

SCHAEFER GMBH

COMPONENTS AND SOLUTIONS FOR ACCESSIBILITY

3rd Regional Symposium on Lifts and Escalators, SEELift 2023 - Skopje 25th September 2023

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Topics

- SCHAEFER GmbH
- Components and Solutions for EN81-70 and EN81-71
- Further solutions:
 - Emergency solution for the hearing-impaired
 - Control Solutions for the visually-impaired
 - Solutions for persons with limited mobility



SCHAEFER is a leading producer of operating elements and panels for elevators

- The company was founded in 1964 in Sigmaringen, Germany
- Today we supply to 120 countries around the world
- We have around 300 employees in 6 subsidiaries in 3 continents



We have
THE
right one
for all
situations

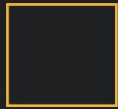
Style
42

Style
45

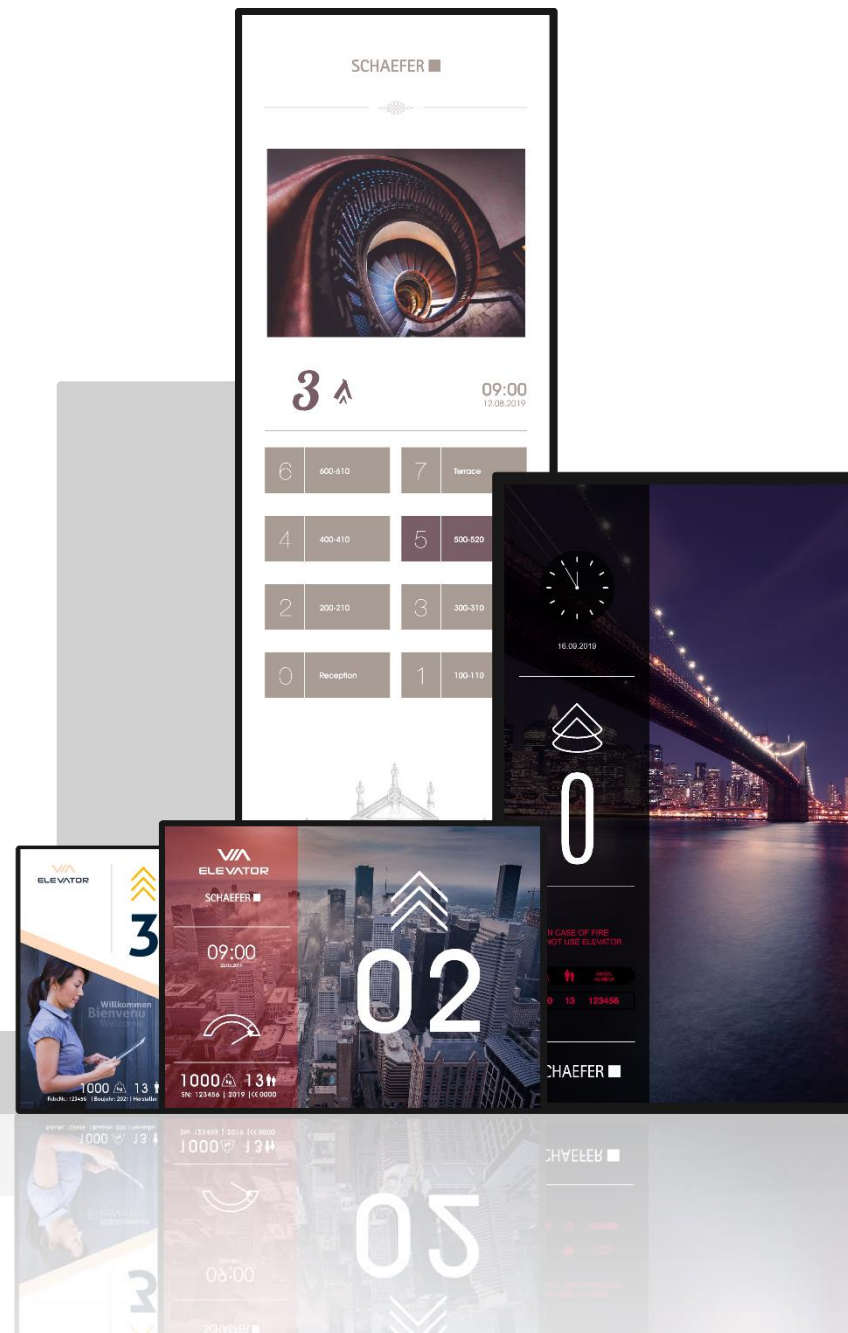
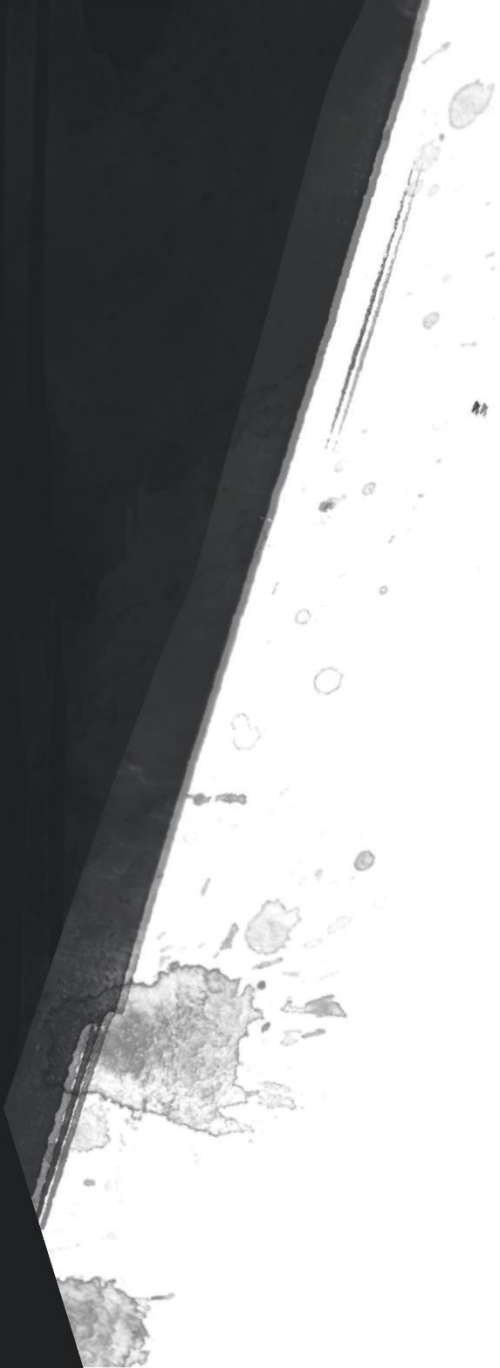
Style
50

Style
37





DISPLAYS from 3,2“ to 38“



Unlimited Choice of Materials

Leather
Die-Cast-Parts
Metal
Stone
Glass



ENDLESS Materials

Leather
Cast-
Parts
Metal
Stone
Glas

and much, much
more
...

turn the
lights
on

AURORA

GLASLINE



A



KARLS
HOTEL



RAINBOW
BUTTONS

according to request

Unique
Parts



and much, much
more
...



