

1

# CATALOGUE **BALUSTRADES**

2

**DEFENDER profiles**

**Point fixings**

**Columns**

**Handrail**

3

4

5

6

## FINISHES



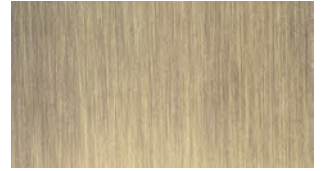
**/1**  
Chrome



**/2**  
Gold



**/3**  
Brushed nickel



**/4**  
Bronze



**/5**  
White



**/6**  
Matt black



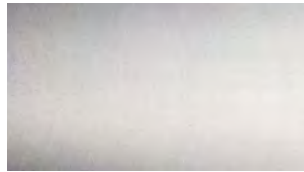
**/7**  
Matt chrome



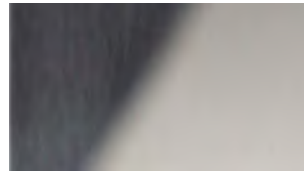
**/8**  
Brushed steel



**/9**  
Machining steel (CNC)



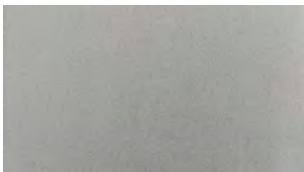
**/10**  
Raw aluminium



**/15**  
Polished steel



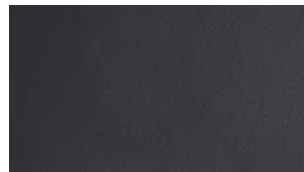
**/24**  
Brushed steel effect



**/45**  
Matt aluminium effect



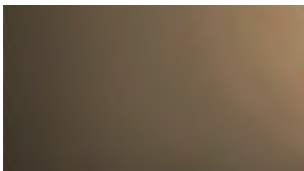
**/56**  
Grey



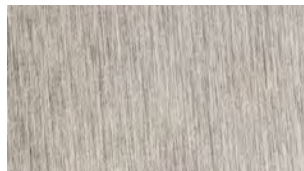
**/65**  
Matt black



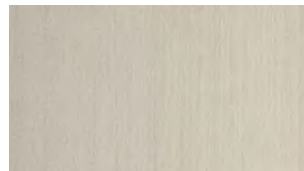
**/66**  
Champagne aluminium



**/67**  
Dark brushed bronze aluminium



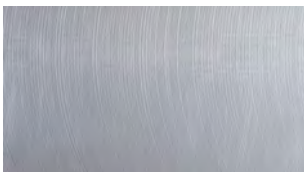
**/83**  
PVD brushed steel



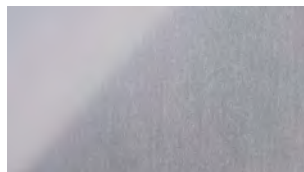
**/88**  
Brushed steel effect aluminium



**/89**  
Galvanised iron



**/90**  
Machining aluminium



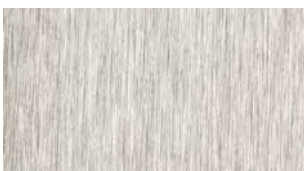
**/91**  
Polished aluminium



**/92**  
Matt nickel



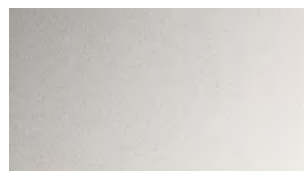
**/93**  
Brass coated



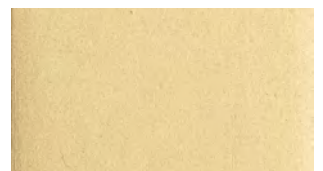
**/94**  
Brushed chrome



**/95**  
Nickel-coated



**/97**  
Matt aluminium



**/99**  
Brushed gold



**/R2**  
RAL9005 matt black



**/R6**  
RAL9016 matt traffic white



**/R13**  
RAL7016 matt anthracite grey



**/RAL**  
RAL9010 polished white



CATALOGUE  
**BALUSTRADES**

SINCE 1989

## **INNOVATION SERVING DESIGN FOR MORE THAN 30 YEARS**

Since 1989 we are committed to satisfying the needs of glassworks, installers, and designers, offering advanced solutions that guarantee the utmost comfort. Our mission is to provide high-tech, long-lasting, reliable, high-quality products designed to exceed the expectations of every customer.







# INNOVATION AND RESEARCH

## **OUR TECHNOLOGICAL APPROACH**

Thanks to our laboratory and a team of specialised engineers, we are able to design and develop custom solutions for glassworks, installers, and interior designers. Our highly qualified personnel provide constant customer support through technical consultation and training courses.

Active collaboration with universities and national and international research institutes such as TÜV, the Politecnico di Milano, CSTB (France), and LSL (Germany) guarantee access to specialized skill and equipment when verifying systems such as balustrades, canopies, doors, and glass partitions. This enables the highest quickness and efficiency in developing new products and supporting customers with ad hoc laboratory tests.







**AVIS**  
TECHNIQUE



**ABP**  
Allgemeines  
bauaufsichtliches  
Prüfzeugnis

**British  
Standard**  
6180:2011

**UNI** 11678:2017

**NTC** 2018

**NBN B 03-004**

ALUMINIUM ASSOCIATION  
\*\*\* EUROPEAN  
**EURAS**  
ASSOCIATION  
ANODISERS  
**WAA**

**Qualanod**



• TEST REPORT •  
Politecnico di Milano

**GINGER**  
CEBTP

**LUCIDEON**

Certificates and testing reports apply to selected products depending on the type and intended use.





A close-up photograph of a circular saw blade in motion, cutting through a metal profile. The blade is on the left, and the metal profile is on the right. The background is a bright, slightly blurred industrial setting.

# THE WAREHOUSE AND WORKSHOP

## **EFFICIENCY, WIDE PRODUCT RANGE, AND IMMEDIATE AVAILABILITY**

The unique features that makes the Logli brand stand out on the market include facility, personnel, product, and especially the service. With more than 7000 items in stock, we guarantee immediate availability not only of the simplest accessories, but also the most complex systems. Through important investments in four automated vertical warehouses and advanced logistics management, we guarantee order shipments in Italy within 24 hours and quick and prompt delivery.

# THE EXPERIENCE AND RESEARCH OF A WORLD LEADER

The 16th of March 2018 marks a crucial moment in our history: joining the prestigious Saint-Gobain Group, a multinational company with a history of over 355 years in design of solutions for sustainable construction. This important step is a clear recognition of the excellence achieved by the company in the field of technological glass solutions.

Future innovation may rely on synergy with other brands in the Group, giving rise to increasingly advanced technological solutions.

The culture of Saint-Gobain, which we have made our own, is based on a set of values expressed in the Behaviour and Conduct Principles: respect for people, law, environment, health, and workplace safety are some of the premises that guide the Group's action and its constant aspiration to become a leader in sustainable construction.





It designs, produces, and distributes materials for safety and comfort that are in all living spaces: Buildings, transport, infrastructure, and many industrial applications.



**75** countries

**100** One of the TOP 100 innovative companies in the world

**168,000** employees

**400** patents registered each year

**€51.2 billion** total turnover 2022

**€450 million** R&D investments last year

With 355 years behind it, the Group offers next-generation materials and integrated solutions to make 'living spaces' more comfortable and sustainable, contributing to the well-being of people and protecting the planet while situating itself as a global point of reference in the efficient use of natural resources with respect for the environment.



In Italy, Saint-Gobain is present in the fields of construction materials, transport and industry.

**2,100** employees

**€1 billion** turnover 2022

**41** sites



### CONSTRUCTION

Next-generation materials produced for 90% in our country, designed to create excellent living spaces and improve the quality of daily life through solutions created to build more energy-efficient buildings and reduce consumption and pollutant emissions.



### TRANSPORT

Production and worldwide distribution of glass for the automotive, aerospace, rail, naval sectors, and industrial vehicles.



### INDUSTRY

A wide range of solutions: abrasives and ceramic products for glass furnaces and steelworks, technical adhesive tapes that constitute a unique high-performance range, and chemical or special construction products.





# SUSTAINABILITY FOR SAINT-GOBAIN: A GROUP STRATEGY

In 2020, the Saint-Gobain Group declared its corporate purpose: *'Making the world a better home'*. Its ambition is to improve the life of everyone, making the planet a more equitable and sustainable place to live, which is also open and inclusive. Together with and for our customers, **we design materials and solutions that guarantee well-being, living comfort, and safety, while taking care to protect the planet.**

Our corporate purpose is a call to action, a strategy aimed at the future that encourages innovation while respecting the union between humanity and nature.

Saint-Gobain **aims to be recognized as a world leader in sustainable building**, improving the daily life of all those using its products. **This commitment not only regards our operations and processes, but also marketing solutions that actively contribute to reaching the decarbonisation objectives of the sector.**

Being a leader means promoting a systemic transformation, embracing values, commitments, and actions that guide the change, becoming a point of reference for all stakeholders.

The geographical organization of the Group can offer custom solutions for the specific needs of local markets in terms of construction methods or styles, building systems, and different climate characteristics, both in renovation of existing buildings and in new construction.

**MAKING  
THE WORLD  
A BETTER  
HOME**

## BETTER FOR THE PEOPLE, BETTER FOR THE PLANET

Like Saint-Gobain, we embrace our social and environmental responsibility as an opportunity to create value together with our stakeholders. In fact, by creating mutual trusting relationships, we believe we can increase awareness about issues of sustainability and create virtuous cycles for the long-term business path.



### BETTER FOR THE PEOPLE

For employees, collaborators, suppliers, and partners, this means expanding the 'company culture' through solid governance, **attention for health and safety, constant training, and the creation of an inclusive working environment.**

For local communities, we are dedicated to supporting **solidarity initiatives through the Saint-Gobain Foundation** and we support young talent by promoting the **Architecture Student Contest**, an annual competition dedicated to students of architecture and construction engineering around the world.



### BETTER FOR THE PLANET

More than other sector, construction can influence the future of the planet, so **buildings and sustainability represent an unavoidable combination.**

Our production impacts the environment in terms of emissions, energy consumption, water use, and natural resources. The value of the Group consists of **products and sustainable and efficient production methods, designed to minimise environmental impacts** in manufacturing processes and engineered to **maximise performance** during the entire life cycle of the buildings, contributing significantly to the objectives of decarbonisation and circularity in the industry. Saint-Gobain Italia is ISO 14001:2015 and ISO 9001:2015 certified.

# OUR COMMITMENT TO THE ENVIRONMENT

Contributions that our materials may bring to different sustainability certifications.



**Reducing energy consumption and pollutant emission** is one of the main objectives of Saint-Gobain, which develops, produces, and distributes innovative solutions to create more energy-efficient buildings. The development of a **passive envelope**, which contributes to energy retention, is the most economically sustainable solution for making buildings more efficient.



**Many of our products contain recycled materials.** We are constantly dedicated to increasing recycled content, contributing to reducing the consumption of raw materials and environmental impacts tied to their life cycle.



**The Saint-Gobain Group has developed different projects** that aim to **enhance waste**, decrease energy consumption, and use less raw material.



**The Life Cycle Assessment (LCA) is very important.** This study assesses the material and energy flows associated with the different stages in the life of a product (extraction of raw materials, production, use, final disposal). The goal of the assessment is to analyse the impacts associated with the different phases in the life of the product in order to optimise production processes with respect to environmental sustainability.



**Closely connected to the Life Cycle Assessment is EPD®** (Environmental Product Declaration) Certification. The purpose of this is to convey environmental information deriving from the LCA in a format and based on predefined common rules, the PCR (Product Category Rules). Many products manufactured by the Saint-Gobain Group carry this certification.



**The extensive presence of Saint-Gobain in Italy**, with production units and logistics centres around the country, limits road transport and thus pollution, favouring the **spread of local materials.**



*In promoting a responsible and conscious environmental attitude, Saint-Gobain has decided to become a member of the GBC Italia association.*

## STANDARDS OF ENVIRONMENTAL SUSTAINABILITY



The **LEED V4.1** standard, which supports the existing LEED v4 standard, is based on a system of prerequisites and credits for design, construction, and management of buildings and sustainable areas.



The **BREEAM** (Building Research Establishment Environmental Assessment Method) system is based on verifying design, construction, and use of the building.



The purpose of the **WELL** protocol is to integrate aspects connected to personal health and well-being in building project design and construction.



With the enactment of the new Contract Code in Italy, **CAM** were updated with Italian Ministerial Decree 23 June 2022 on the assignment of design services and work on new constructions, restorations, and maintenance of public buildings.









# 2024 COLLECTION

**6** VOLUMES

**1750** PAGES

The first series consisting of 6 volumes that covers the entire range of glass solutions designed by Logli. The collection is designed to provide a complete, detailed overview of all the articles offered by Logli.

Each volume deals extensively with a specific product series, offering technical information combined with practical applications.

It is the ideal compendium for those looking for high-quality glass solutions.

All volumes are  
available for download by  
scanning the QR code.



All **Logli** solutions  
in a **single** place.

Volume 1  
**BALUSTRADES**

Volume 2  
**OUTDOORS**

Volume 3  
**INDOORS**

Volume 4  
**SHOWERS**

Volume 5  
**ARRANGEMENT**

Volume 6  
**ACCESSORIES FOR GLASSWORKS**







# BALUSTRADES





BALUSTRADES WITH  
DEFENDER  
PROFILE



**DEFENDER 810**  
Page 44



**DEFENDER XP - PICO**  
Page 84



**DEFENDER 1212**  
Page 100

BALUSTRADES WITH  
POINT FIXINGS

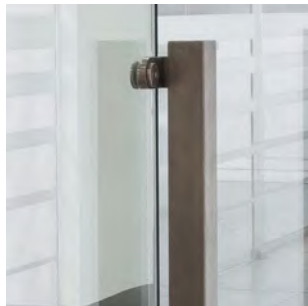


**POINT FIXINGS**  
Page 173



**DOUBLE BRACKETS  
FOR BALUSTRADES**  
Page 191

BALUSTRADES WITH  
COLUMNS



**COLUMNS FOR POINT  
FIXINGS**  
Page 201



**COLUMNS FOR CLAMPS**  
Page 207

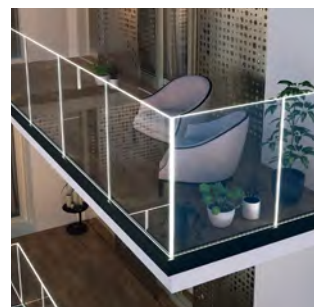
ACCESSORIES  
FOR BALUSTRADES



**HANDRAIL**  
Page 215



**FINISHING PROFILE**  
Page 230



**LED**  
Page 233

# Glass balustrades

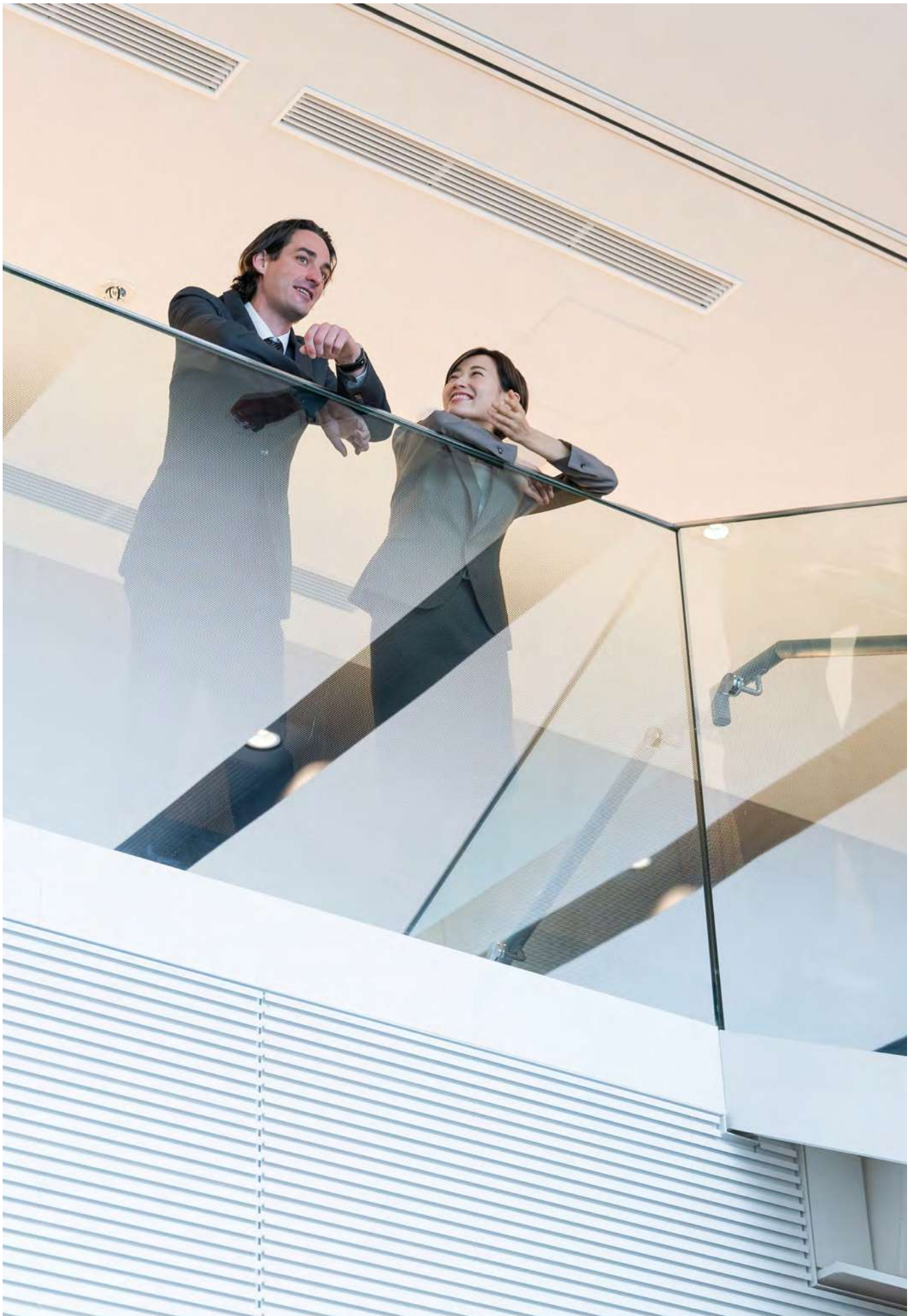
*Your window on the world*











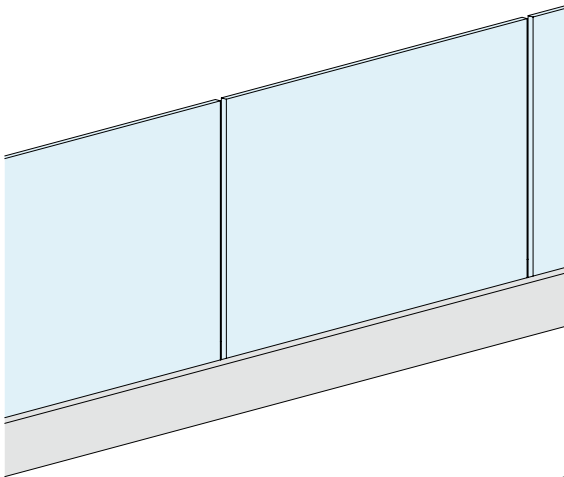
# Make room for the beauty and safety of Logli balustrade systems

## VERSATILITY OF THE RANGE FOR EVERY TYPE OF INSTALLATION:

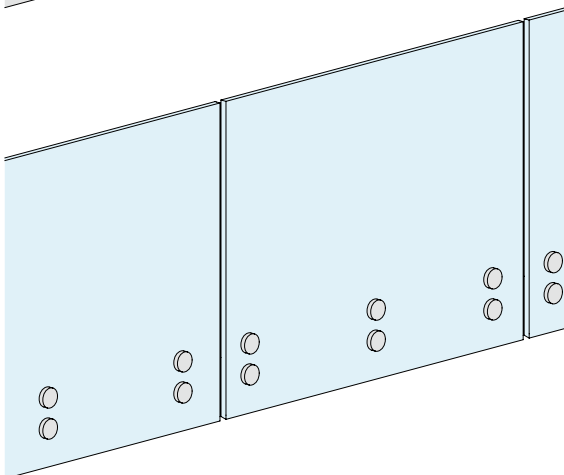
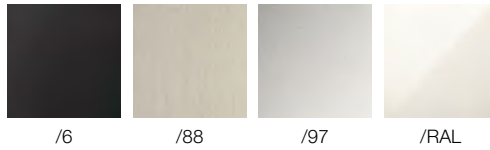
Our range of balustrades stands out for the different types available, allowing you to choose the model best suited to your project.

## DESIGN THAT COMBINES BEAUTY AND FUNCTIONALITY:

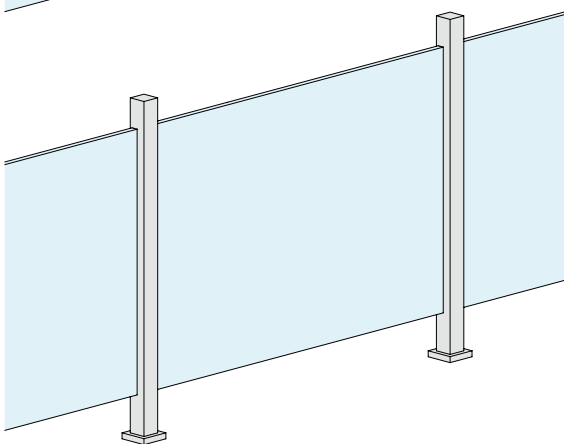
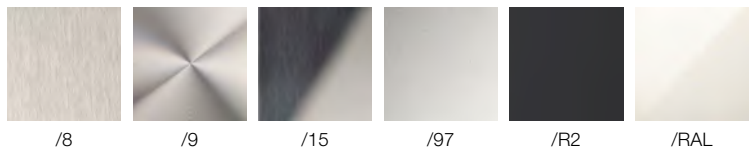
Minimalist systems available in many different finishes which can be customised for all requirements.



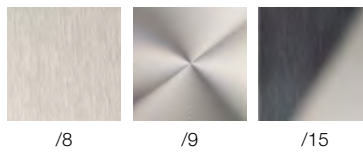
### BAND BALUSTRADE



### BALUSTRADES WITH POINT FIXINGS



### BALUSTRADE WITH COLUMNS

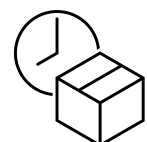


RAL and special finishes on demand.

The lead time of on-demand painted finishes have to be evaluated case by case and are also subject to a required minimum quantity.

### QUICK NOT ONLY TO INSTALL:

We also try to meet the most urgent requirements with an extensive stock of ready-to-deliver supplies and fast shipping.





SAFETY IS HIGH PRIORITY,  
SYSTEMS WHICH CAN MEET ANY CHALLENGE.

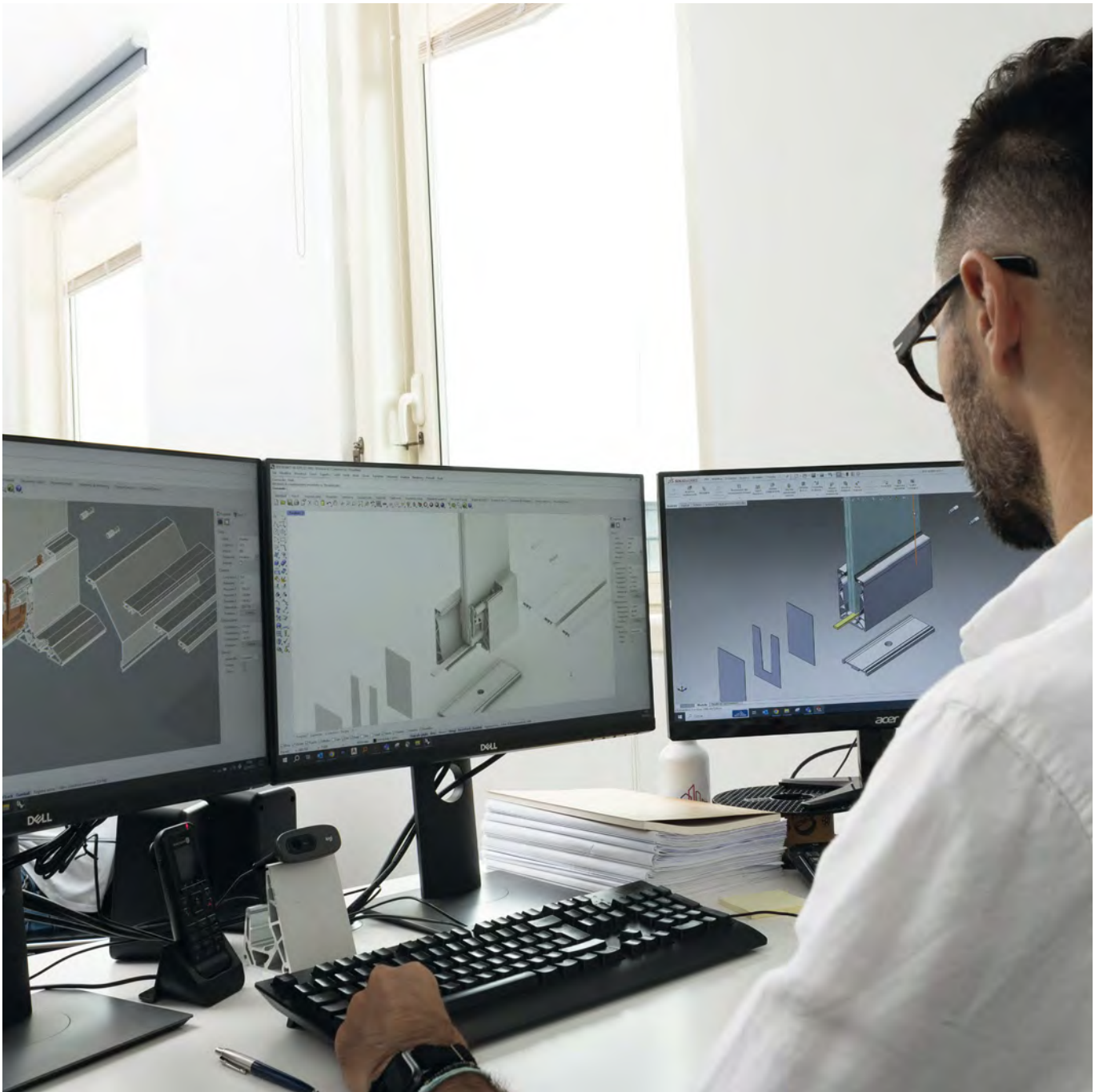


Test reports and calculations  
always compliant with the latest regulations.  
Certificates and testing report  
apply to selected products  
depending on the type and intended use.





ALWAYS BY YOUR SIDE  
FROM DESIGN TO INSTALLATION



When you choose a Logli balustrade system,  
you are never alone.

Our philosophy centres on assistance  
in every phase of the process.

THE POWER OF TRADITION,  
THE POWER OF INNOVATION

Logli balustrade systems are constantly updated  
to improve performance and always guarantee innovative products.

# *Connect with the environment*

A glass balustrade from the Logli range allows you to fully enjoy the scenery around you.







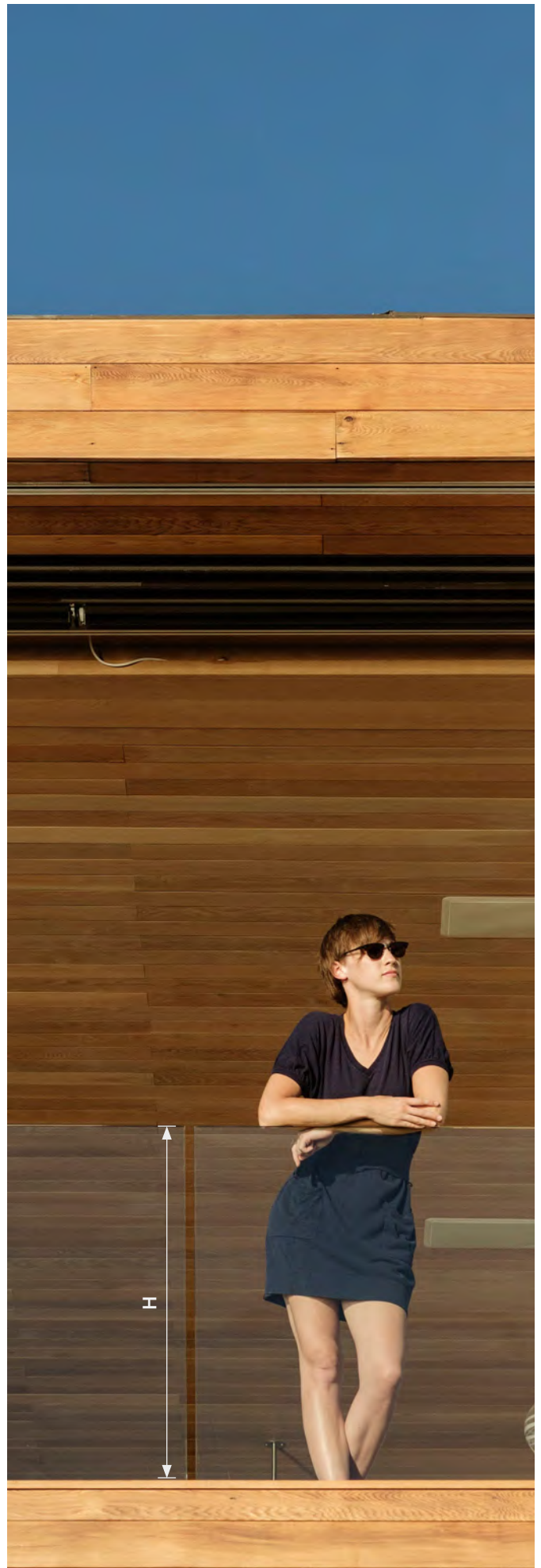
## KEY TECHNICAL REQUIREMENTS FOR A GLASS BALUSTRADE.

### MINIMUM HEIGHT H

In the majority of cases, the minimum safety height is 100 cm. However, it is not unusual for local or specific regulations to impose higher limits, with a minimum height of between 110 and 120 cm.

### STAIRCASES

The minimum safety height H is measured from the tread edge and starts at a minimum of 90 cm.





## RIGIDITY

Safety in 'exceptional' circumstances is critical, but it is equally important for the balustrade to be perceived as safe in normal, everyday use.

It is easy to understand how users might see a flexible, unstable system as being "unsafe", making them considerably less at ease and reducing their use of the space.

DEFENDER systems have always been at the forefront when it comes to joining rigidity and strength to obtain the utmost in well-being and safety. This is why, all other factors being equal, we always recommend the use of rigid interlayers in the lamination process for glass to be fitted to our systems.

## RESISTANCE

The mechanical resistance of a balustrade is expressed as the load per loading unit. This load may vary in relation to the regulations and the intended use. In general, if there is a potential for crowding, the system must guarantee a higher resistance.

In addition to the load, it may also be necessary to perform tests about impacts from heavy or hard objects. If not properly considered, such actions may cause local damage to the panes of glass or the systems, including the overall safety.

Another aspect which must not be underestimated is the pressure of the wind.

For tall balustrades or ones which are very exposed to gusts, the force of the wind may become the key element for the sizing of the installation.



## SCALABILITY

The protection height must be measured from the first walkable area.

It is important to check whether there are risks relating to the surface close to the balustrade, often defined as being between 5 to 30 cm wide, or where there are steps or fixed raised surfaces.

These types of elements will be assessed considering that they could be used to make it easier to get over the barrier. If so, its height should be increased.



## IMPASSABLE

To ensure safety both above and below the balustrade, the component parts of the barrier must ensure that no objects can fall from them. As a minimum, the balustrade must be able to prevent the passage of a sphere with 10 cm diameter at every point.





See the tables to identify the most suitable system for the given installation depending on the technical regulations. The key data are simple and concise, however designers and installers should still refer to the full text of the standards and the technical documentation for the systems, available to download at our website or through the Logli Massimo Saint-Gobain Technical Customer Care Service.

The following laws, standards and technical documentation were used for summarising the results of our tests:

**EUROPEAN standards (valid for all EU countries)**

- CPR 305 - Construction Products Regulation
- EN 12150 - Thermally toughened soda lime silicate safety glass
- EN 12543 - Laminated glass and laminated safety glass
- EN 12600 - Pendulum test, impact test method and classification for flat glass
- EN 13200 - Spectator viewing areas
- EN 14179 - Heat-soaked thermally-toughened soda lime silicate safety glass
- EN 16612 - Determination of the lateral load resistance of glass panes by calculation
- EN 16613 - Determination of the mechanical properties of the interlayer

**ITALY**

- NTC 2018 - Technical Construction Standards (Ministerial Decree of 17 January 2018)
- UNI 7697 - Safety criteria in glazing applications
- UNI 10809 - Railings, balustrades or prefabricated parapets, dimensions, performance and tests
- UNI 11678 - Test methods for buffer elements made of glass with a fall prevention function

**FRANCE**

- NF P 06-001 - Operating loads for buildings
- NF P 01-012 - Sizing of balustrades
- NF P 01-013 - Resistance tests for balustrades
- CSTB specifications 3034 - Testing procedure for glass balustrades anchored at the base

**GERMANY**

- DIN 1990 and DIN 1990/NA - Basis of structural design and nationally determined parameters
- DIN 1991-1 - Actions on structures
- DIN 18008 - Glass construction and design standards in building

**BELGIUM**

- NBN B 03-004 - Balustrades for buildings

**SWITZERLAND**

- SIA 261 - Actions on structures
- SIA 358 - Railings and balustrades
- SIGAB 004 - Requirements for glass components of balustrades

**NETHERLANDS**

- NEN 2608 - Glass in buildings, requirements and determination method
- BRL 4107 - Guidelines for assessing balustrades

**UNITED KINGDOM**

- BS 6180 - Indoor and outdoor barriers
- Approved Document K - Protection against falls, collisions and impacts

SE-AE base document - structural safety





# Defender: band balustrades

## *Make room for the glass*

A complete range of profiles for balustrades that combines higher dedicated performance with the elegance of a lower profile that makes room for the glass.

The DEFENDER series was created in 2014 thanks to the launch of the first profiles for glass balustrades.

Over the year, our R&D department has improved the performance of LOGLI systems to achieve a complete range for each request, ensuring high quality features.

DEFENDER is synonymous with safety, beauty and quality.





## Overview of the Defender range

Series:	For glass:	Model:	Mounting:	Adjustment:					
DEFENDER 810	 16.7 / 21.5  20.7 / 21.5	<i>LM</i>		 Two-sided					
		<i>DK</i>							
		<i>FR</i>							
		<i>SP</i>							
DEFENDER 810 ONE-SIDE ADJUSTABLE	 16.7 / 21.5  20.7 / 21.5	<i>MR</i>		 One-side					
		<i>MF</i>							
DEFENDER XP	 12.7 / 13.5  15  16.7 / 17.5			 Two-sided					
					DEFENDER PICO	 12.7 / 13.5  15  16.7 / 17.5			 Fixed
<i>DK</i>									
<i>FR</i>									
<i>SP</i>									

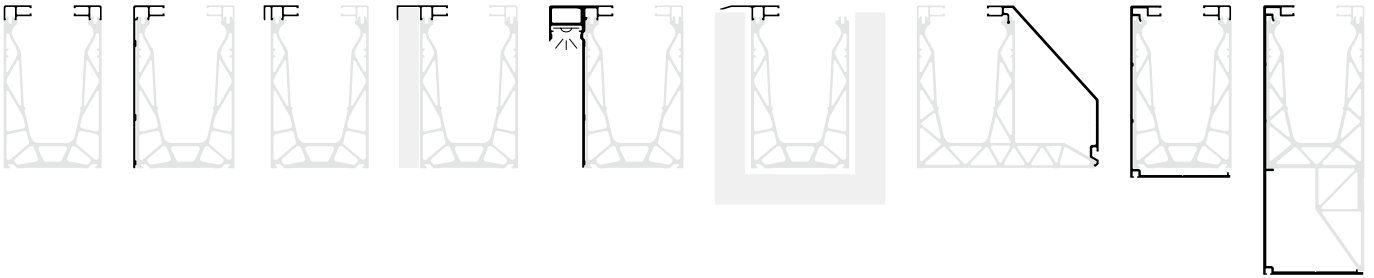
# DEFENDER 810

## *The panorama at your fingertips*

The DF810 range, with all its installation possibilities, adapts to all your needs: minimalist profiles that will amaze you thanks to their high performance.

