GEZE TSA 325 NT REVOLVING DOORS

FOR MANUAL AND AUTOMATIC OPERATION

CONTENTS

GEZE TSA 325 NT

Deutsche Bank, Stuttgart · Fully-automatic GEZE revolving doors with 3 leaves and drum walls of sheet metal panels

INTRODUCTION

Focal point of the entrance area

The entrance area is the poster child of your building and thus of your enterprise. Therefore it is imperative to validate the positive optical impression through the faultless function of the door system even in the case of high access frequency. GEZE revolving doors meet these requirements and enthral planers, owners and users of buildings. The practically unlimited freedom of design and the full range of materials and colours fulfil even highest architectural demands. Open and closed at the same time, revolving doors eliminate draught. Owing to an entrance area without draught the area in direct vicinity to the entrance can be used commercially and at the same time noise, dust and dirt are kept outside. The clear physical separation into interior and exterior area and the energy that is saved thereby off er clear cost advantages and makes the use of revolving doors even more advantageous.

The range of application of revolving doors is manifold. They are suited for :

- Business buildings
- Public buildings
- Shopping centres
- Hotels and restaurants
- Administrative buildings
- Car dealerships
- Airports and railway stations

Due to the available optional features with folding leaves, revolving doors are also suitable for the use in escape and rescue routes depending on the required width of the escape route.

GEZE revolving doors are tailor-made for each individual object. They feature a variety of options and versions. Should your desired object vary from the stated dimensions and options please do not hesitate to contact us. We off er a door for each entrance!

ADVANTAGE FOR ALL TARGET GROUPS

Advantages for planers and builders:

- Freedom of design and object-specifi c individual planning with a variety of optional features
- Commercial use of the entrance area for shops, offices, exhibition areas and reception desk
- Harmonious optical appearance of the facade and the interior
- Representative entrance with an excellent visual effect
- Improvement of the energy balance of the building
- Economic solution due to a high degree of prefabrication ex works

Advantages for the user:

- Faultless and unobstructed operation of the door system even in the case of high access frequency
- Simple adjustment of the desired mode of operation
- Effective protection against noise, dust and dirt
- Draught-proof design of the entrance area

Advantages for the installer:

- Modular and fl exible system
- Simple installation due to a high degree of prefabrication ex works
- Pre-defined and programmed control technology for a quick start-up
- Door system and safety devices comply with the actually valid standards and regulations

IBM Ehningen · Fully-automatic GEZE revolving doors with 4 leaves, BO function and automatic night time locking mechanism

GEZE TSA 325 NT

TYPES OF DRIVES

The selection of the revolving door with regards to the mode of operation and the diameter depends on the object and its specific use. Please determine the planned type of use and the expected influx of visitors during the planning phase in order to come to a decision on the optimum revolving door system. Furthermore please check whether the entrance will also be used as escape and rescue route and which further special demands are put on the door system, e.g. whether an access control system via a card reader will be required.

Manual revolving door

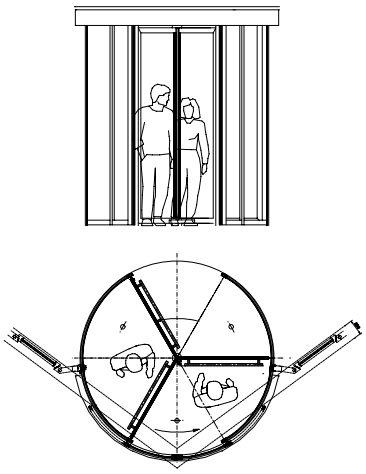
We recommend manual revolving doors with a diameter of approx. 3000 mm for buildings with a limited flow of visitors. Larger manual doors are possible (up to max. 3600 mm), however, the comfort of use is considerably reduced due to the increased exertion of force and the increased friction of the brushes. The doors can be operated by slightly pushing them. The door is spacious but small enough to be operated by everybody without any eff ort. The door is not equipped with a motor, it has no transmission and no safety devices and is therefore moderately priced.

- **Option: incl. speed limiter**

Combined with a self-regulating speed limiter, which counteracts to a further increase of the peripheral speed as soon as the top limiting speed has been reached.

- **Option: incl. positioning device**

As an alternative a manual revolving door can be equipped with a positioning device.
For this purpose a motor and a drive unit is installed into the ceiling or the floor, which returns the turnstile to the final position at low speed and with a minimum of force after manual operation. Thus the next visitor has the possibility to directly enter the revolving door without having to rotate the leaves prior to entering. A further advantage is that the door is always in the final position which leaves a well-ordered optical impression.



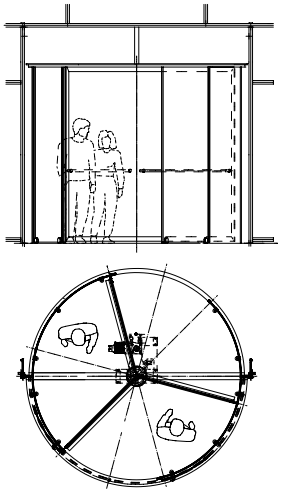
Hotel La Casa, Tübingen
Manual GEZE revolving door with 3 leaves and night-time locking mechanism

TYPES OF DRIVES

Automatic revolving door with Push & Go function
The automatic door with Push & Go function is suited for high access frequency without lack of comfort. An increased capacity is achieved by the greater diameter of the door system (up to max. 3600 mm). The automatic revolving door is activated by shortly pushing the revolving leaf. The automatic door system accelerates and then rotates in an adjustable automatic speed. The door is suited for objects with a constant circle of visitors who are familiar with the activation of the revolving door which is the case in office buildings as well as administrative buildings.

Fully-automatic revolving door
The fully-automatic door with movement detectors is suited for high access frequency. These door systems can be produced up to a maximum internal diameter of 3600 mm. The automatic revolving door is activated via inside and outside movement detectors. Upon activation the door accelerates and rotates in an automatic speed. Thus the revolving door offers high comfort and smooth and trouble-free passage. The automatic speed is adjustable and the after-running function can be freely adjusted for the modes of operation "summer" (elongated after-running) and "winter" (no after-running function). As further option a "button for the disabled" can be installed inside and outside of the door. By operating this switch the revolving speed is reduced in order to allow wheelchair users or hampered persons to pass the revolving door without any problems. This reduced speed can also be adjusted. At the end of the after-running period the revolving door reduces the speed in all modes of operation and stops in the final position, where the door leaf seals tightly against the side walls thus leaving all disturbing environmental determants such as draught, automobile exhaust, cold and noise outside.

All-glass revolving door
The revolving door with the GEZE all-glass system offers highest transparency. The entire drive and control technology are concealed in the floor. The high-quality surface of the aluminium profi les which are reduced to a minimum with soft edges implies discreet elegance. The drum walls of the all-glass revolving doors are made of curved laminated glass and only the glass edges have narrow cover profiles. The door leaves consist of fi nely-framed toughened safety glass and two half-shelves of annealed glass form the roof that is fixed by point fittings of stainless. GEZE realises individual, object-related solutions for revolving doors. Door systems with three and four leaves with clear passage heights of up to 3000 mm and freely selectable diameters of 1800 - 3300 mm can be realised as well as all mentioned types of drives.



CSC Plönzke, Wiesbaden
Fully-automatic GEZE revolving door with 3 leaves and outside night locking mechanism and movement detectors in the floor

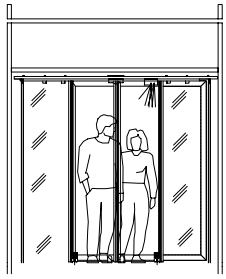
NUMBER OF DOOR LEAVES

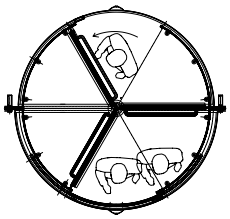
The decision for a revolving door with 3 or 4 leaves

The revolving door with 3 leaves has a slightly reduced passage capacity. However, it offers higher comfort in use, since there is more space between the door leaves. This higher comfort accommodates the elderly or disabled who cannot adapt themselves to the speed of the revolving door. This type of door is also suited for shopping centres where persons with shopping trolleys or families with prams use this type of door. The inner width of the door is smaller than that of a 4-leaves revolving door with the same diameter. This should be taken into account when planning the door system.

The revolving door with 4 leaves is the classic version with the highest capacity, suited for two-way traffic and a large stream of visitors. Due to the symmetric construction the drum of the revolving door is closed by two leaves which results in an improved protection against environmental infl uences and an improved air-trap effect. This type of door has a larger opening width and is optically very attractive due to its symmetric form.

Romeo and Juliet, Frankfurt
Automatic revolving door with 4 leaves and fanlight made of glass





Hella KGaA HBPO GmbH, Lippstadt
Automatic all-glass revolving door with 3 leaves with underfloor operator and night-locking mechanism

	TSA 325 NT All modes of operation	**TSA 325 NT GG** All modes of operation
Dimensions		
Inner diameter (freely selectable) (special dimensions on request)	1800–3600 mm	1800–3300 mm
Number of leaves	3 or 4 leaves	3 or 4 leaves
Clear passage height (special dimensions on request)	2100– max. 3000 mm	2100– max. 3000 mm
Canopy height (depending on drive) (special dimensions on request)	75 mm/200 mm	16-20 mm glass roof
Revolving door for the use in escape and rescue routes	suitable	not possible
Door construction		
Side walls in all-glass panels 16 mm	●	●
Side walls with sheet panels 20 mm	●	not possible
Flat thermally insulated aluminium panels 34 mm	●	not possible
Screwless construction of toughened safety glass (ESG) 10 mm	●	●
Roof construction		
As dust protection roof with wood covering	●	not possible
Optical sheet covering	●	not possible
Waterproof roof with two waterspouts	●	not possible
Surface of the aluminium components		
Powder coating in accordance with RAL	●	●
Anodised	●	●
Colour anodised acc. to sample	●	●
Anodised similar to stainless steel	●	●
Covered with stainless steel, ground (grain size 240) mirror-polished	●	●
Night-time locking mechanisms and locking of the door		
Night-time locking mechanism manual and automatic	●	●
Night-time locking inside and outside running	●	outside running only
Night-time locking of curved laminated glass 10 mm (VSG) or curved aluminium panels	●	●
Manual locking of the door leaf	●	●
Automatic locking of the door leaf	●	not possible
Further options		
Door handles horizontal or vertical	●	●
Illumination with LEDs	●	not possible
Floor ring	●	●
Floor mat	●	●
Underfloor operator	●	●
Button for the disabled	●	●
Air curtain	●	on request