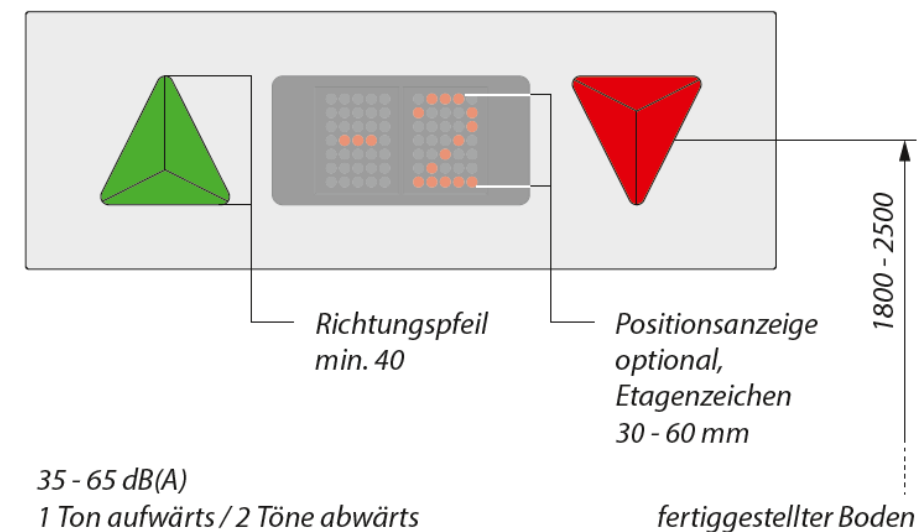
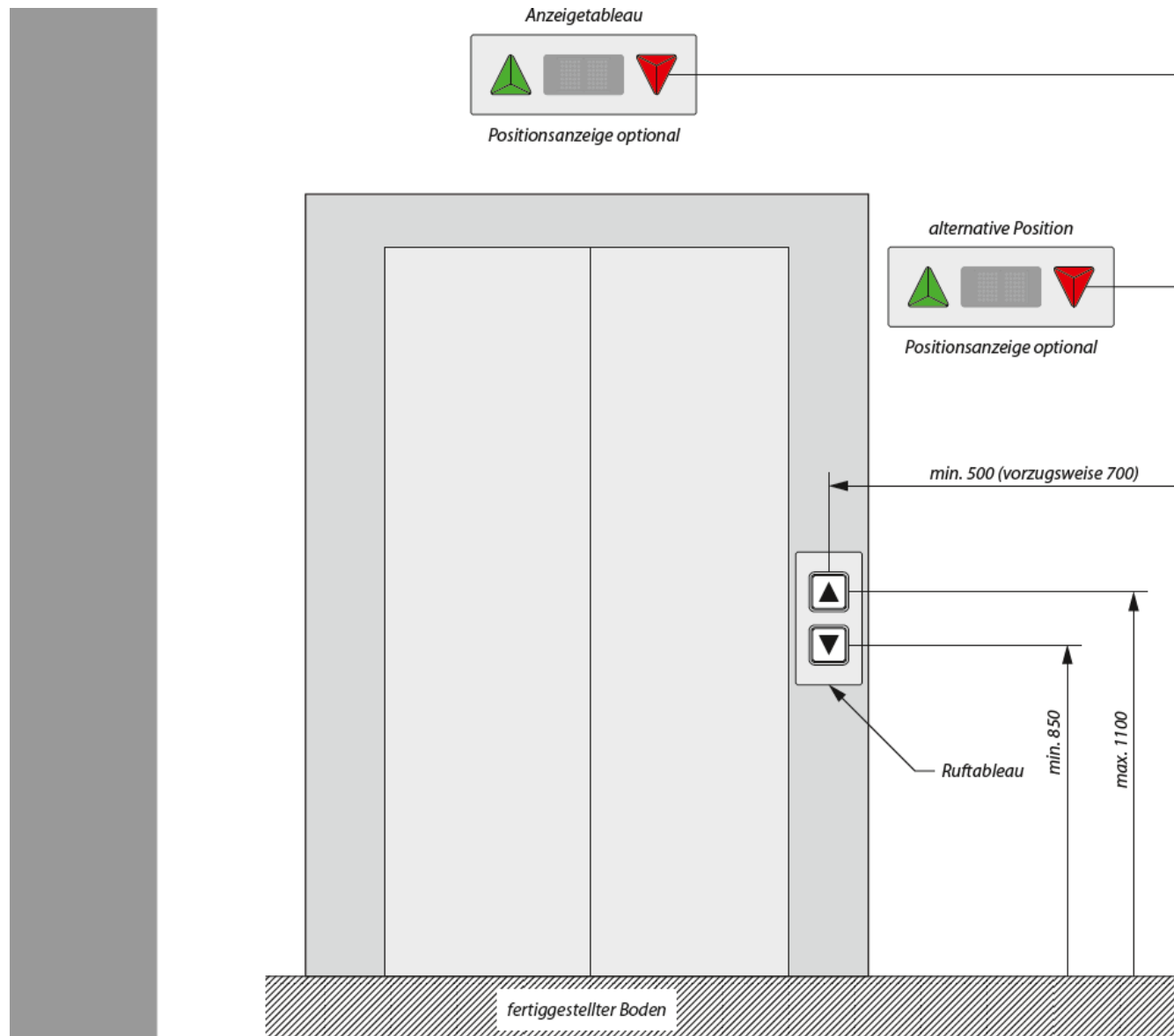


EN 81-70 ACCESSIBILITY

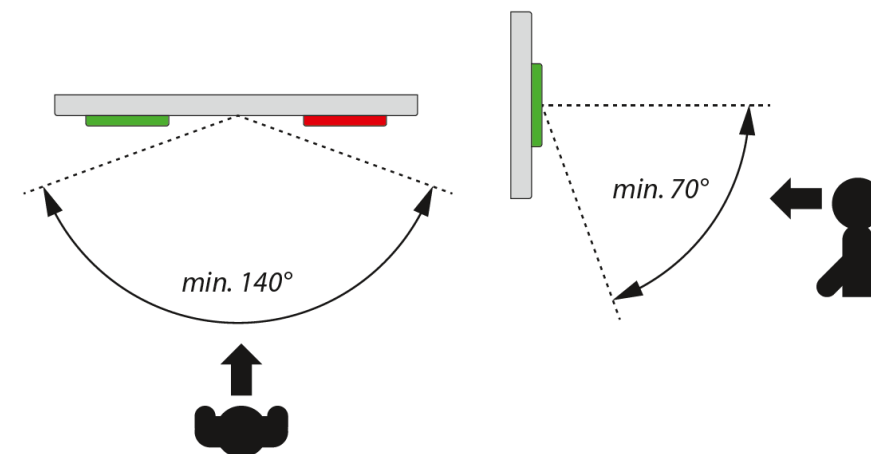
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EN 81-70 INDICATOR PANELS



35 - 65 dB(A)
1 Ton aufwärts / 2 Töne abwärts



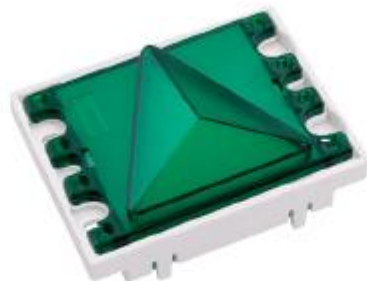
EN 81-70 INDICATOR PANELS

Requirements for the directional arrows:

- Arrows must be illuminated during activity
- Contrast with the immediate surroundings
- Arrows must be clearly visible from the stop, height of arrow should be minimum 40 mm
- Color of arrows is not important
- Acoustic signal when the directional arrows light up
- *1 tone for “upwards direction”* *2 tones for “downward direction”*



Leuchtpfeil LP 4848 LED



Prismen Pfeil PP 4848 LED



EPSILON Arrow EA 6644



Leuchtpfeil LP 8080 flächenbündig



Leuchtpfeil LP 8080 erhaben

Requirements for displays:

- Floor designation should be 30-60 mm high



Segmentanzeigen ein- bis dreistellig



Punktmatrix-Anzeigen DMD Zeichenhöhen 30 mm, 35 mm oder 50 mm



Punktmatrix-Anzeige D 50 Q
DMD 16x16

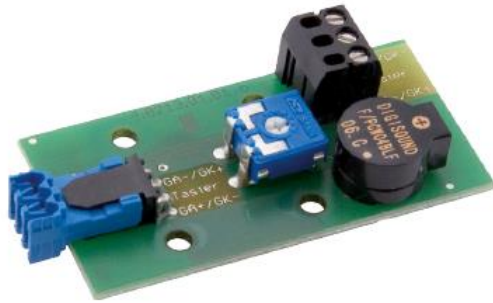


Multifunktionsdisplays MFD 332 und MFD 544



TFT-Displays hochauflösend mit verschiedenen Bildschirmdiagonalen ab 3.2"
Beispiellayout für Fahrkorb und Haltestelle





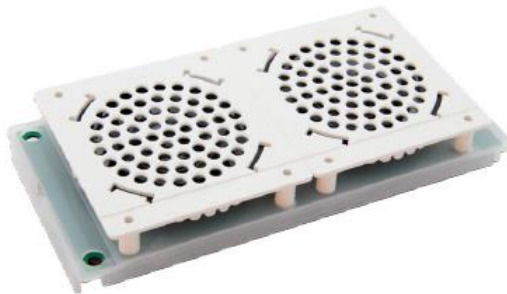
Akustische Quittierung AQ



Prozessor-Gong PG 37 Q



Prozessor-Gong PG 42/56



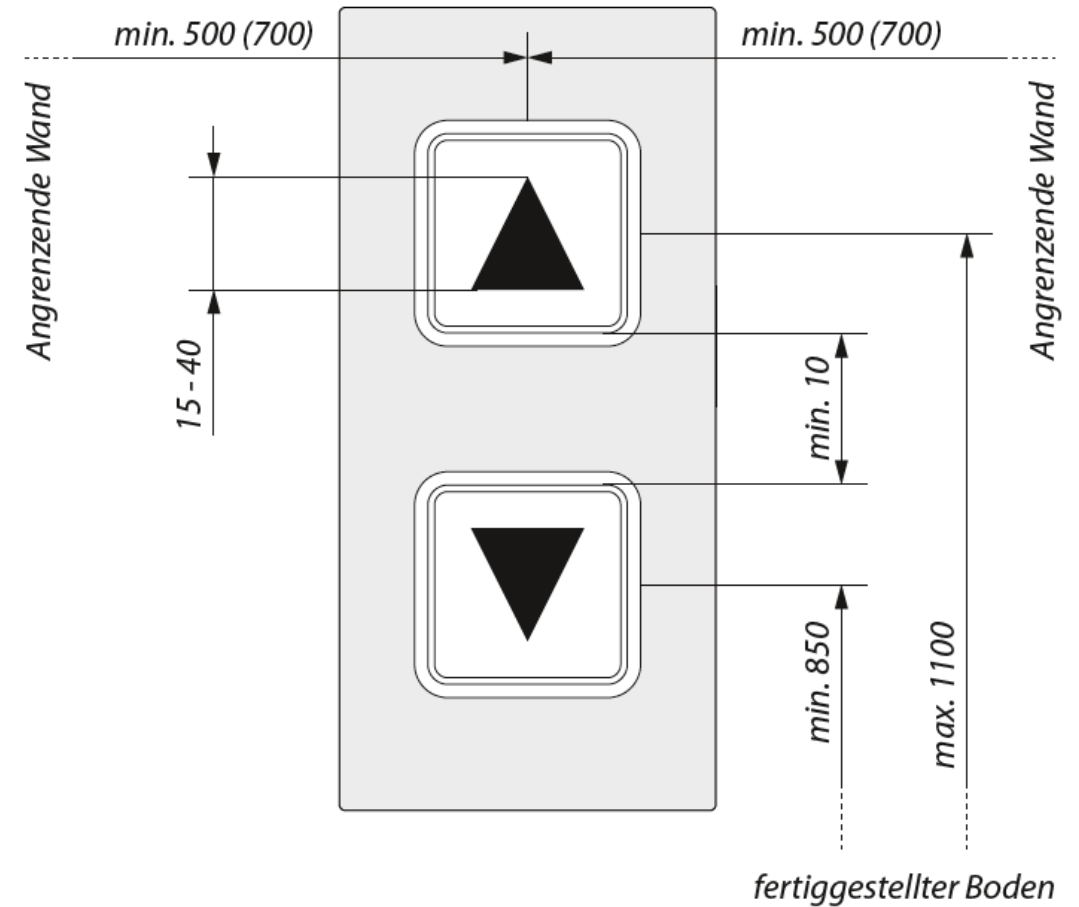
Digital Voice Master DVM 70 V2.0 +
2 x Speaker 50



Speaker 50

Requirements for LOPs and pushbuttons:

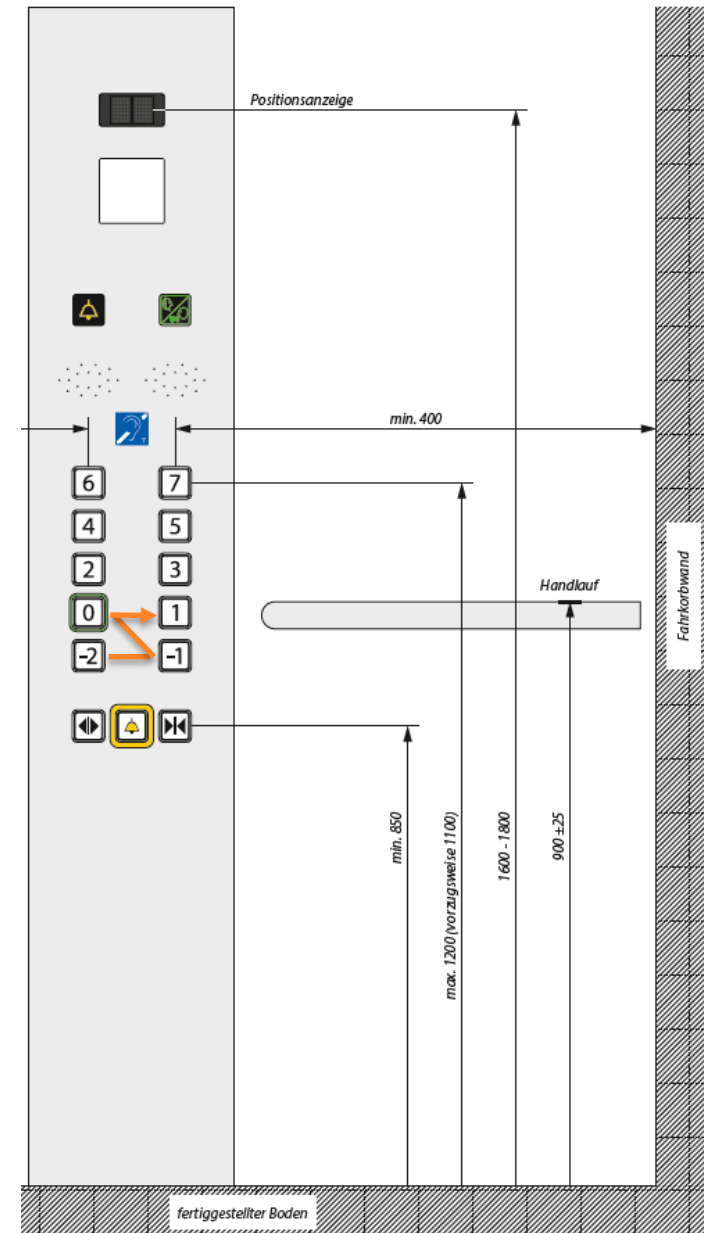
- Minimum height from the finished floor to the center line of the lowest button should be 850mm
- Maximum height from the finished floor to the center line of the top button should be 1100mm
- Arrow up/down symbol must be tactile and have an LRV of at least 30