All aluminium profiles are protected with 20-micron anodisation or HPQ paint for increased durability, even in aggressive environments. Load-bearing profiles are supplied pre-drilled every 200 mm, ready for installation. On request, we offer the possibility to create profiles with additional holes or custom cuts for each project. Pre-assembled fasteners made of high-performance composite plastic block the glass easily and quickly, guaranteeing the highest safety and superior durability. In addition, the new modular concept of blocking systems means panes of different thicknesses can be installed without changing the system. The inclination of the glass can be adjusted and the position blocked by acting on both sides of the system.

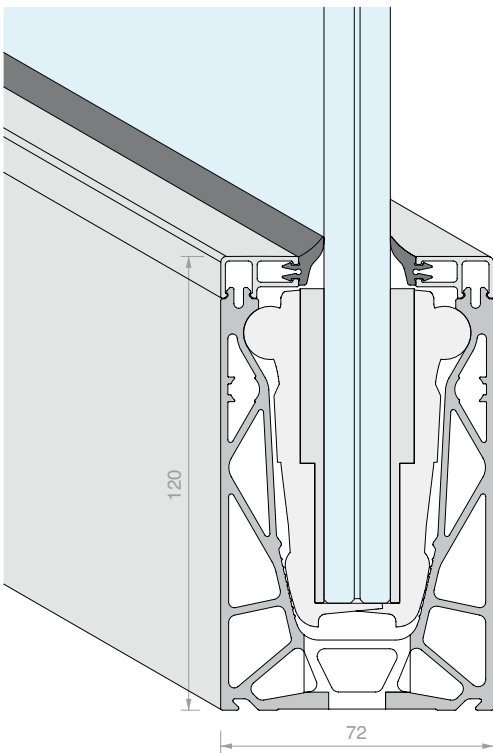
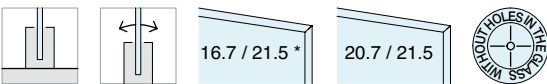
### Available finishing covers:



### DEFENDER 810LM KIT

FLOOR INSTALLATION

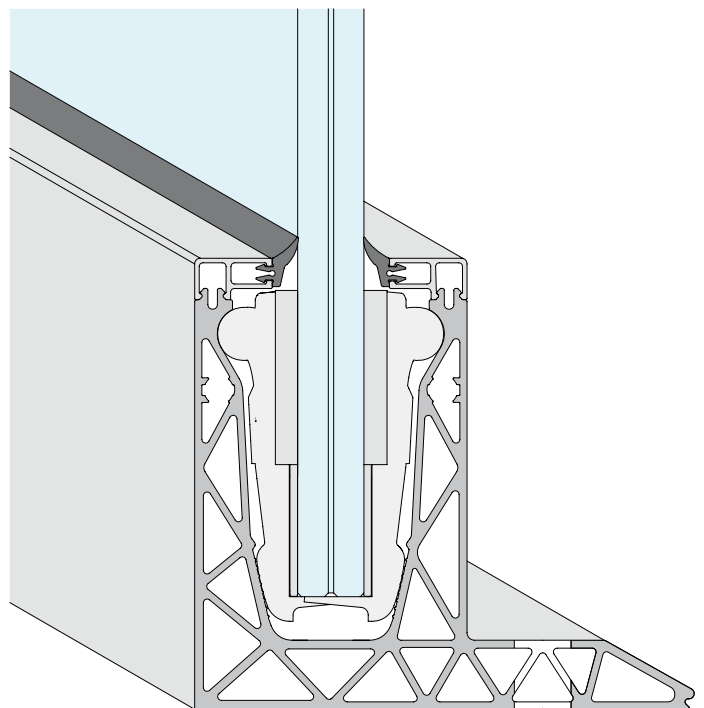
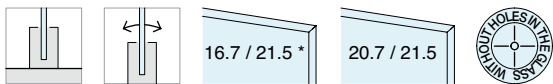
Finish: /6 /10 /88 /97 /RAL



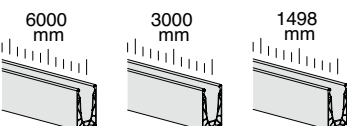
### DEFENDER 810DK KIT

FLOOR INSTALLATION WITH SIDE FIN

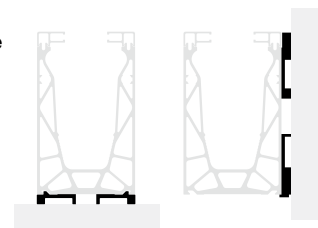
Finish: /97



All Defender kits are available in stock in three sizes:



Optional water drainage profile:

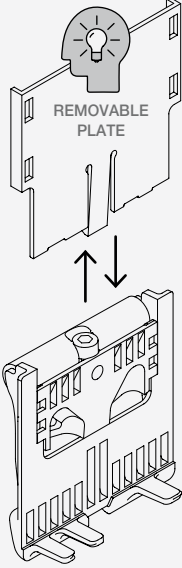




**\* MODULAR CLAMPS for DEFENDER810**

DEFENDER810 clamps are designed to permit two configurations: 8+8 panes of glass using the thickness adaptors, and 10+10 panes of glass without the thickness adaptors.

**REMOVABLE PLATE**

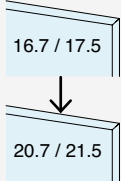
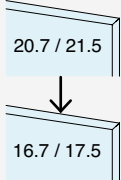


**DF1721**  
This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.

**Reversible configuration**  
The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

**DF2121**  
This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.

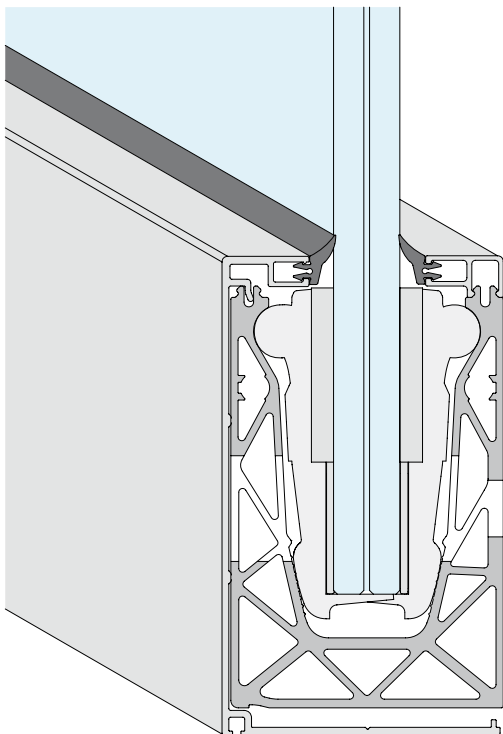
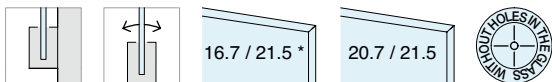
**Reversible configuration**  
The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.


**DEFENDER 810FR KIT**

SLAB INSTALLATION

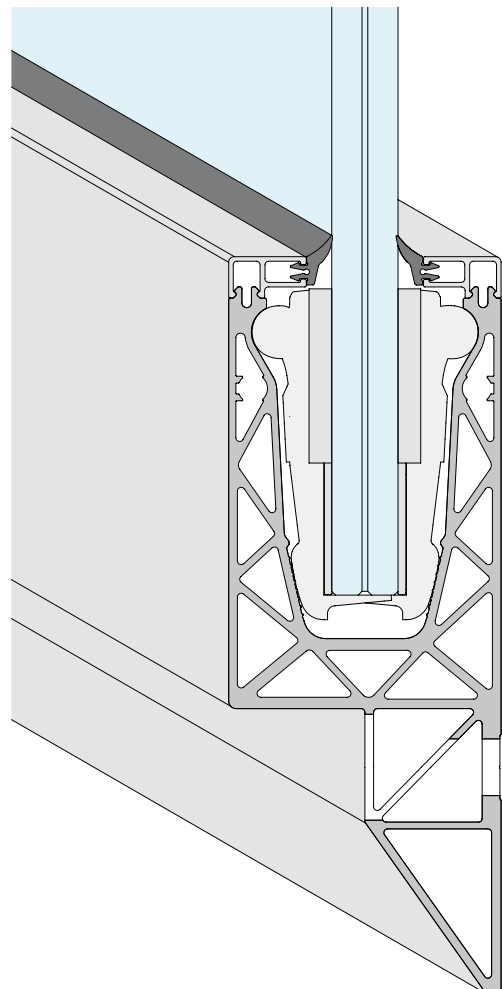
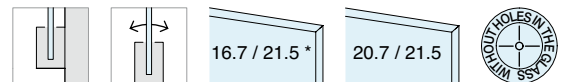
Finish: /6 /10 /88 /97 /RAL



**DEFENDER 810SP KIT**

SLAB INSTALLATION WITH LOWER FIN

Finish: /97



\* Profiles are supplied without coating. Protection must be ensured using the appropriate techniques depending on the intended use.

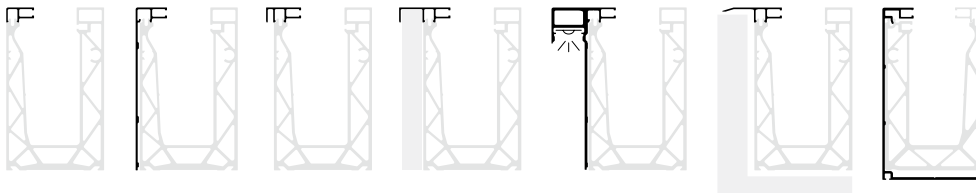
# DEFENDER 810 SINGLE-SIDED ADJUSTABLE

## *Adjustement at your fingertips*

The DEFENDER range is expanded with the innovative single-sided adjustment and fixing system: a new ally at your side that will be indispensable in the most complex installations, particularly where it is difficult to access both sides of the system. Not only does the new profile remain minimal like the rest of the range, it also increases the performance of the glass using continuous support gaskets on the outer side.

All aluminium profiles are protected with 20-micron anodisation or high-performance quality paint for increased durability, even in aggressive environments. Load-bearing profiles are supplied pre-drilled every 200 mm, ready for installation. On request, we offer the possibility to create profiles with additional holes or custom cuts for each project. The innovative insertion and adjustment system consists of pre-assembled fasteners made of high-performance composite plastic, including a moving ferrule to activate the adjustment device of the glass by acting only on the interior side. In addition, the new modular concept of blocking systems means panes of different thicknesses can be installed without changing the system.

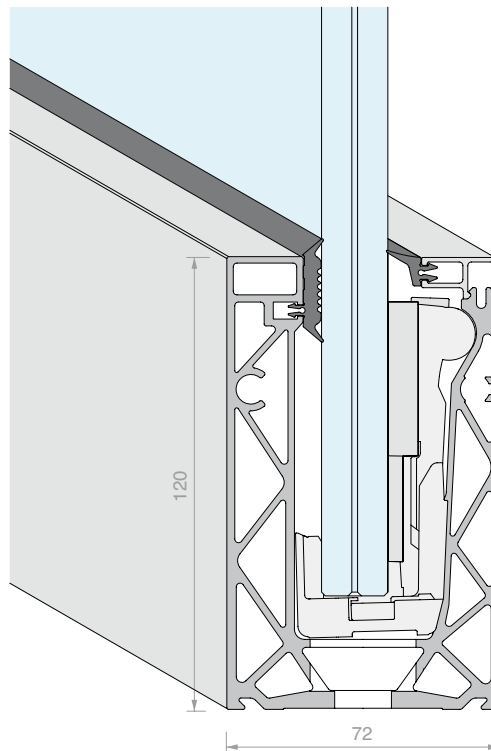
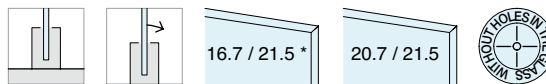
### Available finishing covers:



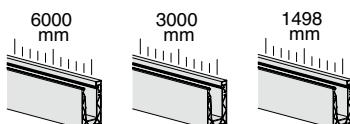
### DEFENDER 810MR KIT

#### FLOOR INSTALLATION

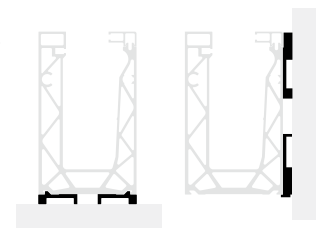
Finish: /6 /10 /88 /97 /RAL



All Defender kits are available in stock in three sizes:



Optional water drainage profile:

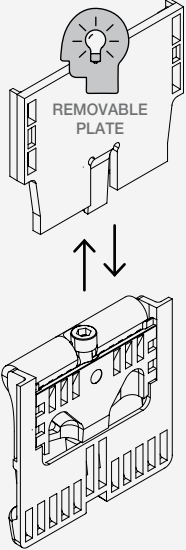




**\*MODULAR CLAMPS for DEFENDER810MR**

DEFENDER810MR clamps are designed to permit two configurations: 8+8 panes of glass using an adjustable adaptor, and 10+10 panes of glass without the thickness adaptors.

Clamp kit provided with adjustment tool DFUT01



**REMOVABLE PLATE**

**DF1721MR**  
 This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.

**Reversible configuration**  
 The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

**DF2121MR**  
 This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.

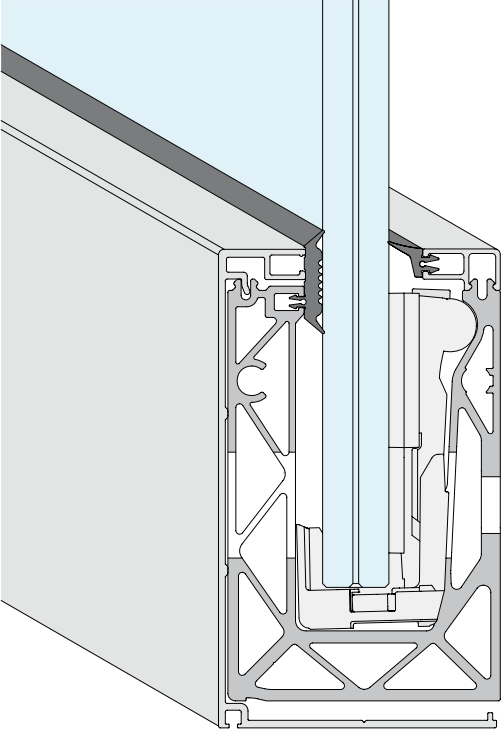
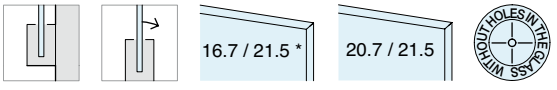
**Reversible configuration**  
 The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes glass.



**DEFENDER 810MF KIT**

**SLAB INSTALLATION**

Finish: /6 /10 /88 /97 /RAL



\* Profiles are supplied without coating. Protection must be ensured using the appropriate techniques depending on the intended use.

# DEFENDER XP and PICO

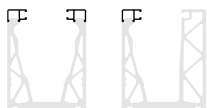
*The smallest, the most resistant*

The PICO range offers all the safety of the DEFENDER line in smaller dimensions. Suitable for application on walls or in any solution where the existing height of the balustrades is not enough.

All aluminium profiles are protected with 20-micron anodisation or high-performance quality paint for increased durability, even in aggressive environments. Load-bearing profiles are supplied pre-drilled every 200 mm, ready for installation. On request, we offer the possibility to create profiles with additional holes or custom cuts for any project.

Fasteners made of high-performance composite plastic for superior durability and safety: ready for use, for even faster installation. XP series, with two-sided glass adjustment. PICO series, with single-sided installation with no adjustment.

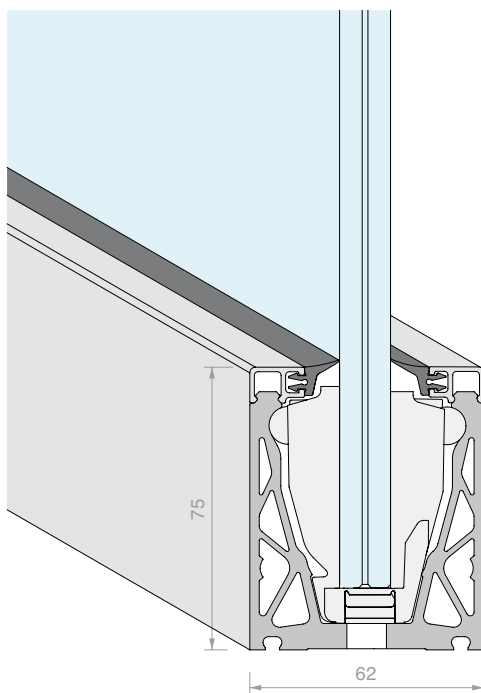
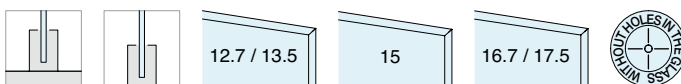
Available finishing covers:



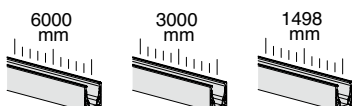
## DEFENDER XP KIT

FLOOR INSTALLATION

Finish: /6 /10 /88 /97 /RAL



All Defender kits are available in stock in three sizes:







**DEFENDER XP DOUBLE-SIDED  
ADJUSTABLE CLAMPS**

Material: POM, Grivory, Stainless steel



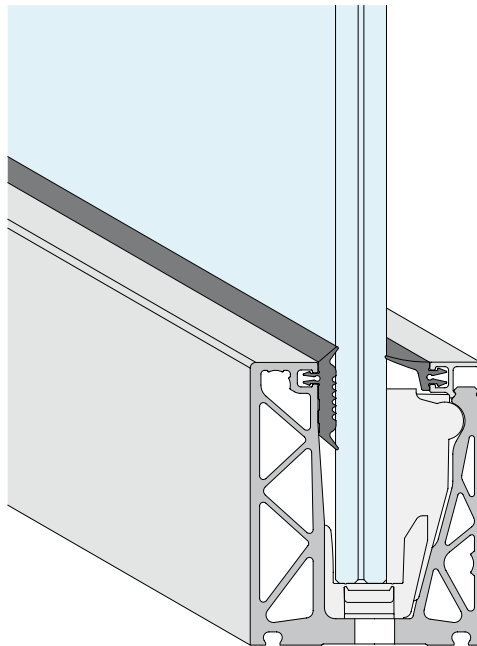
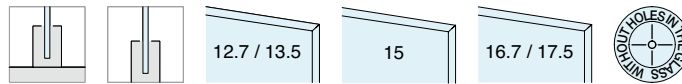
**DEFENDER PICO  
SINGLE-SIDED CLAMPS**

Material: POM, Aluminium (DFP17) or Grivory, Stainless steel

**DEFENDER PICO KIT**

FLOOR INSTALLATION

Finish: /6 /10 /88 /97 /RAL



\* Profiles are supplied without coating. Protection must be ensured using the appropriate techniques depending on the intended use.

# DEFENDER 1212

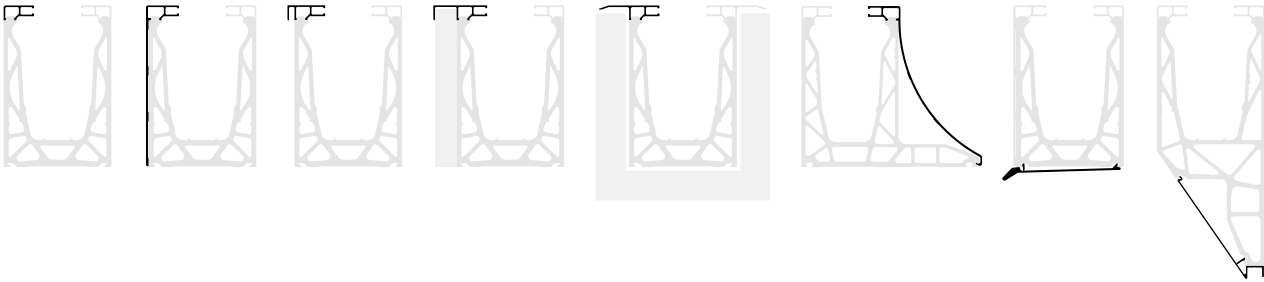
## *The strength for the most extreme solutions*

Thick, rigid, resistant panes of glass, these systems support very high operating loads. The exceptional characteristics make these profiles particularly suitable for use in stadiums, crowded places, or as high wind screens in areas exposed to strong gusts of wind.

All aluminium profiles are protected with 20-micron anodisation or high-performance quality paint for increased durability, even in aggressive environments. Load-bearing profiles are supplied pre-drilled every 200 mm, ready for installation. On request, we offer the possibility to create profiles with additional holes or custom cuts for any project.

Pre-assembled fasteners made of high-performance composite plastic block the glass easily and quickly, guaranteeing the highest safety and superior durability. The inclination of the glass can be adjusted and the position blocked by acting on both sides.

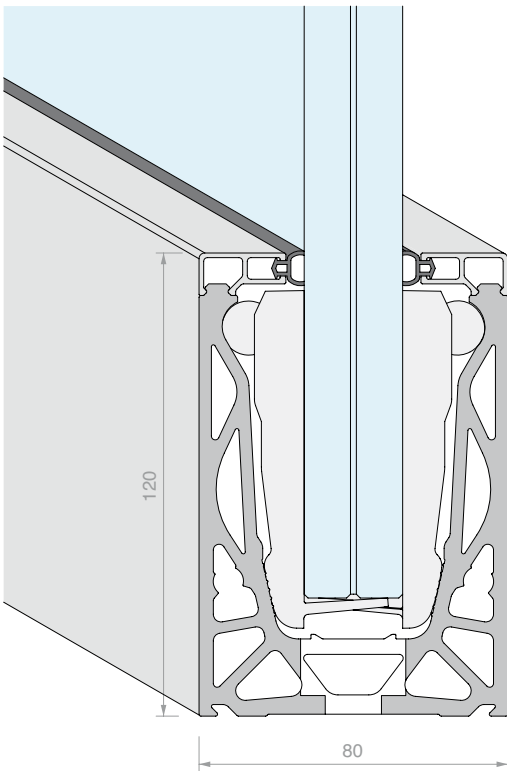
### Available finishing covers:



### DEFENDER 1212LM KIT

FLOOR INSTALLATION

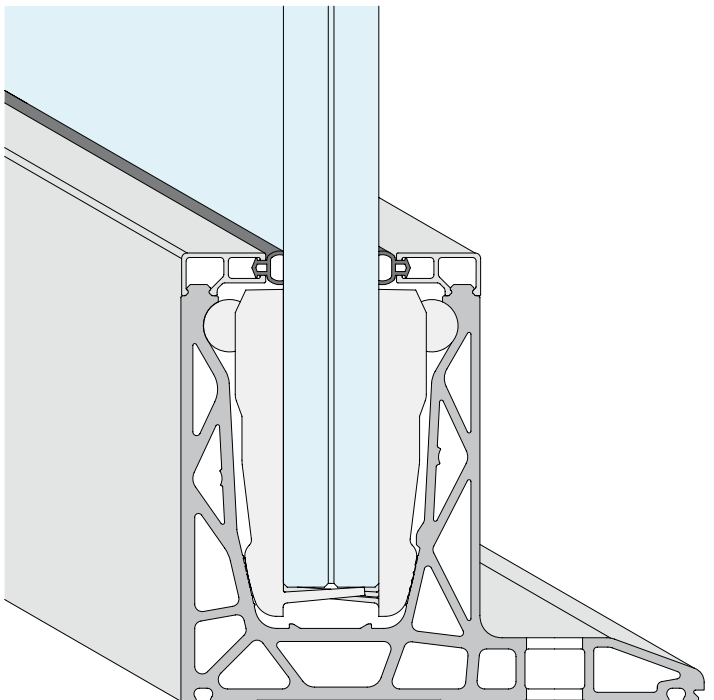
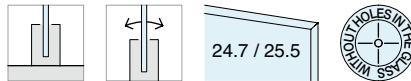
Finish: /97



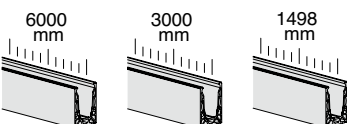
### DEFENDER 1212DK KIT

FLOOR INSTALLATION WITH SIDE FIN

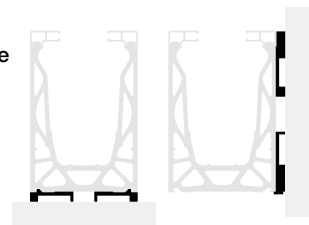
Finish: /97



All Defender kits are available in stock in three sizes:



Optional water drainage profile:







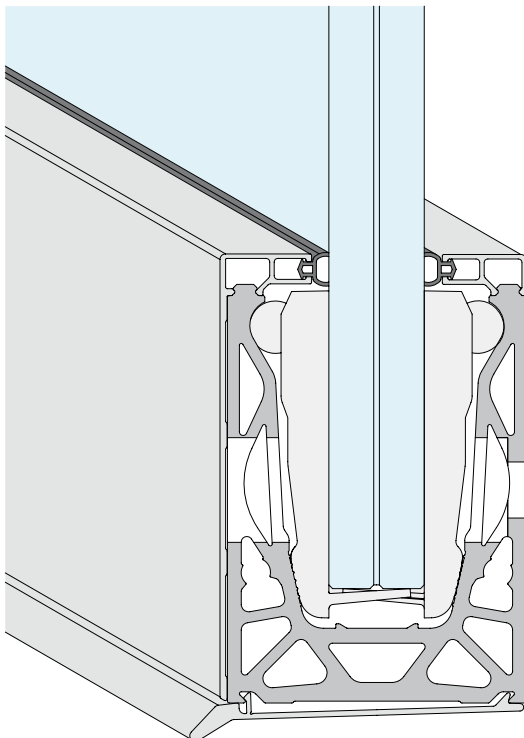
**DEFENDER 1212 DOUBLE-SIDED  
ADJUSTABLE CLAMPS**

Material: POM, Aluminium, Stainless steel, TPE

**DEFENDER 1212FR KIT**

SLAB INSTALLATION

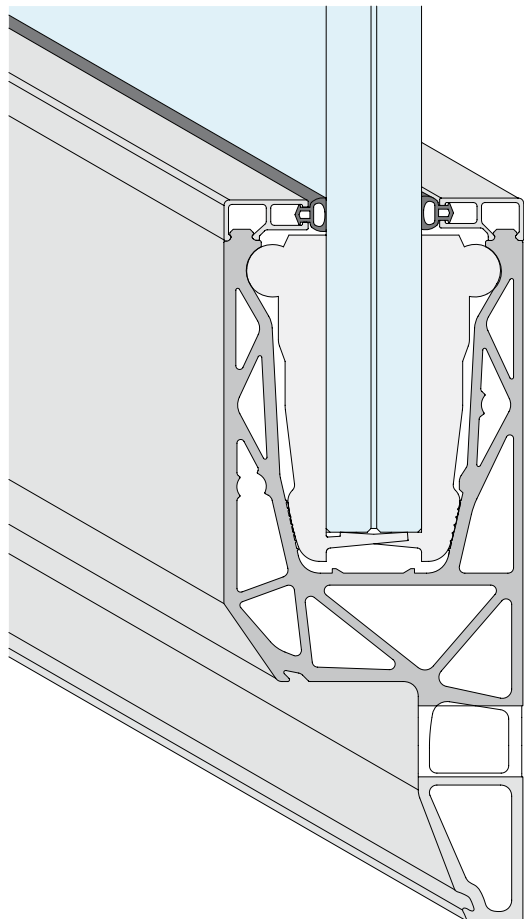
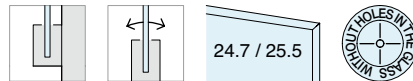
Finish: /97



**DEFENDER 1212SP KIT**

SLAB INSTALLATION WITH LOWER FIN

Finish: /97



\* Profiles are supplied without coating. Protection must be ensured using the appropriate techniques depending on the intended use.









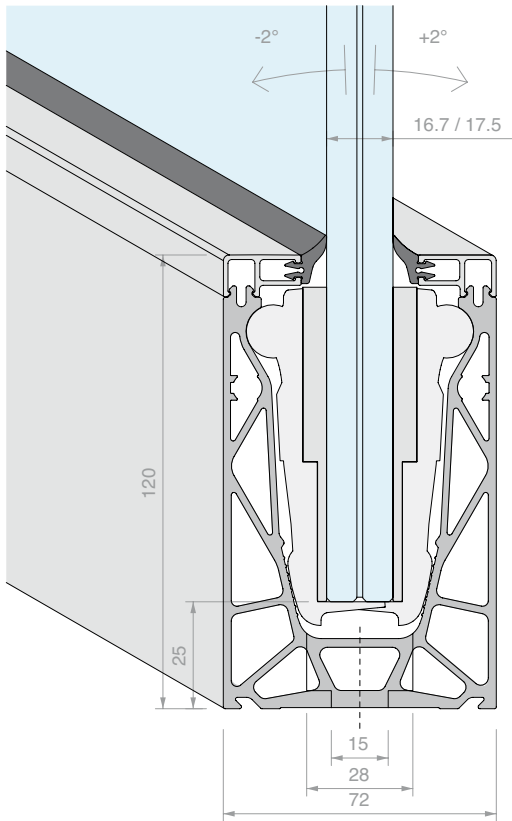
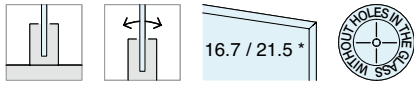
**DEFENDER 810LM KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 8+8

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL



**\* MODULAR CLAMPS for DEFENDER810**

DEFENDER810 clamps are designed to permit two configurations: 8+8 panes of glass using the thickness adaptors, and 10+10 panes of glass without the thickness adaptors.

**DF1721**

This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.

**Reversible configuration**

The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

**DF2121**

This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.

**Reversible configuration**

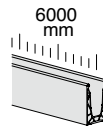
The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.

**DF1721**

This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.

**Reversible configuration**

The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 10+10 panes of glass.

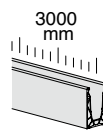
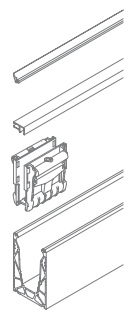


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	4 Pcs
<b>DF100.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1721</b>	810 clamps for glass 8+8	24 Pcs
<b>DF810LM.60</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF810LM17KIT.60</b>	6000 mm	1 Pc

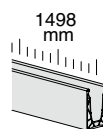
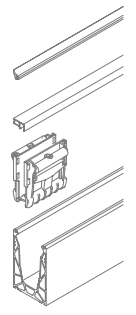


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DF100.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1721</b>	810 clamps for glass 8+8	12 Pcs
<b>DF810LM.30</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF810LM17KIT.30</b>	3000 mm	1 Pc

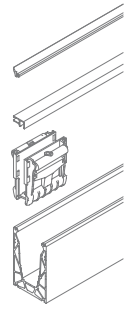


Kit comprising:

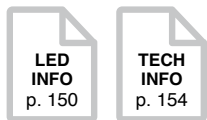
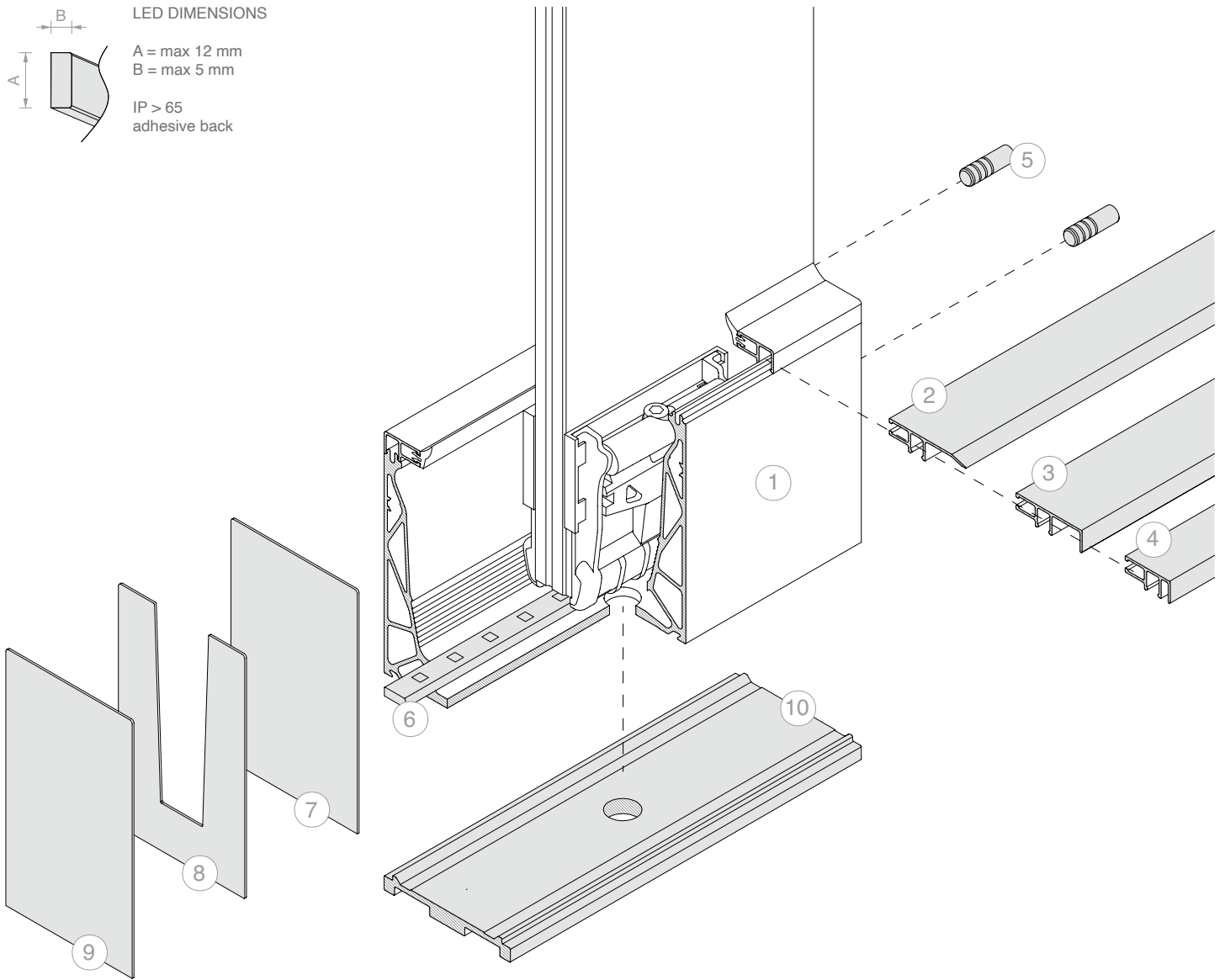
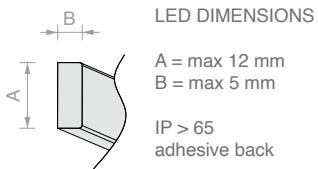
Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1721</b>	810 clamps for glass 8+8	6 Pcs
<b>DF810LM.15</b>	Floor profile	1 Pc

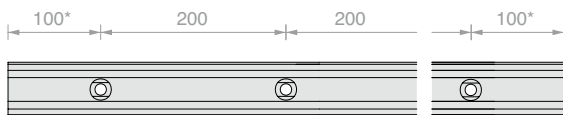
Art.	Length	Qty
<b>DF810LM17KIT.15</b>	1498 mm	1 Pc







**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

No. Art.  
1 **DF810LM17KIT**

Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>LED</b>	LED strip for outdoor use
7	<b>DF12072AL</b>	Closed end cap
8	<b>DF2TPAL</b>	End cap with V-shaped opening
9	<b>DF12772AL</b>	Closed end cap with profile DFA72
10	<b>DFA72</b>	Water drainage profile



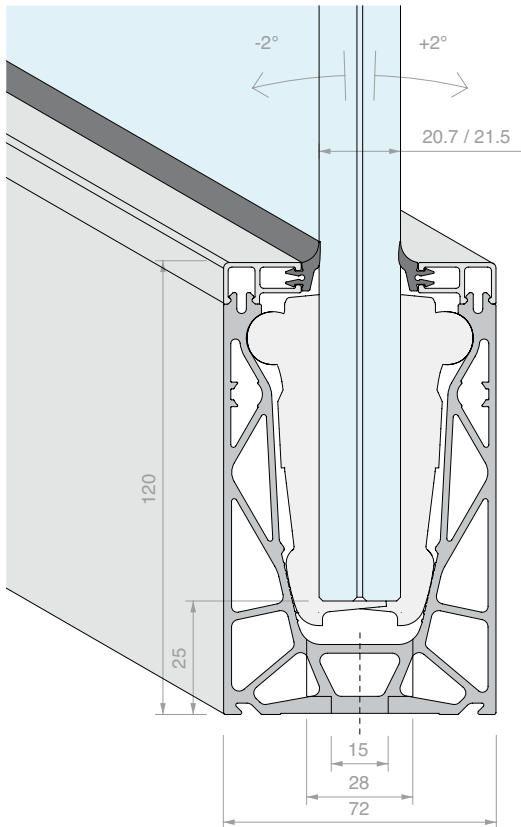
**DEFENDER 810LM KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 10+10

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL



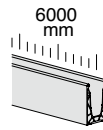
**MODULAR CLAMPS for DEFENDER810**

DEFENDER810 clamps are designed to permit two configurations: 8+8 panes of glass using the thickness adaptors, and 10+10 panes of glass without the thickness adaptors.