● = Option

GEZE TSA 325 NT

PASSAGE CAPACITY

	3 leaves		4 leaves	
Internal diameter (exemplary)	Capacity Persons/hour	Persons/minute	Capacity Persons/hour	Persons/minute
2000 mm	1320	22	1610	26
2400 mm	1130	18	1460	24
2800 mm	1910	31	2300	38
3200 mm	2500	41	3020	50
3600 mm	2180	36	2680	44

All stated values refer to the maximum capacity in one direction and a peripheral speed of 0,75 m/s

DIMENSIONS

Illustration: manual version, 3 leaves

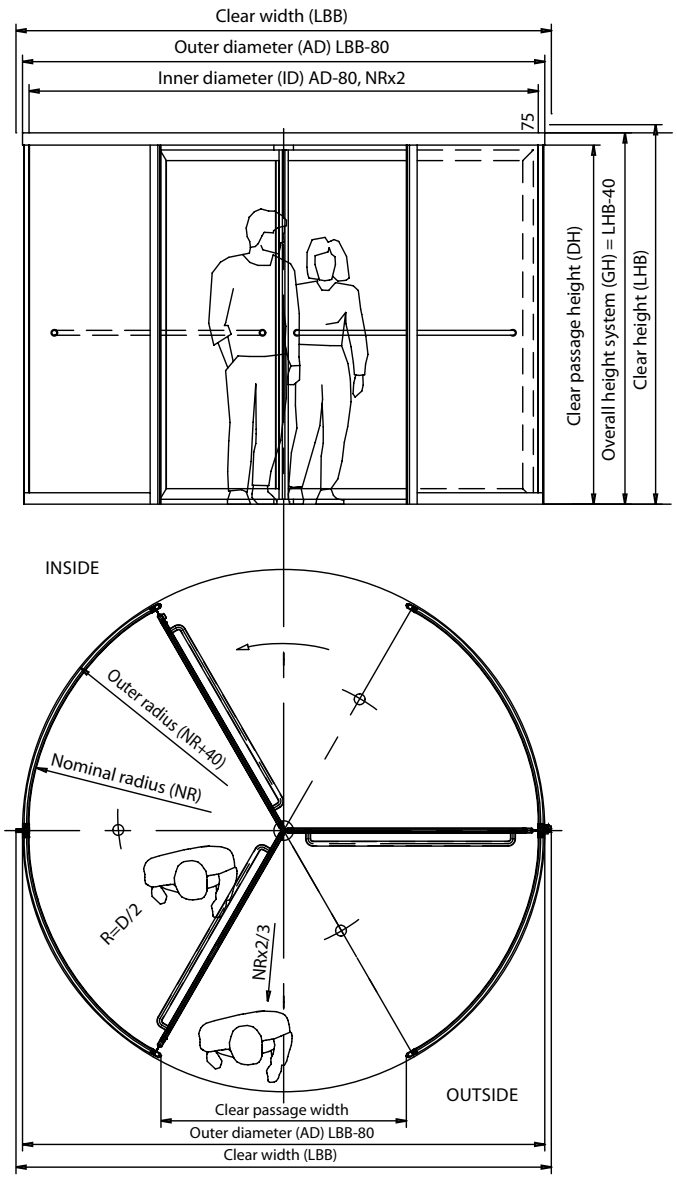
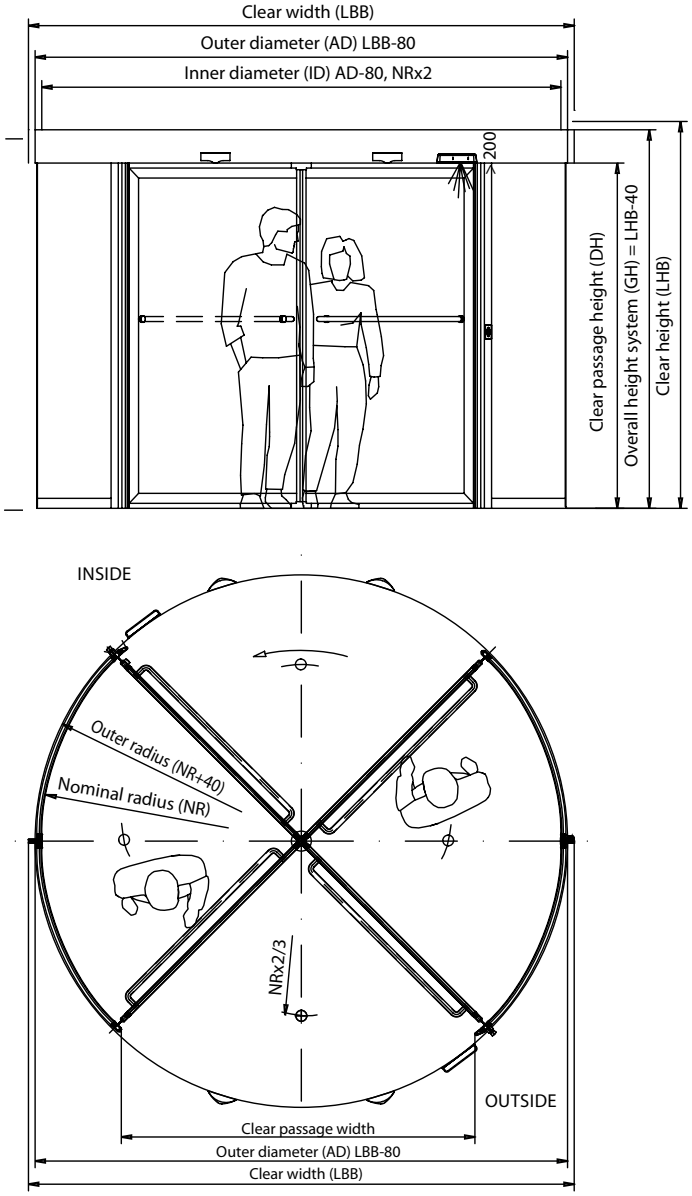
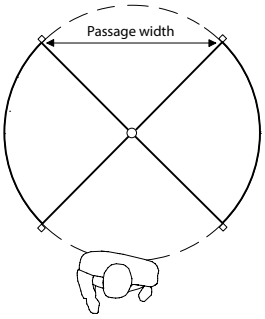


Illustration: actuated version, 4 leaves



PASSAGE WIDTHS



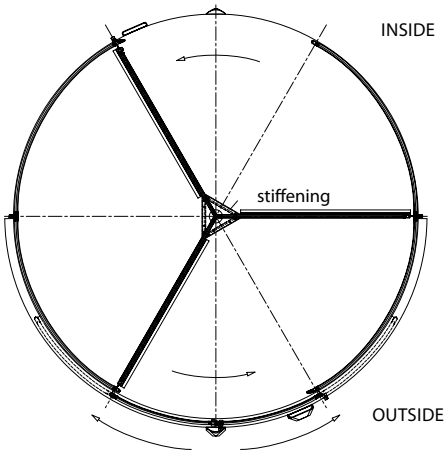
for manual revolving doors

	3 leaves	4 leaves
Inner diameter (exemplary)	Glass in frame	Glass in frame
2000 mm	945 mm	1370 mm
2400 mm	1145 mm	1652 mm
2800 mm	1345 mm	1934 mm
3200 mm	1545 mm	2216 mm
3600 mm	1745 mm	2498 mm

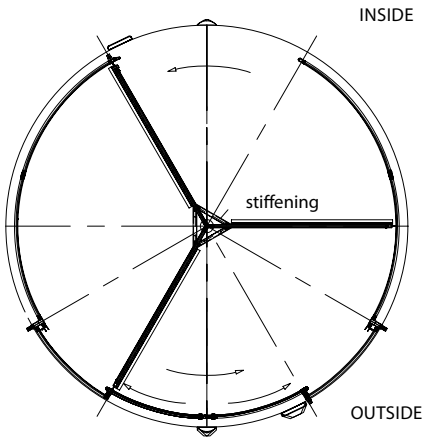
for automatic revolving doors

	3 leaves	4 leaves
Inner diameter (exemplary)	Glass in frame	Glass in frame
2000 mm	895 mm	1325 mm
2400 mm	1097 mm	1609 mm
2800 mm	1297 mm	1893 mm
3200 mm	1497 mm	2177 mm
3600 mm	1697 mm	2461 mm

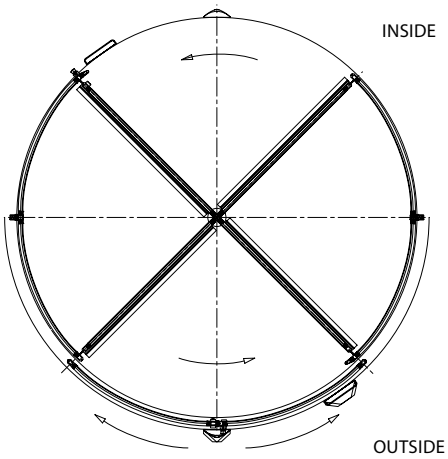
3 leaves with outside running night locking mechanism



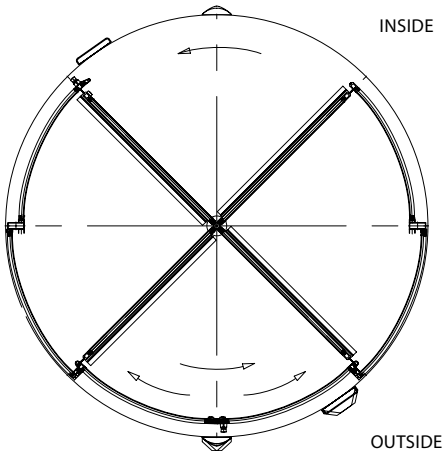
3 leaves with inside running night locking mechanism



4 leaves with outside running night locking mechanism



4 leaves with inside running night locking mechanism



GEZE TSA 325 NT

BREAK-OUT FUNKTION

GEZE revolving doors for the use in escape and rescue routes

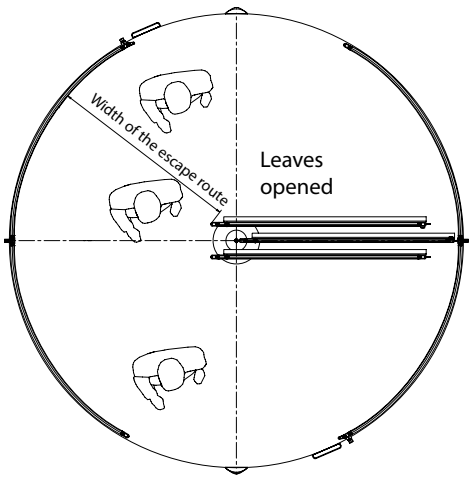
The GEZE revolving door with BO function (Break-out function) is suited for the use in escape and rescue routes. All leaves are pivoted and are mechanically held.
Breaking out is possible at approx. 220 N (default for breakout force in accordance with DIN 18650 and AutSchR). The force can be adjusted at each individual leaf using customary tools. The adjustment can be made without the necessity of dismantling any components.