EN 81-70 CABIN OPERATING PANELS

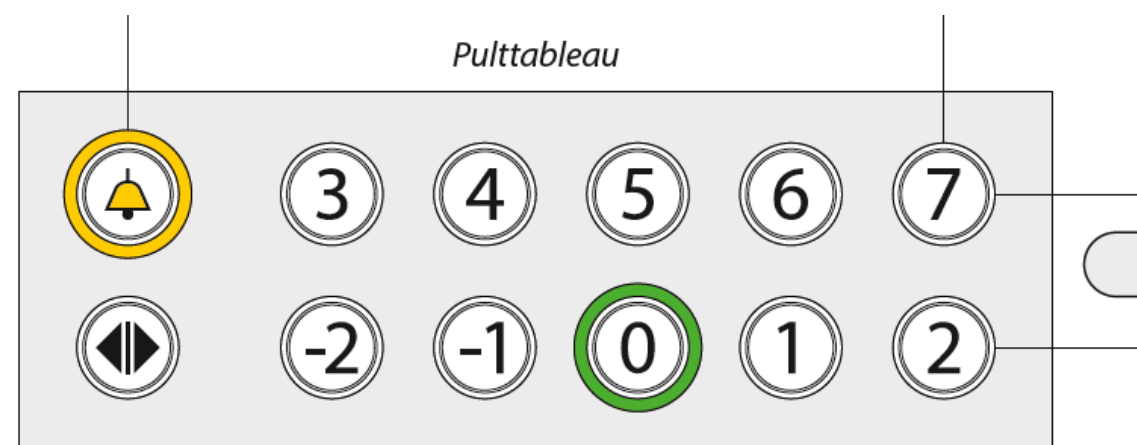
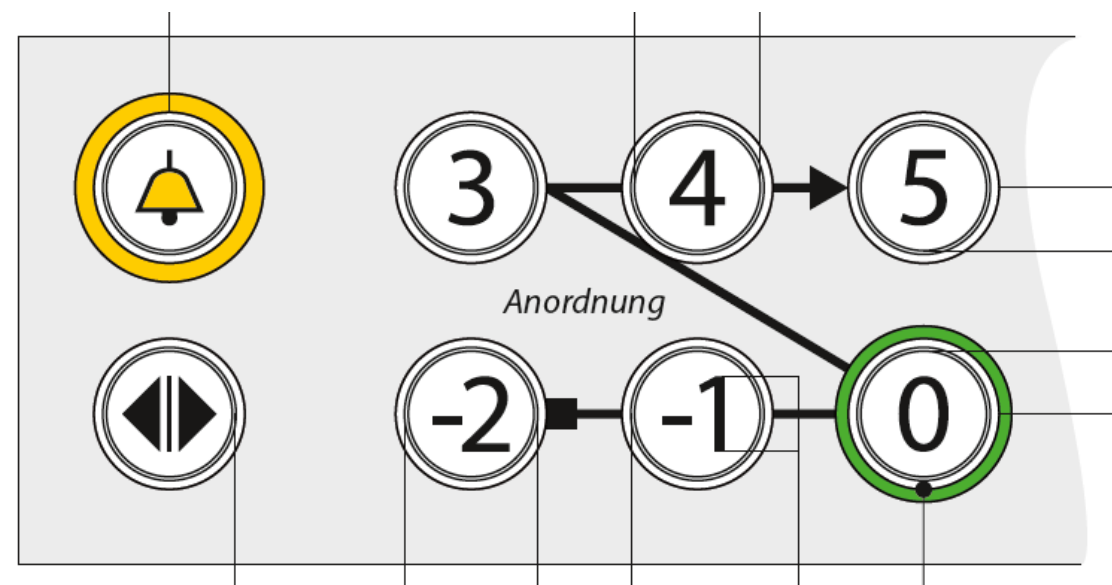
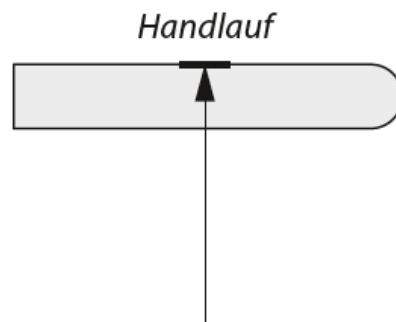
Requirements for COPs:

- At stops, the elevator's position must be announced in at least one official local language
- There should be **audible signals** and **voice announcements**
- Arrangement of buttons should be **from left to right** and **from bottom to top**
- Building exit** must have an elevated position of $5\text{mm} \pm 1\text{mm}$ above the other control devices (preferably **green**)
- Button designations should be numbers instead of letters



Requirements for desk-shaped COPs

- Height of buttons positioning from a minimum of 850mm to a maximum of 1000mm to the center line of the button
- Height of position indicator between 1600 and 1800mm
- Arrangement of buttons should be **from left to right** and from **bottom to top**



EN 81-70 PUSHBUTTONS STYLE 42 (MT42 AND RT42)

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MT 42 Prägung



MT 42 Prägung



MA 42 P
Notrufpiktogramm



MA 42 P Überlast



Rund-Taster RT 42 Prägung



Rund-Taster RT 42 2M
Prägung farbig ausgelegt



Rund-Anzeige RA 42 LC
Notrufpiktogramm



Rund-Anzeige RA 42 LC
Notrufpiktogramm

EN 81-70 PUSHBUTTONS STYLE 42 (VB 42 AND EB42)

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Vandalism Button VB 42
Prägung



Vandalism Button VB 42
Prägung farbig ausgelegt



Vandalism Button VB 42 M
Label mit Prägung



Vandalism Display VD 42
Gravur farbig ausgelegt



EPSILON Button EB 42 Prägung farbig
ausgelegt



EPSILON Display ED 42 LC
Notrufpiktogramme



EPSILON Display ED 42 Überlast

EN 81-70 SLIM PUSHBUTTONS STYLE 37 (B37Q AND B37R)

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B 37 R taktile, grau, PC



B 37 R taktile, grau, PC, Exit



B 37 Q 2M taktile, gelb, PC,
Frame



D 37 R Notrufpiktogramm

EN 81-70 PUSHBUTTONS STYLES 45 AND 50

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B 45 Q Prägung



D 45 R Gravur farbig
ausgelegt



B 45 Q taktil, schwarz, PC



D 45 Q Notrufpiktogramm



B 50 R taktil, schwarz, PC



B 50 R Prägung/Braille



B 50 Q fb V2.0 Class 3+
Profilschrift/Braille



B 50 Q Class 3+
Profilschrift/Braille

EN 81-70

EMERGENCY BUTTONS AND INDICATORS

- Positioning inside or above the car panel with visible displays and acoustic signals
- An acoustic signal must sound for the duration from the emergency call being triggered until a voice connection is established
- Yellow bell symbol must be illuminated from activation until the end of the emergency call
- Our FB pushbuttons are remotely controlled, for electrical and mechanical functioning test