**REMOVABLE PLATE**

**DF1721**  
 This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.  
**Reversible configuration**  
 The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

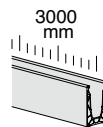
**DF2121**  
 This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.  
**Reversible configuration**  
 The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	4 Pcs
<b>DF100.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DF2121</b>	810 clamps for glass 10+10	24 Pcs
<b>DF810LM.60</b>	Floor profile	1 Pc

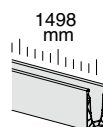
Art.	Length	Qty
<b>DF810LM21KIT.60</b>	6000 mm	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DF100.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DF2121</b>	810 clamps for glass 10+10	12 Pcs
<b>DF810LM.30</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF810LM21KIT.30</b>	3000 mm	1 Pc

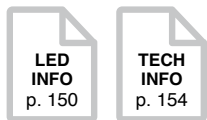
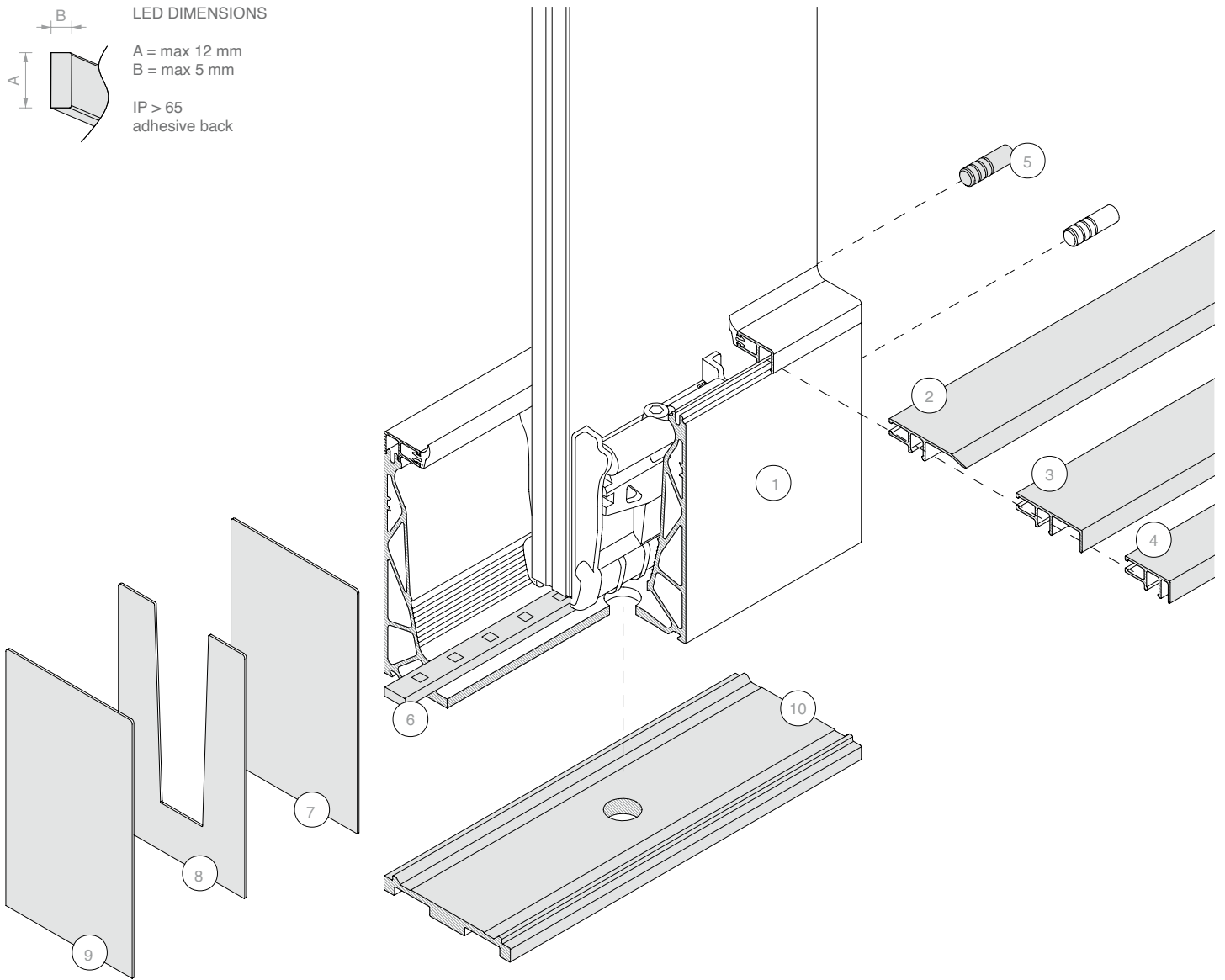
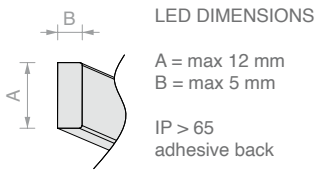


Kit comprising:

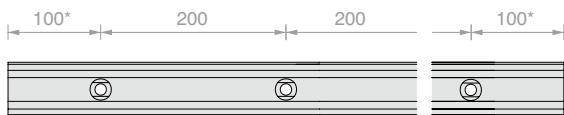
Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DF2121</b>	810 clamps for glass 10+10	6 Pcs
<b>DF810LM.15</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF810LM21KIT.15</b>	1498 mm	1 Pc





**HOLE SPACING**

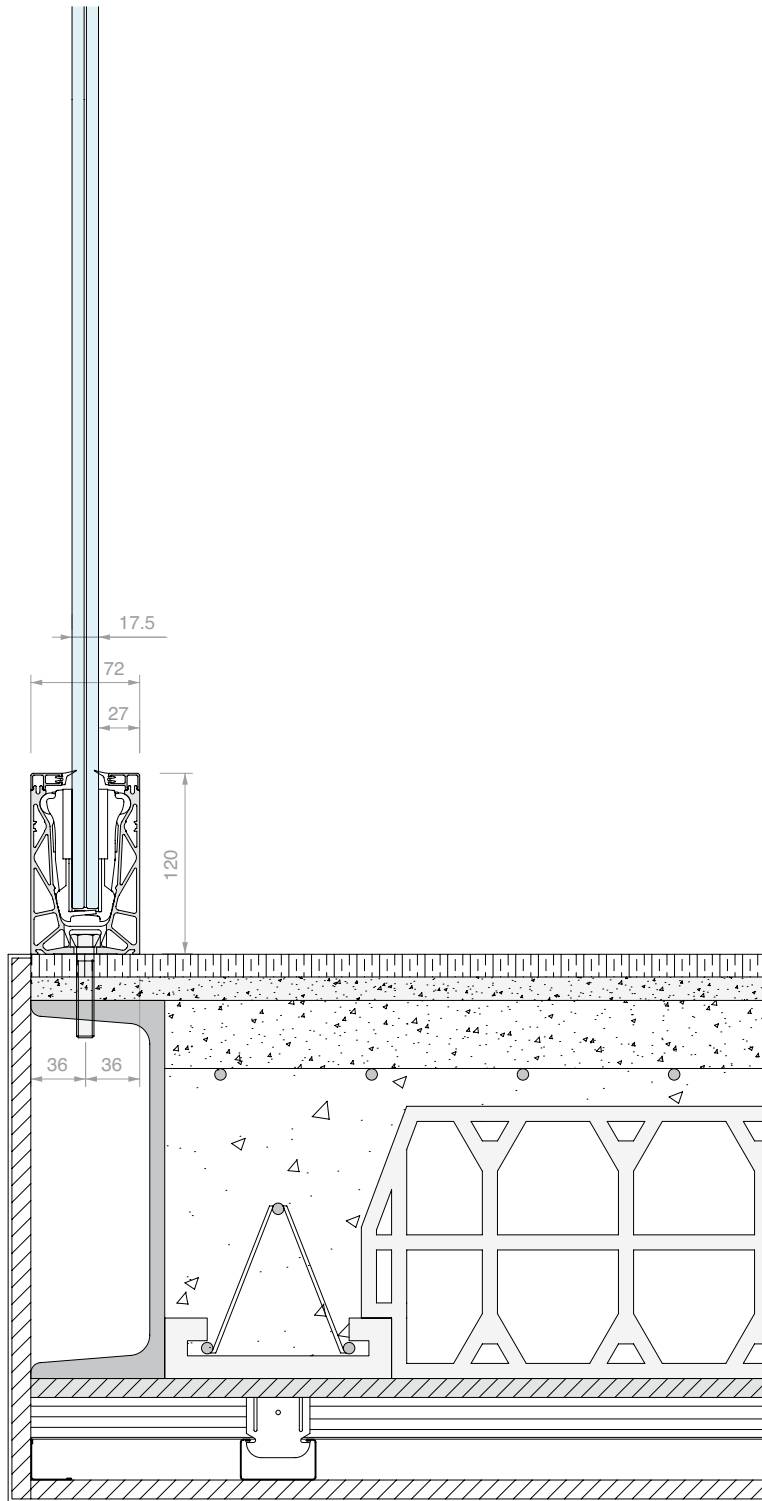


\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

No. Art.  
1 **DF810LM21KIT**

Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>LED</b>	LED strip for outdoor use
7	<b>DF12072AL</b>	Closed end cap
8	<b>DF2TPAL</b>	End cap with V-shaped opening
9	<b>DF12772AL</b>	Closed end cap with profile DFA72
10	<b>DFA72</b>	Water drainage profile









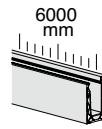
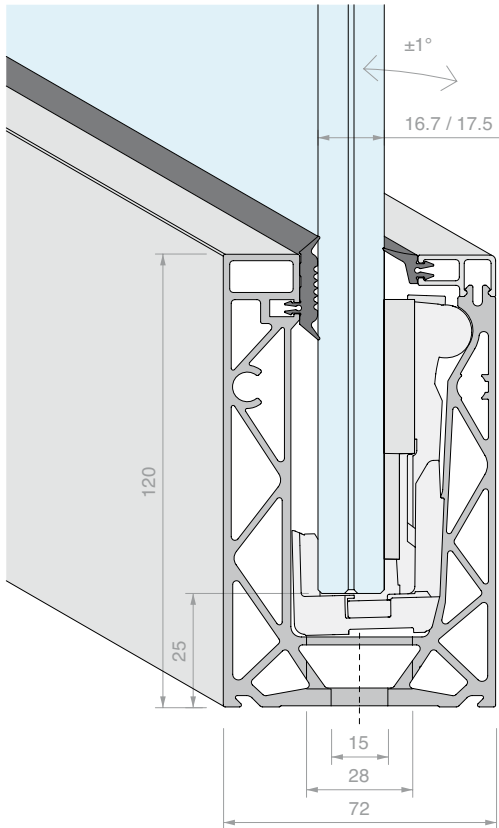
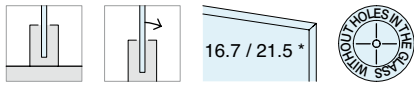
**DEFENDER 810MR KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 8+8

Material: Aluminium

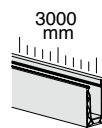
Finish: /6 /10 /88 /97 /RAL



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFP88G03.03</b>	Flat profile gasket	2 Pcs
<b>DF100.60</b>	Upper snap-on finishing profile	1 Pc
<b>DF1721MR</b>	810 clamps for glass 8+8	24 Pcs
<b>DF810MR.60</b>	Single-sided floor profile	1 Pc

Art.	Length	Qty
<b>DF810MR17KIT.60</b>	6000 mm	1 Pc



Kit comprising:

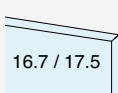
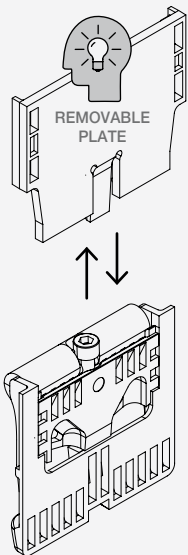
Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFP88G03.03</b>	Flat profile gasket	1 Pc
<b>DF100.30</b>	Upper snap-on finishing profile	1 Pc
<b>DF1721MR</b>	810 clamps for glass 8+8	12 Pcs
<b>DF810MR.30</b>	Single-sided floor profile	1 Pc

Art.	Length	Qty
<b>DF810MR17KIT.30</b>	3000 mm	1 Pc

**\*MODULAR CLAMPS for DEFENDER810MR**

DEFENDER810MR clamps are designed to permit two configurations: 8+8 panes of glass using an adjustable adaptor, and 10+10 panes of glass without the thickness adaptors.

Clamp kit provided with adjustment tool DFUT01

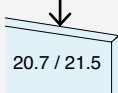


**DF1721MR**

This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.

**Reversible configuration**

The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

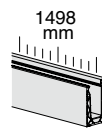
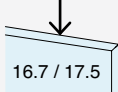
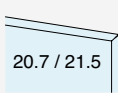


**DF2121MR**

This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.

**Reversible configuration**

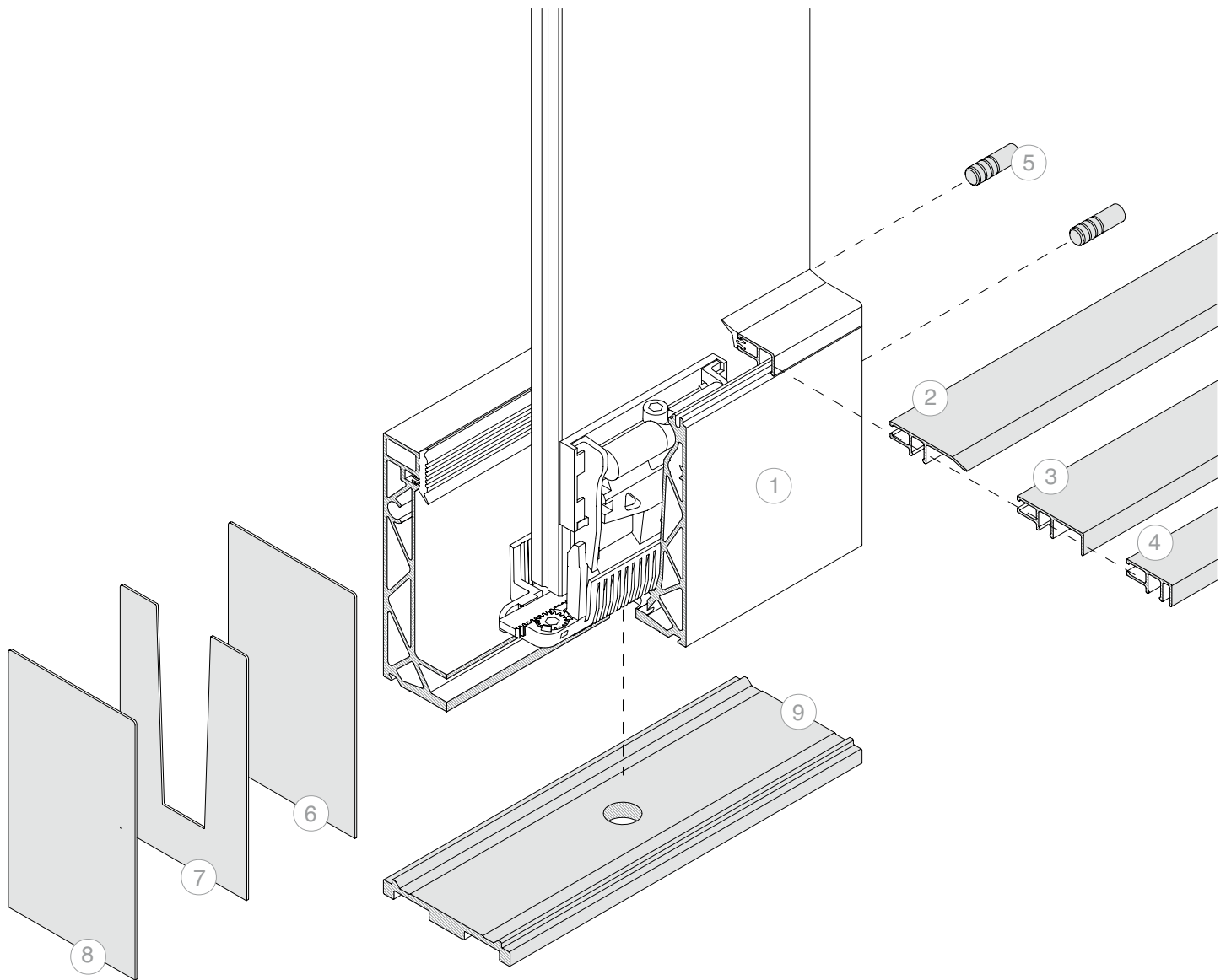
The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01</b>	Lip profile gasket	1.5 m
<b>DFPG03</b>	Flat profile gasket	1.5 m
<b>DF100.15</b>	Upper snap-on finishing profile	1 Pc
<b>DF1721MR</b>	810 clamps for glass 8+8	6 Pcs
<b>DF810MR.15</b>	Single-sided floor profile	1 Pc

Art.	Length	Qty
<b>DF810MR17KIT.15</b>	1498 mm	1 Pc



No. Art.

1 **DF810MR17KIT**

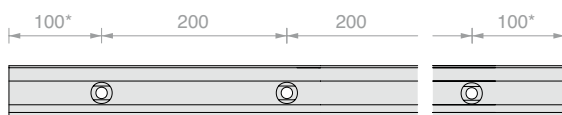
Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>DF12072AL</b>	Closed end cap
7	<b>DF2TPAL</b>	End cap with V-shaped opening
8	<b>DF12772AL</b>	Closed end cap with profile DFA72
9	<b>DFA72</b>	Water drainage profile



**Note:** System not compatible with LED strips in the channel

#### HOLE SPACING



\* The position of the first and last holes are given for information only.  
For specific requests, please contact Customer Care.





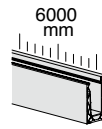
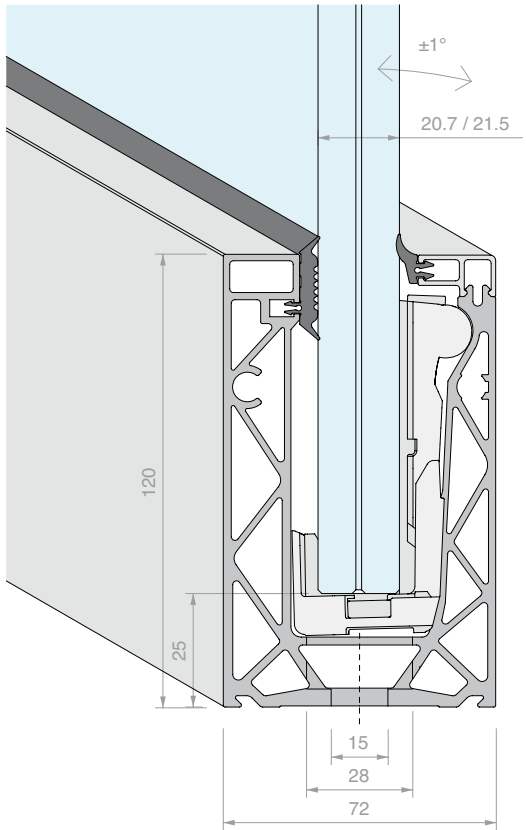
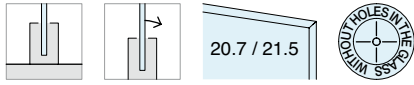
**DEFENDER 810MR KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 10+10

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

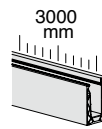
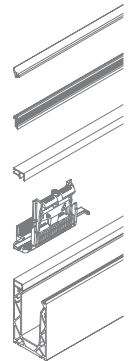


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFP88G03.03</b>	Flat profile gasket	2 Pcs
<b>DF100.60</b>	Upper snap-on finishing profile	1 Pc
<b>DF2121MR</b>	810 clamps for glass 10+10	24 Pcs
<b>DF810MR.60</b>	Single-sided floor profile	1 Pc

Art.	Length	Qty
<b>DF810MR21KIT.60</b>	6000 mm	1 Pc

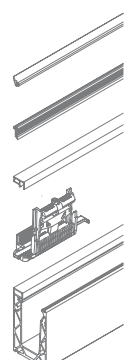


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFP88G03.03</b>	Flat profile gasket	1 Pc
<b>DF100.30</b>	Upper snap-on finishing profile	1 Pc
<b>DF2121MR</b>	810 clamps for glass 10+10	12 Pcs
<b>DF810MR.30</b>	Single-sided floor profile	1 Pc

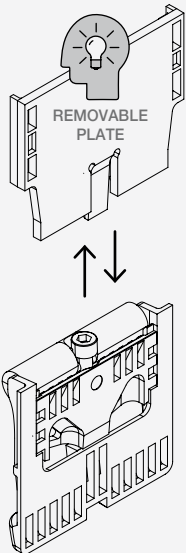
Art.	Length	Qty
<b>DF810MR21KIT.30</b>	3000 mm	1 Pc



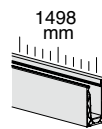
**MODULAR CLAMPS for DEFENDER810MR**

DEFENDER810MR clamps are designed to permit two configurations: 8+8 panes of glass using an adjustable adaptor, and 10+10 panes of glass without the thickness adaptors.

Clamp kit provided with adjustment tool DFUT01



<b>DF1721MR</b>	This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.
16.7 / 17.5	↓
<b>Reversible configuration</b>	The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.
20.7 / 21.5	↓
<b>DF2121MR</b>	This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.
20.7 / 21.5	↓
<b>Reversible configuration</b>	The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.
16.7 / 17.5	↓

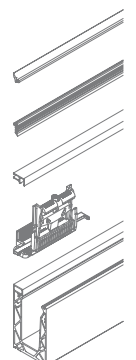


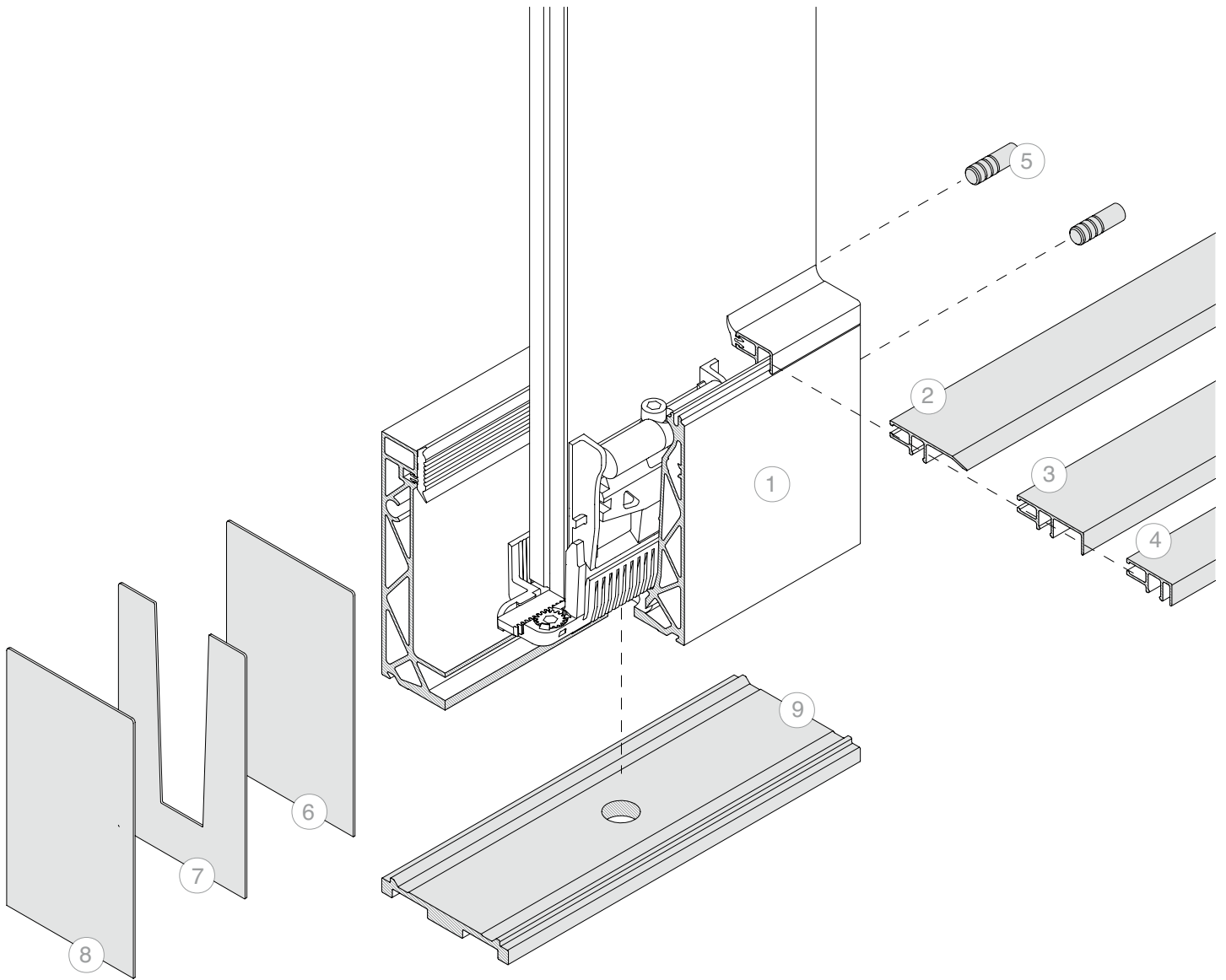
Kit comprising:

Art.	Description	Qty.
<b>DFP88G01</b>	Lip profile gasket	1.5 m
<b>DFPG03</b>	Flat profile gasket	1.5 m
<b>DF100.15</b>	Upper snap-on finishing profile	1 Pc
<b>DF2121MR</b>	810 clamps for glass 10+10	6 Pcs
<b>DF810MR.15</b>	Single-sided floor profile	1 Pc

Art.	Length	Qty
<b>DF810MR21KIT.15</b>	1498 mm	1 Pc





No. Art.

1 **DF810MR21KIT**

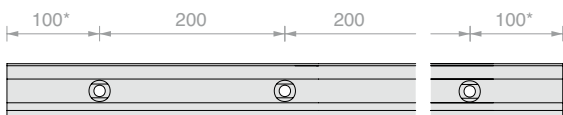
Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>DF12072AL</b>	Closed end cap
7	<b>DF2TPAL</b>	End cap with V-shaped opening
8	<b>DF12772AL</b>	Closed end cap with profile DFA72
9	<b>DFA72</b>	Water drainage profile

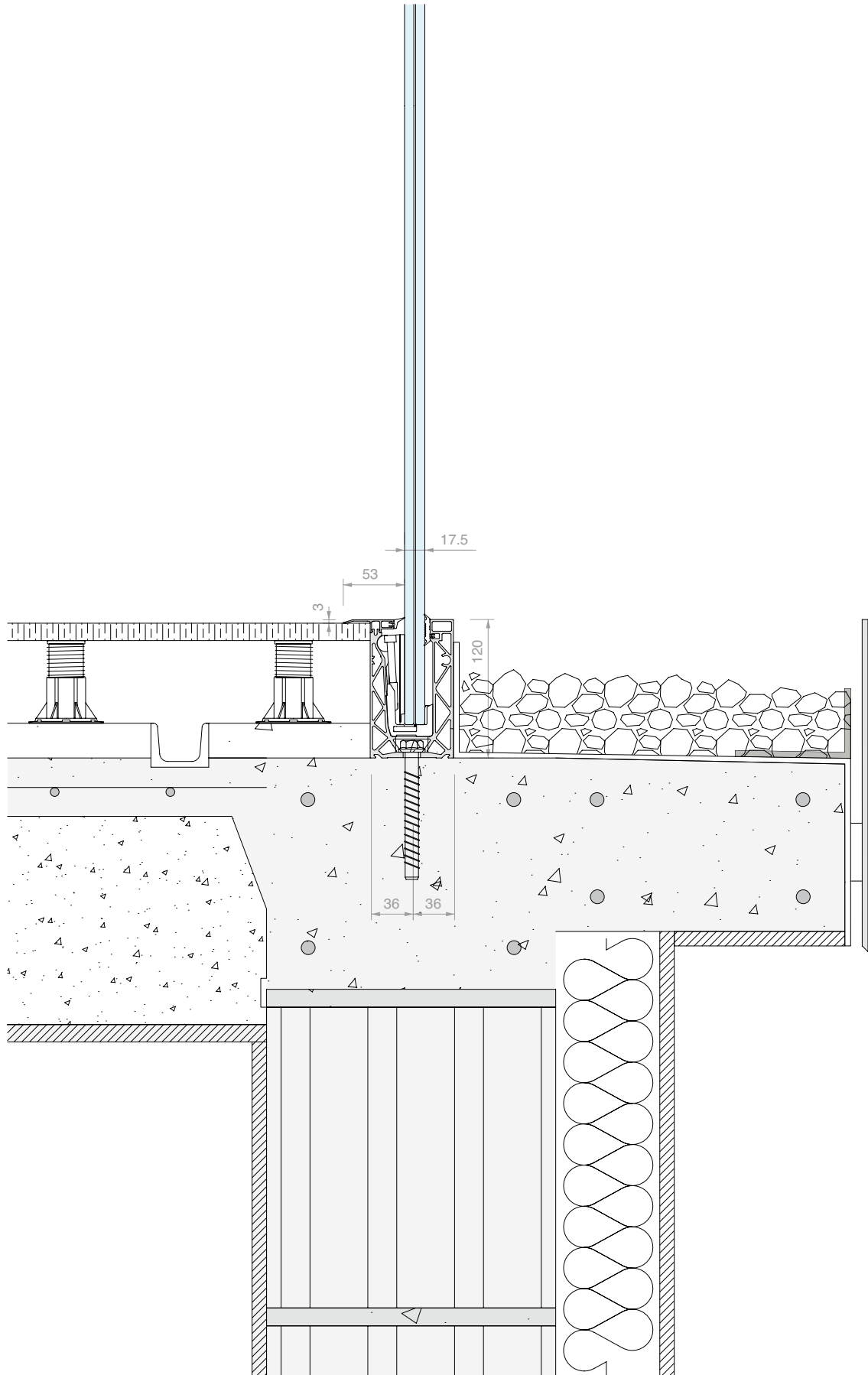


**Note:** System not compatible with LED strips in the channel

HOLE SPACING



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



















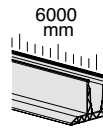
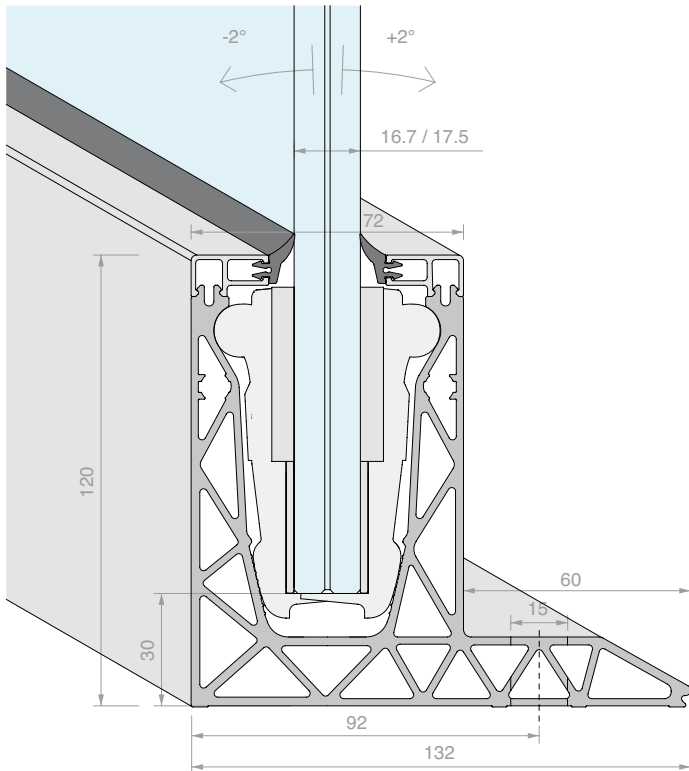
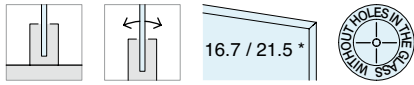
**DEFENDER 810DK KIT**

FLOOR INSTALLATION WITH SIDE FIN

CONFIGURED FOR GLASS 8+8

Material: Aluminium

Finish: /97

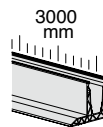
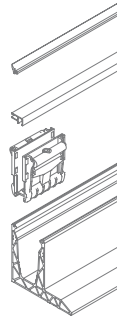


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	4 Pcs
<b>DF100.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1721</b>	810 clamps for glass 8+8	24 Pcs
<b>DF810DK.60</b>	Floor profile with side fin	1 Pc

Art.	Length	Qty
<b>DF810DK17KIT.60</b>	6000 mm	1 Pc

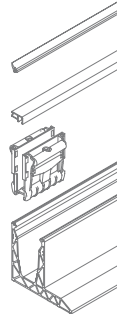


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DF100.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1721</b>	810 clamps for glass 8+8	12 Pcs
<b>DF810DK.30</b>	Floor profile with side fin	1 Pc

Art.	Length	Qty
<b>DF810DK17KIT.30</b>	3000 mm	1 Pc

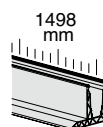


**\* MODULAR CLAMPS for DEFENDER810**

DEFENDER810 clamps are designed to permit two configurations: 8+8 panes of glass using the thickness adaptors, and 10+10 panes of glass without the thickness adaptors.

**REMOVABLE PLATE**

<b>DF1721</b>	This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.
<b>Reversible configuration</b>	The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.
<b>DF2121</b>	This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.
<b>Reversible configuration</b>	The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.