The revolving door with BO function can be realised as door with 3 or 4 leaves,
either as manual, push & go or automatic door, however, not as all-glass revolving door (IGG).
The minimum canopy height is 200 mm, a fl oor ring is required in any case.

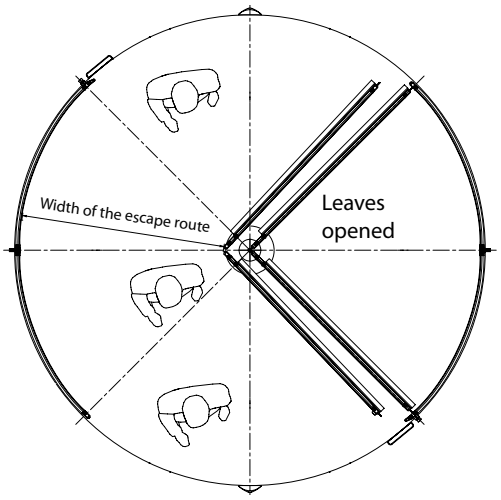
Maximum diameter: 3600 mm
Minimum diameter for a "reasonable" width of rescue route: 2600 mm.

The width of the escape way depends on the number of leaves and the drum diameter. It must be taken into account that the maximum width of the escape route can only be accomplished if the leaves are folded away to form a package and put aside.

TSA 325 NT BO version with 3 leaves



TSA 325 NT BO version with 4 leaves



WIDTH OF THE ESCAPE ROUTE

	3 leaves	4 leaves
Internal diameter	Width of the escape route (FWB)	Width of the escape route (FWB)
1800 mm	650 mm	660 mm
2000 mm	750 mm	760 mm
2200 mm	850 mm	860 mm
2400 mm	950 mm	960 mm
2600 mm	1050 mm	1060 mm
2800 mm	1150 mm	1160 mm
3000 mm	1250 mm	1260 mm
3200 mm	1350 mm	1360 mm
3400 mm	1450 mm	1460 mm
3600 mm	1550 mm	1560 mm

Breaking out of a leaf will result in immediate disconnection of the drive. Afterwards it is possible to rotate the leaves manually (even when broken out).

Due to the manual breaking out function the use of TSA 325 NT BO is limited to max. 220 N in areas with increased wind load. Depending on the diameter and the clear height, GEZE revolving doors can be used up to a wind speed of max. 6 Beaufort (Bft). This is equal to approx. 49 km/h. If the leaves are only used for ventilation and transport purposes, the break-out force can be increased, which will result in an increased break-out safety in the case of wind pressure.

To prevent people from entering the building through the folding leaves, two leaves must be locked at the minimum. This can be done as follows:

- Two electromechanical locking devices

or

- Night locking mechanism (automatic or manual)

Note: The use of revolving doors in escape and rescue routes must be according to local safety regulations and planning laws.

MINIMUM CANOPY HEIGHTS

in dependence of the type of drive

	Minimum canopy height
Manual revolving door	75 mm
Manual revolving door with speed limiter	200 mm
Manual revolving door with positioning device	200 mm
Automatic revolving door with push & go function	200 mm
Automatic revolving door	200 mm
Automatic revolving door with BO function	200 mm
Automatic revolving door with underfl oor actuator	75 mm
Manual all-glass revolving door	16 mm
Manual all-glass revolving door with positioning device	16 mm
Automatic all-glass revolving door with push & go function	16 mm
Automatic all-glass revolving door	16 mm

Operating elements for automatic revolving doors

Mode of operation OFF
In the mode of operation "OFF" the motor is switched off and the door can be opened manually. This mode of operation is particularly suited for maintenance and cleaning of the door. All actuation elements are switched off .

Mode of operation Night
In the mode of operation "Night" the most different types of locking options can be selected for the revolving door.

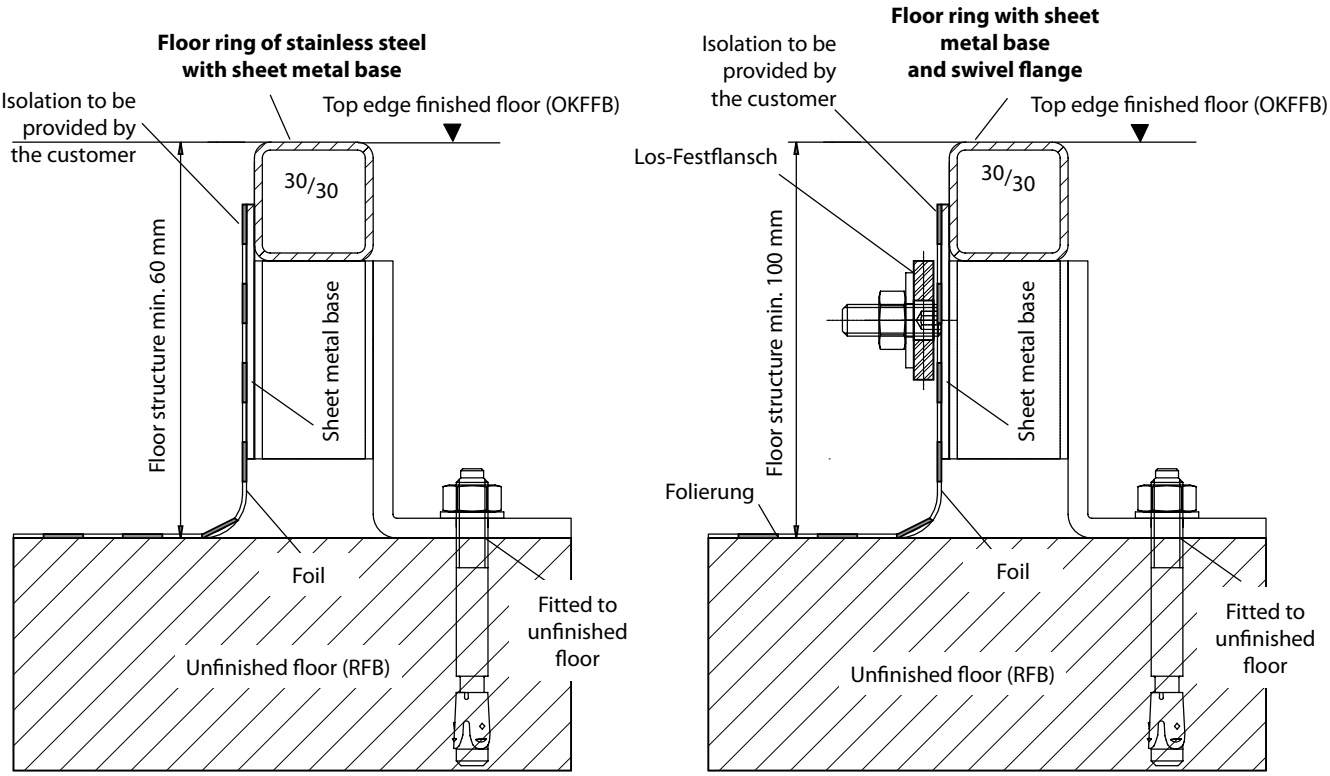
- No locking
- Manual locking of the door leaves via a bar lock
- Locking with the electromechanical disk brake
- Electromechanical locking of the door leaves
- Locking with manual night locking
- Locking with automatic night locking

Mode of operation shop closing time
In the mode of operation "shop closing time" the door is actuated by the internal movement detectors only. It moves a preset number of sectors in automatic speed and will then stop in the target position.

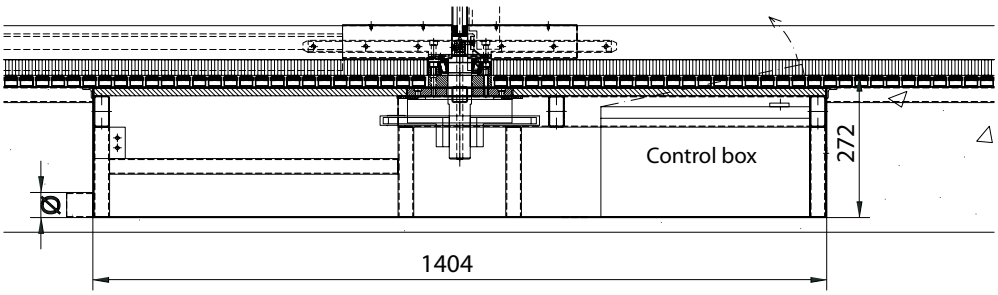
Mode of operation Automatic
In the mode of operation „Automatic" all connected pulse generators are active. After actuation the door accelerates to a preset automatic speed, rotates the preset number of sectors and then changes over to a reduced speed. The slower revolving speed and the after-running period can be preset. By simultaneously pressing the arrow keys you can change over to "winter operation". The after-running period will be omitted and the revolving door will slide to the end position. As an option it is possible to connect a button for the disabled. By operating this button the revolving speed is reduced, allowing older or hampered persons to pass though the door without any problems. The revolving speed and the overtravel time can also be preset.

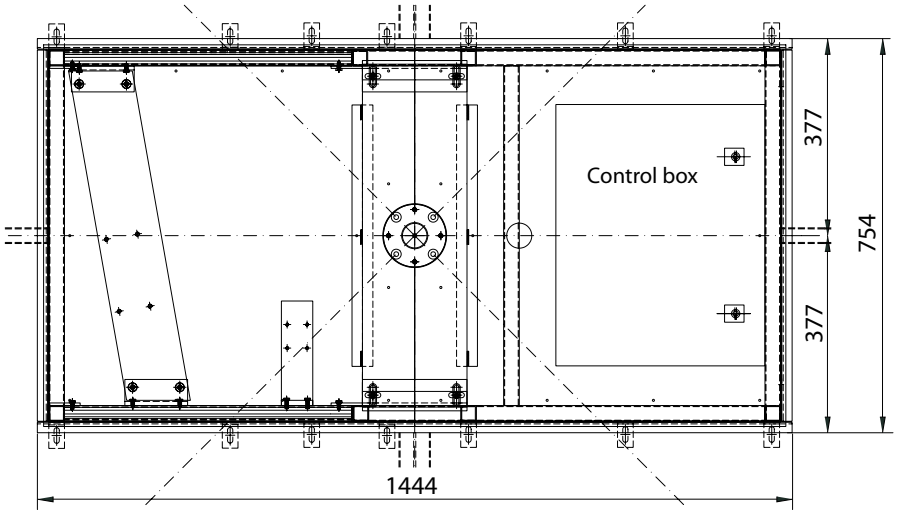
Mode of operation manual
In the mode of operation "manual" the revolving door can be freely rotated. If no further functions are set, the mode of operation "manual" is identical with the mode of operation "OFF". The following options can be set: a positioning device returns the door to the target position at a slower speed after people have passed through the door. Safety functions can be deactivated.

