels.

b: Console panel

Console (often integrated in a handrail), on which the control units are arranged horizontally and (usually) in a disability-friendly design.

Equipment levels:

→ IP 54, IP 65

- Details of the extent to which the component is protected against the harmful ingress of dust (first digit) and water (second digit). The higher the number, the better the protection.

→ Explosion-proof

- The relevant components are designed in such a way that, within the meaning of secondary explosion protection, effective ignition sources are prevented. We can comply with Zone 2 Ex-protection.

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