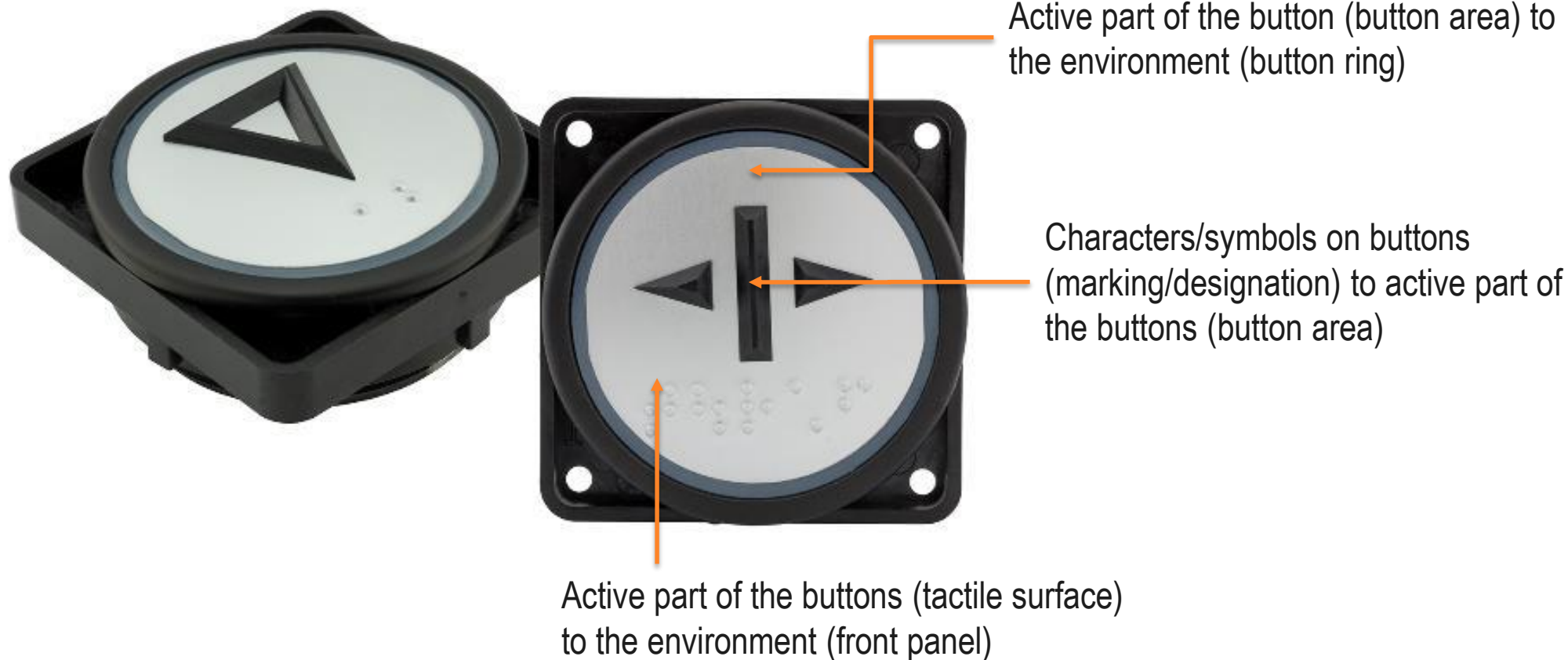
B 50 Q fb V2.0 Class 3+
Profilschrift/Braille



Light Reflectance Value (LRV)

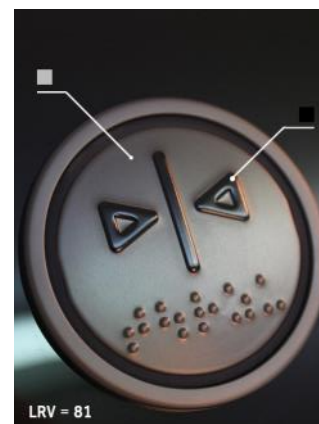
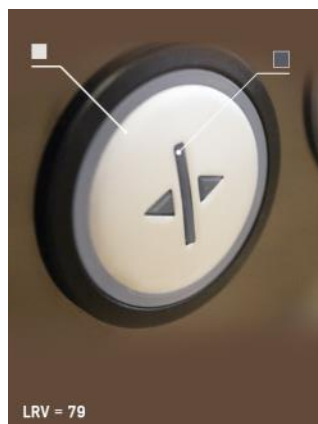
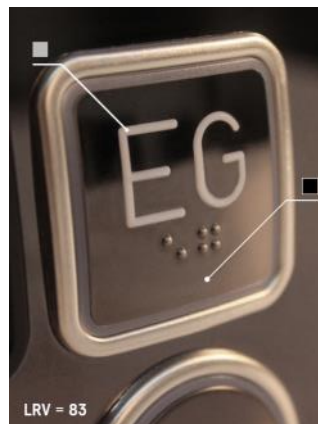
Minimum 30 LRV point difference

Recommended 60 LRV point difference



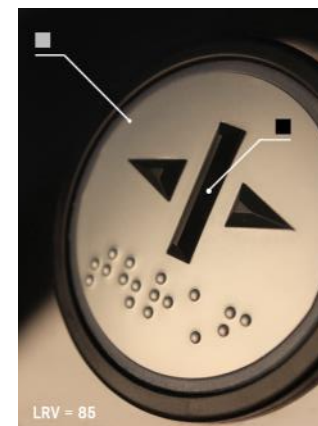
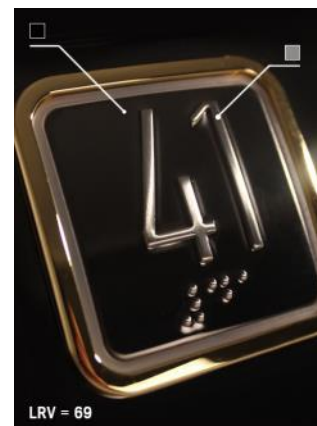
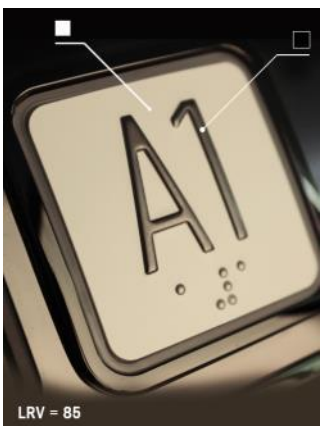
EN 81-70 CLEAR RECOGNITION

SCHAEFER



EN 81-70 CLEAR RECOGNITION

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EN 81-71 RESISTANCE TO VANDALISM

SCHAEFER



PROTECTIVE MEASURES AGAINST INTENTIONAL DESTRUCTION

Tools used	Category according to EN 81-71		
	0	1	2
Key	X	X	X
Walking stick	X	X	X
Chewing gum	X	X	X
Cigarette	X	X	X
Human body weight 75 kg	X	X	X
Lighter	-	X	X
Pocket knife (100 mm blade)	-	X	X
Medium screwdriver (200mm length)	-	X	X
Bottle cap	-	X	X
Body fluids	-	X	X
Diagonal cutters (medium size without additional functions)	-	-	X
Hammer (1 kg)	-	-	X
Brick (220mm x 110mm x 70mm)	-	-	X

EN 81-71**TEST METHODS CLASS 0 / CLASS 1 / CLASS 2 / CLASS 3+****Impact resistance test****Fire protection test****Water protection test**

After testing, the buttons remain in a safe and functional condition and all labels remain legible.