Types of floor rings



Underfloor operator

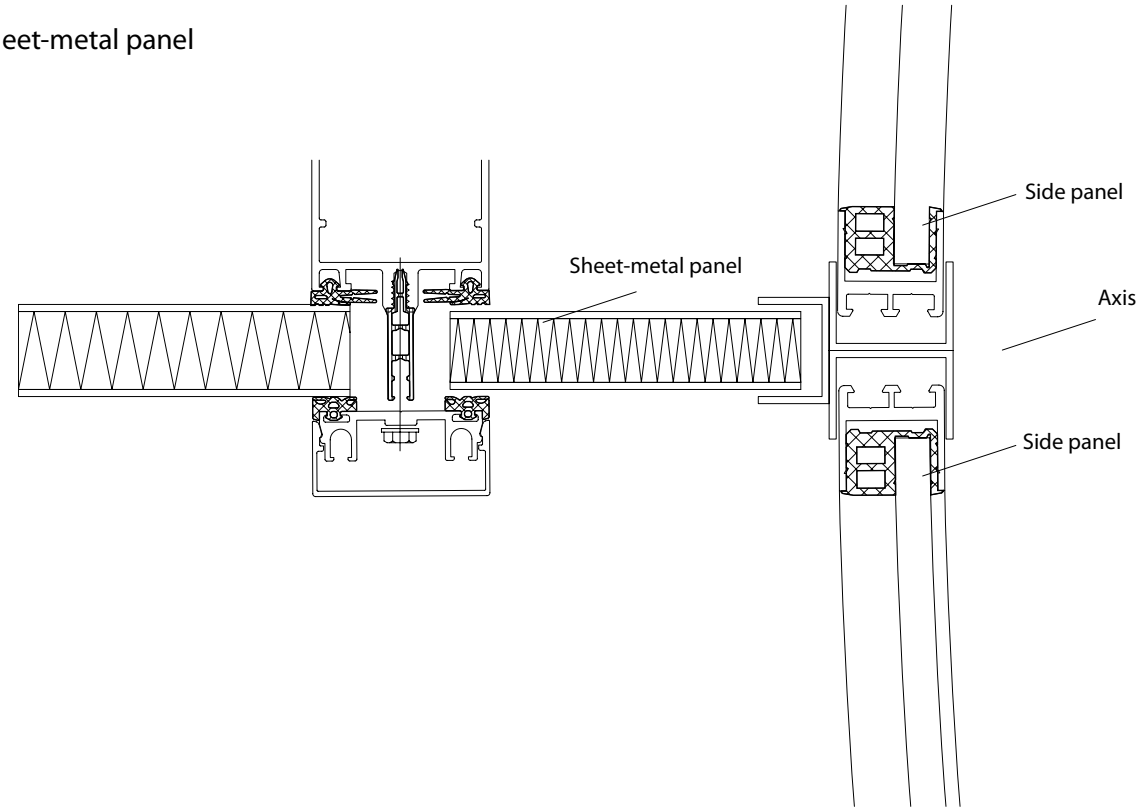




Note: If an external control is housed in a control cabinet (dimensions: approx. 500 x 600 x170 mm) at a distance of max. 20 m a small drive box (dimensions: approx. 714 x 900 x 280 mm) can be installed as well.