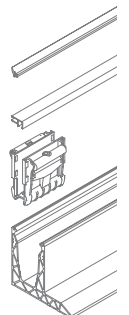


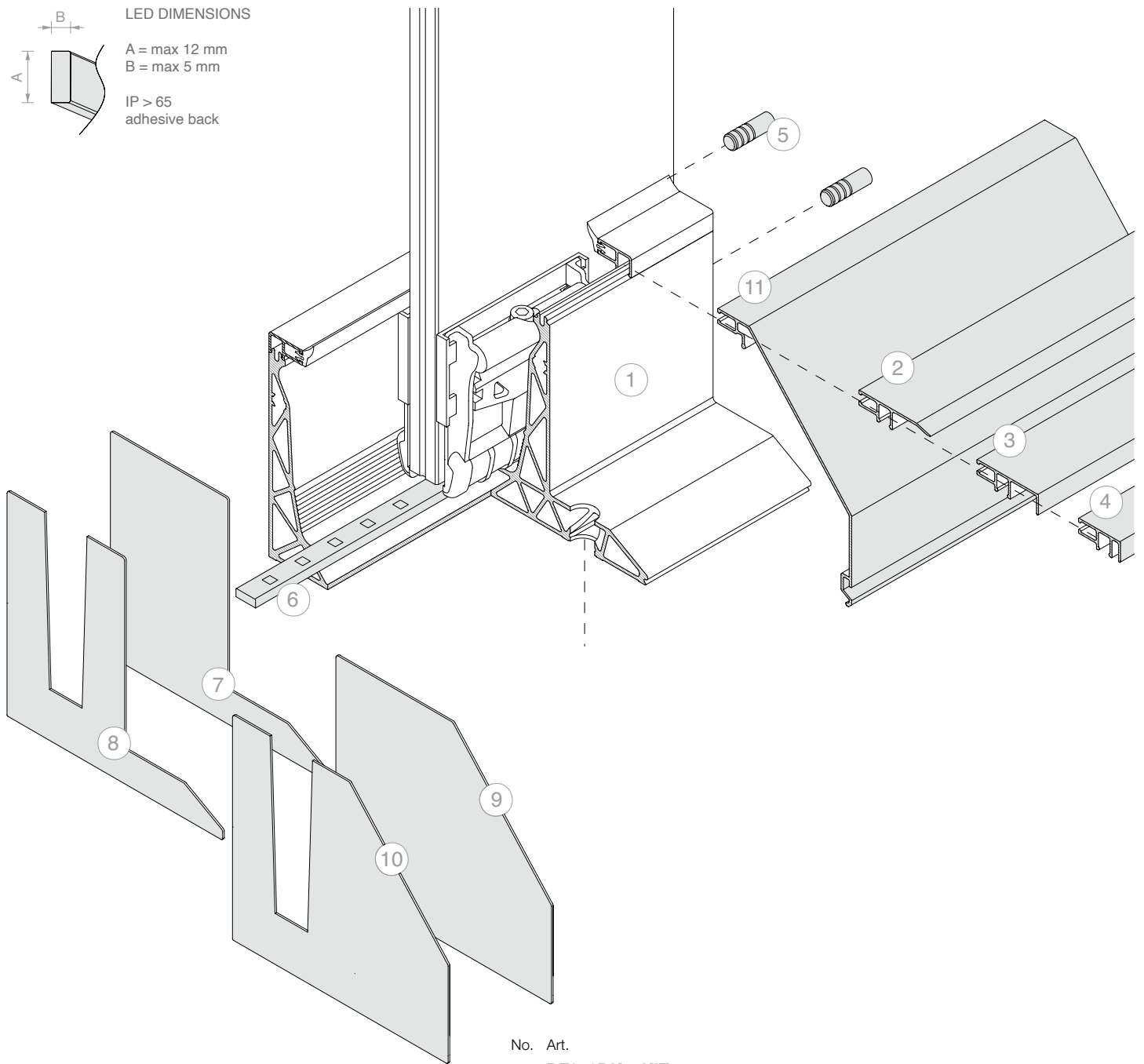
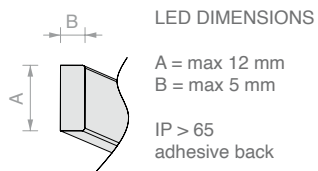
Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1721</b>	810 clamps for glass 8+8	6 Pcs
<b>DF810DK.15</b>	Floor profile with side fin	1 Pc

Art.	Length	Qty
<b>DF810DK17KIT.15</b>	1498 mm	1 Pc

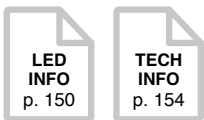




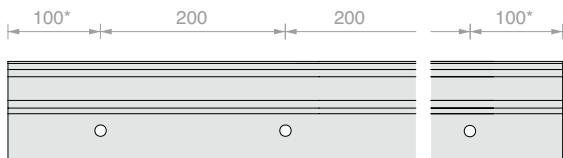
No. Art.  
1 **DF810DK17KIT**

Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>LED</b>	LED strip for outdoor use
7	<b>DFDKTP08</b>	Closed end cap
8	<b>DFDKTP10</b>	End cap with V-shaped opening
9	<b>DFDKTP27</b>	Closed end cap con DFDK07
10	<b>DFDKTP31</b>	End cap with V-shaped opening with DFDK07
11	<b>DFDK07</b>	Inclined snap-on finishing profile



**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

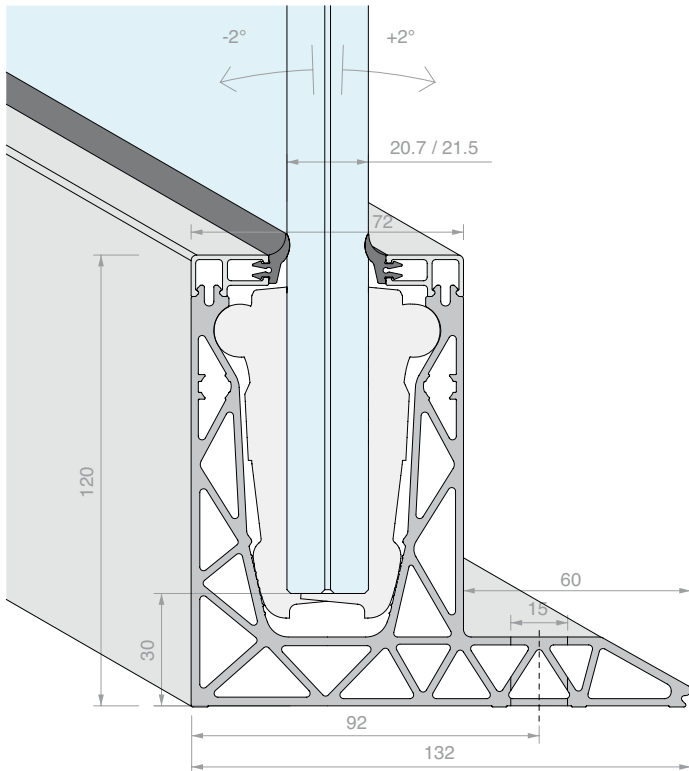


**DEFENDER 810DK KIT**

FLOOR INSTALLATION WITH SIDE FIN  
CONFIGURED FOR GLASS 10+10

Material: Aluminium

Finish: /97



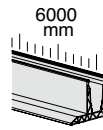
**MODULAR CLAMPS for DEFENDER810**

DEFENDER810 clamps are designed to permit two configurations: 8+8 panes of glass using the thickness adaptors, and 10+10 panes of glass without the thickness adaptors.

**REMOVABLE PLATE**

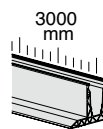
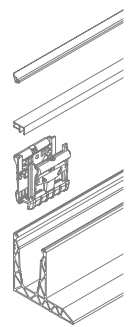
**DF1721**  
This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.  
**Reversible configuration**  
The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

**DF2121**  
This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.  
**Reversible configuration**  
The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.



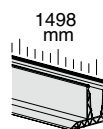
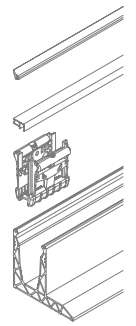
Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	4 Pcs
<b>DF100.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DF2121</b>	810 clamps for glass 10+10	24 Pcs
<b>DF810DK.60</b>	Floor profile with side fin	1 Pc
Art.	Length	Qty
<b>DF810DK21KIT.60</b>	<b>6000 mm</b>	<b>1 Pc</b>



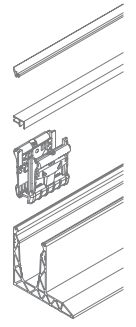
Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DF100.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DF2121</b>	810 clamps for glass 10+10	12 Pcs
<b>DF810DK.30</b>	Floor profile with side fin	1 Pc
Art.	Length	Qty
<b>DF810DK21KIT.30</b>	<b>3000 mm</b>	<b>1 Pc</b>

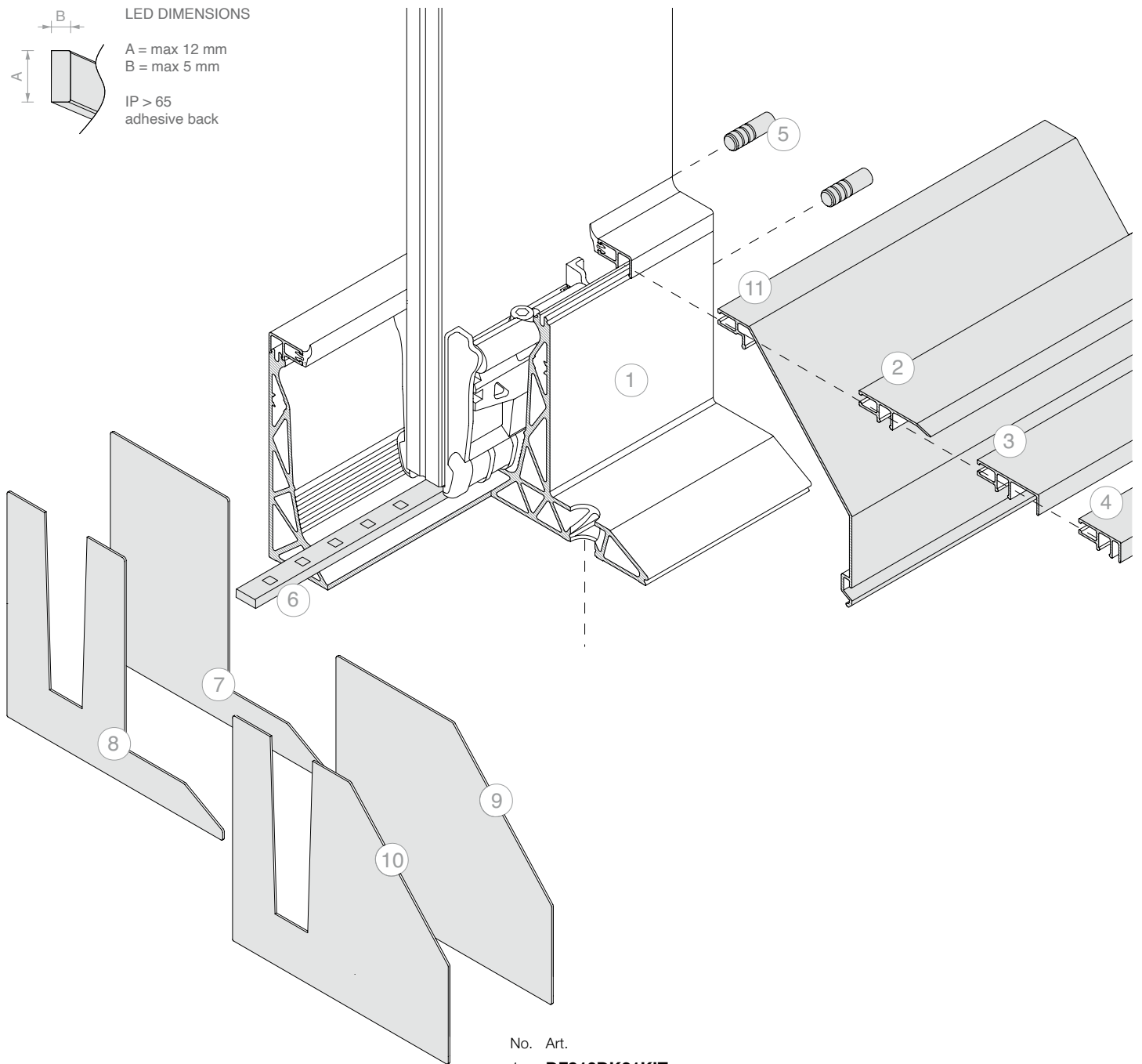
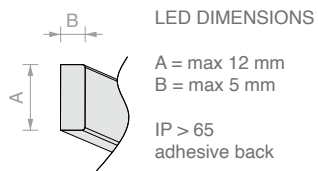


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DF2121</b>	810 clamps for glass 10+10	6 Pcs
<b>DF810DK.15</b>	Floor profile with side fin	1 Pc
Art.	Length	Qty
<b>DF810DK21KIT.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



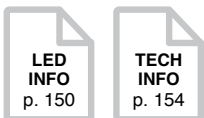




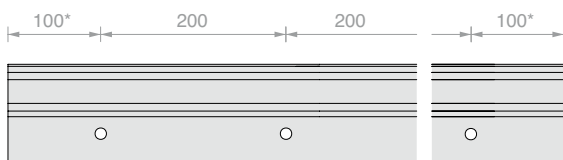
No. Art.  
1 **DF810DK21KIT**

Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>LED</b>	LED strip for outdoor use
7	<b>DFDKTP08</b>	Closed end cap
8	<b>DFDKTP10</b>	End cap with V-shaped opening
9	<b>DFDKTP27</b>	Closed end cap con DFDK07
10	<b>DFDKTP31</b>	End cap with V-shaped opening with DFDK07
11	<b>DFDK07</b>	Inclined snap-on finishing profile



**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.











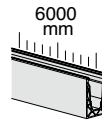
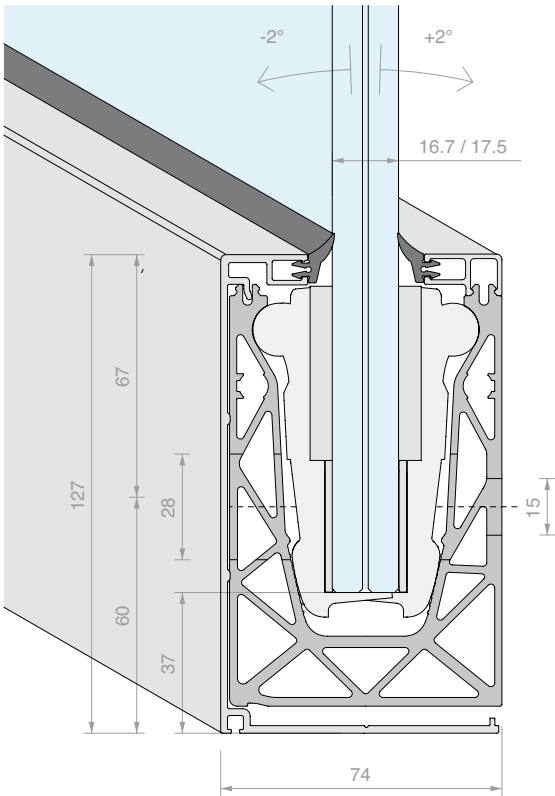
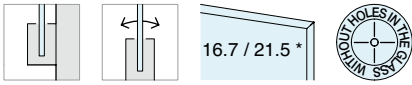
**DEFENDER 810FR KIT**

SLAB INSTALLATION

CONFIGURED FOR GLASS 8+8

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

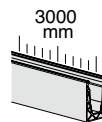
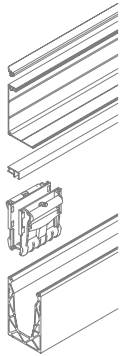


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	4 Pcs
<b>DFS15.60</b>	Finishing profile with drip guard	1 Pc
<b>DF100.60</b>	Upper snap-on finishing profile	1 Pc
<b>DF1721</b>	810 clamps for glass 8+8	24 Pcs
<b>DF810FR.60</b>	Slab profile	1 Pc

Art.	Length	Qty
<b>DF810FR17KIT.60</b>	6000 mm	1 Pc

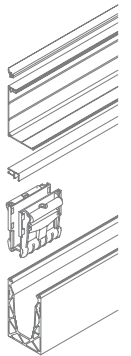


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFS15.30</b>	Finishing profile with drip guard	1 Pc
<b>DF100.30</b>	Upper snap-on finishing profile	1 Pc
<b>DF1721</b>	810 clamps for glass 8+8	12 Pcs
<b>DF810FR.30</b>	Slab profile	1 Pc

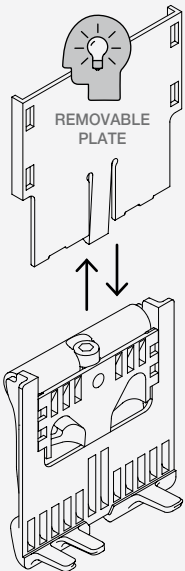
  

Art.	Length	Qty
<b>DF810FR17KIT.30</b>	3000 mm	1 Pc

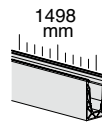


**\* MODULAR CLAMPS for DEFENDER810**

DEFENDER810 clamps are designed to permit two configurations: 8+8 panes of glass using the thickness adaptors, and 10+10 panes of glass without the thickness adaptors.



<b>DF1721</b>	This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.
<b>Reversible configuration</b>	The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.
<b>DF2121</b>	This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.
<b>Reversible configuration</b>	The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.

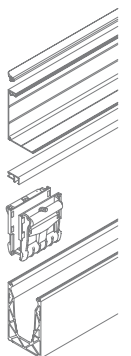


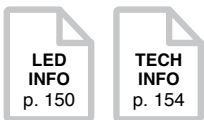
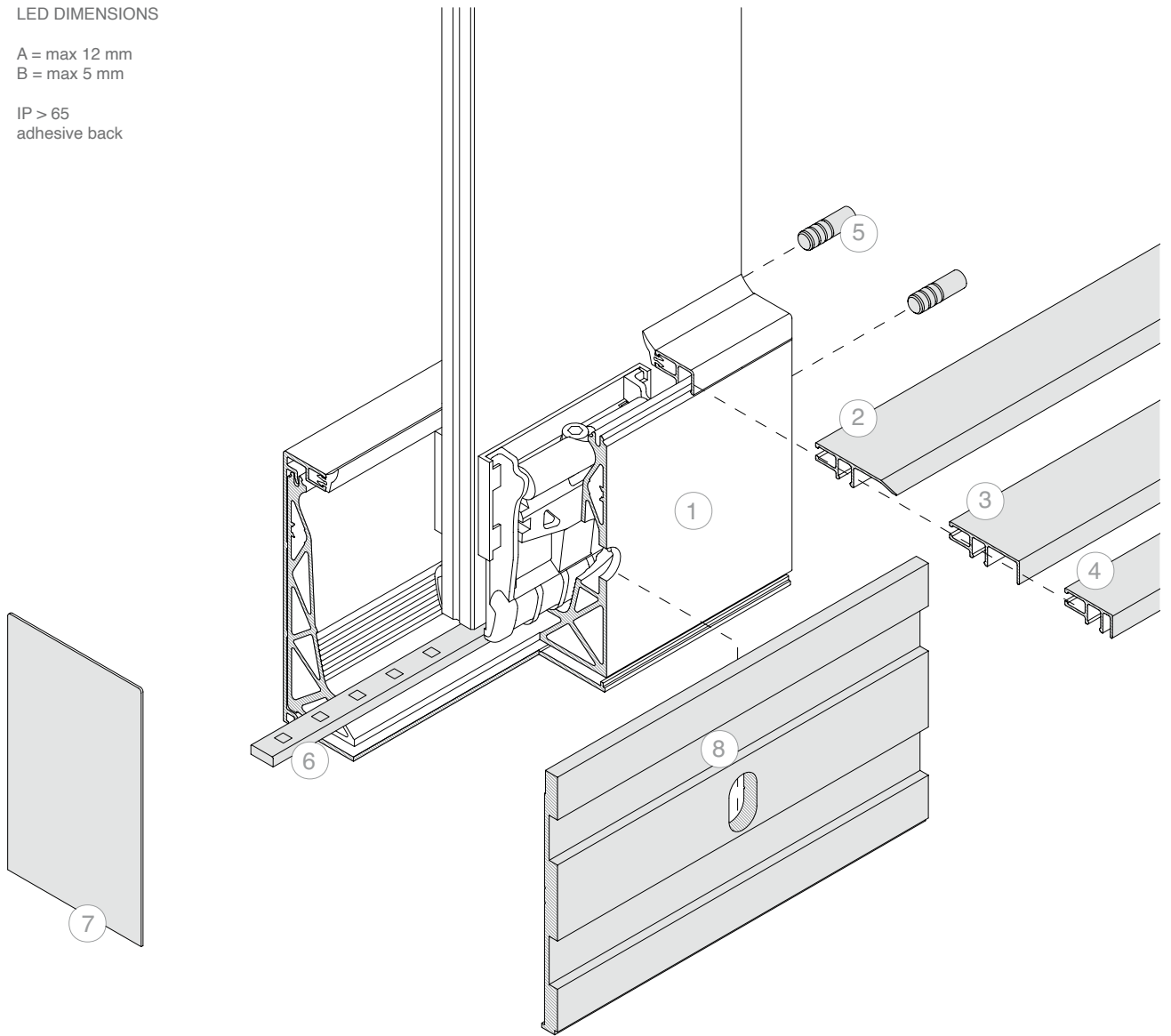
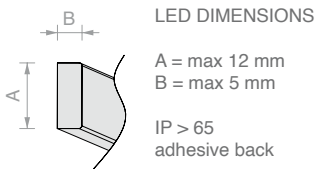
Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFS15.15</b>	Finishing profile with drip guard	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	1 Pc
<b>DF1721</b>	810 clamps for glass 8+8	6 Pcs
<b>DF810FR.15</b>	Slab profile	1 Pc

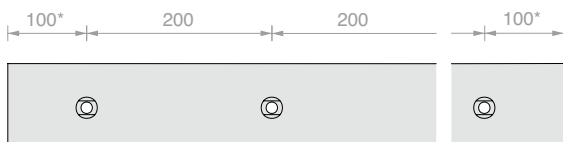
  

Art.	Length	Qty
<b>DF810FR17KIT.15</b>	1498 mm	1 Pc





**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

No. Art.

1 **DF810FR17KIT**

Optional:

No. Art.	Description
2 <b>DF101</b>	Snap-on threshold profile
3 <b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4 <b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5 <b>DF25</b>	2 centring pins
6 <b>LED</b>	LED strip for outdoor use
7 <b>DF12774AL</b>	Closed end cap
8 <b>DFSA121</b>	Slab water drainage profile



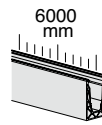
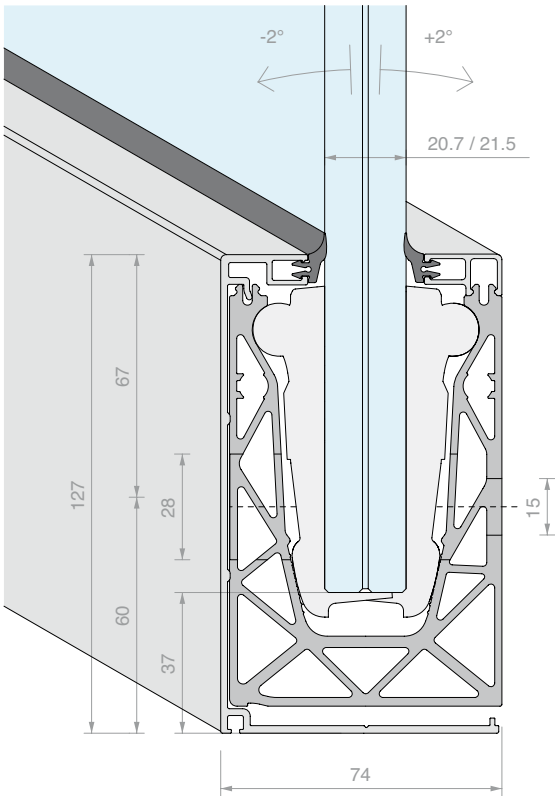
**DEFENDER 810FR KIT**

SLAB INSTALLATION

CONFIGURED FOR GLASS 10+10

Material: Aluminium

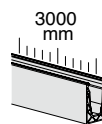
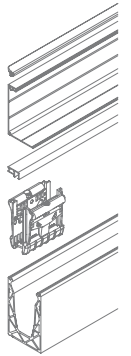
Finish: /6 /10 /88 /97 /RAL



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	4 Pcs
<b>DFS15.60</b>	Finishing profile with drip guard	1 Pc
<b>DF100.60</b>	Upper snap-on finishing profile	1 Pc
<b>DF2121</b>	810 clamps for glass 10+10	24 Pcs
<b>DF810FR.60</b>	Slab profile	1 Pc

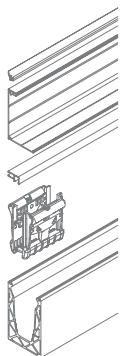
Art.	Length	Qty
<b>DF810FR21KIT.60</b>	6000 mm	1 Pc



Kit comprising:

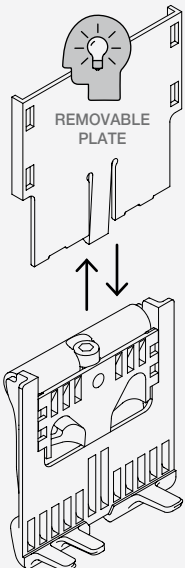
Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFS15.30</b>	Finishing profile with drip guard	1 Pc
<b>DF100.30</b>	Upper snap-on finishing profile	1 Pc
<b>DF2121</b>	810 clamps for glass 10+10	12 Pcs
<b>DF810FR.30</b>	Slab profile	1 Pc

Art.	Length	Qty
<b>DF810FR21KIT.30</b>	3000 mm	1 Pc



**MODULAR CLAMPS for DEFENDER810**

DEFENDER810 clamps are designed to permit two configurations: 8+8 panes of glass using the thickness adaptors, and 10+10 panes of glass without the thickness adaptors.

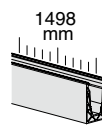


**DF1721**  
This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.

**Reversible configuration**  
The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

**DF2121**  
This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.

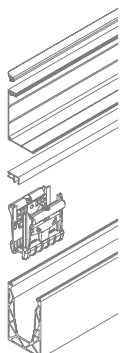
**Reversible configuration**  
The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.



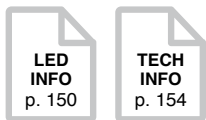
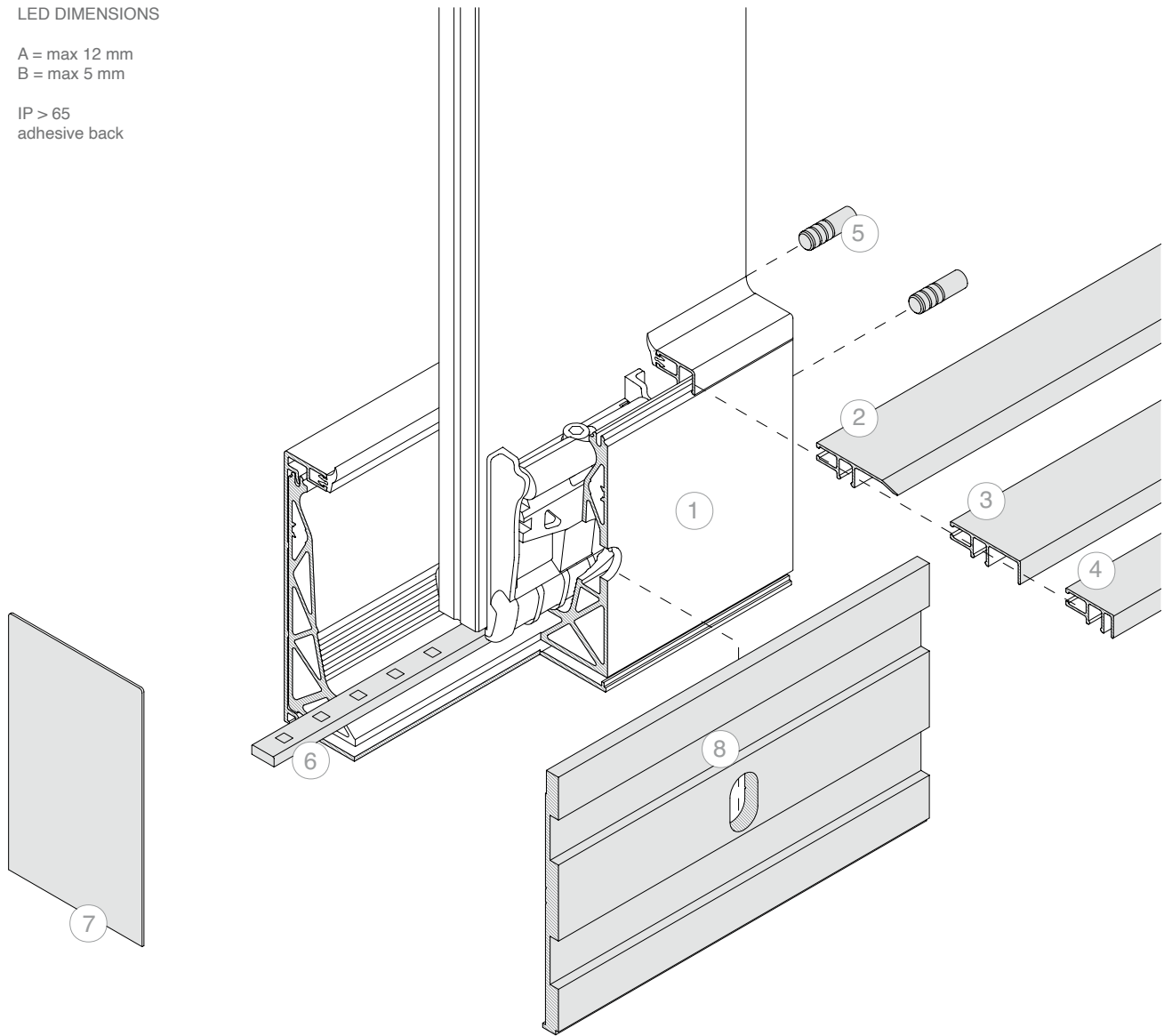
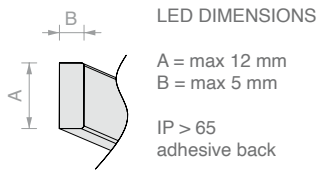
Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFS15.15</b>	Finishing profile with drip guard	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	1 Pc
<b>DF2121</b>	810 clamps for glass 10+10	6 Pcs
<b>DF810FR.15</b>	Slab profile	1 Pc

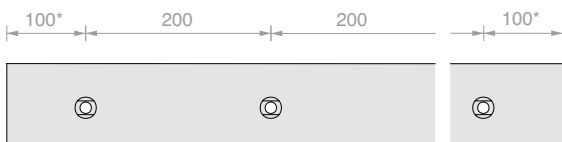
Art.	Length	Qty
<b>DF810FR21KIT.15</b>	1498 mm	1 Pc







**HOLE SPACING**



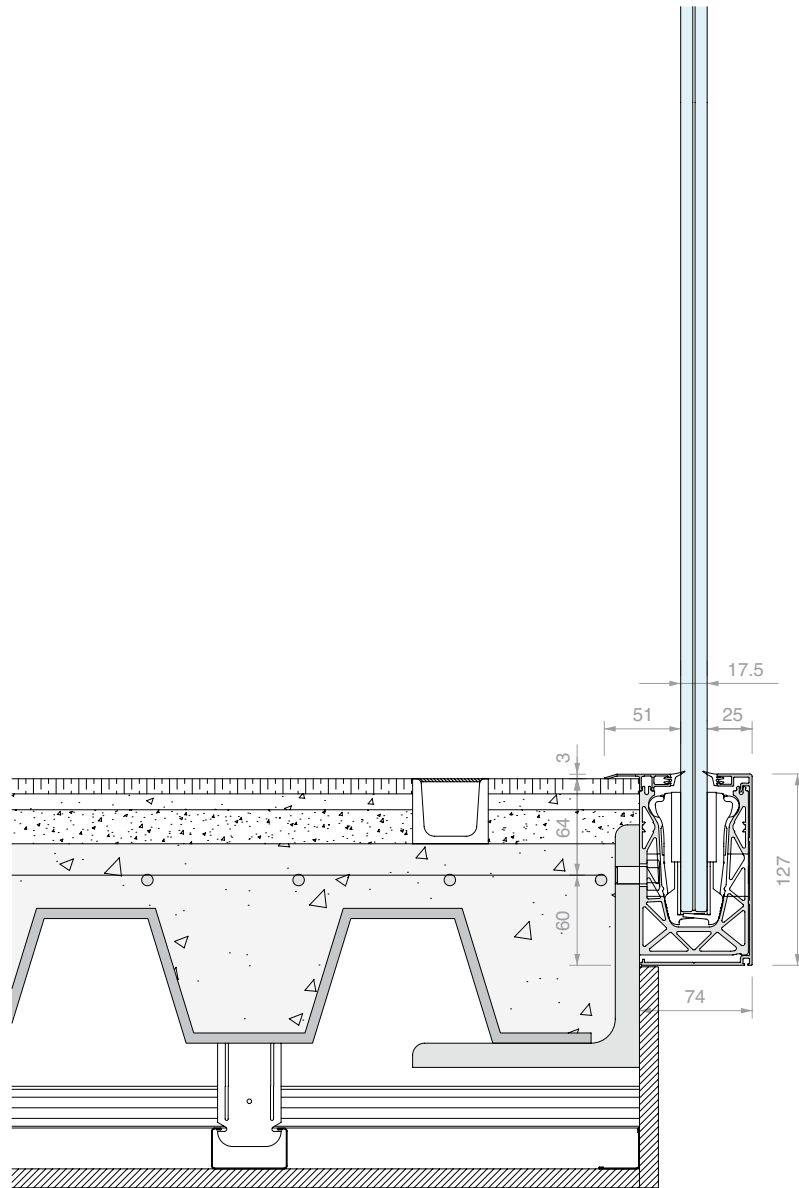
\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

No. Art.

1 **DF810FR21KIT**

Optional:

No. Art.	Description
2 <b>DF101</b>	Snap-on threshold profile
3 <b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4 <b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5 <b>DF25</b>	2 centring pins
6 <b>LED</b>	LED strip for outdoor use
7 <b>DF12774AL</b>	Closed end cap
8 <b>DFSA121</b>	Slab water drainage profile









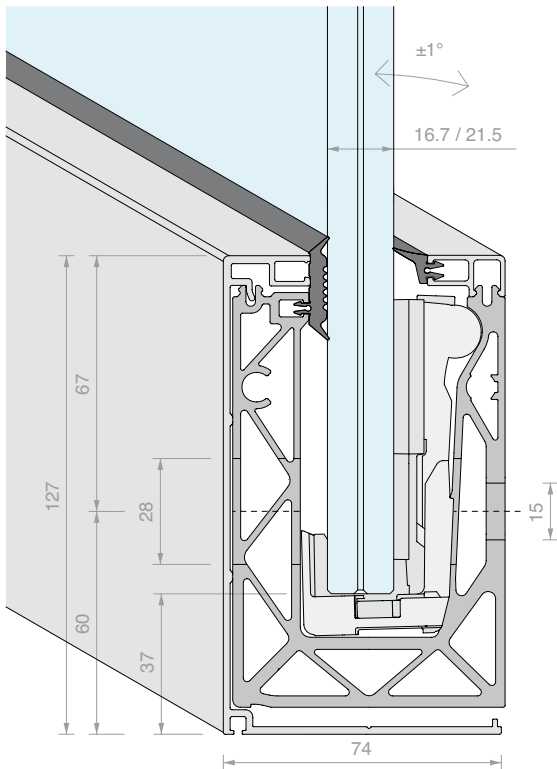
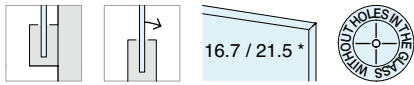
**DEFENDER 810MF KIT**

SLAB INSTALLATION

CONFIGURED FOR GLASS 8+8

Material: Aluminium

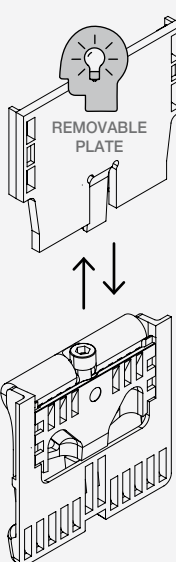
Finish: /6 /10 /88 /97 /RAL



**\*MODULAR CLAMPS for DEFENDER810MR**

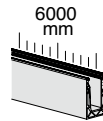
DEFENDER810MR clamps are designed to permit two configurations: 8+8 panes of glass using an adjustable adaptor, and 10+10 panes of glass without the thickness adaptors.