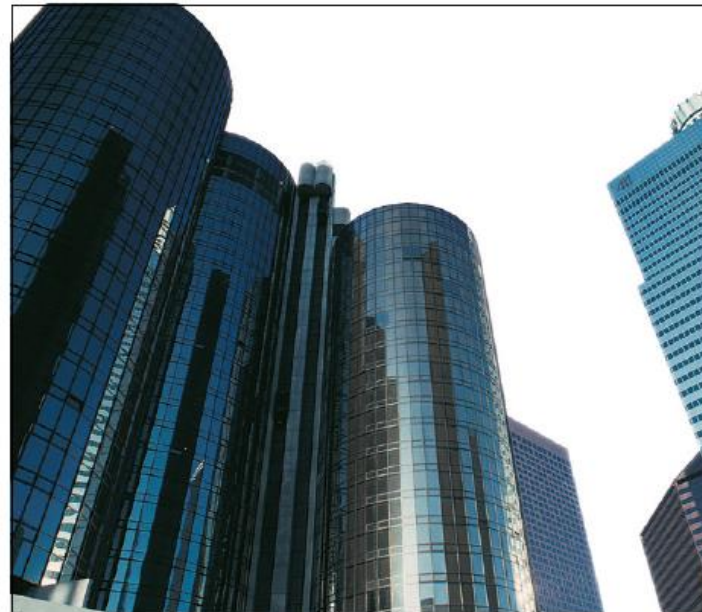
EN 81-71 CLASS 0

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- Elevator must be conform to EN 81-20
- Suitable for observed and unobserved limited user groups or observed public



Example: MT 42



EN 81-71 CLASS 1

Class 1

Class 2

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Rund-Taster RT 42 wg
Prägung



EN 81-71 CLASS 2

- Elevator according to EN 81-20 with additional requirements to protect against serious voluntary destruction

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Class 1 Class 2



B 45 Q Prägung/Braille

Class 1 Class 2



B 50 R taktil, schwarz, PC/
Braille

Class 2





Impact resistance test:

20 Joule/5 kg Impact body from a fall height of 0.4 m



Fire test:

Flames 40mm long, for 180s



Water protection / dust protection

Protection class IP54 against dust in harmful quantities / complete protection against contact / protection against splashing water from all sides

	EN 81-71 Class 1	EN 81-71 Class 2	SCHAEFER Class 3+
Prüfmethode Schlagfestigkeit			
Test procedure impact resistance			

Stoßgewicht	1 kg	1 kg	5 kg
Fallhöhe	0,2 m	1,0 m	0,4 m
Schlagenergie	2 Joule	10 Joule	20 Joule
Brandprüfung	60 s	120 s	180 s
Schutzart	IP X3	IP X3	IP 54

Impactor weight	1 kg	1 kg	5 kg
Height of fall	0.2 m	1.0 m	0.4 m
Impact energy	2 Joule	10 Joule	20 Joule
Fire test	60 s	120 s	180 s
Protection class	IP X3	IP X3	IP 54

VB 42 / VD 42

EN 81-71 Class 2

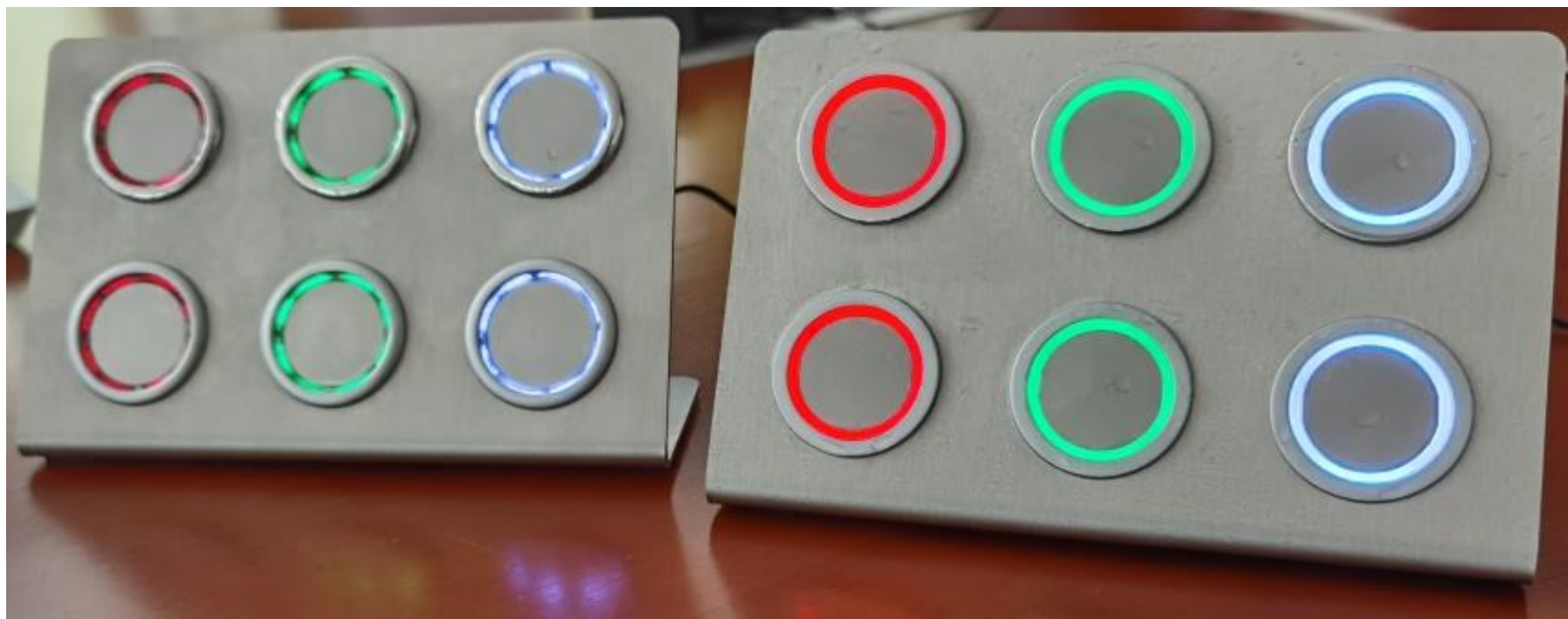


VB 42 Class 3+ / VD 42 Class 3+

NEW



- Buttons with a higher vandalism protection class also offer better protection against moisture, which should be taken into account, especially for systems that are cleaned or disinfected very frequently.



EN 81-71

VANDAL-RESISTANT COMPONENTS

- High resistance to impact, bending, scratch and fire
- Laminated safety glass (VSG) is used as protective glass for Displays and indicators
- Protections for key switches
- EKS 42 Electronic Key Switch, behind the panel



How can we improve accessibility for the hearing- and visually-impaired, and for people with limited mobility?