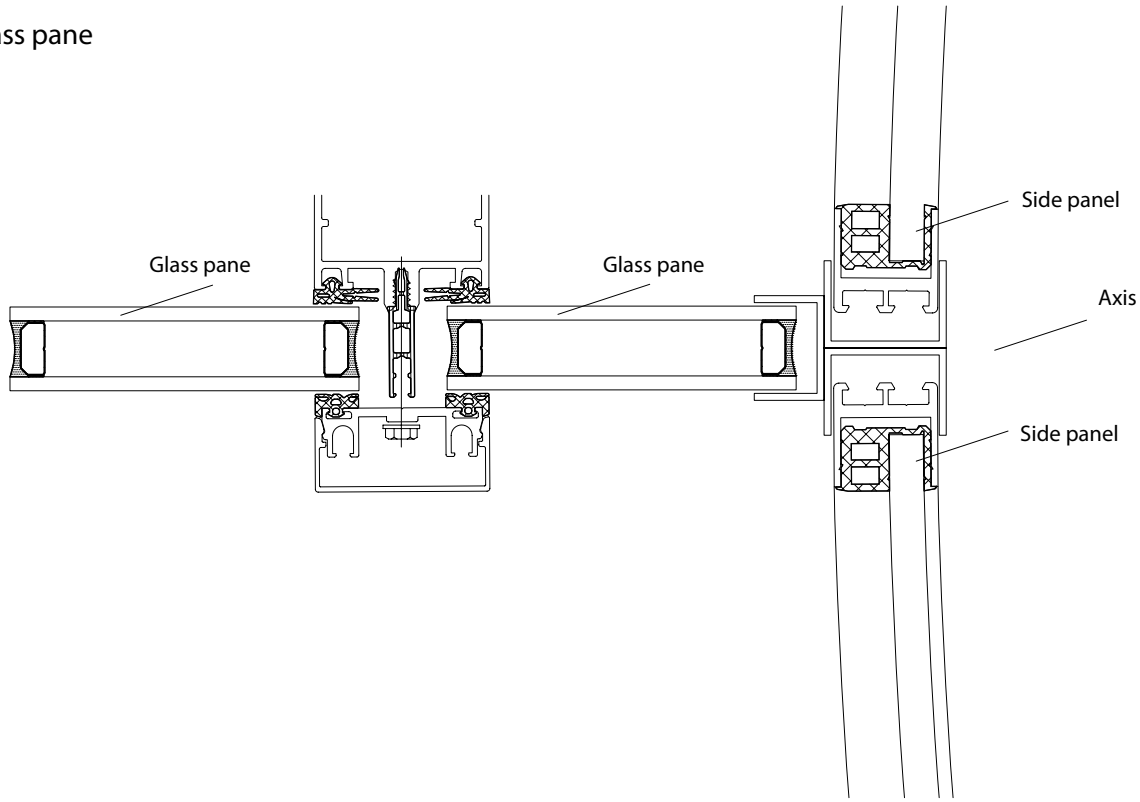
Façade connection

with sheet-metal panel



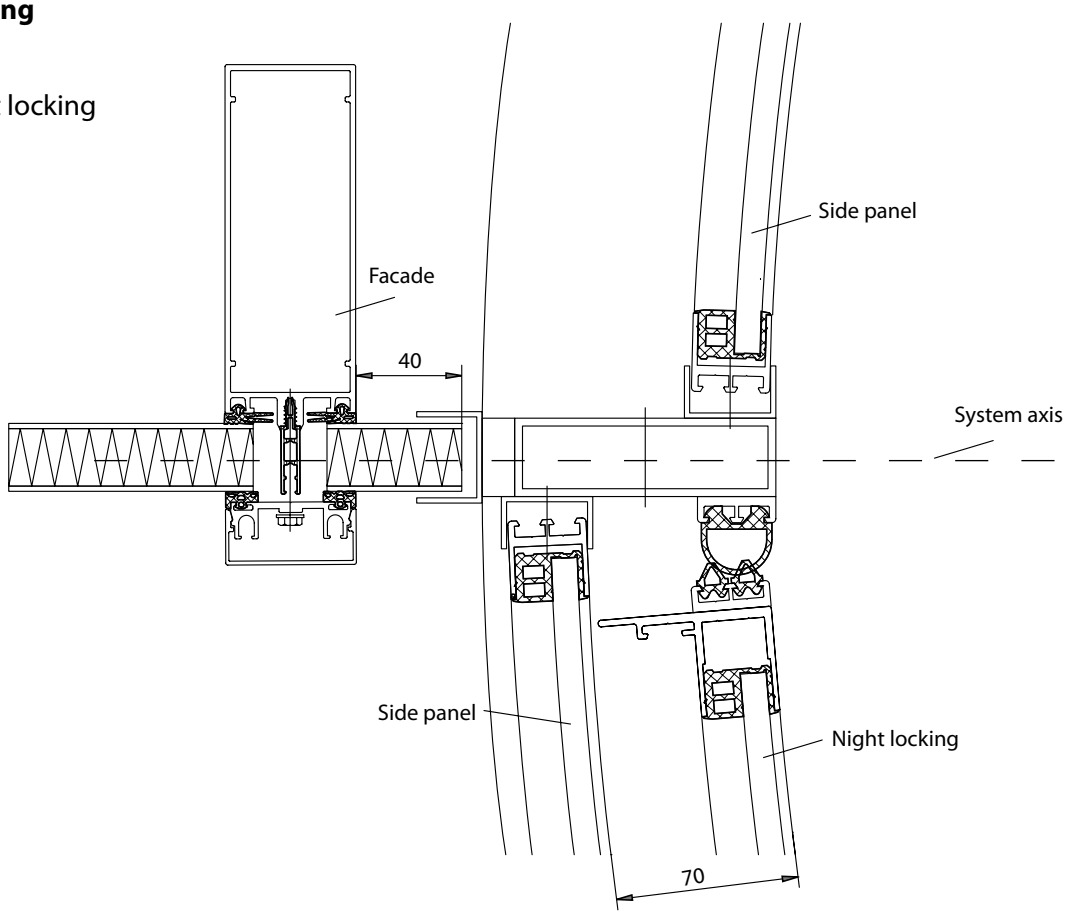
Façade connection

with glass pane



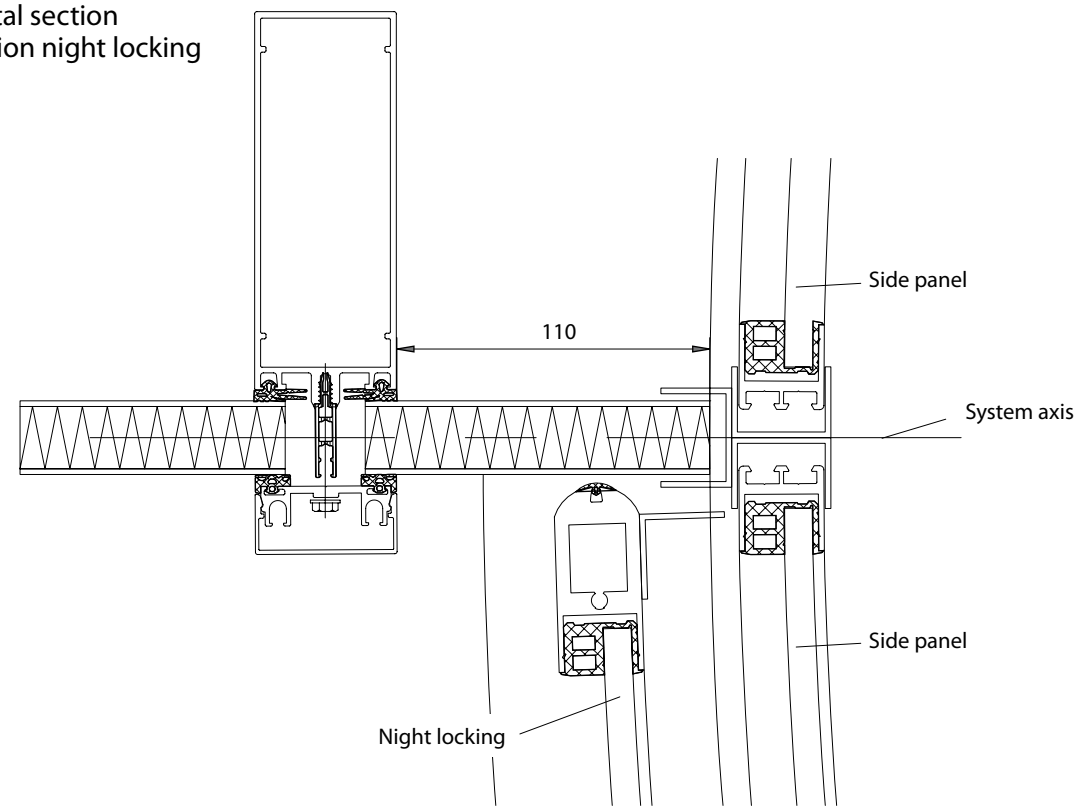
Night locking

Detail
inside night locking

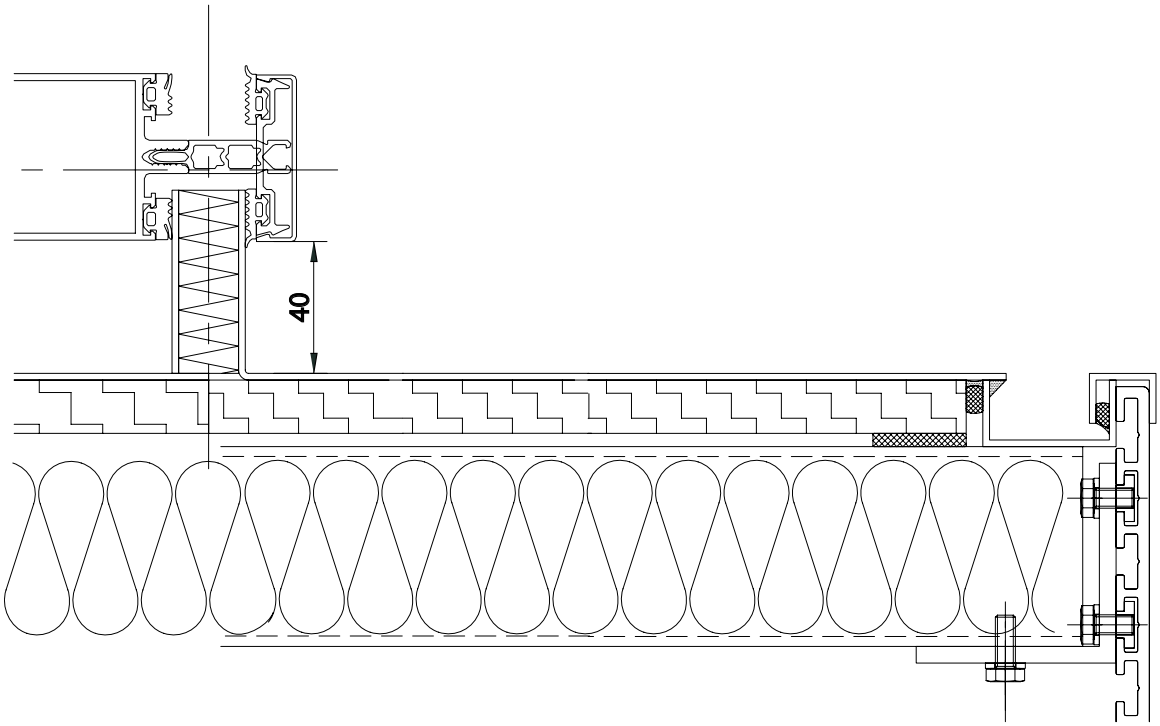


Night locking

Horizontal section
connection night locking

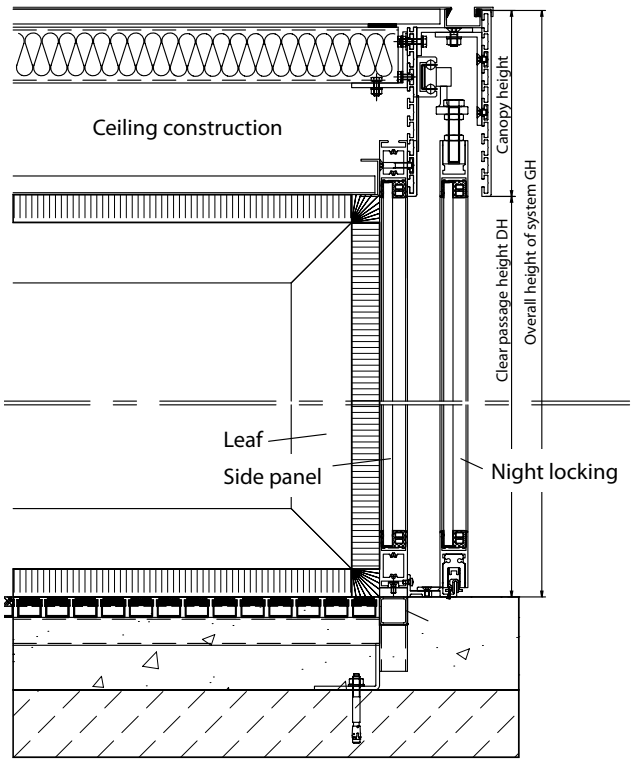


Connection roof TOP

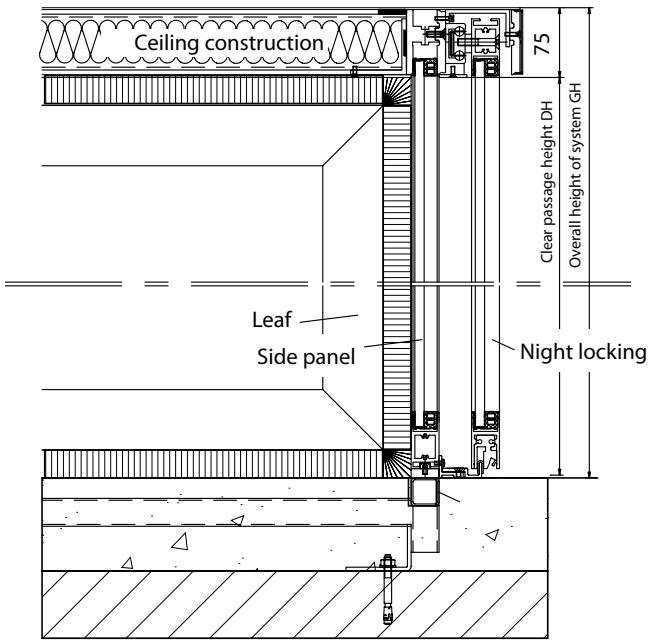


Night locking

Vertical section night locking
Automatic door

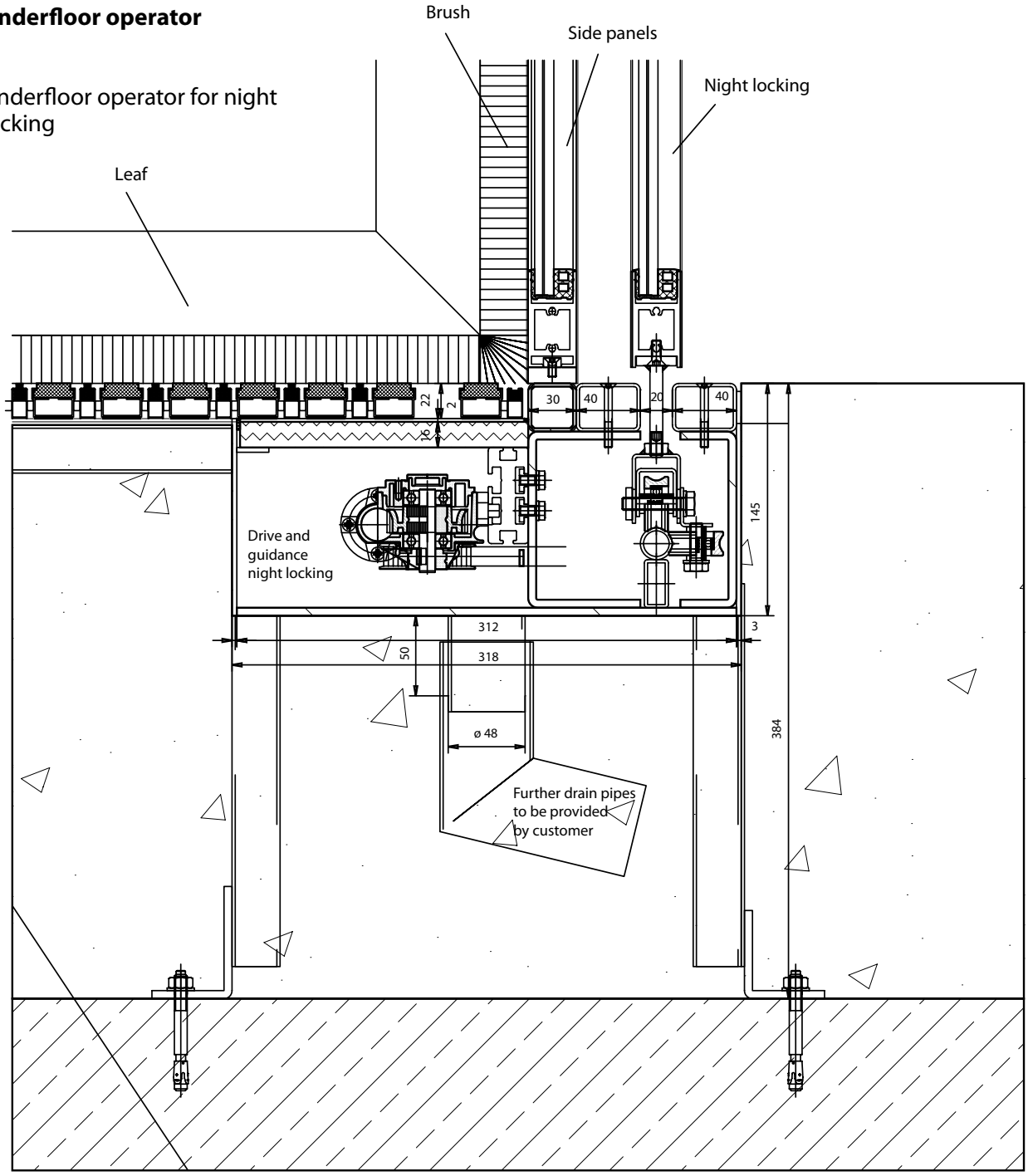


Vertical section night locking
Manual door



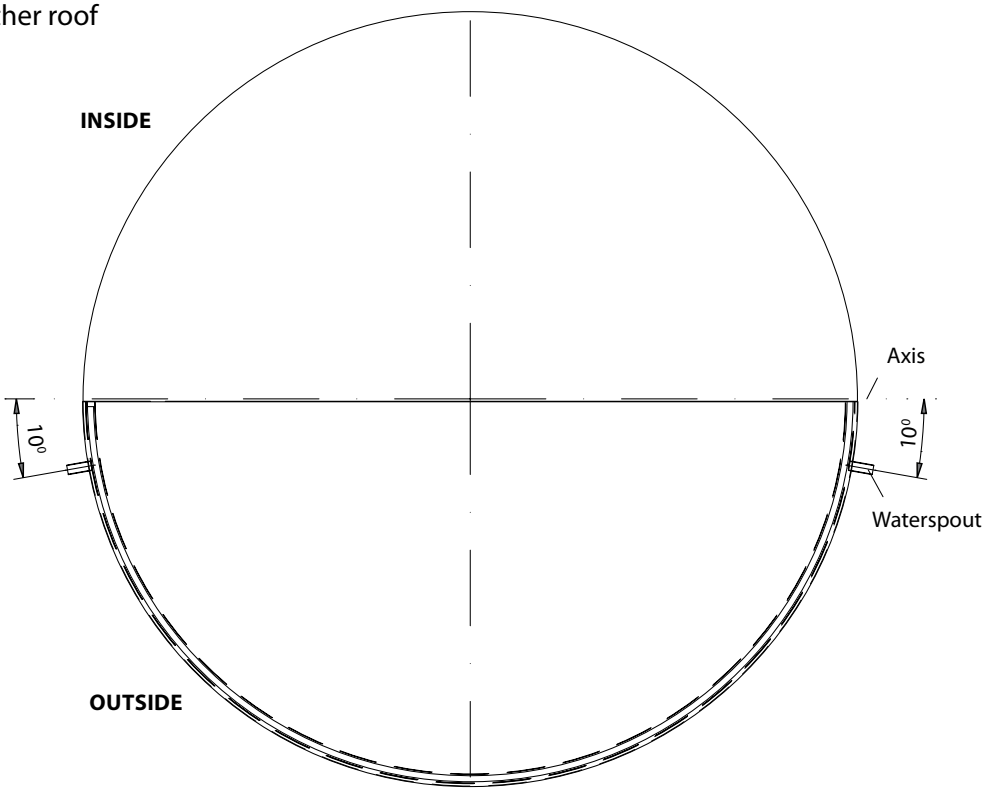
Underfloor operator

Underfloor operator for night locking



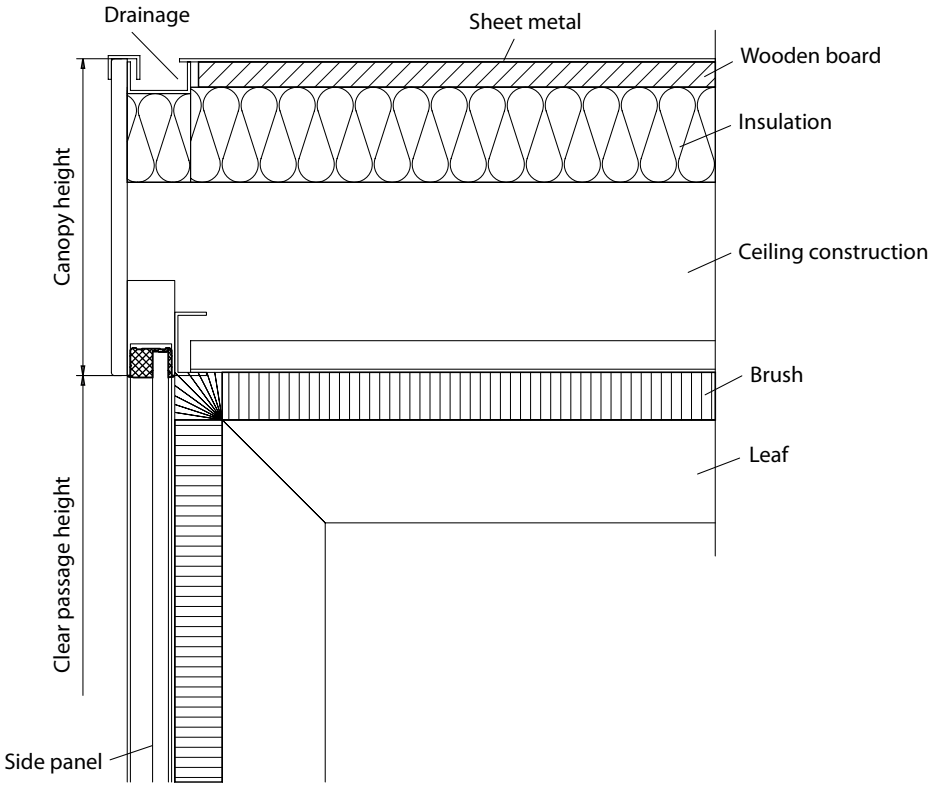
Weather roof

Top view weather roof



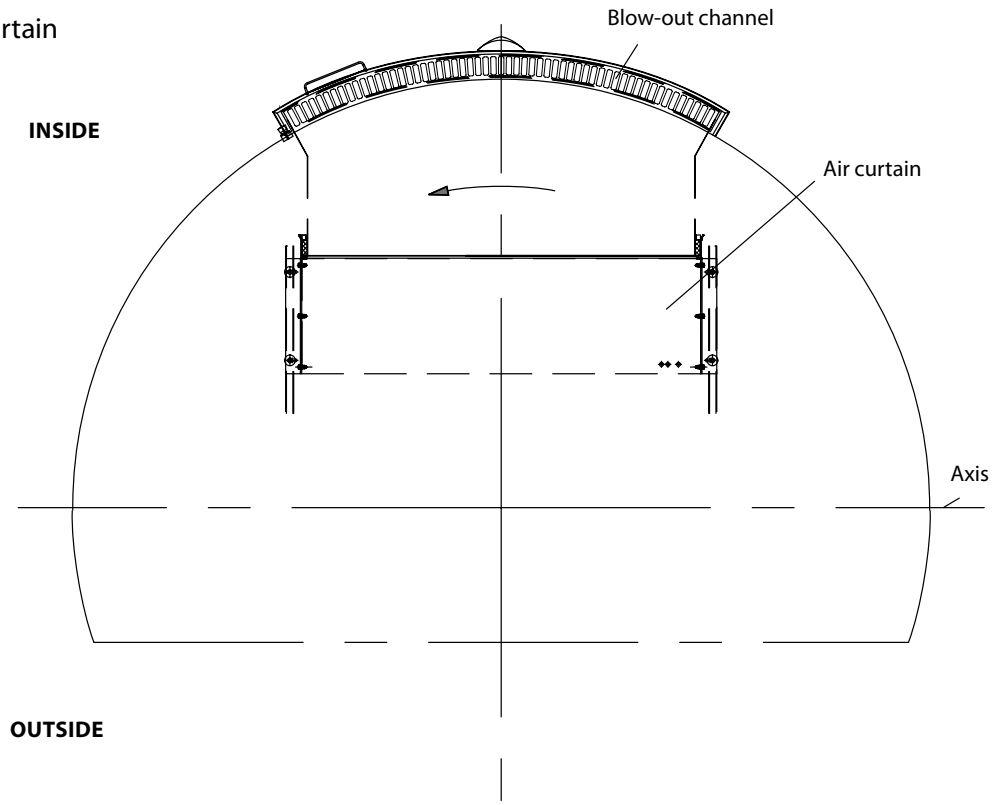
Weather roof

Vertical section weather roof



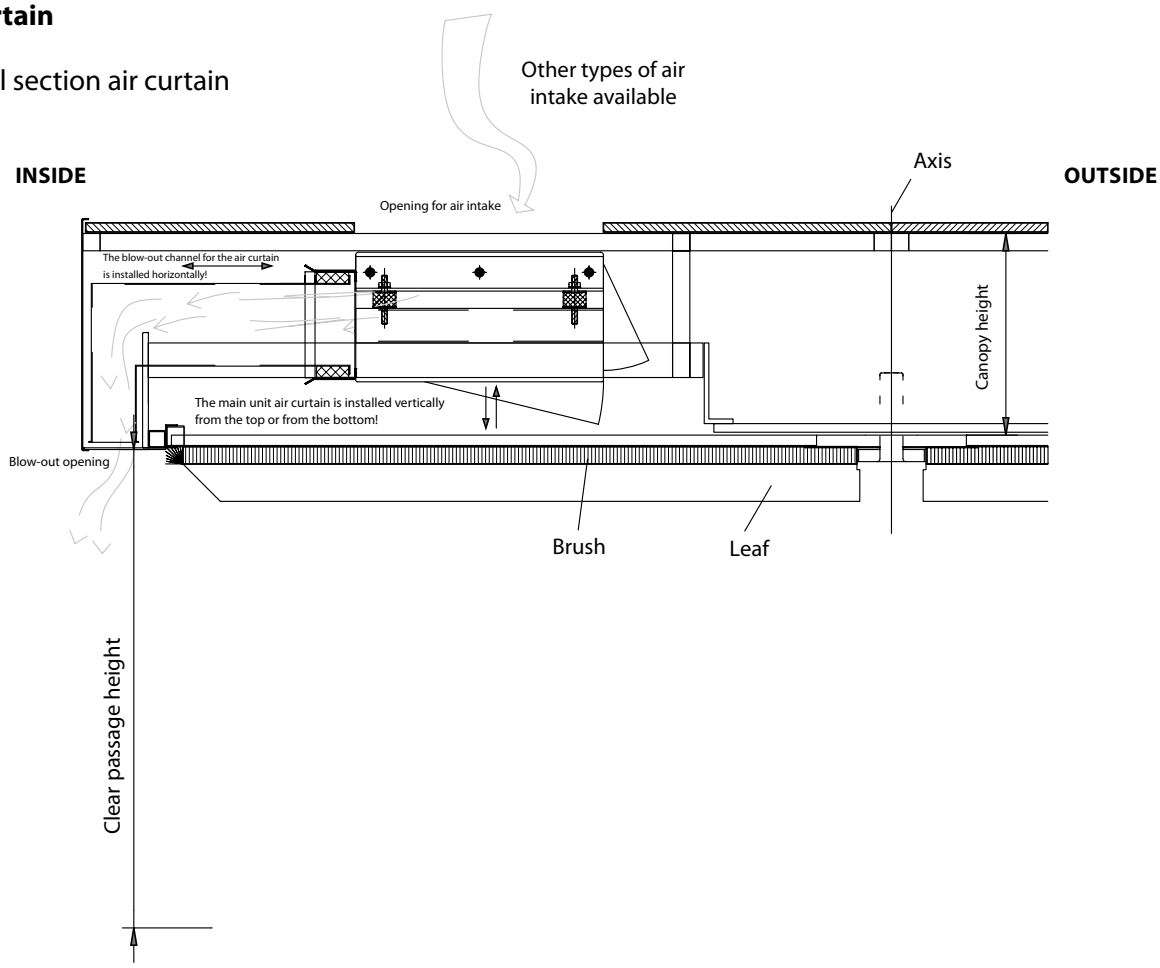
Air curtain

Top view air curtain



Air curtain

Vertical section air curtain



GEZE TSA 325 NT

1 Movement detector inside

2 Movement detector outside

3 Anterpost safety sensor

4 Emergency Off button inside and outside

5 Programming keypad

6 Key-operated switch

7 Warning label inside and outside

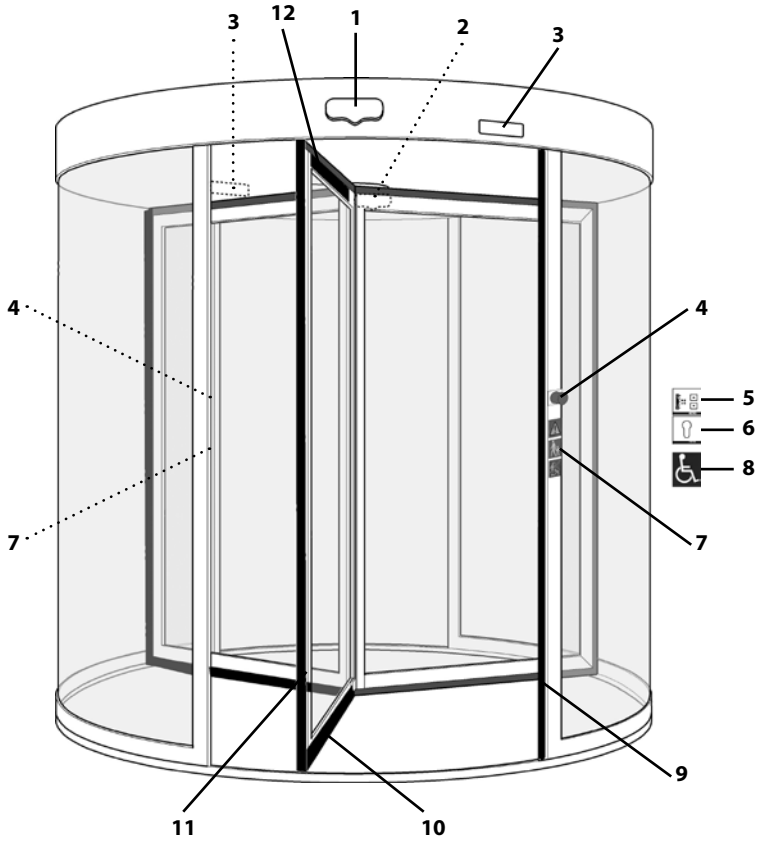
8 Button for the handicapped (optional)

9 Post safety device

10 Heel protecting strip

11 Safety contact strip vertical

12 Mobile safeguarding device (optional)



Explanation of the safety devices and the sensor technology

Movement detectors inside and outside
The inside and outside movement detectors are fixed to the ceiling canopy and work on a radar basis. The movement detectors are used for automatic revolving doors as actuating element. The detection zone of the sensor can be adjusted.

Anterpost safety sensor
The anterpost safety sensor is a presence sensor that works on an active infrared basis. It detects the area in front of the post by means of a light curtain which is activated, as soon a one of the leaves of the revolving door approaches the post. The detection zone of the sensor is adjustable. As an option a less complex sensor can be installed into the ceiling canopy. This simple sensor does not comply with DIN 18650 and is not approved for use in Germany.

Emergency OFF button inside and outside