Clamp kit provided with adjustment tool DFUT01



**DF1721MR**  
This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.  
**Reversible configuration**  
The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

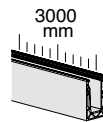
**DF2121MR**  
This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.  
**Reversible configuration**  
The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFPG03.03</b>	Flat profile gasket	2 Pcs
<b>DFS15.60</b>	Finishing profile with drip guard	1 Pc
<b>DF100.60</b>	Upper snap-on finishing profile	1 Pc
<b>DF1721MR</b>	810 clamps for glass 8+8	24 Pcs
<b>DF810MF.60</b>	Single-sided slab profile	1 Pc

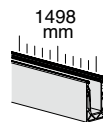
Art.	Length	Qty
<b>DF810MF17KIT.60</b>	<b>6000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFPG03.03</b>	Flat profile gasket	1 Pc
<b>DFS15.30</b>	Finishing profile with drip guard	1 Pc
<b>DF100.30</b>	Upper snap-on finishing profile	1 Pc
<b>DF1721MR</b>	810 clamps for glass 8+8	12 Pcs
<b>DF810MF.30</b>	Single-sided slab profile	1 Pc

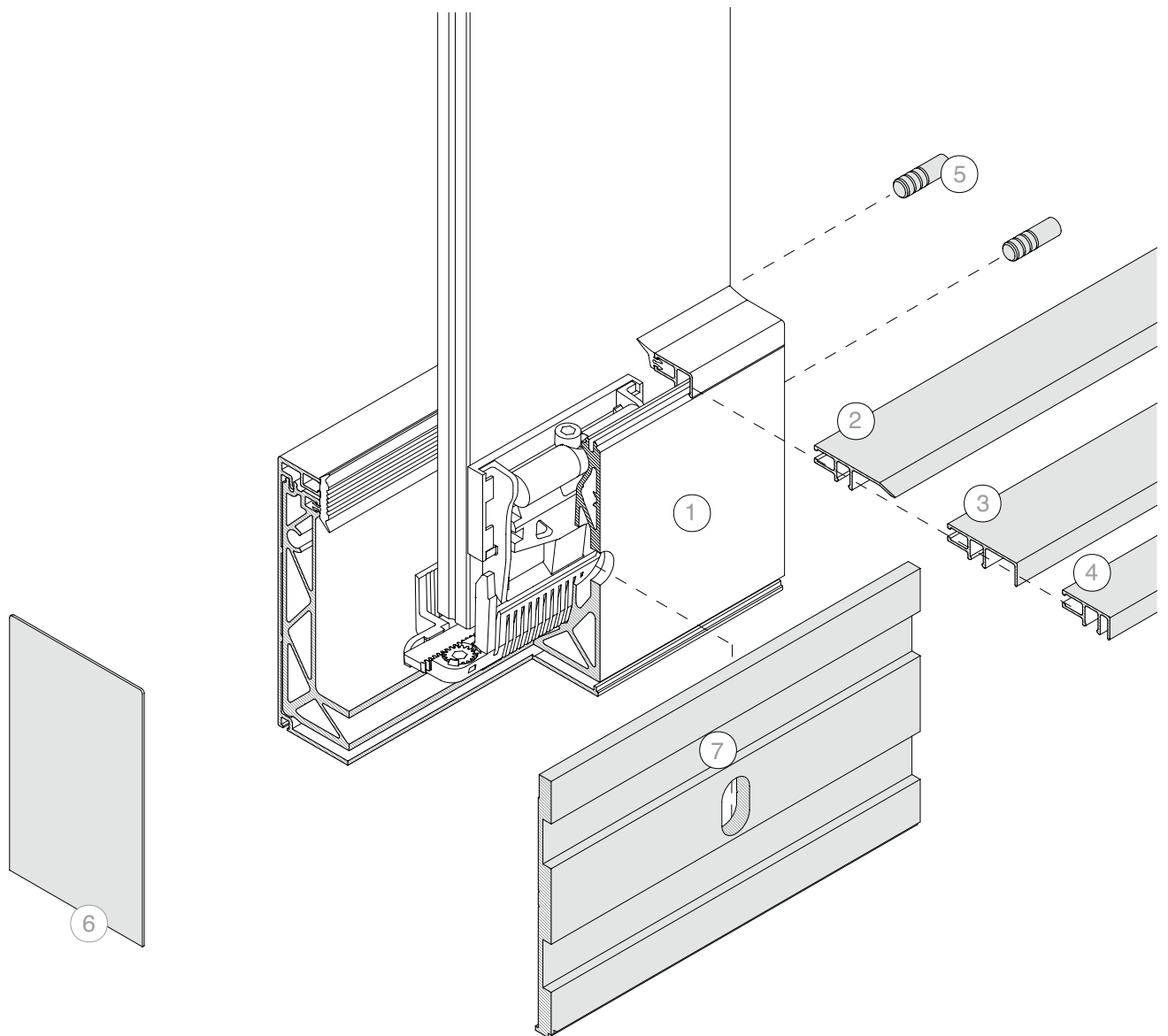
Art.	Length	Qty
<b>DF810MF17KIT.30</b>	<b>3000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01</b>	Lip profile gasket	1.5 m
<b>DFPG03</b>	Flat profile gasket	1.5 m
<b>DFS15.15</b>	Finishing profile with drip guard	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	1 Pc
<b>DF1721MR</b>	810 clamps for glass 8+8	6 Pcs
<b>DF810MF.15</b>	Single-sided slab profile	1 Pc

Art.	Length	Qty
<b>DF810MF17KIT.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



No. Art.

1 **DF810MF17KIT**

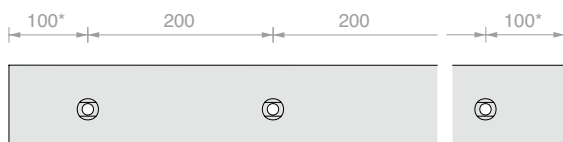
Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>DF12774AL</b>	Closed end cap
7	<b>DFSA121</b>	Slab water drainage profile



**Note:** System not compatible with LED strips in the channel

#### HOLE SPACING



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



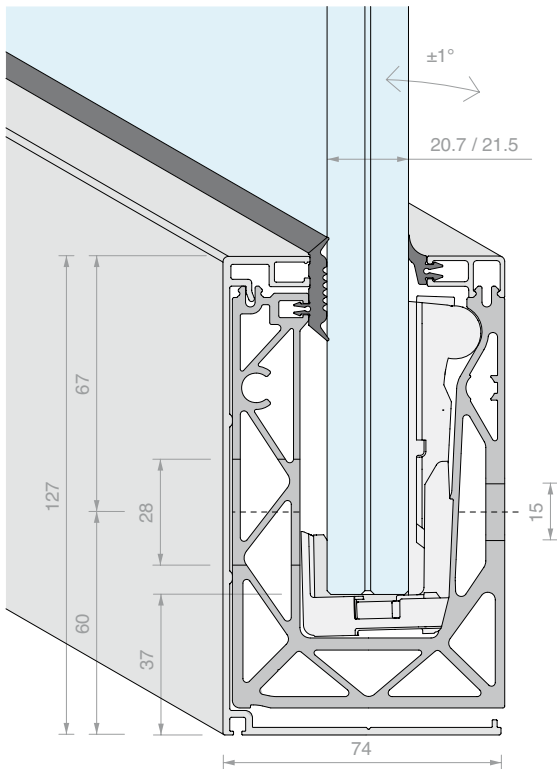
**DEFENDER 810MF KIT**

SLAB INSTALLATION

CONFIGURED FOR GLASS 10+10

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL



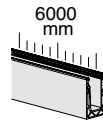
**MODULAR CLAMPS for DEFENDER810MR**

DEFENDER810MR clamps are designed to permit two configurations: 8+8 panes of glass using an adjustable adaptor, and 10+10 panes of glass without the thickness adaptors.

Clamp kit provided with adjustment tool DFUT01

**DF1721MR**  
 16.7 / 17.5  
 This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.  
**Reversible configuration**  
 The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

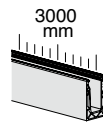
**DF2121MR**  
 20.7 / 21.5  
 This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.  
**Reversible configuration**  
 The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFPG03.03</b>	Flat profile gasket	2 Pcs
<b>DFS15.60</b>	Finishing profile with drip guard	1 Pc
<b>DF100.60</b>	Upper snap-on finishing profile	1 Pc
<b>DF2121MR</b>	810 clamps for glass 10+10	24 Pcs
<b>DF810MF.60</b>	Single-sided slab profile	1 Pc

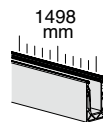
Art.	Length	Qty
<b>DF810MF21KIT.60</b>	6000 mm	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFPG03.03</b>	Flat profile gasket	1 Pc
<b>DFS15.30</b>	Finishing profile with drip guard	1 Pc
<b>DF100.30</b>	Upper snap-on finishing profile	1 Pc
<b>DF2121MR</b>	810 clamps for glass 10+10	12 Pcs
<b>DF810MF.30</b>	Single-sided slab profile	1 Pc

Art.	Length	Qty
<b>DF810MF21KIT.30</b>	3000 mm	1 Pc

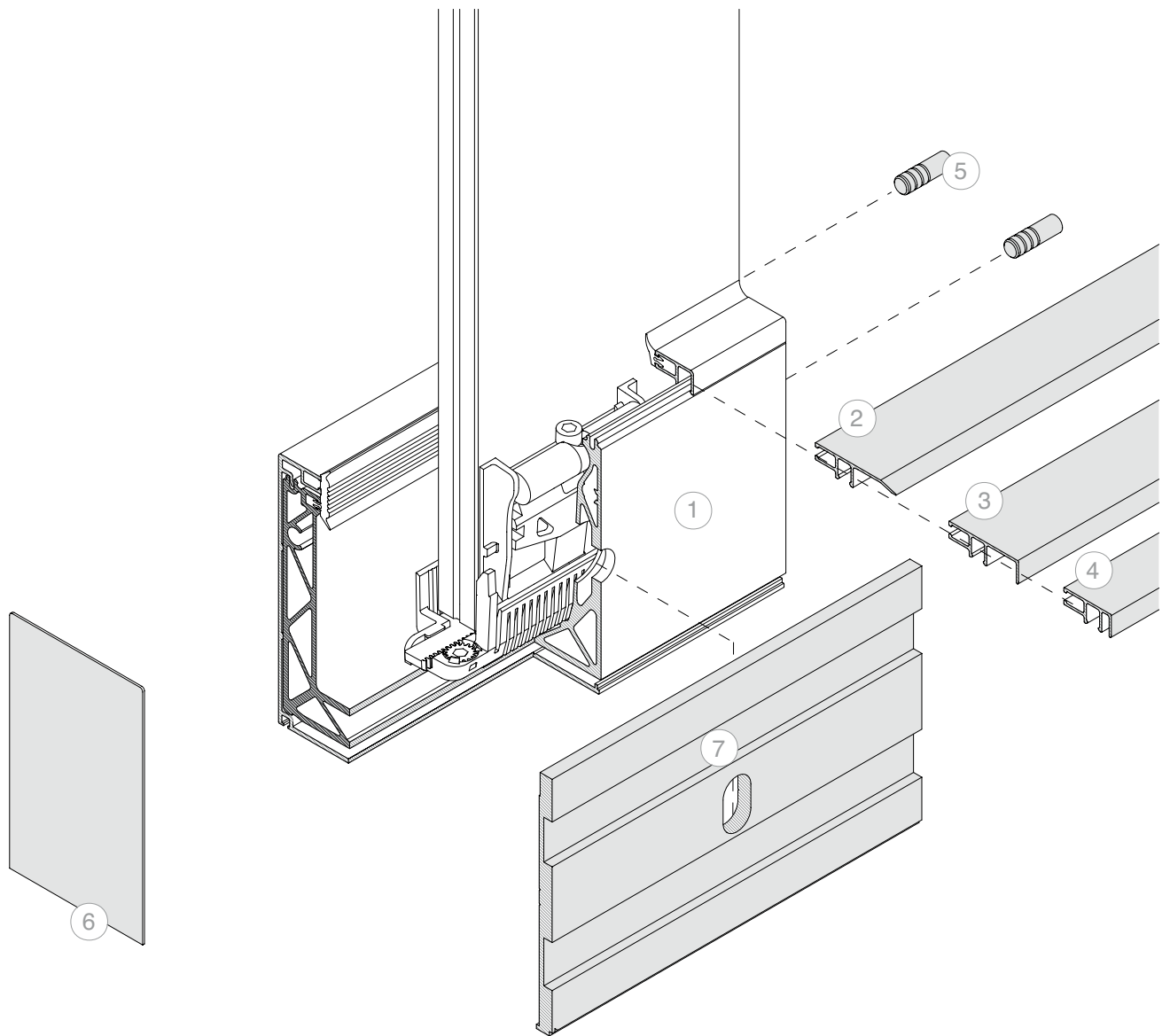


Kit comprising:

Art.	Description	Qty.
<b>DFP88G01</b>	Lip profile gasket	1.5 m
<b>DFPG03</b>	Flat profile gasket	1.5 m
<b>DFS15.15</b>	Finishing profile with drip guard	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	1 Pc
<b>DF2121MR</b>	810 clamps for glass 10+10	6 Pcs
<b>DF810MF.15</b>	Single-sided slab profile	1 Pc

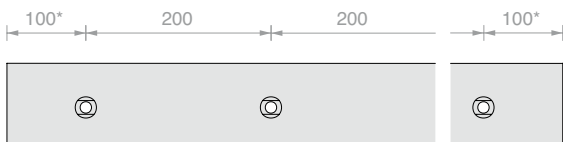
Art.	Length	Qty
<b>DF810MF21KIT.15</b>	1498 mm	1 Pc





**Note:** System not compatible with LED strips in the channel

HOLE SPACING



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

No. Art.

1 **DF810MF21KIT**

Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>DF12774AL</b>	Closed end cap
7	<b>DFSA121</b>	Slab water drainage profile













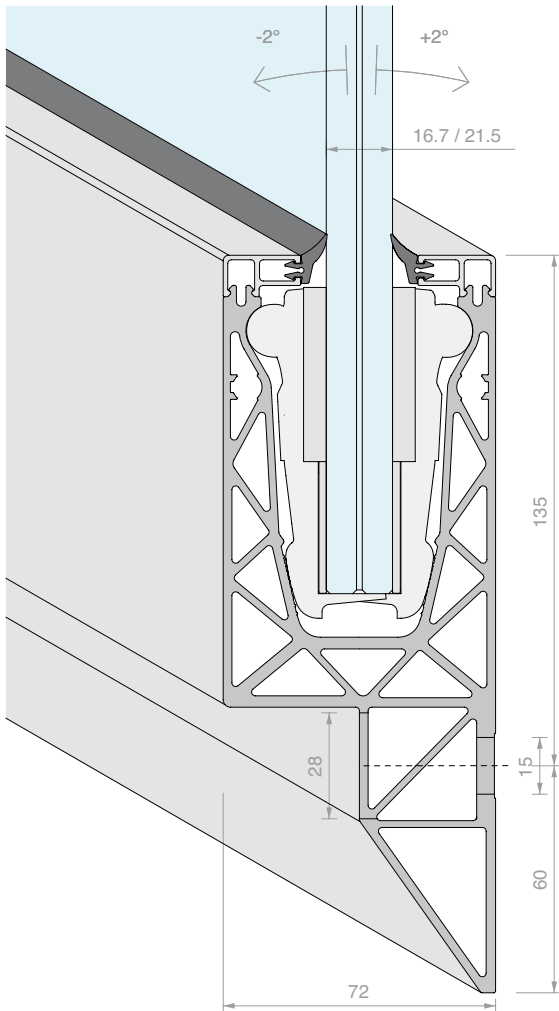
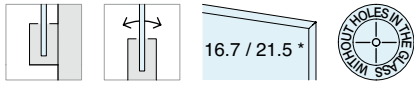
**DEFENDER 810SP KIT**

SLAB INSTALLATION WITH LOWER FIN

CONFIGURED FOR GLASS 8+8

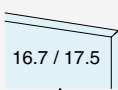
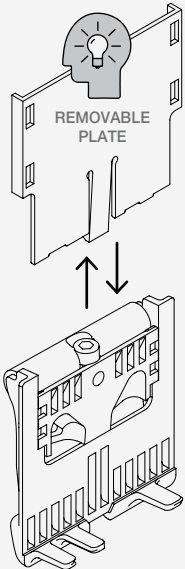
Material: Aluminium

Finish: /97



**\* MODULAR CLAMPS for DEFENDER810**

DEFENDER810 clamps are designed to permit two configurations: 8+8 panes of glass using the thickness adaptors, and 10+10 panes of glass without the thickness adaptors.

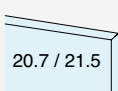
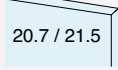


**DF1721**

This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.

**Reversible configuration**

The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

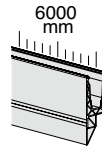
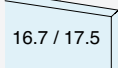


**DF2121**

This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.

**Reversible configuration**

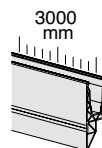
The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	4 Pcs
<b>DF100.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1721</b>	810 clamps for glass 8+8	24 Pcs
<b>DF810SP.60</b>	Slab profile with lower fin	1 Pc

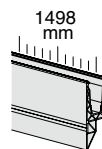
Art.	Length	Qty
<b>DF810SP17KIT.60</b>	6000 mm	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DF100.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1721</b>	810 clamps for glass 8+8	12 Pcs
<b>DF810SP.30</b>	Slab profile with lower fin	1 Pc

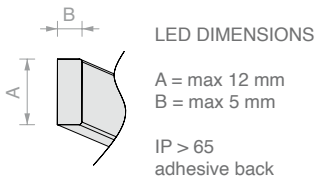
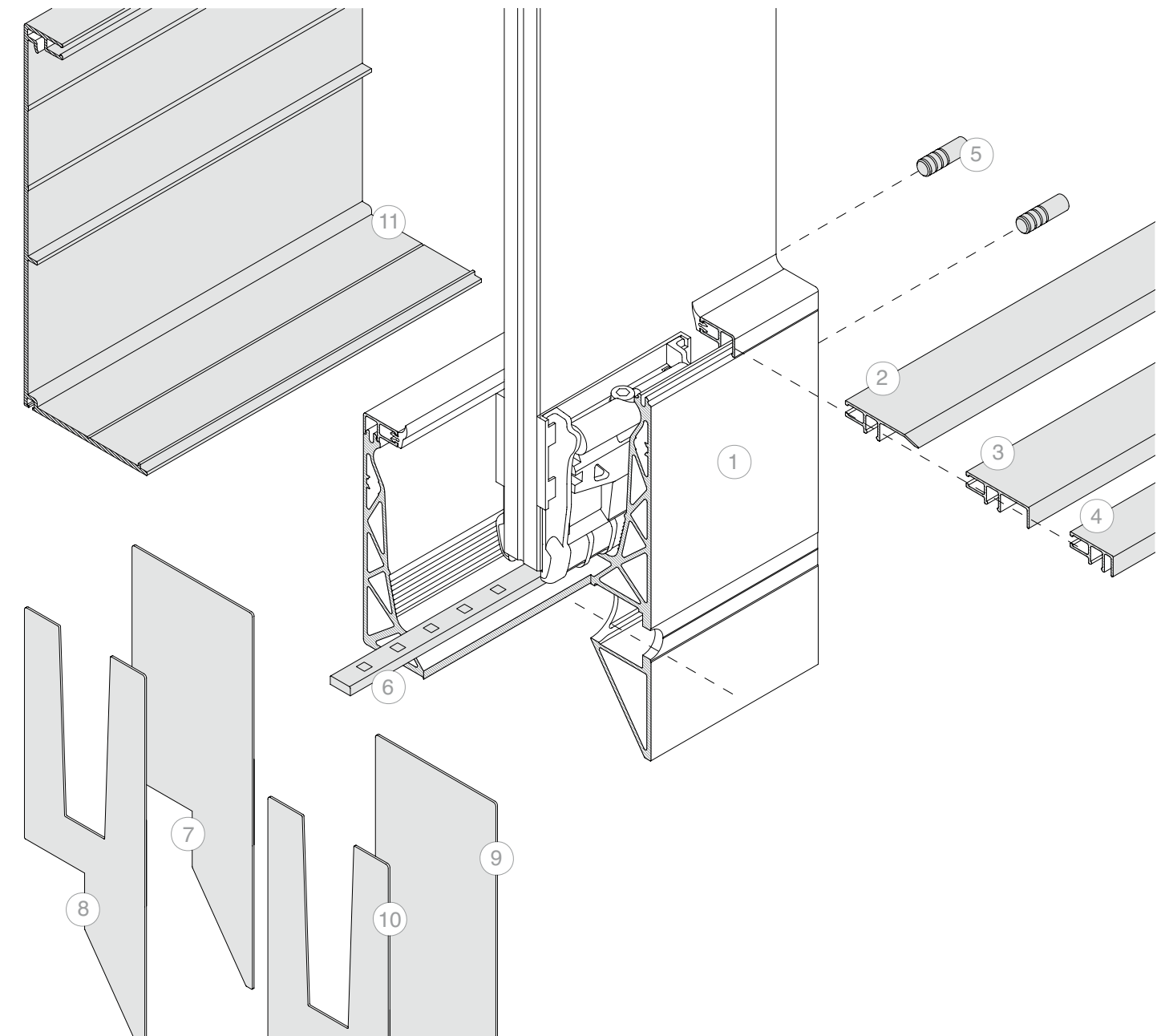
Art.	Length	Qty
<b>DF810SP17KIT.30</b>	3000 mm	1 Pc



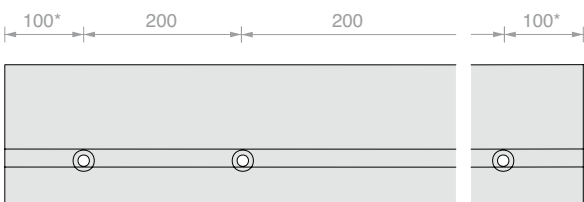
Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1721</b>	810 clamps for glass 8+8	6 Pcs
<b>DF810SP.15</b>	Slab profile with lower fin	1 Pc

Art.	Length	Qty
<b>DF810SP17KIT.15</b>	1498 mm	1 Pc



**HOLE SPACING**



No. Art.  
 1 **DF810SP17KIT**

Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>LED</b>	LED strip for outdoor use
7	<b>DFSPTP08</b>	Closed end cap
8	<b>DFSPTP10</b>	End cap with V-shaped opening
9	<b>DFSPTP12</b>	Closed end cap with DFS17
10	<b>DFSPTP14</b>	End cap with V-shaped opening with DFS17
10	<b>DFS17</b>	Finishing profile for DF810SP7

\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

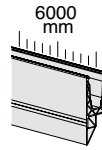
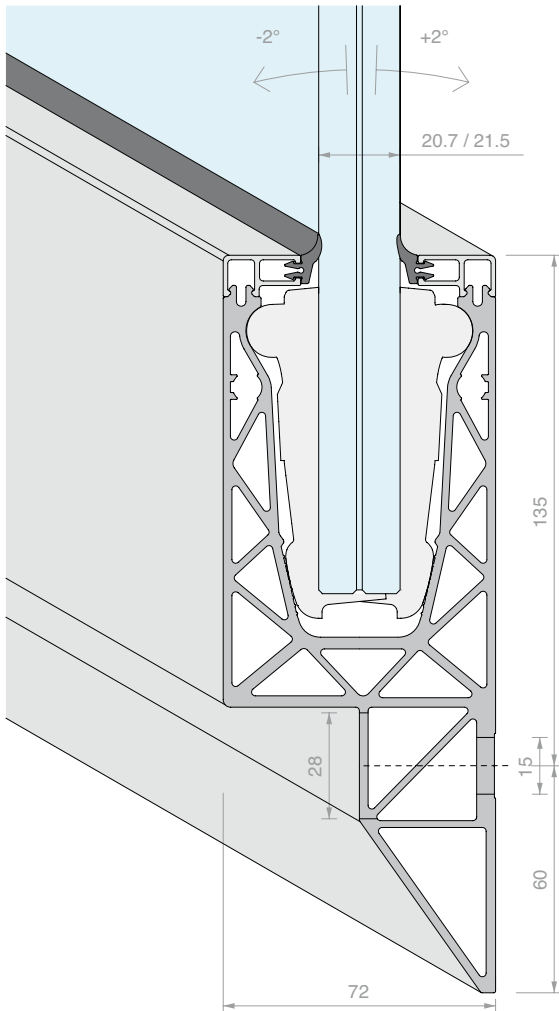


**DEFENDER 810SP KIT**

SLAB INSTALLATION WITH LOWER FIN  
CONFIGURED FOR GLASS 10+10

Material: Aluminium

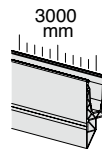
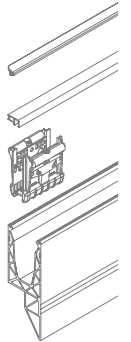
Finish: /97



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	4 Pcs
<b>DF100.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DF2121</b>	810 clamps for glass 10+10	24 Pcs
<b>DF810SP.60</b>	Slab profile with lower fin	1 Pc

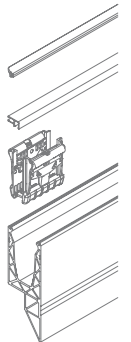
Art.	Length	Qty
<b>DF810SP21KIT.60</b>	6000 mm	1 Pc



Kit comprising:

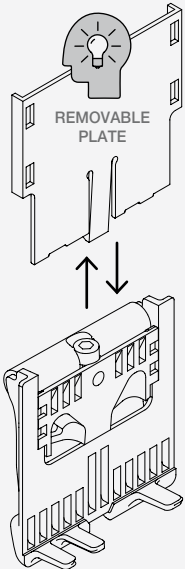
Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DF100.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DF2121</b>	810 clamps for glass 10+10	12 Pcs
<b>DF810SP.30</b>	Slab profile with lower fin	1 Pc

Art.	Length	Qty
<b>DF810SP21KIT.30</b>	3000 mm	1 Pc



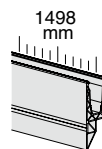
**MODULAR CLAMPS for DEFENDER810**

DEFENDER810 clamps are designed to permit two configurations: 8+8 panes of glass using the thickness adaptors, and 10+10 panes of glass without the thickness adaptors.



**DF1721**  
This model of clamp is already configured for 8+8 panes of glass. It uses the thickness adaptors.  
**Reversible configuration**  
The clamp can be reversed by removing the thickness adaptors. It adapts to 10+10 panes of glass.

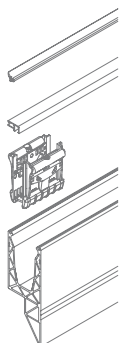
**DF2121**  
This model of clamp is already configured for 10+10 panes of glass. It does not use the thickness adaptors.  
**Reversible configuration**  
The clamp can be reversed. Order the thickness adaptors separately and insert them to adapt to 8+8 panes of glass.



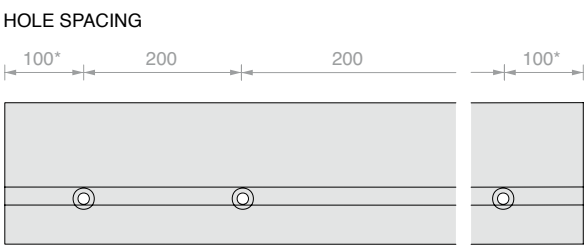
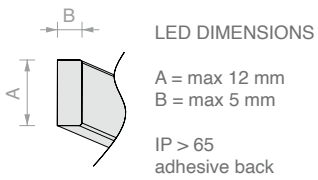
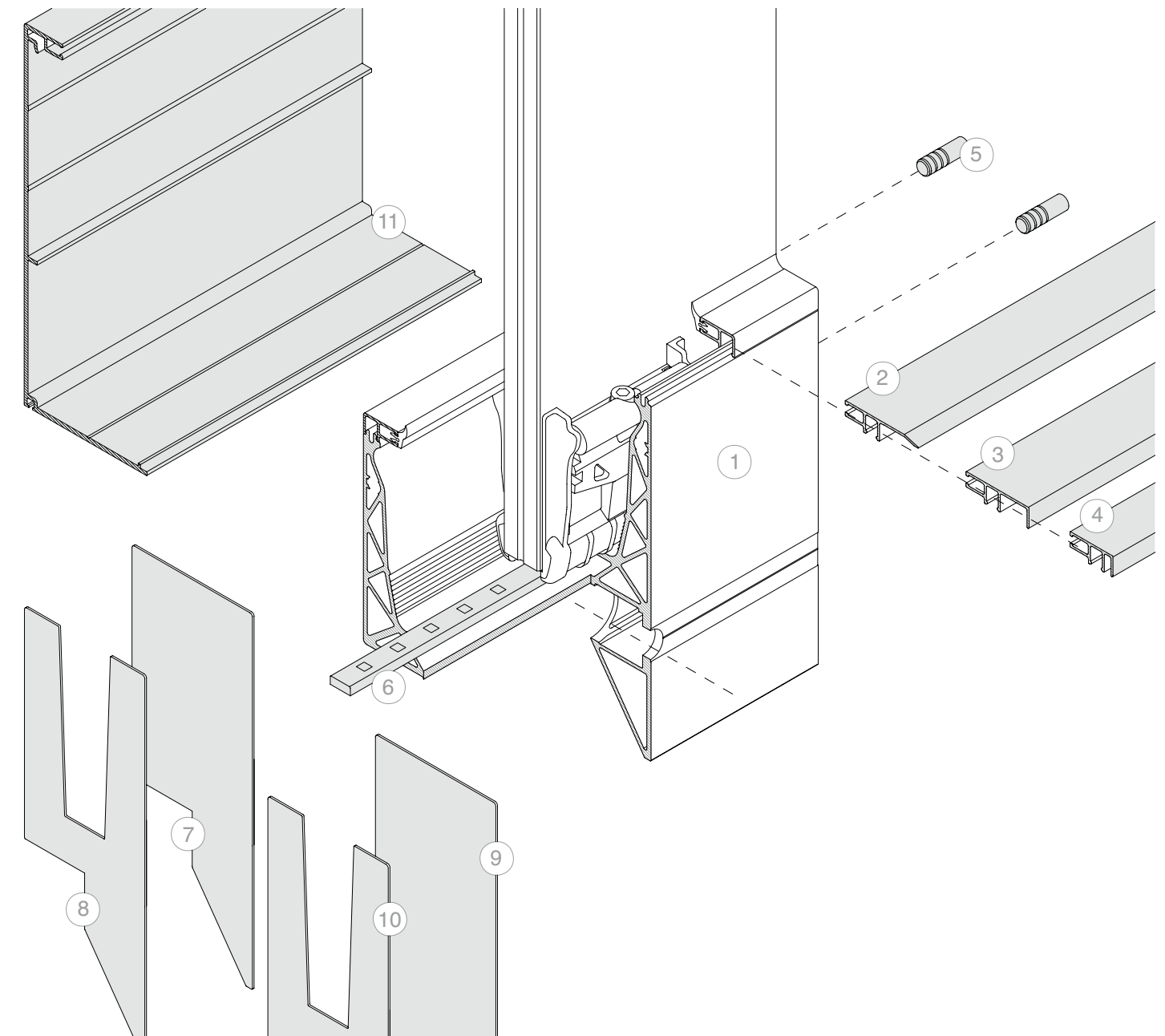
Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DF100.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DF2121</b>	810 clamps for glass 10+10	6 Pcs
<b>DF810SP.15</b>	Slab profile with lower fin	1 Pc

Art.	Length	Qty
<b>DF810SP21KIT.15</b>	1498 mm	1 Pc





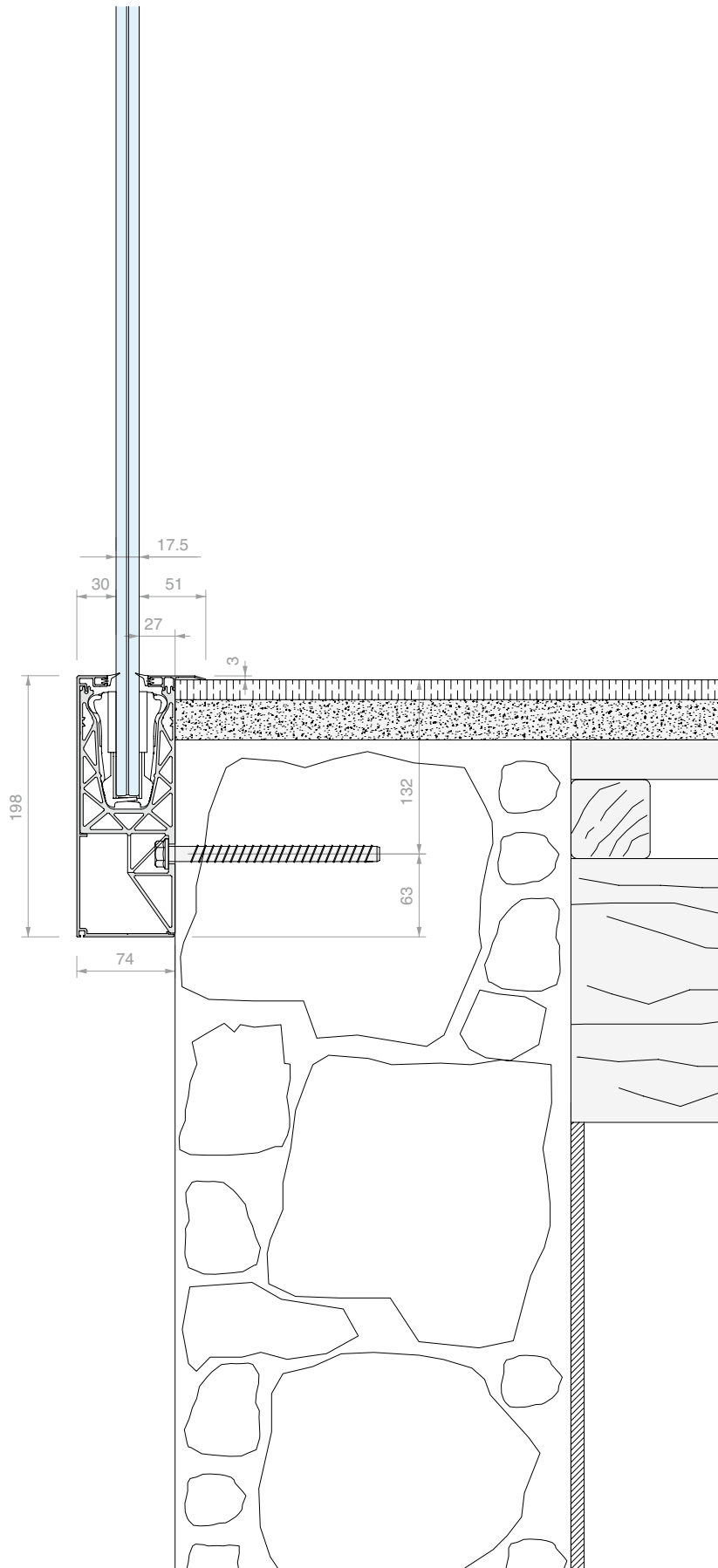


\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

No. Art.  
 1 **DF810SP21KIT**

Optional:

No.	Art.	Description
2	<b>DF101</b>	Snap-on threshold profile
3	<b>DF216</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF204</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>LED</b>	LED strip for outdoor use
7	<b>DFSPTP08</b>	Closed end cap
8	<b>DFSPTP10</b>	End cap with V-shaped opening
9	<b>DFSPTP12</b>	Closed end cap with DFS17
10	<b>DFSPTP14</b>	End cap with V-shaped opening with DFS17
10	<b>DFS17</b>	Finishing profile for DF810SP7









  
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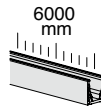
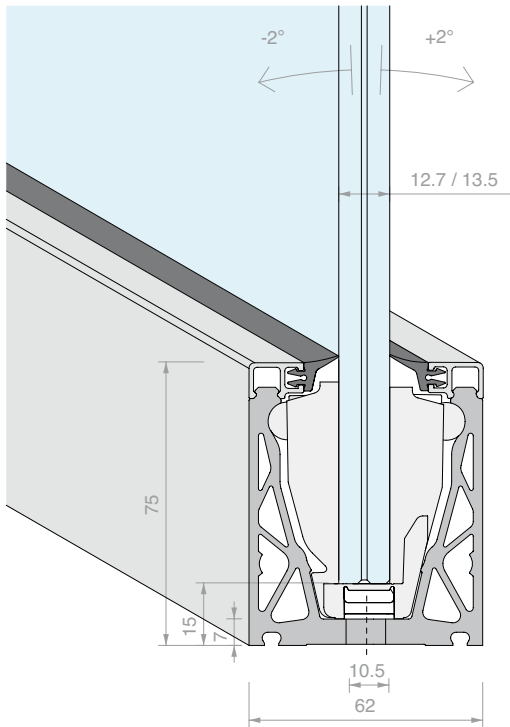
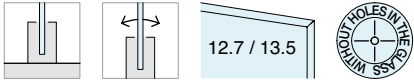
**DEFENDER XP KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 6+6

Material: Aluminium

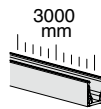
Finish: /6 /10 /88 /97 /RAL



Kit comprising:

Art.	Description	Qty.
<b>DFP15G01.03</b>	Lip profile gasket	2 Pcs
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFP100.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DFXP135</b>	XP clamps for glass 6+6	24 Pcs
<b>DFXP88.60</b>	Floor profile	1 Pc

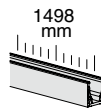
Art.	Length	Qty
<b>DF66XPKIT.60</b>	<b>6000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DFP15G01.03</b>	Lip profile gasket	1 Pc
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFP100.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DFXP135</b>	XP clamps for glass 6+6	12 Pcs
<b>DFXP88.30</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF66XPKIT.30</b>	<b>3000 mm</b>	<b>1 Pc</b>

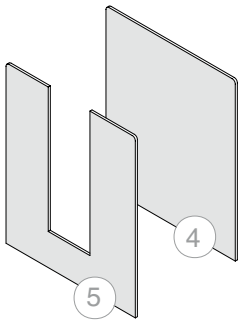
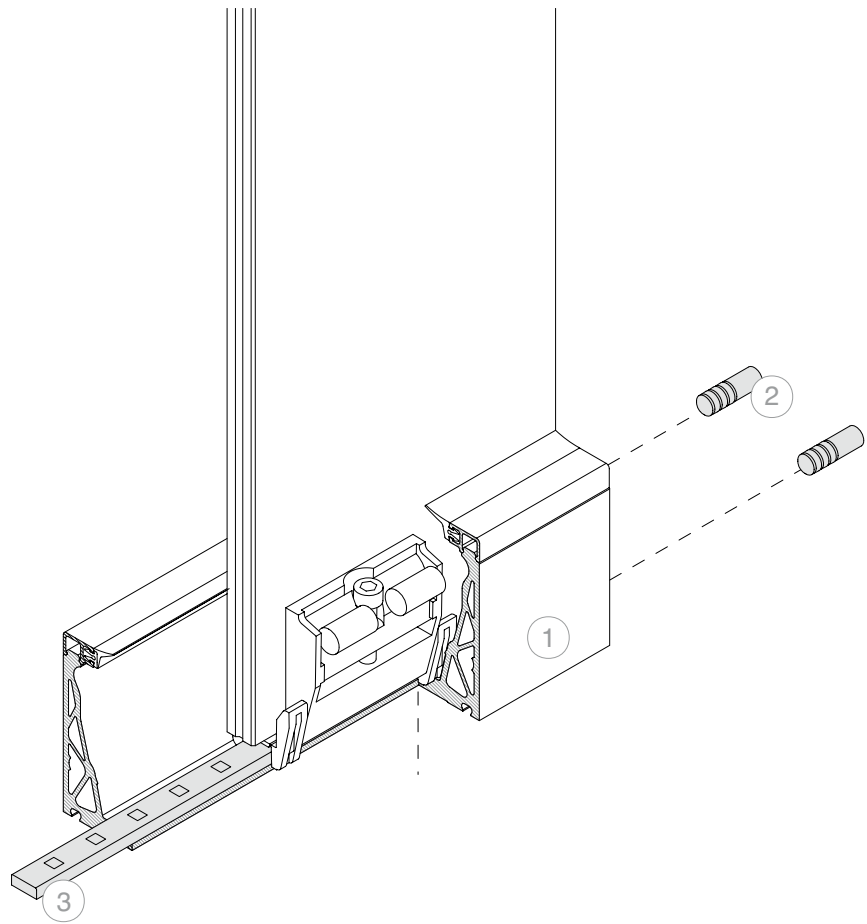
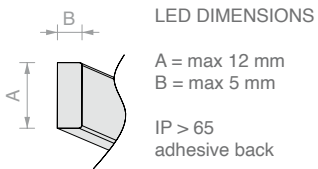


Kit comprising:

Art.	Description	Qty.
<b>DFP15G01</b>	Lip profile gasket	1.5 m
<b>DFP88G01</b>	Lip profile gasket	1.5 m
<b>DFP100.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DFXP135</b>	XP clamps for glass 6+6	6 Pcs
<b>DFXP88.15</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF66XPKIT.15</b>	<b>6000 mm</b>	<b>1 Pc</b>





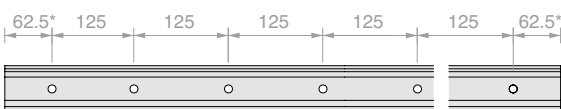
**Note:** System compatible with LED strips at the base of the channel only in the version for 8+8 glass.

No.	Art.
1	<b>DF66XPKIT</b>

Optional:

No.	Art.	Description
2	<b>DF25</b>	2 centring pins
3	<b>LED</b>	LED strip for outdoor use
4	<b>DFP7562</b>	Closed end cap
5	<b>DFP7562U</b>	End cap with U-shaped opening

**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



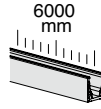
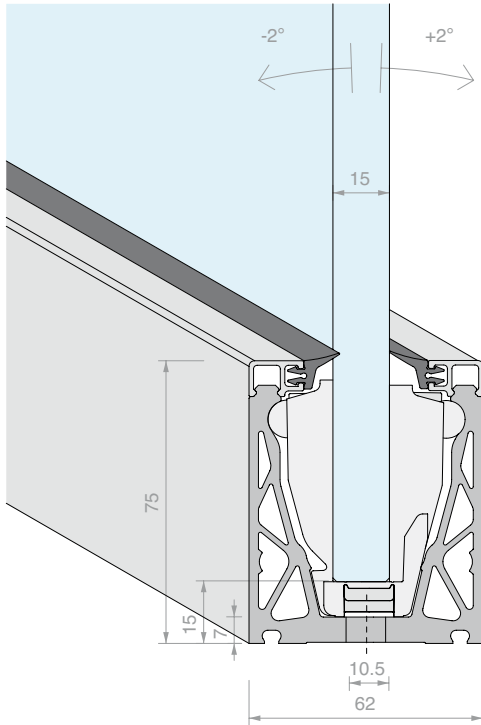
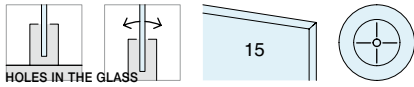
**DEFENDER XP KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 15

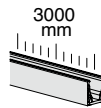
Material: Aluminium

Finish: /6 /10 /88 /97 /RAL



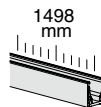
Kit comprising:

Art.	Description	Qty.
<b>DFP15G01.03</b>	Lip profile gasket	2 Pcs
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFP100.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DFP150</b>	XP clamps for glass 15 mm	24 Pcs
<b>DFXP88.60</b>	Floor profile	1 Pc
Art.	Length	Qty
<b>DF15XPKIT.60</b>	<b>6000 mm</b>	<b>1 Pc</b>



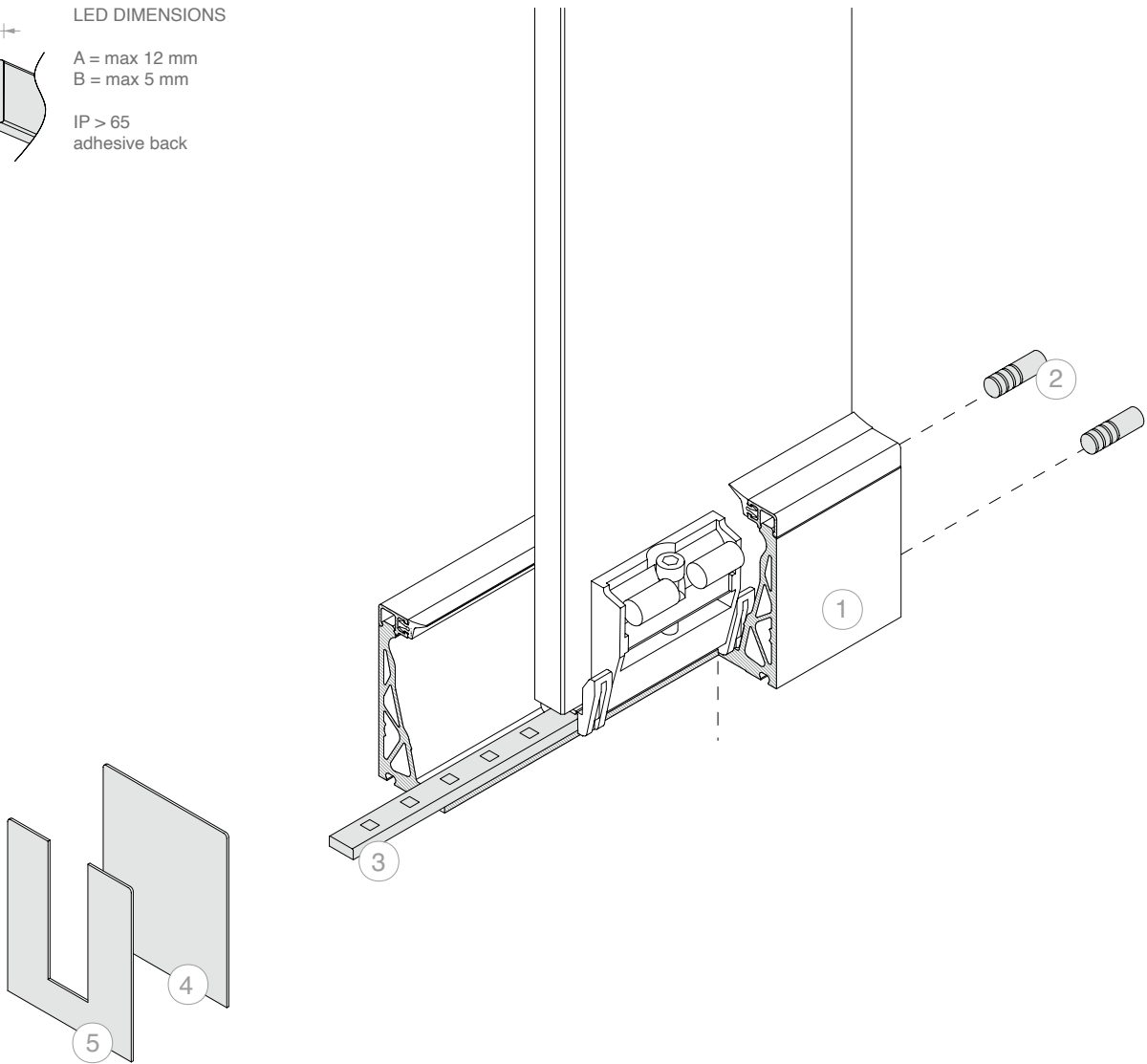
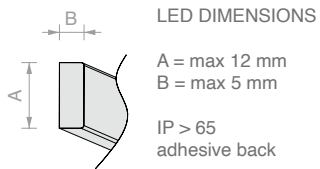
Kit comprising:

Art.	Description	Qty.
<b>DFP15G01.03</b>	Lip profile gasket	1 Pc
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFP100.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DFP150</b>	XP clamps for glass 15 mm	12 Pcs
<b>DFXP88.30</b>	Floor profile	1 Pc
Art.	Length	Qty
<b>DF15XPKIT.30</b>	<b>3000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DFP15G01</b>	Lip profile gasket	1.5 m
<b>DFP88G01</b>	Lip profile gasket	1.5 m
<b>DFP100.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DFP150</b>	XP clamps for glass 15 mm	6 Pcs
<b>DFXP88.15</b>	Floor profile	1 Pc
Art.	Length	Qty
<b>DF15XPKIT.15</b>	<b>6000 mm</b>	<b>1 Pc</b>



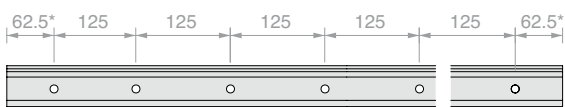
**Note:** System compatible with LED strips at the base of the channel only in the version for 8+8 glass.

No.	Art.
1	<b>DF15XPKIT</b>

Optional:

No.	Art.	Description
2	<b>DF25</b>	2 centring pins
3	<b>LED</b>	LED strip for outdoor use
4	<b>DFP7562</b>	Closed end cap
5	<b>DFP7562U</b>	End cap with U-shaped opening

**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.





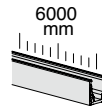
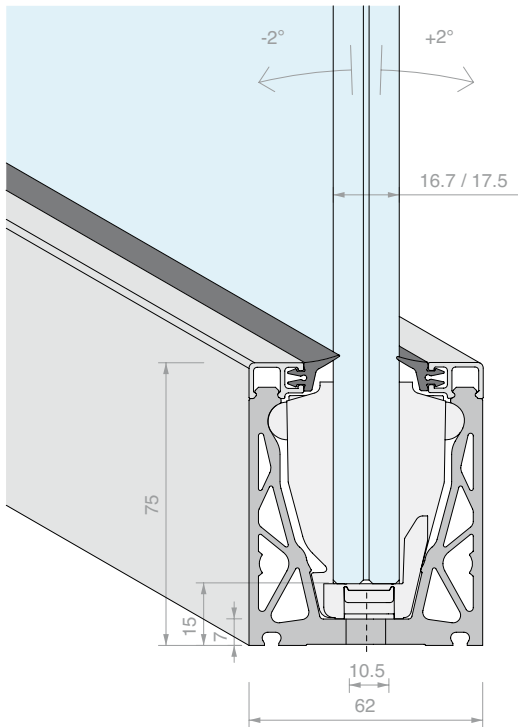
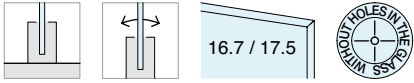
**DEFENDER XP KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 8+8

Material: Aluminium

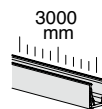
Finish: /6 /10 /88 /97 /RAL



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	4 Pcs
<b>DFP100.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DFXP175</b>	XP clamps for glass 8+8	24 Pcs
<b>DFXP88.60</b>	Floor profile	1 Pc

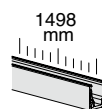
Art.	Length	Qty
<b>DF88XPKIT.60</b>	6000 mm	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFP100.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DFXP175</b>	XP clamps for glass 8+8	12 Pcs
<b>DFXP88.30</b>	Floor profile	1 Pc

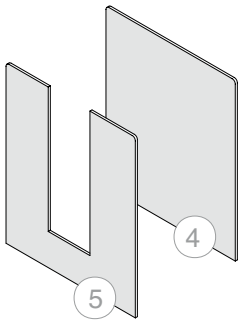
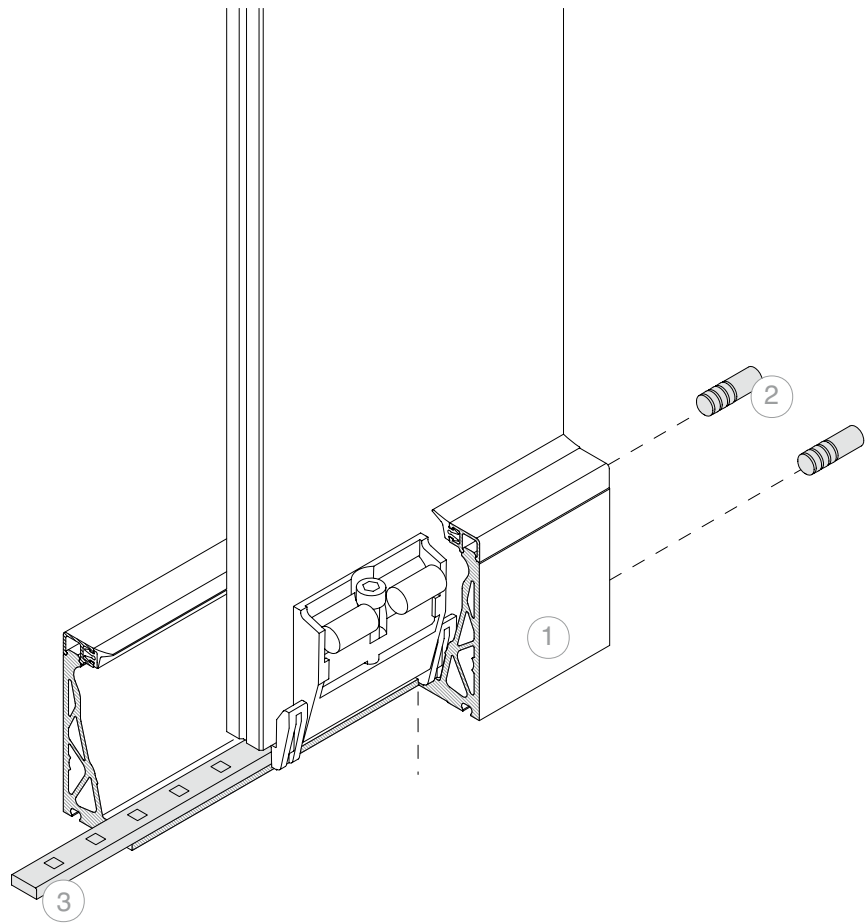
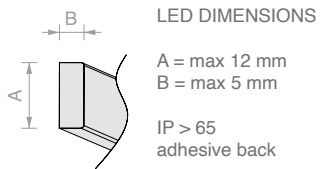
Art.	Length	Qty
<b>DF88XPKIT.30</b>	3000 mm	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFP100.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DFXP175</b>	XP clamps for glass 8+8	6 Pcs
<b>DFXP88.15</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF88XPKIT.15</b>	6000 mm	1 Pc



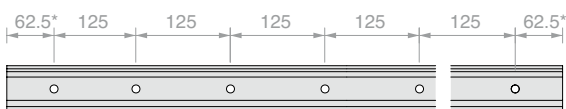
**Note:** System compatible with LED strips at the base of the channel only in the version for 8+8 glass.

No.	Art.
1	<b>DF88XPKIT</b>

Optional:

No.	Art.	Description
2	<b>DF25</b>	2 centring pins
3	<b>LED</b>	LED strip for outdoor use
4	<b>DFP7562</b>	Closed end cap
5	<b>DFP7562U</b>	End cap with U-shaped opening

**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



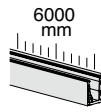
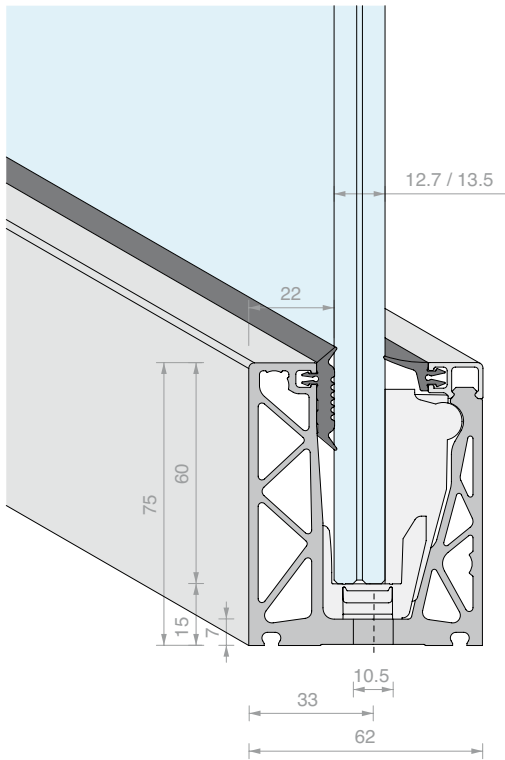
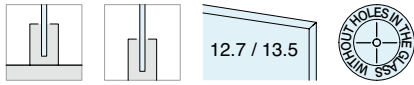
**DEFENDER PICO KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 6+6

Material: Aluminium

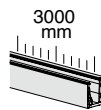
Finish: /6 /10 /88 /97 /RAL



Kit comprising:

Art.	Description	Qty.
<b>DFP15G01.03</b>	Lip profile gasket	2 Pcs
<b>DFPG03.03</b>	Flat profile gasket	2 Pcs
<b>DFP100.60</b>	Upper snap-on finishing profile	1 Pc
<b>DFP135</b>	PICO clamps for glass 6+6	24 Pcs
<b>DFP88.60</b>	Floor profile	1 Pc

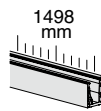
Art.	Length	Qty
<b>DF66PICOKIT.60</b>	<b>6000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DFP15G01.03</b>	Lip profile gasket	1 Pc
<b>DFPG03.03</b>	Flat profile gasket	1 Pc
<b>DFP100.30</b>	Upper snap-on finishing profile	1 Pc
<b>DFP135</b>	PICO clamps for glass 6+6	12 Pcs
<b>DFP88.30</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF66PICOKIT.30</b>	<b>3000 mm</b>	<b>1 Pc</b>

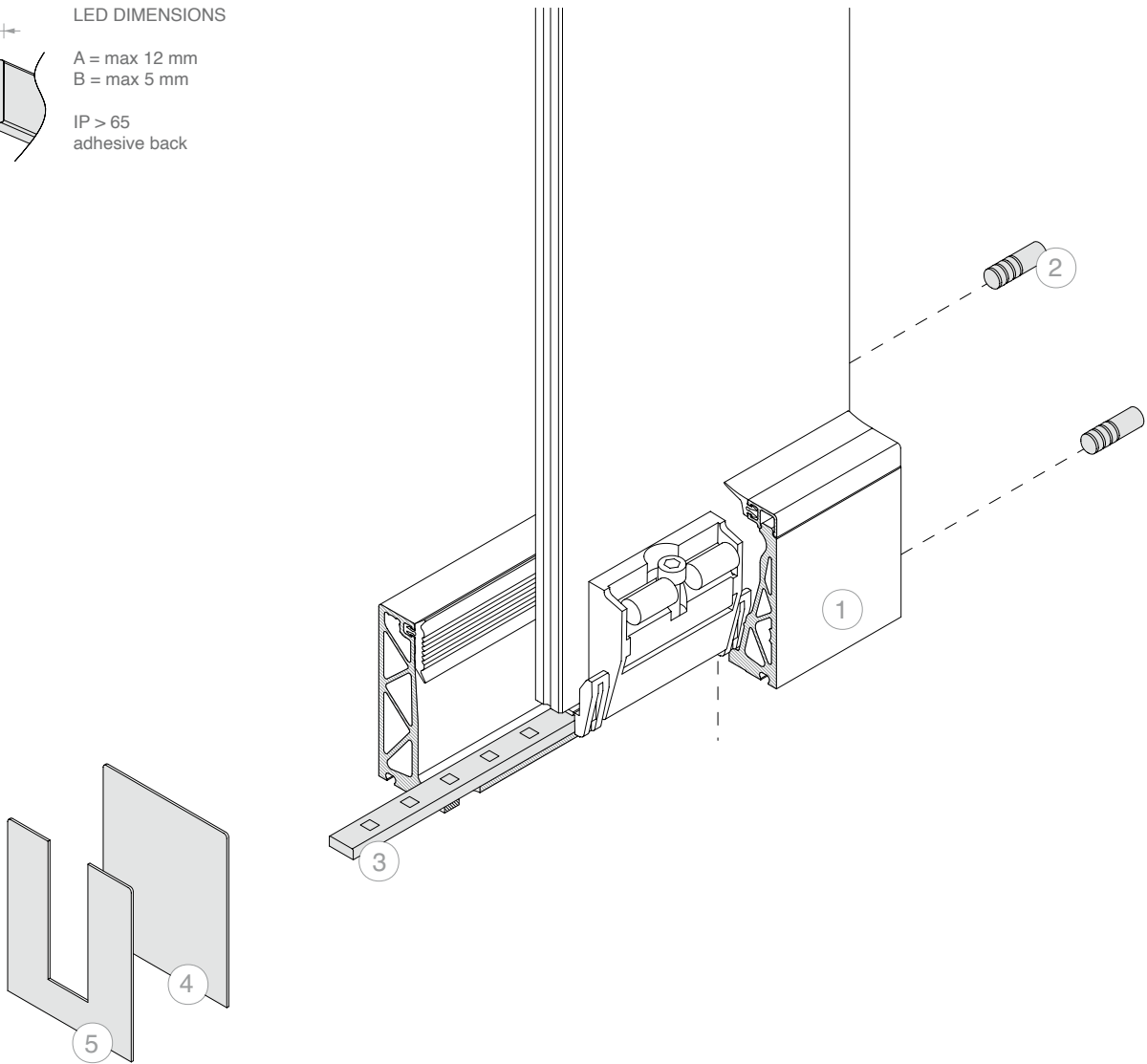
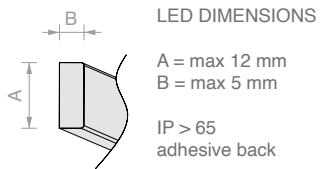


Kit comprising:

Art.	Description	Qty.
<b>DFP15G01</b>	Lip profile gasket	1.5 m
<b>DFPG03</b>	Flat profile gasket	1.5 m
<b>DFP100.15</b>	Upper snap-on finishing profile	1 Pc
<b>DFP135</b>	PICO clamps for glass 6+6	6 Pcs
<b>DFP88.15</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF66PICOKIT.15</b>	<b>1498 mm</b>	<b>1 Pc</b>





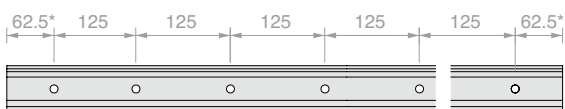
**Note:** System compatible with LED strips at the base of the channel only in the version for 8+8 glass.

No.	Art.
1	<b>DF66PICOKIT</b>

Optional:

No.	Art.	Description
2	<b>DF25</b>	2 centring pins
3	<b>LED</b>	LED strip for outdoor use
4	<b>DFP7562</b>	Closed end cap
5	<b>DFP7562U</b>	End cap with U-shaped opening

**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



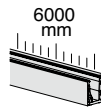
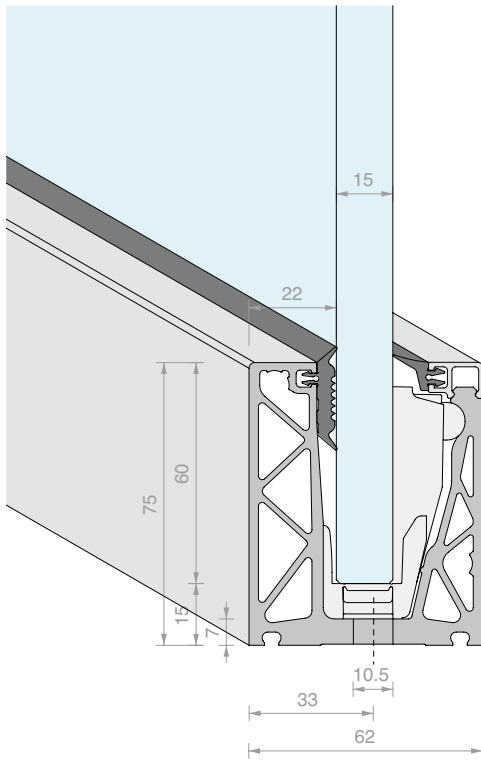
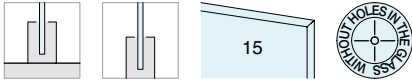
**DEFENDER PICO KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 15

Material: Aluminium

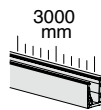
Finish: /6 /10 /88 /97 /RAL



Kit comprising:

Art.	Description	Qty.
<b>DFP15G01.03</b>	Lip profile gasket	2 Pcs
<b>DFPG03.03</b>	Flat profile gasket	2 Pcs
<b>DFP100.60</b>	Upper snap-on finishing profile	1 Pc
<b>DFP150</b>	PICO clamps for glass 15 mm	24 Pcs
<b>DFP88.60</b>	Floor profile	1 Pc

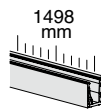
Art.	Length	Qty
<b>DF15PICOKIT.60</b>	<b>6000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DFP15G01.03</b>	Lip profile gasket	1 Pc
<b>DFPG03.03</b>	Flat profile gasket	1 Pc
<b>DFP100.30</b>	Upper snap-on finishing profile	1 Pc
<b>DFP150</b>	PICO clamps for glass 15 mm	12 Pcs
<b>DFP88.30</b>	Floor profile	1 Pc

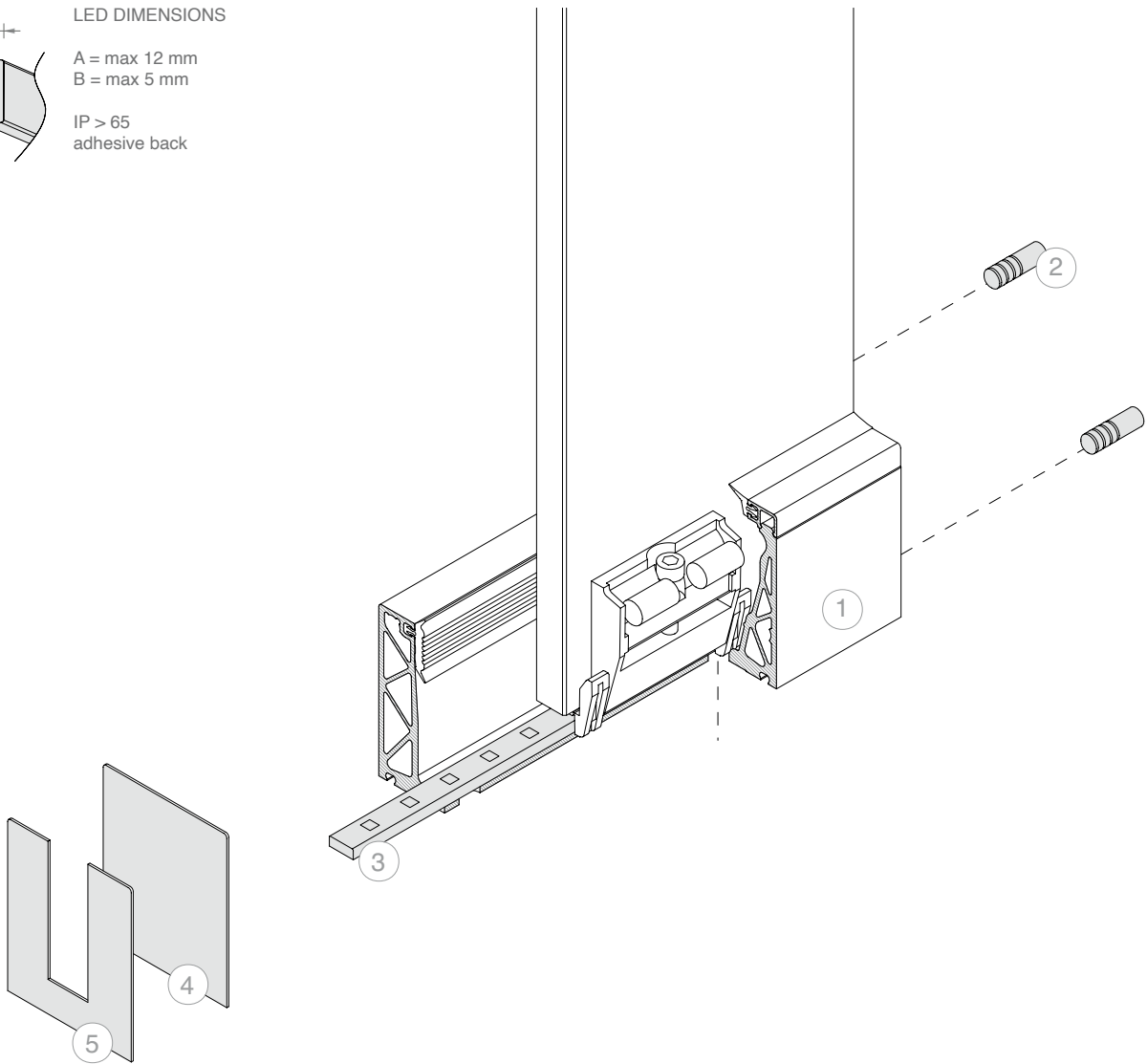
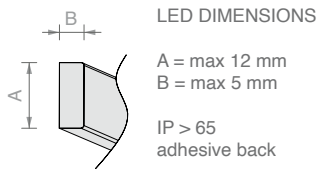
Art.	Length	Qty
<b>DF15PICOKIT.30</b>	<b>3000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DFP15G01</b>	Lip profile gasket	1.5 m
<b>DFPG03</b>	Flat profile gasket	1.5 m
<b>DFP100.15</b>	Upper snap-on finishing profile	1 Pc
<b>DFP150</b>	PICO clamps for glass 15 mm	6 Pcs
<b>DFP88.15</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF15PICOKIT.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



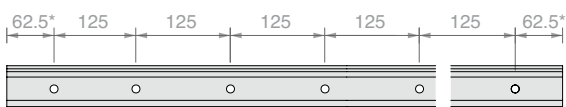
**Note:** System compatible with LED strips at the base of the channel only in the version for 8+8 glass.