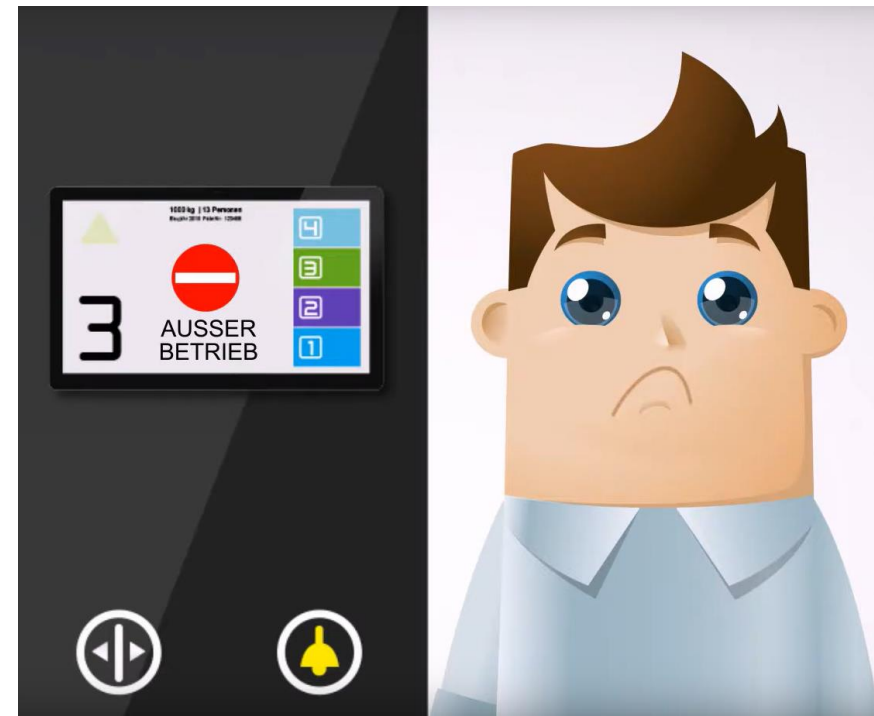
- People with **hearing-impairment**: how to communicate with them in case of emergency?
- People with **vision-impairment**: how can we improve their usage of the elevator?
- People with **limited mobility**: how to grant access to controls in any situation?

SOLUTIONS FOR THE **HEARING IMPAIRED**

Norms already regulate the visual signalization of the elevator position and movement and of the activation of elevator calls and alarms.

But something is left out.

The hearing-impaired cannot communicate with the emergency service, because they can't hear the operator's voice!



SOLUTIONS FOR THE HEARING IMPAIRED - HBN

SCHAEFER

We developed together with Telegärtner a **Visual and multilingual emergency communication system**.

HBN is a lift emergency communication system for people with hearing impairments and non-native speakers.

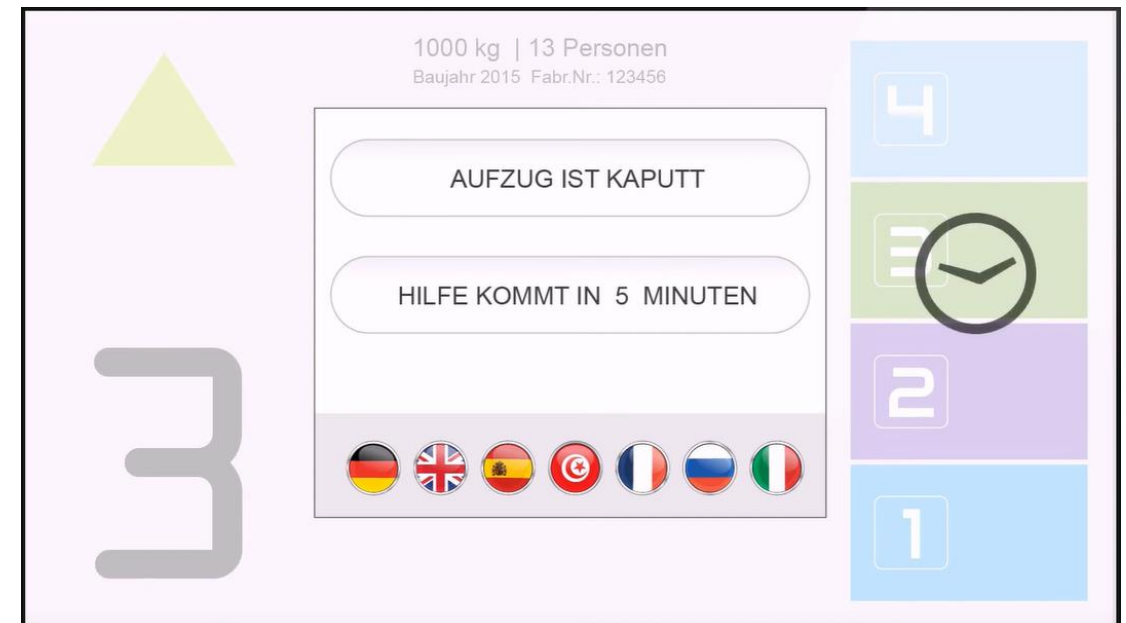
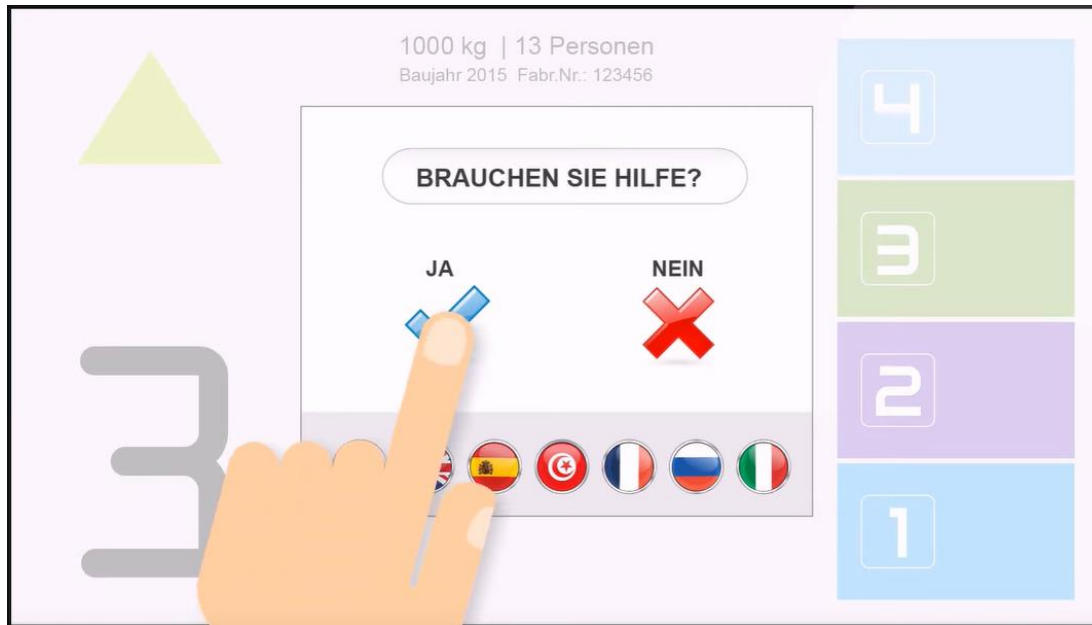
This system provides a new level of safety for people with hearing impairments. The system enhances the standard emergency call system and communicates with passengers via a screen. The **touch screen** displays questions and can be used to pick predefined answers.

Communication is possible in several languages, and flag icons allow users to select the desired language. Furthermore, it is not necessary for control centre staff to speak the respective language to enable effective communication.



SOLUTIONS FOR THE HEARING IMPAIRED - HBN

The user can initiate an emergency call, select his language, and answer to questions on the touch screen, that the emergency service operators select in their own language. The questions are predefined and already translated in all stored languages.