The emergency OFF button inside and outside is mounted to the stationary side panel and releases an emergency stop if operated which brings the revolving door to an immediate standstill. After braking the door can be manually operated or opened into both directions.

Programming keypad
The different modes of operation of an automatic revolving door can be set using the programming keypad.

Key-operated switch
The operation of the programming keypad by unauthorised persons can be prevented by installing a keyoperated switch.

Explanation of the safety devices and the sensor technology

Warning labels inside and outside
Warning labels must be attached to each revolving door to make parents aware of their obligation to take care. A revolving door is no playground.

Buttons for the handicapped
The button for the handicapped is attached at the inside and outside of the stationary side panel or near a wall or façade. When operating the button for disabled the revolving speed of the door is reduced in order to allow older or hampered persons to pass through the door. The speed and duration of activation can be adjusted.

Post safety device
The post safety device is a rubber safety strip that is attached to the main closing edge of the fixed side panel of the revolving door. Upon operation this safety strip releases an emergency stop of the door. Upon release of the emergency stop the revolving door is brought to a standstill, the door stops for an adjustable period of time and will then continue closing in the preset mode of operation and speed.

Heel protecting strip
The heel protecting strip is a rubber safety strip, which is attached horizontally at the bottom of one of the leaves of the revolving door. The safety strip prevents that an obstacle or a person is seized by the moving leaves. As soon as the safety strip gets in contact with an obstacle or a person, an emergency stop is released and the revolving door stops immediately. Upon release of the emergency stop the revolving door is brought to a standstill, the door stops for an adjustable period of time and will then continue closing in the preset mode of operation and speed.

Safety contact strip vertical
The safety contact strip is a rubber safety strip that is attached vertically at the outer edge of the leaves and that prevents persons from being drawn in. As soon as a person or a part of the body gets in contact with the safety strip, an emergency stop is released and the revolving door is stops immediately. Upon release of the emergency stop the revolving door is brought to a standstill, the door stops for an adjustable period of time and will then continue closing in the preset mode of operation and speed.

Mobile safeguarding device
“Mobile safeguarding devices“ are optical sensors, which are attached to the top edge of the leaves. They work after the infrared principle and optically scan the area in front of the moving leaves of a revolving door. As soon as the sensor detects an obstacle or a person, the revolving door is stopped. If the obstacle remains within the detection zone of the sensor the speed of the revolving door is reduced until the moving leaf stops in front of the obstacle. The sensitivity and the detection zone are adjustable.

Wiring diagram revolving door ceiling mounted

LS	Light switch (by customer)
NSI	Emergency stop button inside [1]
NSA	Emergency stop button outside [1]
PS	Programme switch
ZU	Timer
BTI	Button for disabled inside
BTA	Button for disabled outside
KIR	Contactor inside (KI) radar
KAR	Contactor outside (KA) radar
KIT	Contactor inside (KI) button [2]
KIA	Contactor outside (KI) button [3]
KB	Contactor authorised (KB) [4]
LSG	Switchgear for air curtain
RTI	Room thermostat in the interior

[1] Install emergency stop switches at all access points
[2] Several contactors inside (K) may be installed
[3] Several contactors outside (K) may be installed
[4] Several contactors authorised (KB) may be installed

Notes :
Wiring in accordance with VDE 0100

Wiring, connection and start-up must only be carried out by authorised electricians.

GEZE will not assume any warranty or provide service if GEZE products are combined with third-party products.

Additional actuation elements for the revolving door drive are installed within the profi les located outside or within the door drum.

The cables stated in this wiring diagram must be laid by customer.

The wiring diagram is only a schematic representation.
The exact routing of the cables must be determined on site.

Cable and water connections must be made by a specialist company commissioned by the customer.