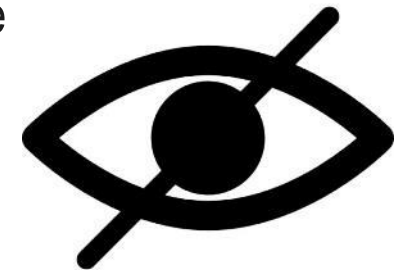


SOLUTIONS FOR THE **VISION IMPAIRED**

Norms already regulate the acoustic signalization of the elevator position and movement and of the activation of elevator calls and alarms.

But the user experience can be improved.

The blind or vision impaired still need to search for the landing or cabin operating panels, touch all buttons to find the ones they need, recognize the embossed symbols, thus wasting time and exposing themselves to unnecessary contamination.



SOLUTIONS FOR THE VISION IMPAIRED

To improve their experience it is possible to implement our **LiftBoy** system.

The LiftBoy app allows elevators to be controlled via the smartphone. For lift systems that are equipped or upgraded with the LiftBoy GIM node (car operating panel or landing operating panel), lift calls and floor selections can be made conveniently via the smartphone.

What has this to do with vision impairment?



LIFTBOY
ELEVATOR OPERATION BY SMARTPHONE

**CONTACTLESS
OPERATION VIA
SMARTPHONE**

retrofittable | hygienic | comfortable | <https://schaefer-products.com/liftboy>

LIFTBOY APP

<https://liftboy.app/android.html>

<https://liftboy.app/ios.html>

The graphic features a red background with a white icon of a person in a hard hat. A hand holds a smartphone displaying the Schaefer LiftBoy app interface. A red circuit board labeled 'LiftBoy' is also shown. Two QR codes are provided for downloading the app on Android and iOS.

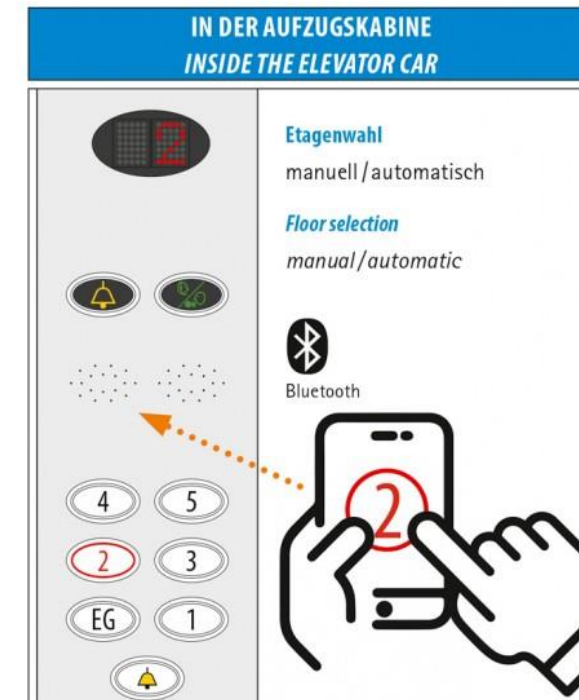
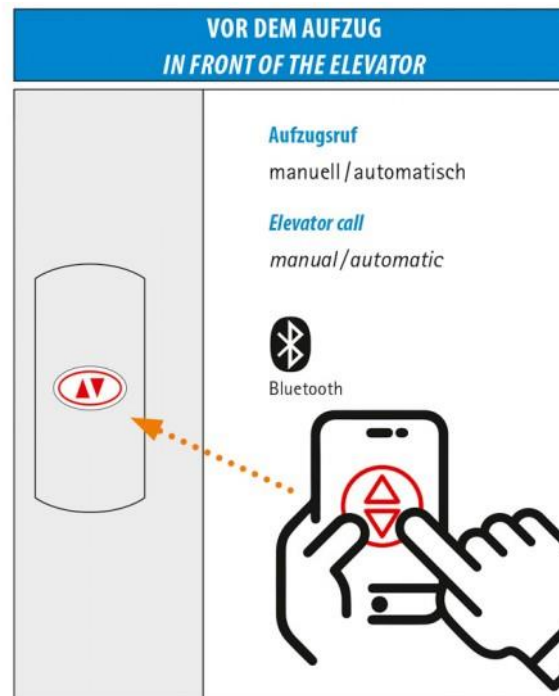
SOLUTIONS FOR THE VISION IMPAIRED - LIFTBOY

All smartphones (with iOS or Android) are equipped with software that can read the content of the screen and help the blind or vision impaired to navigate through apps and websites.

- iOS: VoiceOver
- Android: TalkBack

LiftBoy is compatible with these services, and so the blind or vision-impaired can control the LiftBoy app easily, and therefore call the elevator and select the destination floor, without having to search for the buttons or waste any time.

An **automatic call** can also be setup so that the users don't even have to take their smartphone out of their pocket.

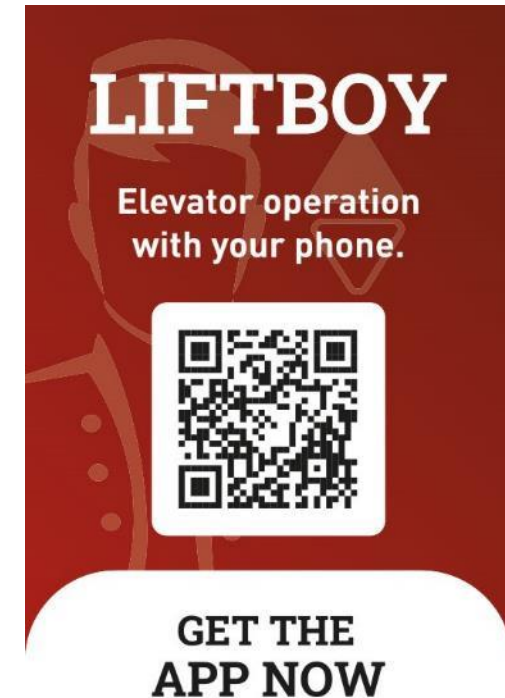


SOLUTIONS FOR THE VISION IMPAIRED - **LIFTBOY**

SCHAEFER 

Advantages of LiftBoy:

- Manual or automatic elevator call
- Manual or automatic floor selection
- Can be retrofitted without intervention in the control system
- Can also be used for elevator groups
- No change in elevator behavior (mechanical buttons are still available)
- Reduces unpleasant waiting times
- Hygienic operation
- Extension of door opening times can be triggered via app
- Alarm/emergency call triggering via app
- The current car status is visualised in the app.



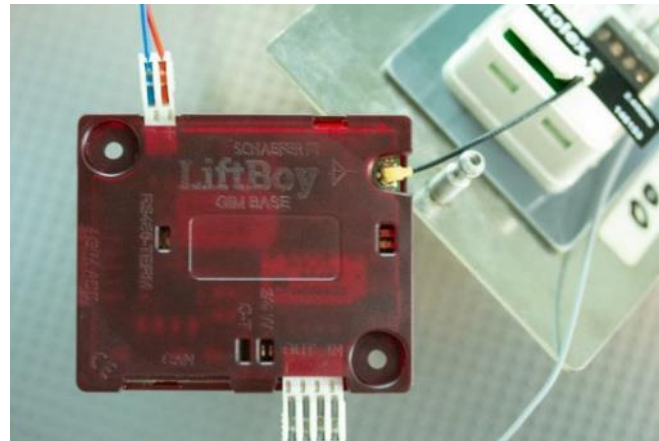
SOLUTIONS FOR **LIMITED MOBILITY**

There is still a range of users that can't access the elevator autonomously.

- Users with limited strength
- Users with no use of hands
- Users with no use of hands or feet



B50Q TL



LiftBoy



B80Q pan

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