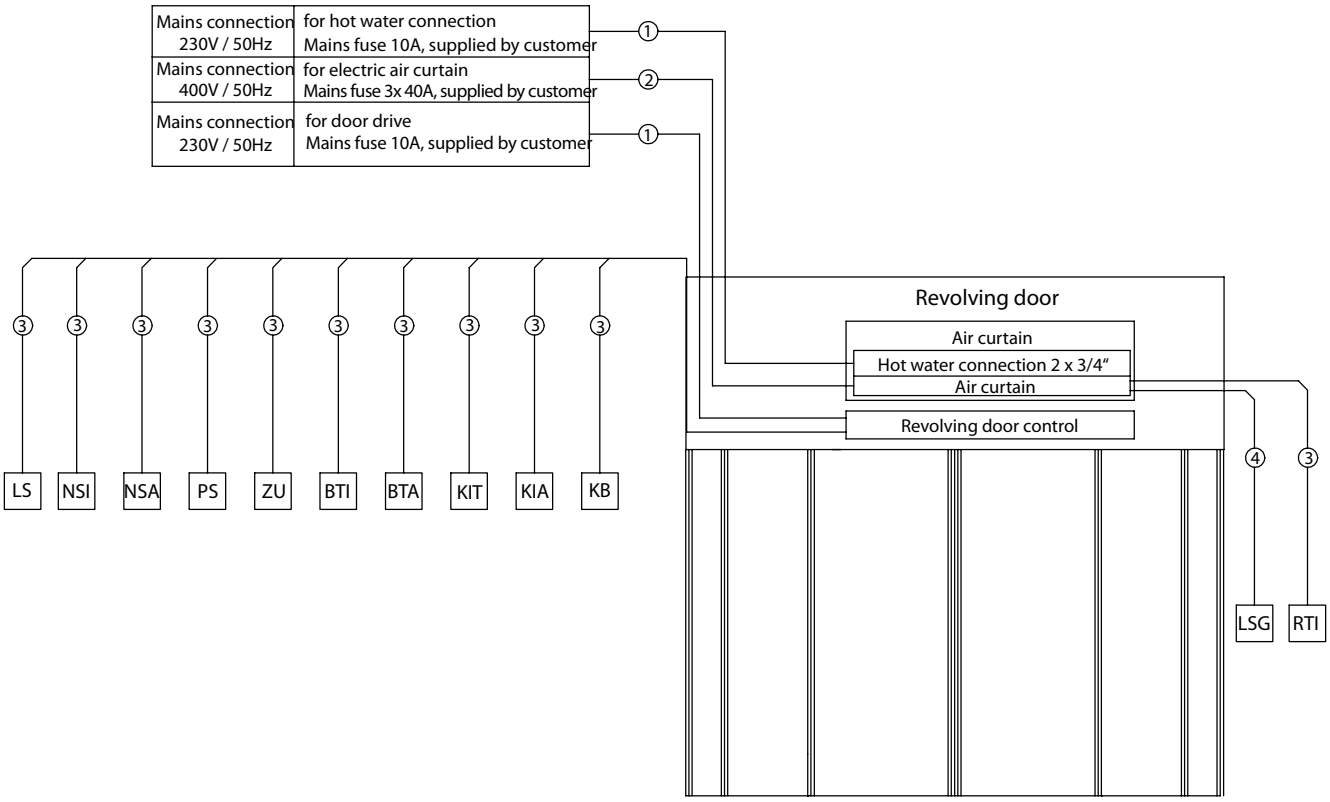
Cable :

(1) NYM-J 3 x 1,5 mm²

(2) NYM-J 5 x 1,5 mm²

(3) JE-Y(ST)Y 2 x 2 x 0,8 mm

(4) JE-Y(ST)Y 10 x 0,8 mm
max. 20 m



The cable must protrude at least 6 m out of the wall

Wiring diagram revolving door underfl oor installation

LS	Light switch (by customer)
NSI	Emergency stop button inside [1]
NSA	Emergency stop button outside [1]
PS	Programme switch
ZU	Timer
BTI	Button for disabled inside
BTA	Button for disabled outside
KIR	Contactor inside (KI) radar
KAR	Contactor outside (KA) radar
KIT	Contactor inside (KI) button [2]
KIA	Contactor outside (KI) button [3]
KB	Contactor authorised (KB) [4]
LSG	Switchgear for air curtain
RTI	Room thermostat in the interior

[1] Install emergency stop switches at all access points
[2] Several contactors inside (K) may be installed
[3] Several contactors outside (K) may be installed
[4] Several contactors authorised (KB) may be installed

Notes :
Wiring in accordance with VDE 0100

Wiring, connection and start-up must only be carried out by authorised electricians.

GEZE will not assume any warranty or provide service if GEZE products are combined with third-party products.

Additional actuation elements for the revolving door drive are installed within the profi les located outside or within the door drum.

The cables stated in this wiring diagram must be laid by customer.

The wiring diagram is only a schematic representation.
The exact routing of the cables must be determined on site.

Cable and water connections must be made by a specialist company commissioned by the customer.

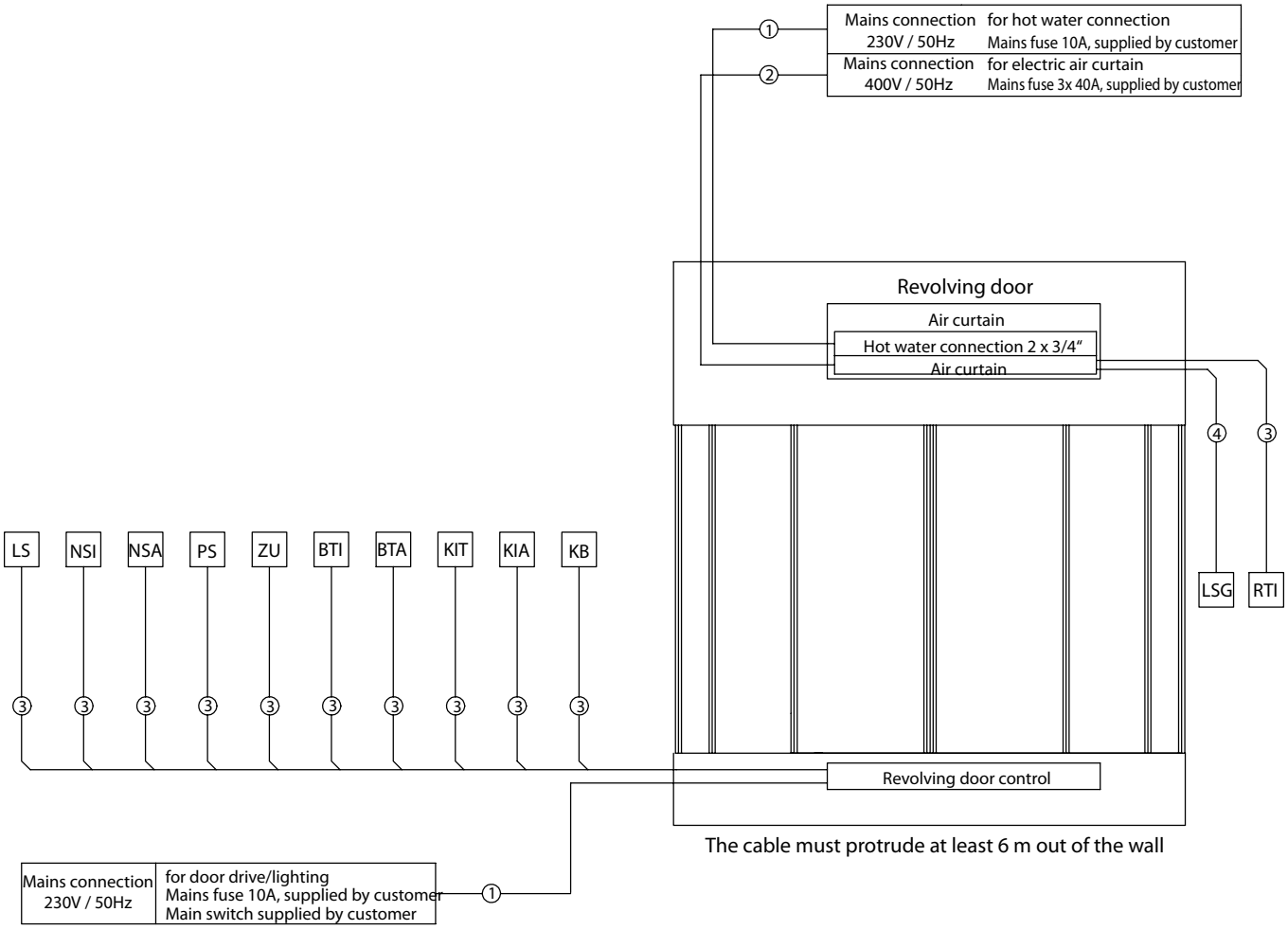
Cable :

(1) NYM-J 3 x 1,5 mm²

(2) NYM-J 5 x 1,5 mm²

(3) JE-Y(ST)Y 2 x 2 x 0,8 mm

(4) JE-Y(ST)Y 10 x 0,8 mm
max. 20 m



References

Mercedes Benz Plant, Milan, Italy

Automatic GEZE revolving door with 4 leaves

Ørstedhus, Kopenhagen, Denmark

Automatic GEZE revolving door TSA 325 NT with 3 leaves

Bock 39, Frankfurt, Germany

Automatic GEZE revolving door TSA 325 NT with 3 leaves

References

Manually operated GEZE all-glass revolving door TSA 325 NT with 4 leaves

Vitra Haus, Weil am Rhein, Germany

VGH Versicherungen, Hannover, Germany

Automatic GEZE revolving door with 4 leaves

Flight Forum, Eindhoven, Netherlands

Automatic GEZE revolving door with 4 leaves

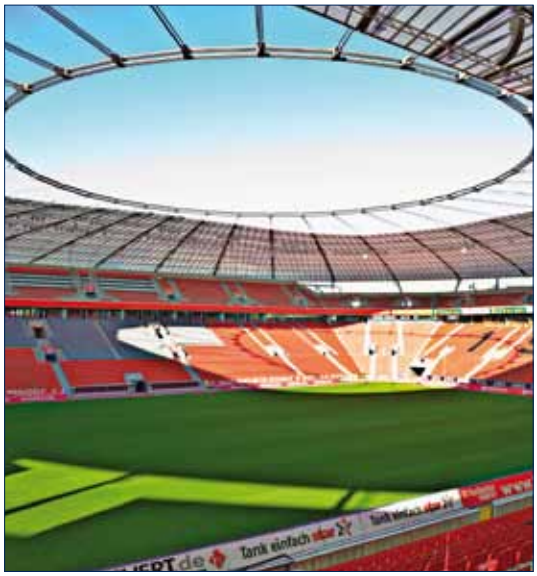
References

Mercedes Benz Museum, Stuttgart, Germany

Automatic GEZE revolving door with 3 leaves

Hitachi Power, Duisburg, Germany

Manual revolving door TSA 325 NT with 3 leaves



BayArena Leverkusen, Germany

Manual revolving door TSA 325 NT with 4 leaves

References

Hotel Atrium Baska, Krk, Croatia

Automatic GEZE revolving door with 3 leaves

University Library of Humboldt University Jacob and Wilhem, Berlin, Germany

Automatic GEZE revolving doors with 4 leaves

Sungate Hotel, Antalya, Turkey

Automatic GEZE revolving door with 3 leaves