No. Art.  
1 **DF15PICOKIT**

Optional:

No.	Art.	Description
2	<b>DF25</b>	2 centring pins
3	<b>LED</b>	LED strip for outdoor use
4	<b>DFP7562</b>	Closed end cap
5	<b>DFP7562U</b>	End cap with U-shaped opening

**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



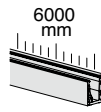
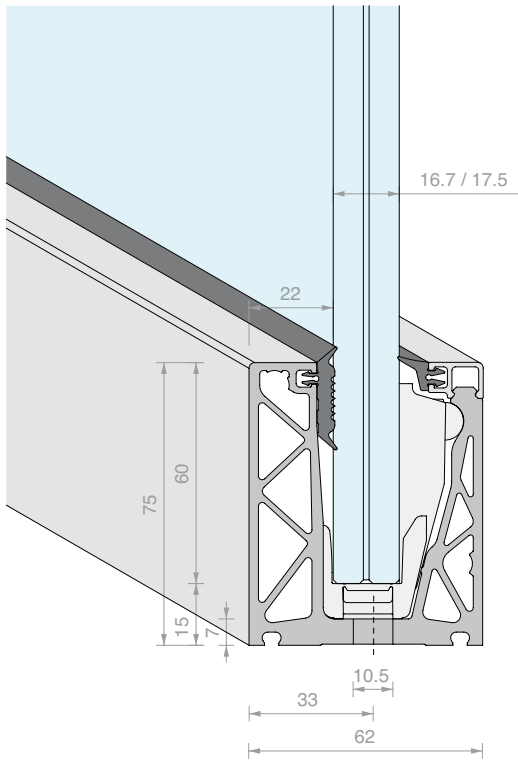
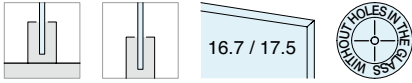
**DEFENDER PICO KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 8+8

Material: Aluminium

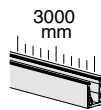
Finish: /6 /10 /88 /97 /RAL



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	2 Pcs
<b>DFPG03.03</b>	Flat profile gasket	2 Pcs
<b>DFP100.60</b>	Upper snap-on finishing profile	1 Pc
<b>DFP175</b>	PICO clamps for glass 8+8	24 Pcs
<b>DFP88.60</b>	Floor profile	1 Pc

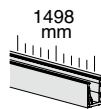
Art.	Length	Qty
<b>DF88PICOKIT.60</b>	<b>6000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01.03</b>	Lip profile gasket	1 Pc
<b>DFPG03.03</b>	Flat profile gasket	1 Pc
<b>DFP100.30</b>	Upper snap-on finishing profile	1 Pc
<b>DFP175</b>	PICO clamps for glass 8+8	12 Pcs
<b>DFP88.30</b>	Floor profile	1 Pc

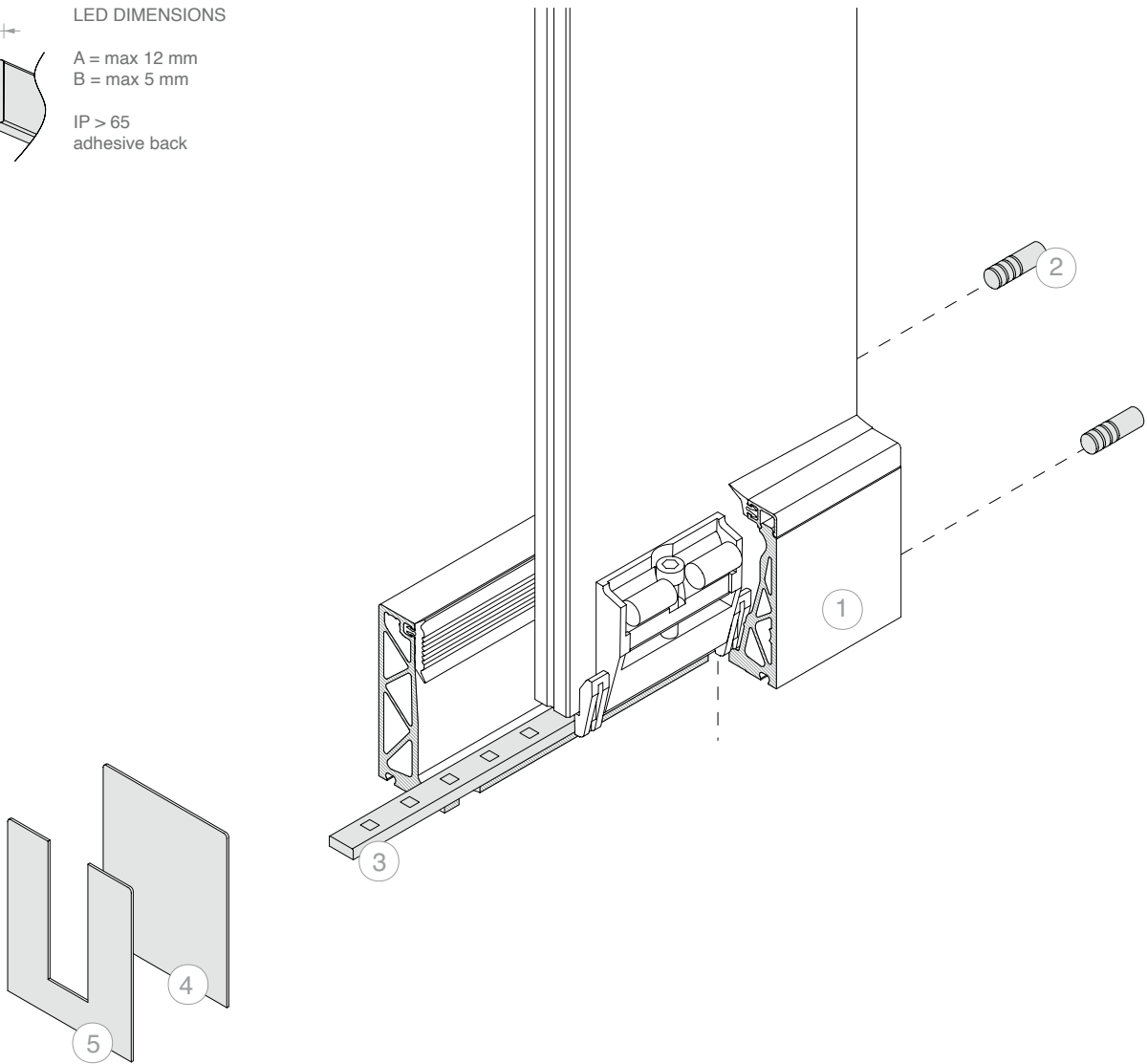
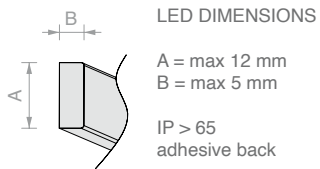
Art.	Length	Qty
<b>DF88PICOKIT.30</b>	<b>3000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DFP88G01</b>	Lip profile gasket	1.5 m
<b>DFPG03</b>	Flat profile gasket	1.5 m
<b>DFP100.15</b>	Upper snap-on finishing profile	1 Pc
<b>DFP175</b>	PICO clamps for glass 8+8	6 Pcs
<b>DFP88.15</b>	Floor profile	1 Pc

Art.	Length	Qty
<b>DF88PICOKIT.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



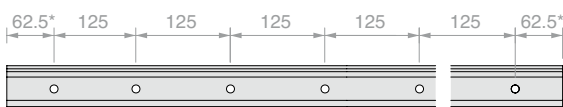
**Note:** System compatible with LED strips at the base of the channel only in the version for 8+8 glass.

No.	Art.
1	<b>DF88PICOKIT</b>

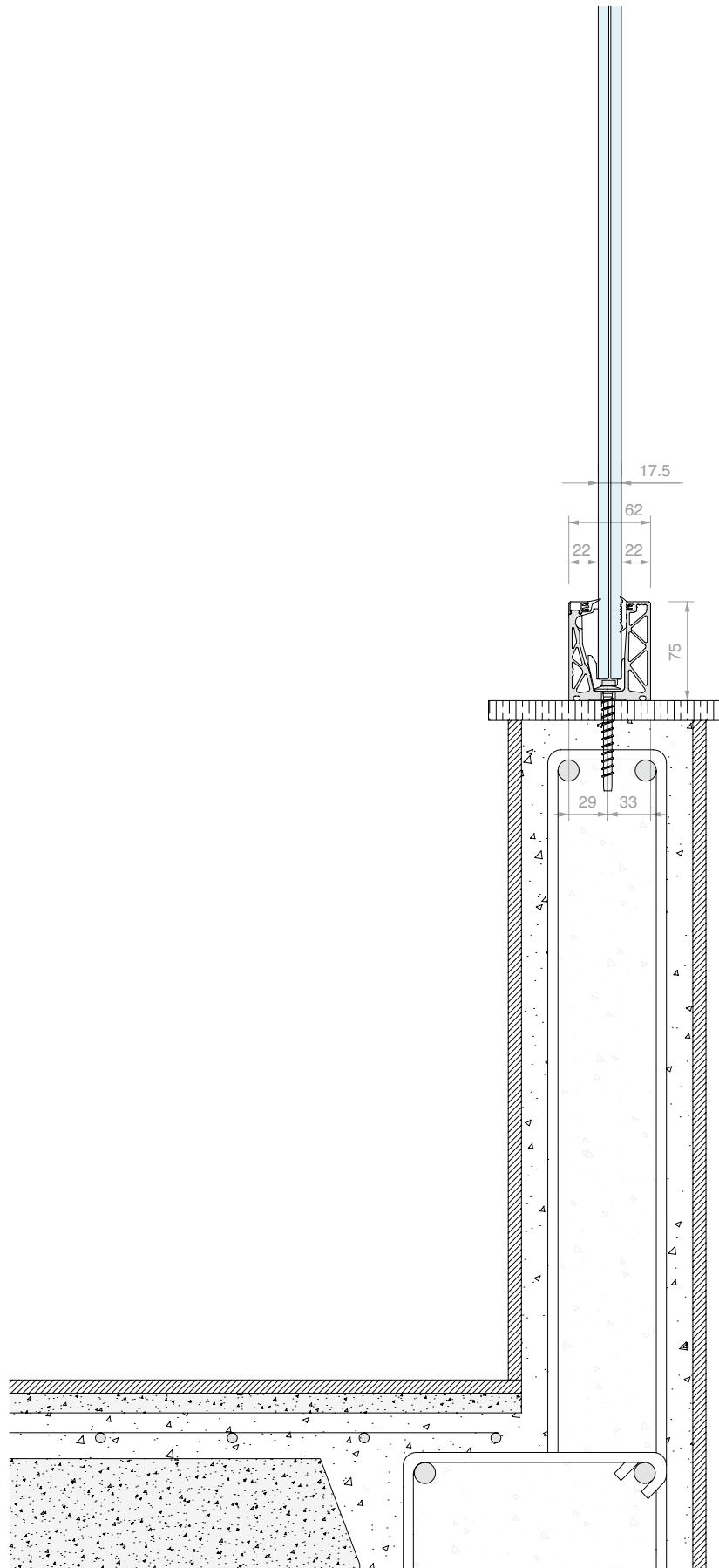
Optional:

No.	Art.	Description
2	<b>DF25</b>	2 centring pins
3	<b>LED</b>	LED strip for outdoor use
4	<b>DFP7562</b>	Closed end cap
5	<b>DFP7562U</b>	End cap with U-shaped opening

**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

















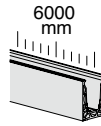
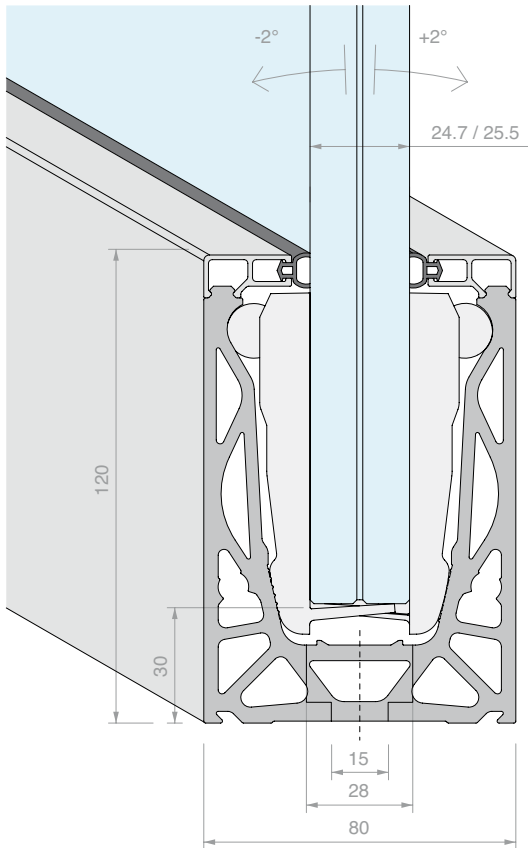
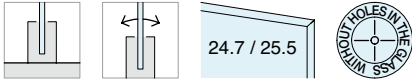
**DEFENDER 1212LM KIT**

FLOOR INSTALLATION

CONFIGURED FOR GLASS 12+12

Material: Aluminium

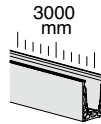
Finish: /97



Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	12 m
<b>DF105.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1212255</b>	Clamps for glass 12+12	24 Pcs
<b>DF1012LM.60</b>	Floor profile	1 Pc

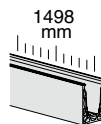
Art.	Length	Qty
<b>DF1212LMKIT.60</b>	6000 mm	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	6 m
<b>DF105.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1212255</b>	Clamps for glass 12+12	12 Pcs
<b>DF1012LM.30</b>	Floor profile	1 Pc

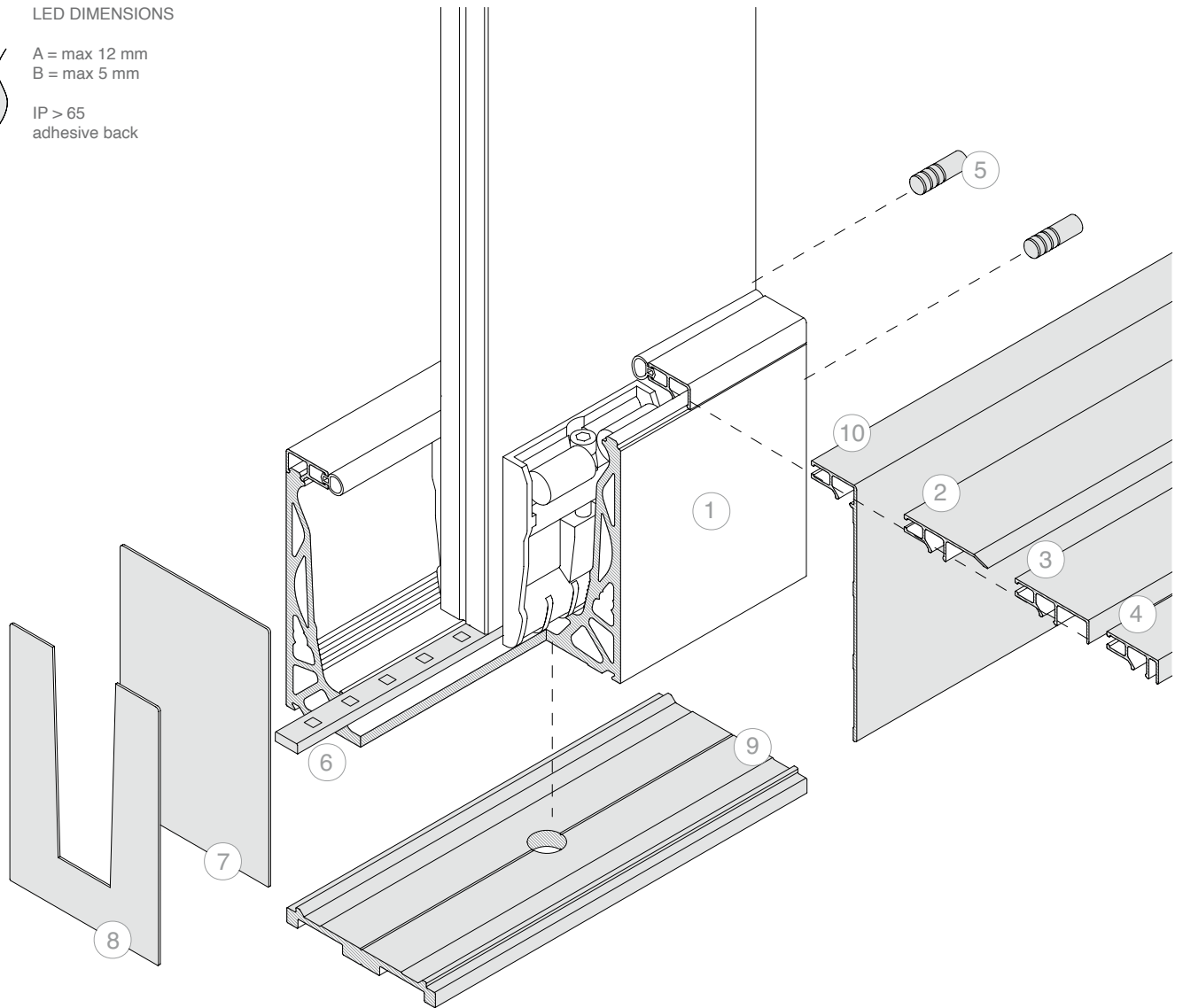
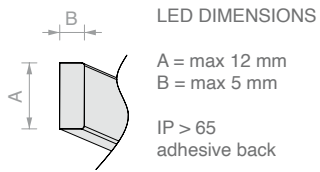
Art.	Length	Qty
<b>DF1212LMKIT.30</b>	3000 mm	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	3 m
<b>DF105.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1212255</b>	Clamps for glass 12+12	6 Pcs
<b>DF1012LM.15</b>	Floor profile	1 Pc

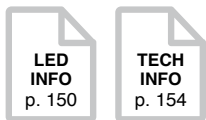
Art.	Length	Qty
<b>DF1212LMKIT.15</b>	1498 mm	1 Pc



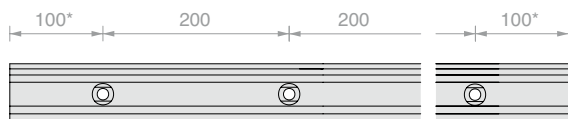
No. Art.  
 1 **DF1212LMKIT**

Optional:

No.	Art.	Description
2	<b>DF8801</b>	Snap-on threshold profile
3	<b>DF116</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF104</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>LED</b>	LED strip for outdoor use
7	<b>DF12080</b>	Closed end cap
8	<b>DF4TP</b>	End cap with V-shaped opening
9	<b>DFA80</b>	Water drainage profile
10	<b>DF8803</b>	Finishing profile



**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.









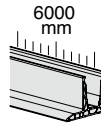
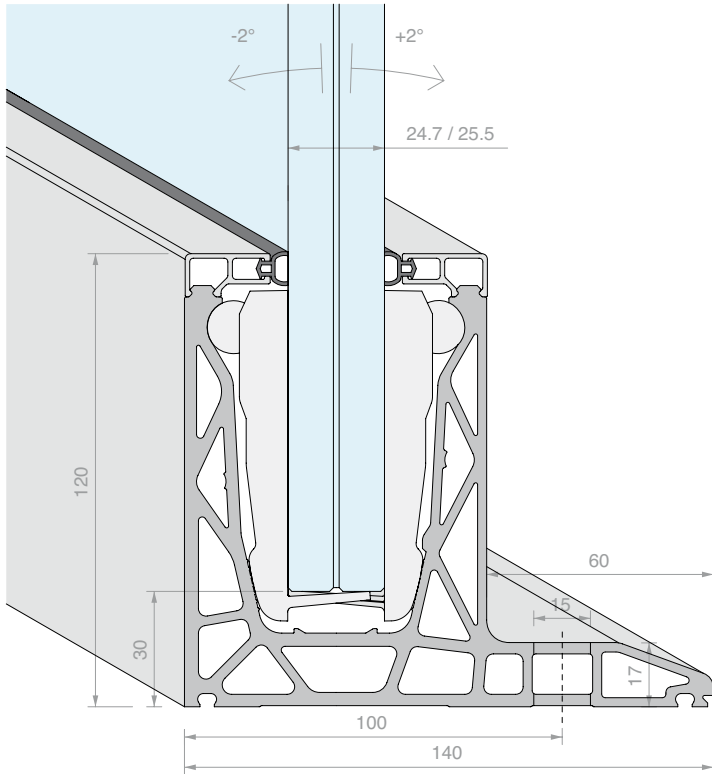
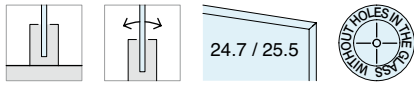
**DEFENDER 1212DK KIT**

FLOOR INSTALLATION WITH SIDE FIN

CONFIGURED FOR GLASS 12+12

Material: Aluminium

Finish: /97

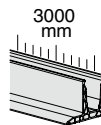
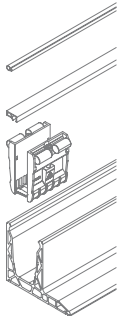


Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	12 m
<b>DF105.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1212255</b>	Clamps for glass 12+12	24 Pcs
<b>DF1012DK.60</b>	Floor profile with side fin	1 Pc

Art.	Length	Qty
<b>DF1212DKKIT.60</b>	6000 mm	1 Pc

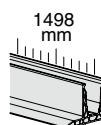
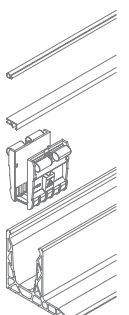


Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	6 m
<b>DF105.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1212255</b>	Clamps for glass 12+12	12 Pcs
<b>DF1012DK.30</b>	Floor profile with side fin	1 Pc

Art.	Length	Qty
<b>DF1212DKKIT.30</b>	3000 mm	1 Pc

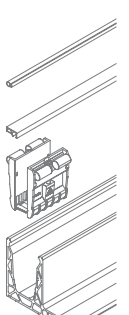


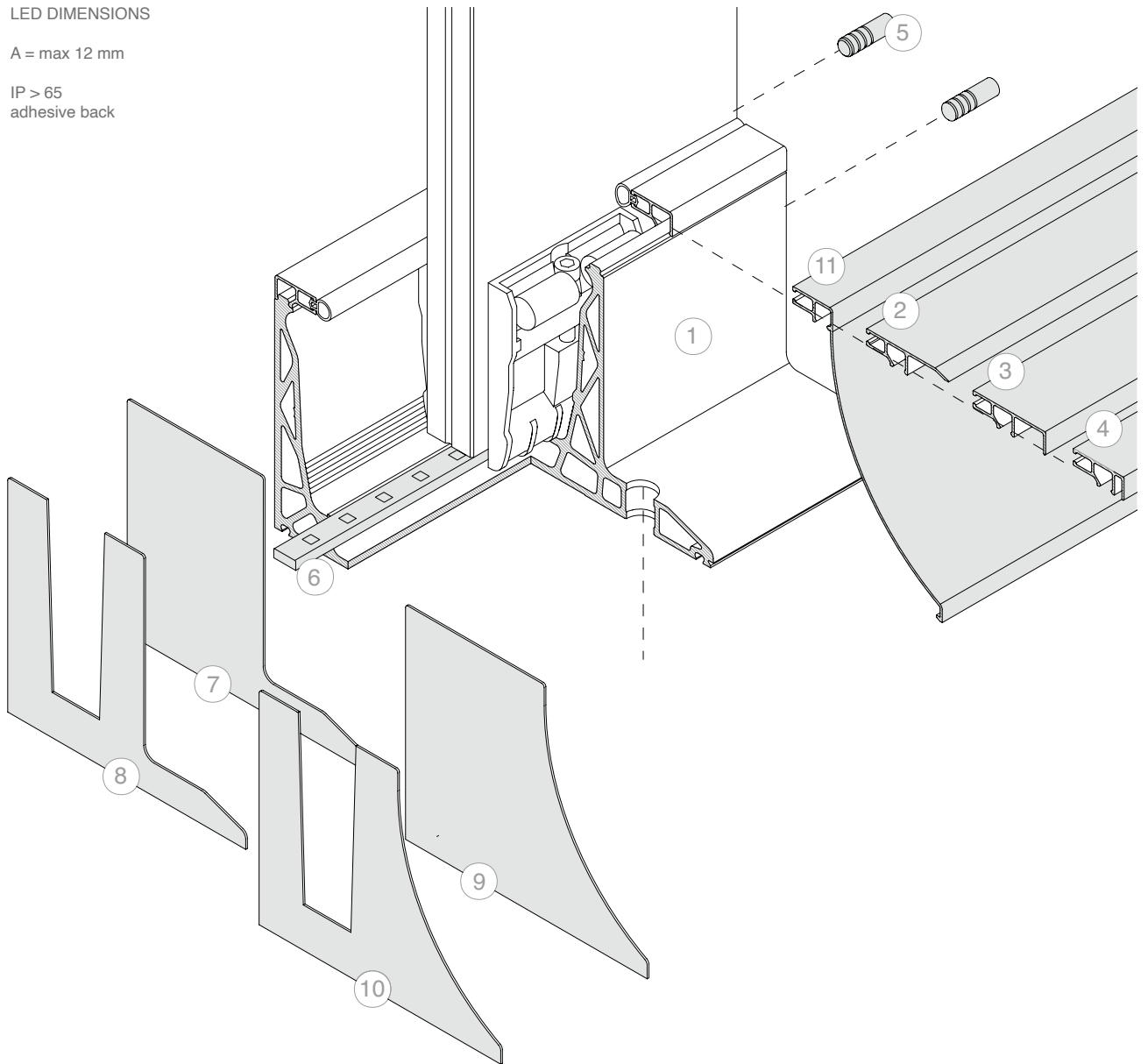
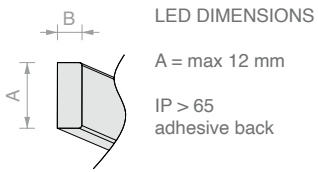
Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	3 m
<b>DF105.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1212255</b>	Clamps for glass 12+12	6 Pcs
<b>DF1012DK.15</b>	Floor profile with side fin	1 Pc

Art.	Length	Qty
<b>DF1212DKKIT.15</b>	1498 mm	1 Pc

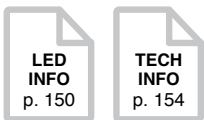




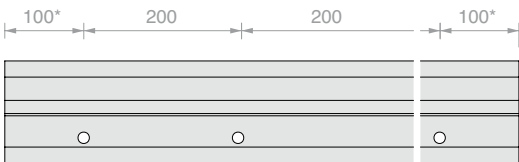
No. Art.  
**1 DF1212DKKIT**

Optional:

No.	Art.	Description
2	<b>DF8801</b>	Snap-on threshold profile
3	<b>DF116</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF104</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>LED</b>	LED strip for outdoor use
7	<b>DFDKTP17</b>	Closed end cap
8	<b>DFDKTP21</b>	End cap with V-shaped opening
9	<b>DFDKTP23</b>	Closed end cap for DFDK05
10	<b>DFDKTP27</b>	End cap with V-shaped opening for DFDK05
11	<b>DFDK05</b>	Inclined snap-on finishing profile

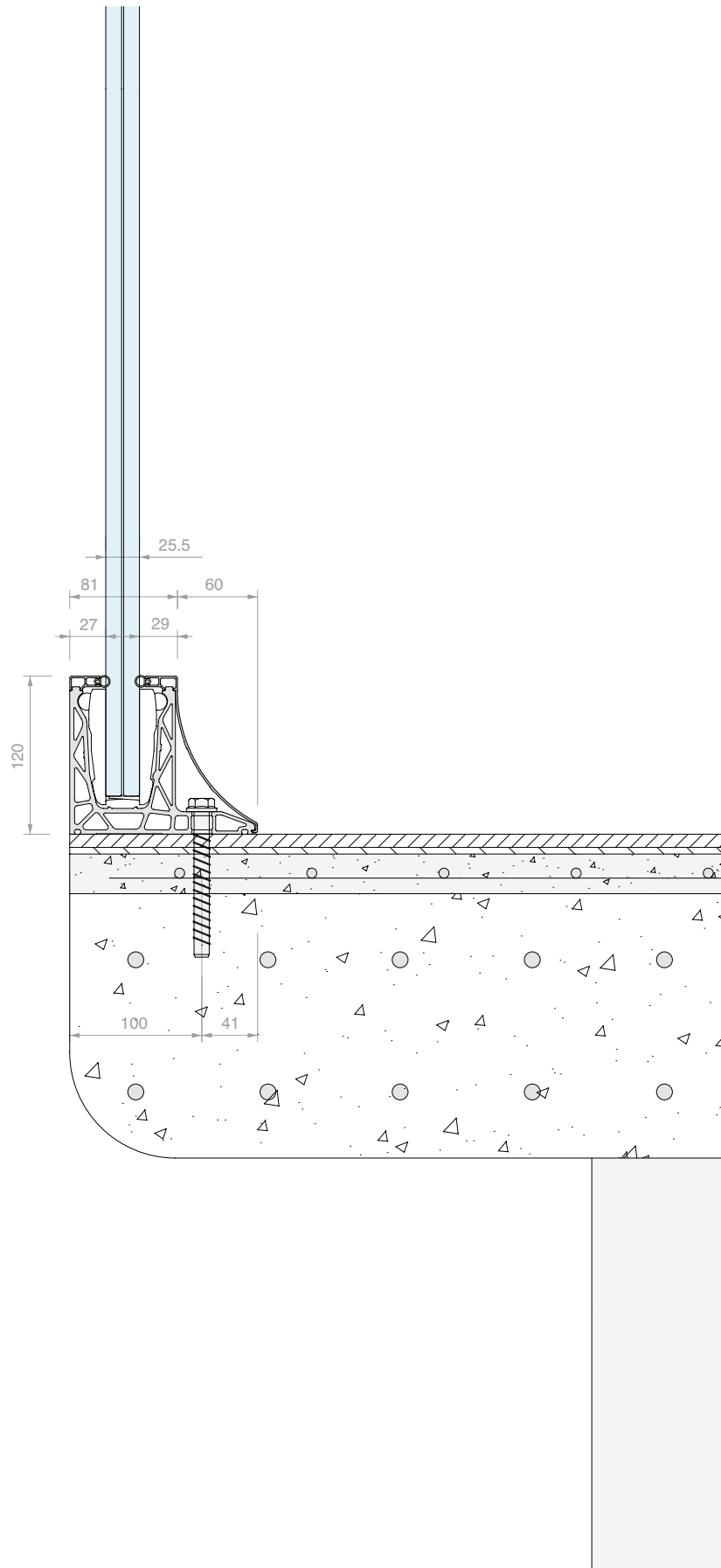


**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

















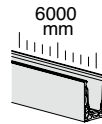
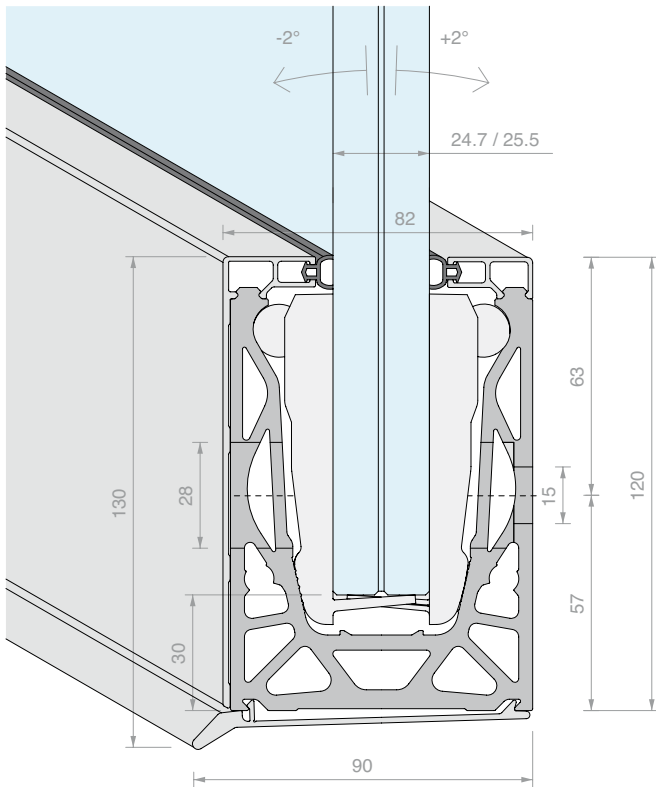
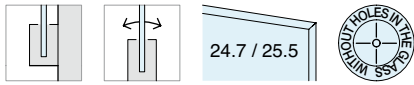
**DEFENDER 1212FR KIT**

SLAB INSTALLATION

CONFIGURED FOR GLASS 12+12

Material: Aluminium

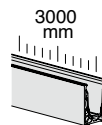
Finish: /97



Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	12 m
<b>DF8803.60</b>	Side snap-on finishing profile	1 Pc
<b>DFS09.60</b>	Lower snap-on finishing profile	1 Pc
<b>DF105.60</b>	Upper snap-on finishing profile	1 Pc
<b>DF1212255</b>	Clamps for glass 12+12	24 Pcs
<b>DF1012FR.60</b>	Slab profile	1 Pc

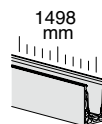
Art.	Length	Qty
<b>DF1212FRKIT.60</b>	<b>6000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	6 m
<b>DF8803.30</b>	Side snap-on finishing profile	1 Pc
<b>DFS09.30</b>	Lower snap-on finishing profile	1 Pc
<b>DF105.30</b>	Upper snap-on finishing profile	1 Pc
<b>DF1212255</b>	Clamps for glass 12+12	12 Pcs
<b>DF1012FR.30</b>	Slab profile	1 Pc

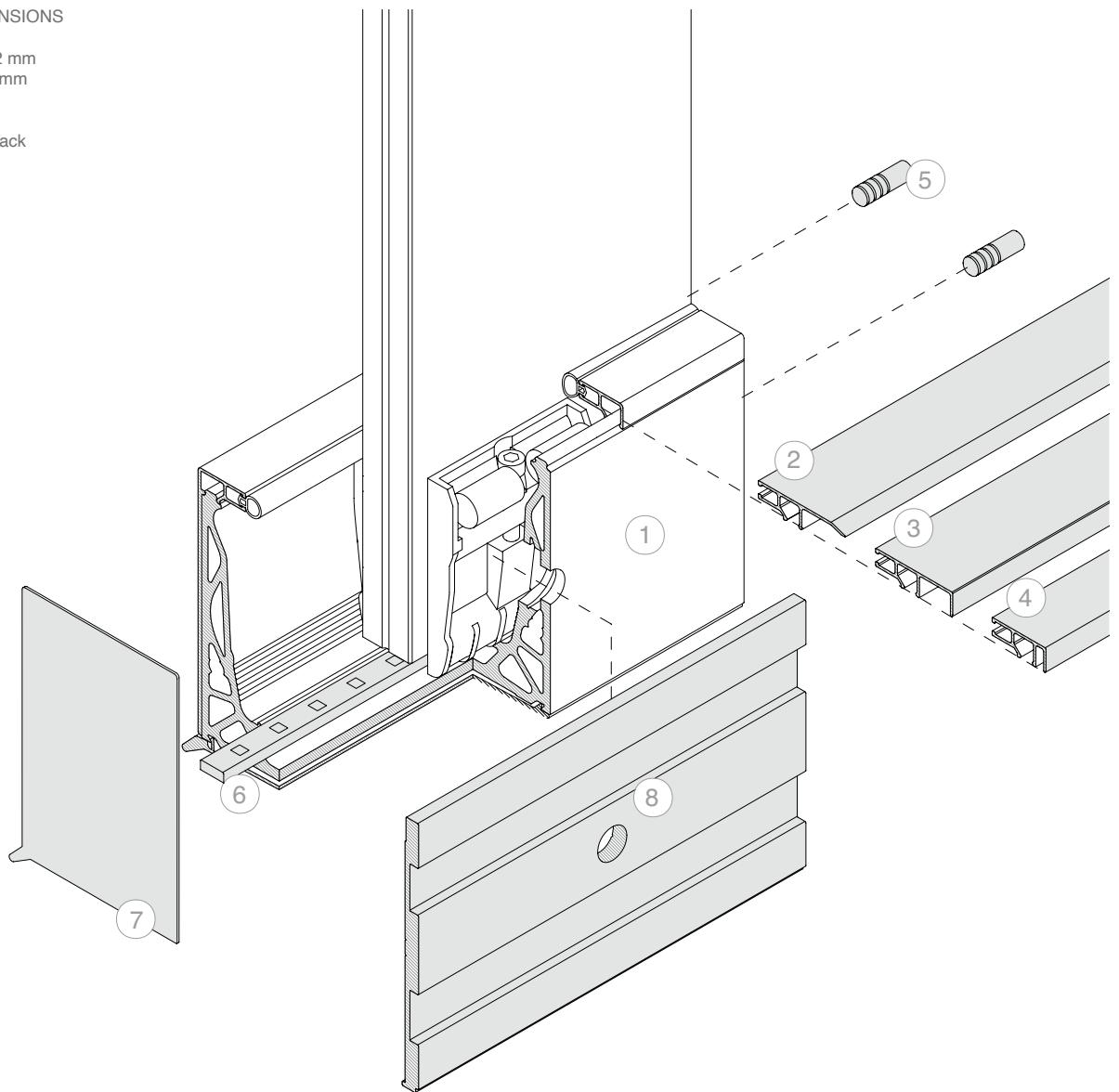
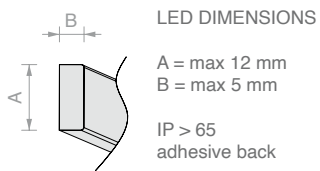
Art.	Length	Qty
<b>DF1212FRKIT.30</b>	<b>3000 mm</b>	<b>1 Pc</b>



Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	3 m
<b>DF8803.15</b>	Side snap-on finishing profile	1 Pc
<b>DFS09.15</b>	Lower snap-on finishing profile	1 Pc
<b>DF105.15</b>	Upper snap-on finishing profile	1 Pc
<b>DF1212255</b>	Clamps for glass 12+12	6 Pcs
<b>DF1012FR.15</b>	Slab profile	1 Pc

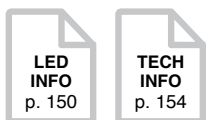
Art.	Length	Qty
<b>DF1212FRKIT.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



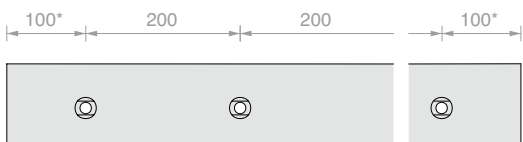
No. Art.  
1 **DF1212FRKIT**

Optional:

No. Art.	Description
2 <b>DF8801</b>	Snap-on threshold profile
3 <b>DF116</b>	Profile for front cladding insertion of max. thickness 16 mm
4 <b>DF104</b>	Profile for front cladding insertion of max. thickness 4 mm
5 <b>DF25</b>	2 centring pins
6 <b>LED</b>	LED strip for outdoor use
7 <b>DFS13083</b>	Closed end cap
8 <b>DFSA121</b>	Water drainage profile



**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.









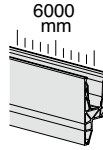
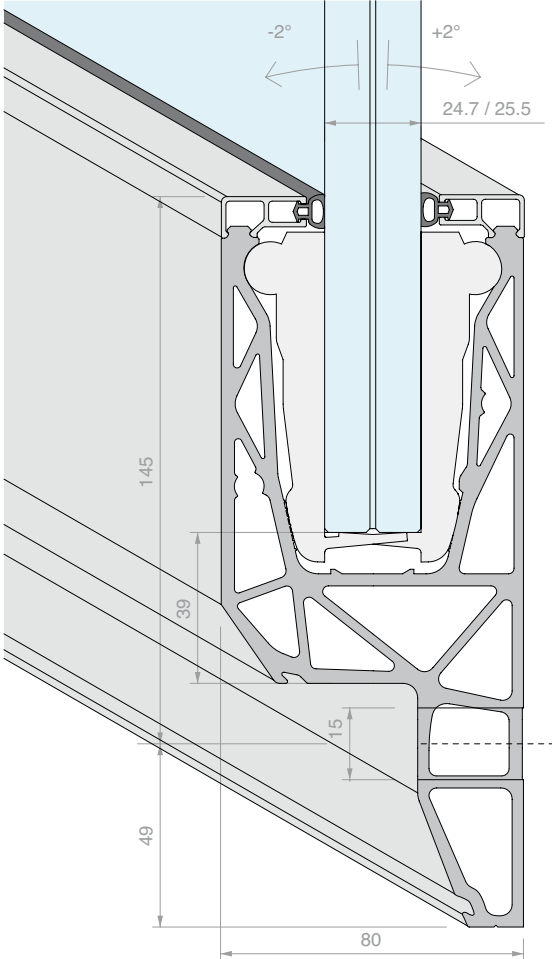
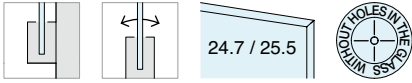


**DEFENDER 1212SP KIT**

SLAB INSTALLATION WITH LOWER FIN  
CONFIGURED FOR GLASS 12+12

Material: Aluminium

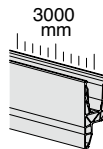
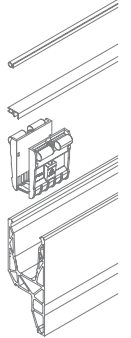
Finish: /97



Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	12 m
<b>DF105.60</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1212255</b>	Clamps for glass 12+12	24 Pcs
<b>DF1012SP.60</b>	Floor profile with lower fin	1 Pc

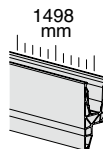
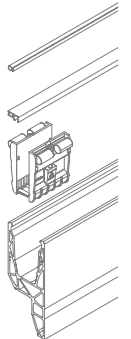
Art.	Length	Qty
<b>DF1212SPKIT.60</b>	6000 mm	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	6 m
<b>DF105.30</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1212255</b>	Clamps for glass 12+12	12 Pcs
<b>DF1012SP.30</b>	Floor profile with lower fin	1 Pc

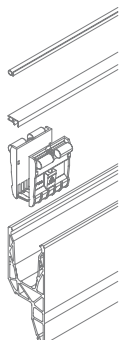
Art.	Length	Qty
<b>DF1212SPKIT.30</b>	3000 mm	1 Pc



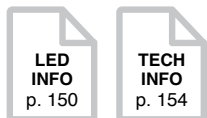
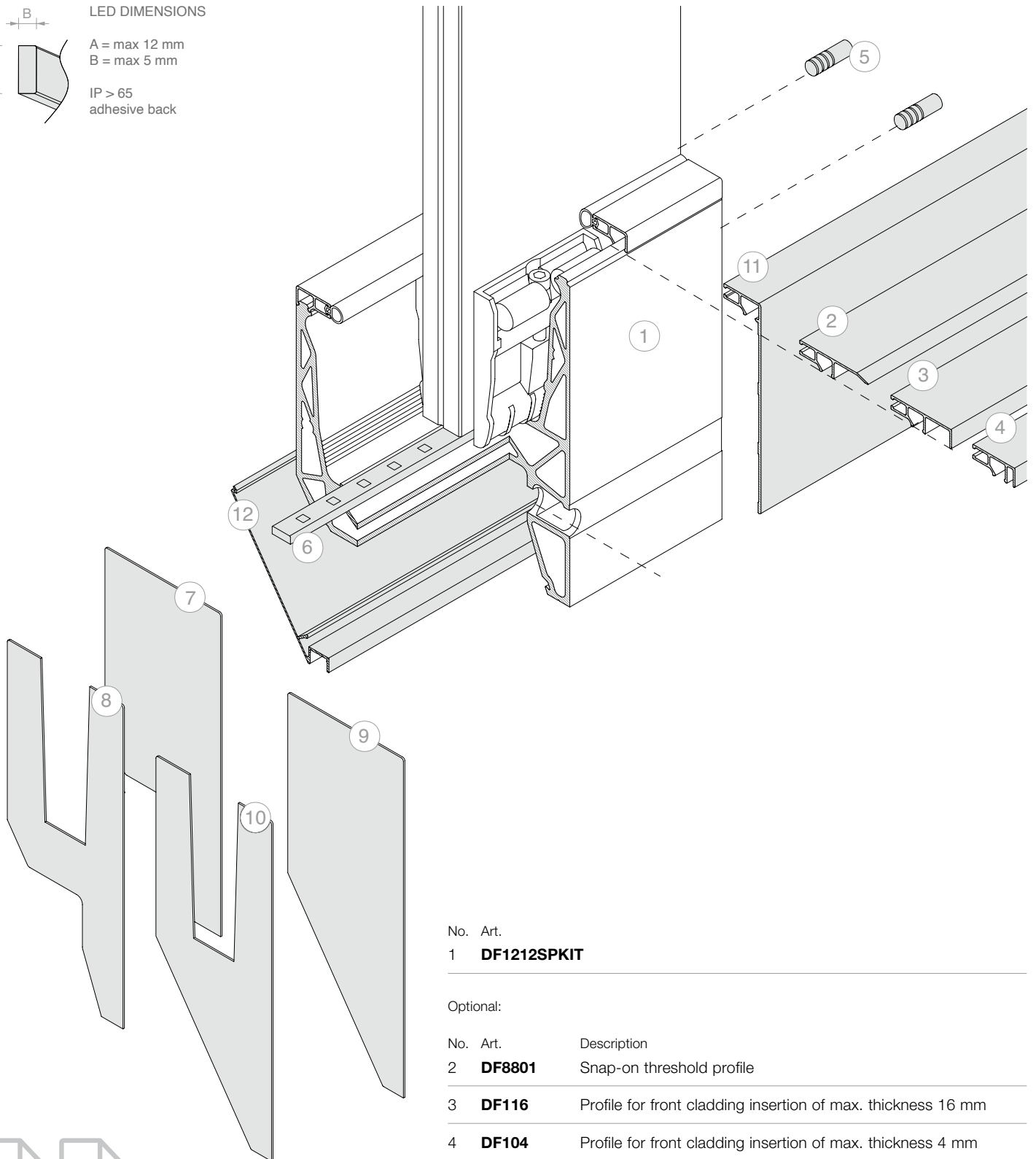
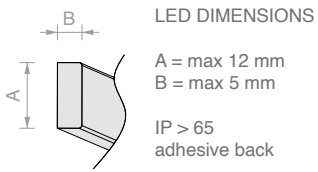
Kit comprising:

Art.	Description	Qty.
<b>DF1010</b>	Balloon profile gasket	3 m
<b>DF105.15</b>	Upper snap-on finishing profile	2 Pcs
<b>DF1212255</b>	Clamps for glass 12+12	6 Pcs
<b>DF1012SP.15</b>	Floor profile with lower fin	1 Pc

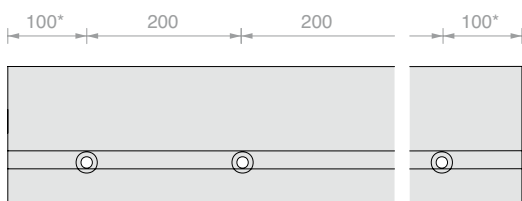
Art.	Length	Qty
<b>DF1212SPKIT.15</b>	1498 mm	1 Pc







**HOLE SPACING**



\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.

No.	Art.
1	<b>DF1212SPKIT</b>

Optional:

No.	Art.	Description
2	<b>DF8801</b>	Snap-on threshold profile
3	<b>DF116</b>	Profile for front cladding insertion of max. thickness 16 mm
4	<b>DF104</b>	Profile for front cladding insertion of max. thickness 4 mm
5	<b>DF25</b>	2 centring pins
6	<b>LED</b>	LED strip for outdoor use
7	<b>DFSPTP17</b>	Closed end cap
8	<b>DFSPTP21</b>	End cap with V-shaped opening
9	<b>DFSPTP23</b>	Closed end cap for DFS11
10	<b>DFSPTP27</b>	End cap with V-shaped opening for DFS11
11	<b>DF8803</b>	Side snap-on finishing profile
12	<b>DFS11</b>	Inclined snap-on finishing profile







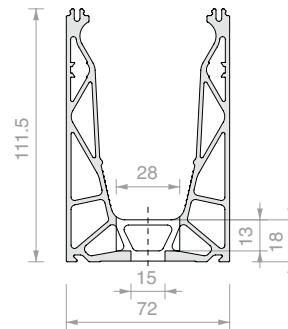


### DEFENDER 810 FLOOR PROFILE

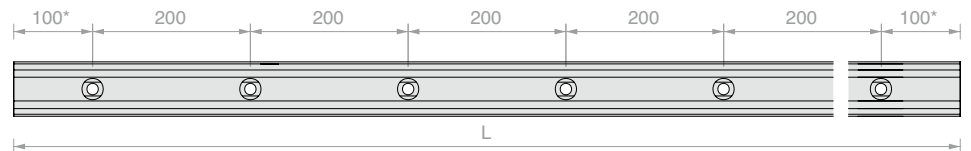
Material: Aluminium (6063-T6)

Finish:  /6  /10  /88  /97  /RAL

\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



#### HOLE SPACING



Art.	L	Qty
<b>DF810LM.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF810LM.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF810LM.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

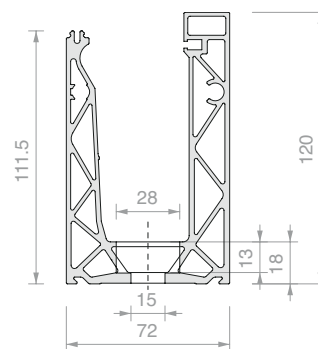


### SINGLE-SIDED DEFENDER 810 FLOOR PROFILE

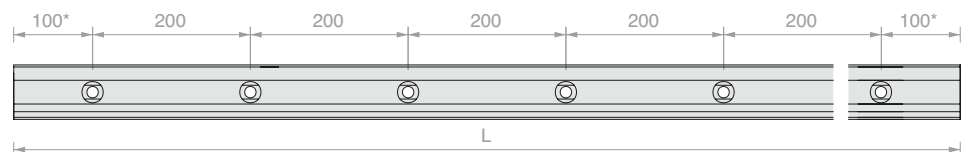
Material: Aluminium (6063-T6)

Finish:  /6  /10  /88  /97  /RAL

\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



#### HOLE SPACING



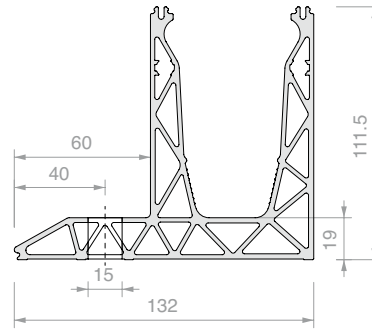
Art.	L	Qty
<b>DF810MR.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF810MR.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF810MR.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



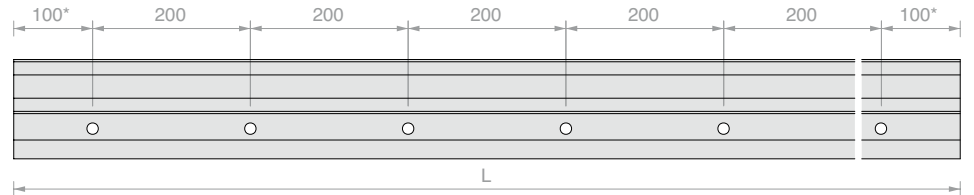
**DEFENDER 810 FLOOR PROFILE WITH SIDE FIN**

Material: Aluminium (6063-T6)  
Finish: /97

\* The position of the first and last holes are given for information only.  
For specific requests, please contact Customer Care.



**HOLE SPACING**



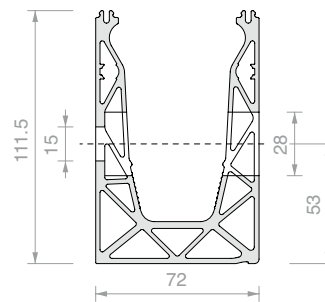
Art.	L	Qty
<b>DF810DK.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF810DK.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF810DK.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



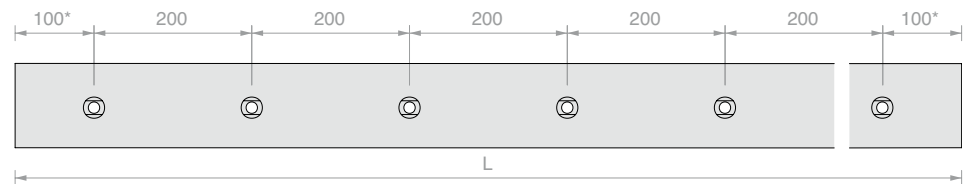
**DEFENDER 810 SLAB PROFILE**

Material: Aluminium (6063-T6)  
Finish: /10 /97

\* The position of the first and last holes are given for information only.  
For specific requests, please contact Customer Care.



**HOLE SPACING**



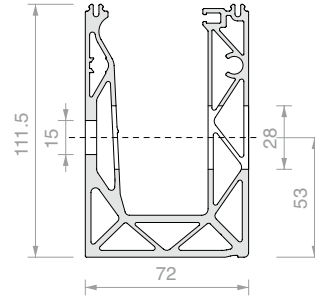
Art.	L	Qty
<b>DF810FR.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF810FR.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF810FR.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



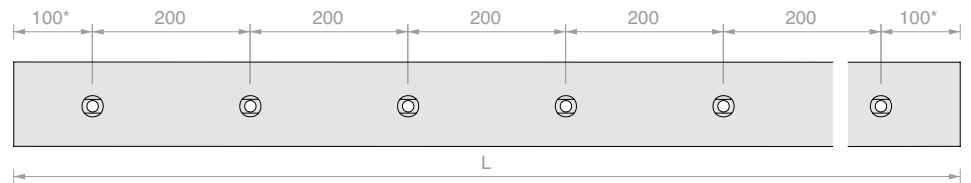
### SINGLE-SIDED DEFENDER 810 SLAB PROFILE

Material: Aluminium (6063-T6)  
Finish: /10 /97

\* The position of the first and last holes are given for information only.  
For specific requests, please contact Customer Care.



#### HOLE SPACING



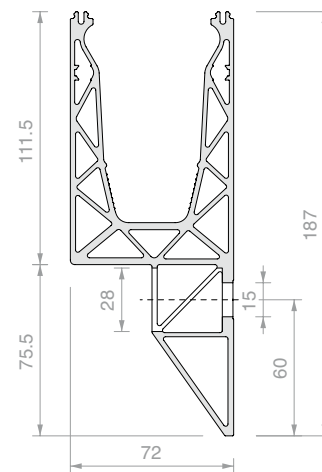
Art.	L	Qty
<b>DF810MF.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF810MF.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF810MF.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



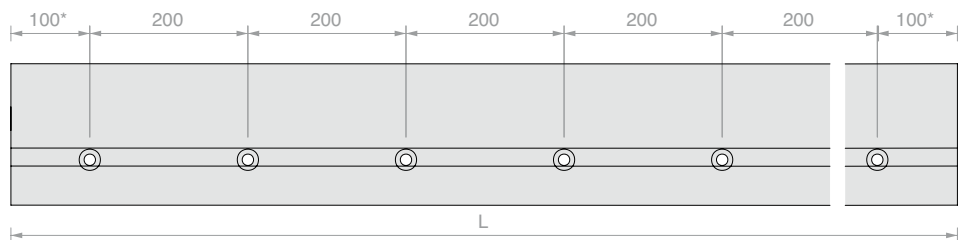
### DEFENDER 810 FLOOR PROFILE WITH LOWER FIN

Material: Aluminium (6063-T6)  
Finish: /97

\* The position of the first and last holes are given for information only.  
For specific requests, please contact Customer Care.

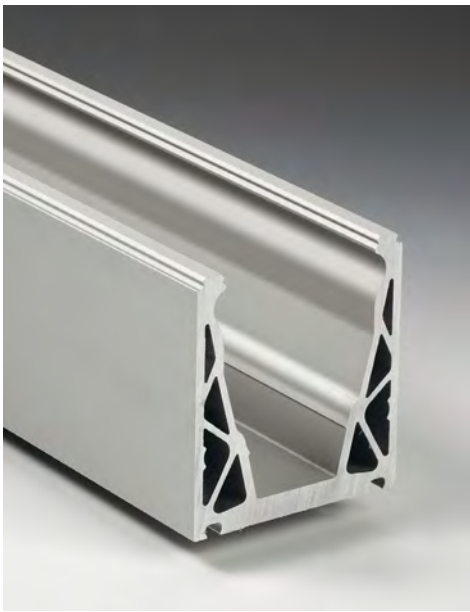


#### HOLE SPACING



Art.	L	Qty
<b>DF810SP.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF810SP.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF810SP.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



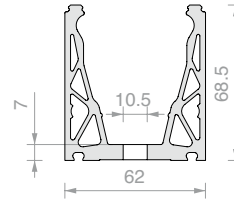


**DEFENDER XP FLOOR PROFILE**

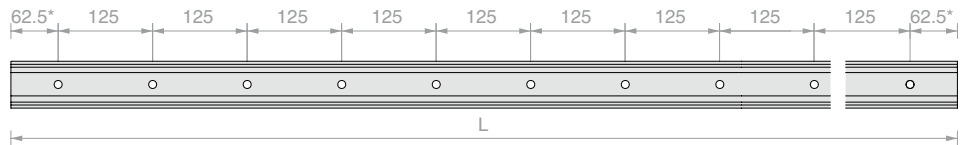
Material: Aluminium (6063-T6)

Finish:  /6  /10  /88  /97  /RAL

\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



**HOLE SPACING**



Art.	L	Qty
<b>DFXP88.60</b>	<b>6000 mm</b>	1 Pc
<b>DFXP88.30</b>	<b>3000 mm</b>	1 Pc
<b>DFXP88.15</b>	<b>1498 mm</b>	1 Pc

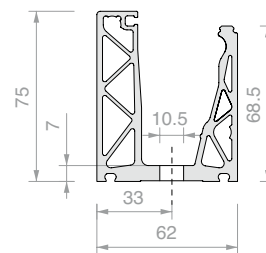


**SINGLE-SIDED DEFENDER PICO FLOOR PROFILE**

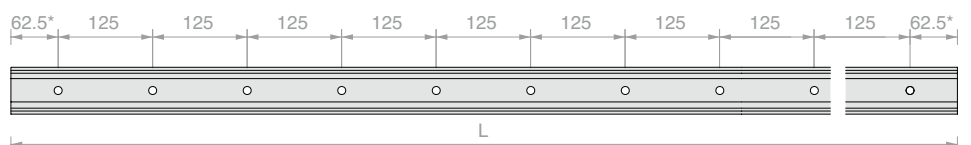
Material: Aluminium (6063-T6)

Finish:  /6  /10  /88  /97  /RAL

\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



**HOLE SPACING**



Art.	L	Qty
<b>DFP88.60</b>	<b>6000 mm</b>	1 Pc
<b>DFP88.30</b>	<b>3000 mm</b>	1 Pc
<b>DFP88.15</b>	<b>1498 mm</b>	1 Pc

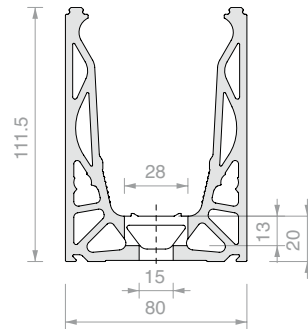


### DEFENDER 1212 FLOOR PROFILE

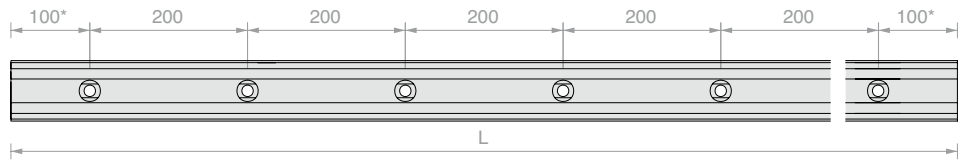
Material: Aluminium (6063-T6)

Finish: /97

\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



#### HOLE SPACING



Art.	L	Qty
DF1012LM.60	6000 mm	1 Pc
DF1012LM.30	3000 mm	1 Pc
DF1012LM.15	1498 mm	1 Pc

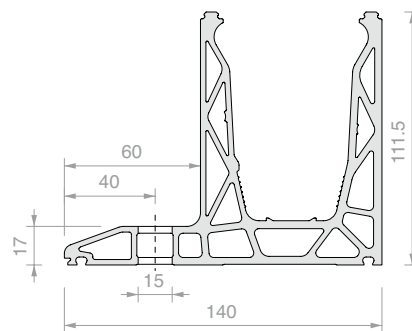


### DEFENDER 1212 FLOOR PROFILE WITH SIDE FIN

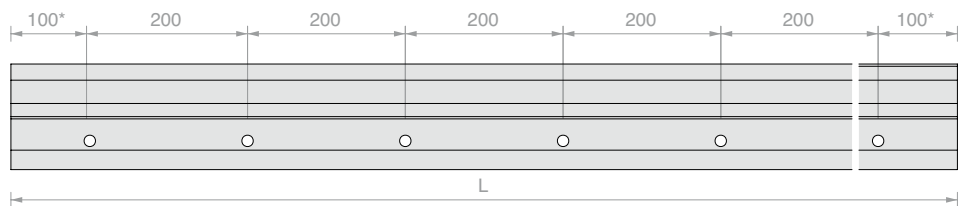
Material: Aluminium (6063-T6)

Finish: /97

\* The position of the first and last holes are given for information only. For specific requests, please contact Customer Care.



#### HOLE SPACING



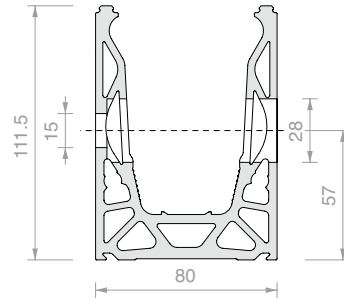
Art.	L	Qty
DF1012DK.60	6000 mm	1 Pc
DF1012DK.30	3000 mm	1 Pc
DF1012DK.15	1498 mm	1 Pc



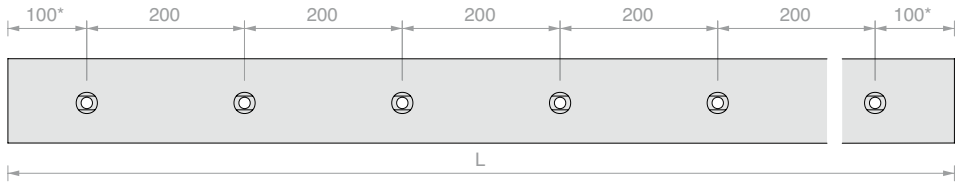
**DEFENDER 1212 SLAB PROFILE**

Material: Aluminium (6063-T6)  
Finish: /97

\* The position of the first and last holes are given for information only.  
For specific requests, please contact Customer Care.



**HOLE SPACING**



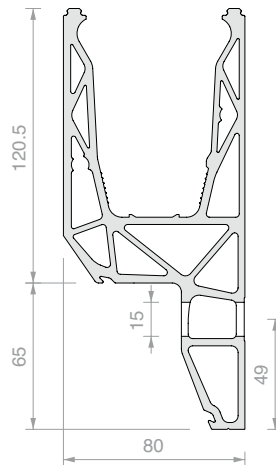
Art.	L	Qty
<b>DF1012FR.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF1012FR.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF1012FR.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



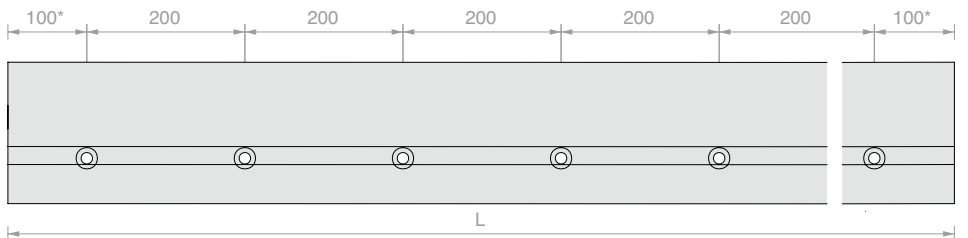
**DEFENDER 1212 FLOOR PROFILE WITH LOWER FIN**

Material: Aluminium (6063-T6)  
Finish: /97

\* The position of the first and last holes are given for information only.  
For specific requests, please contact Customer Care.



**HOLE SPACING**

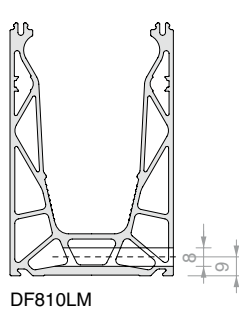


Art.	L	Qty
<b>DF1012SP.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF1012SP.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF1012SP.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

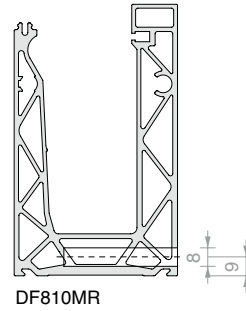




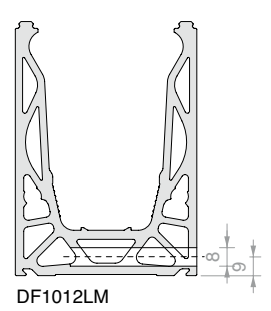
**PROCESSING FOR WATER DRAINAGE SLOTS ON PROFILE**  
**DF810LM - DF810MR - DF1012LM**



DF810LM

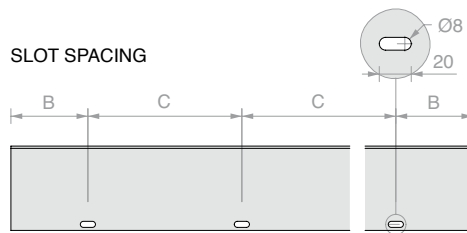


DF810MR



DF1012LM

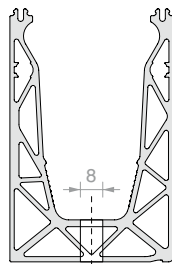
**SLOT SPACING**



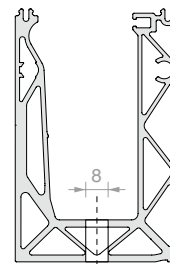
Art.	B	C	No. of slots	Qty
<b>DFFOROAS9</b>	600 mm	600 mm	9	1 Pc
<b>DFFOROAS4</b>	600 mm	600 mm	4	1 Pc
<b>DFFOROAS2</b>	449 mm	600 mm	2	1 Pc
<b>DFFOROAS</b>	-	-	Additional slot	1 Pc



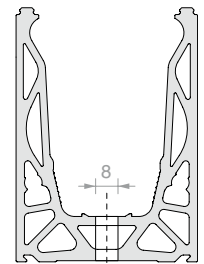
**PROCESSING FOR WATER DRAINAGE HOLES ON PROFILE**  
**DF810FR - DF810MF - DF1012FR**



DF810FR

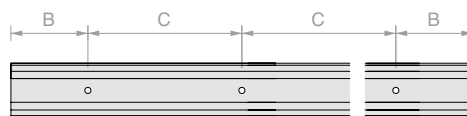


DF810MF



DF1012FR

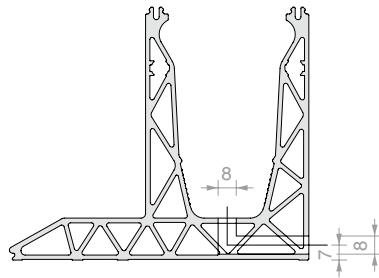
**HOLE SPACING**



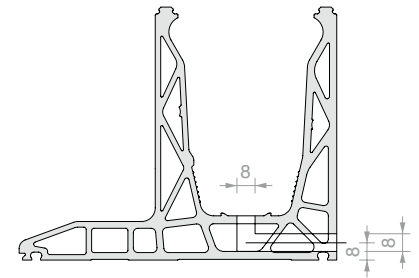
Art.	B	C	No. of holes	Qty
<b>DFFORODR9</b>	600 mm	600 mm	9	1 Pc
<b>DFFORODR4</b>	600 mm	600 mm	4	1 Pc
<b>DFFORODR2</b>	449 mm	600 mm	2	1 Pc
<b>DFFORODR</b>	-	-	Additional hole	1 Pc



**PROCESSING FOR WATER DRAINAGE HOLES AND SLOTS ON PROFILE  
DF810DK - DF1012DK**

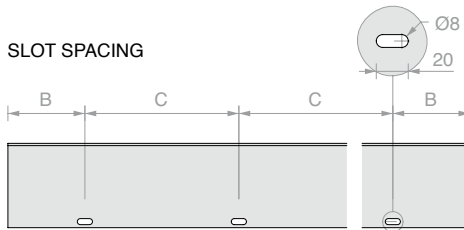


DF810DK

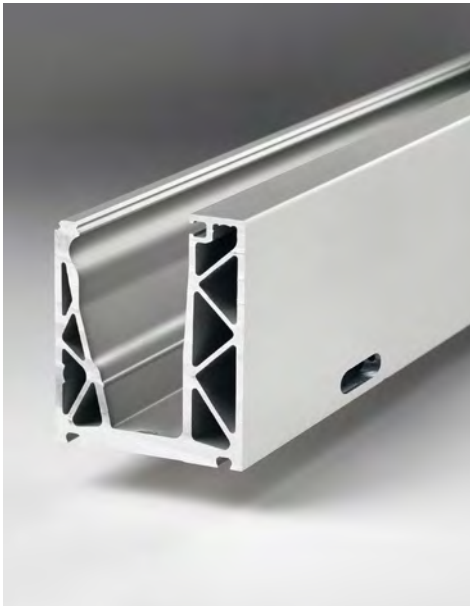


DF1012DK

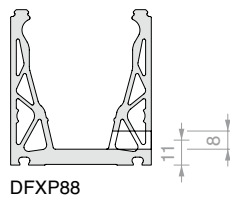
**SLOT SPACING**



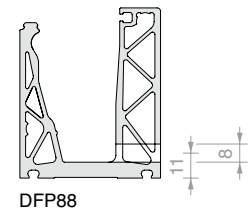
Art.	B	C	No. of slots + holes	Qty
<b>DFFORODRAS9</b>	600 mm	600 mm	9	1 Pc
<b>DFFORODRAS4</b>	600 mm	600 mm	4	1 Pc
<b>DFFORODRAS2</b>	449 mm	600 mm	2	1 Pc
<b>DFFORODRAS</b>	-	-	Additional hole and slot	1 Pc



**PROCESSING FOR WATER DRAINAGE SLOTS ON PROFILE  
DFXP88 - DFP88**

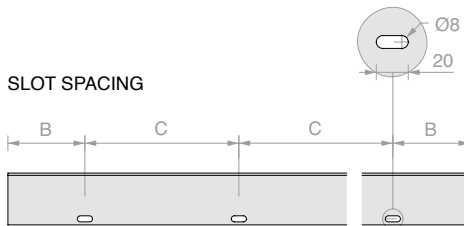


DFXP88



DFP88

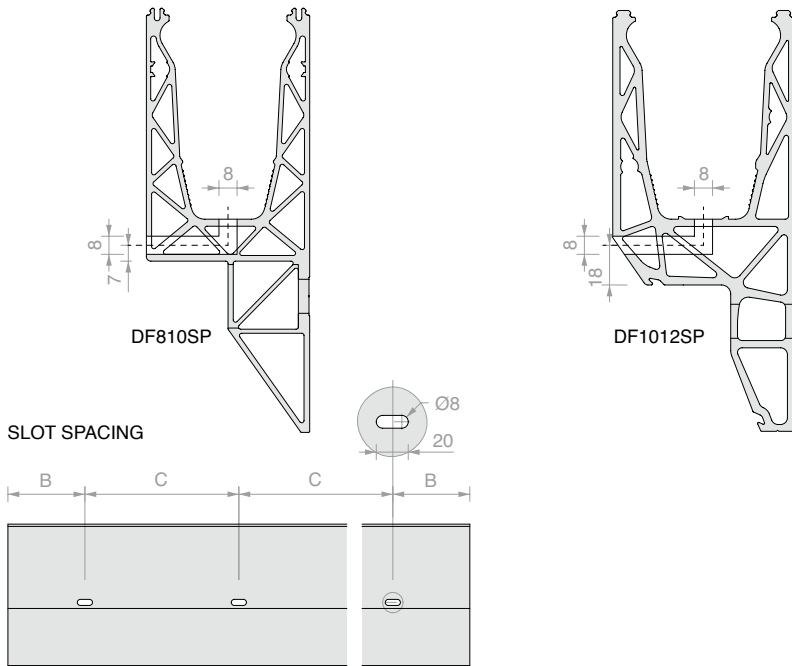
**SLOT SPACING**



Art.	B	C	No. of slots	Qty
<b>DFFOROAS9</b>	600 mm	600 mm	9	1 Pc
<b>DFFOROAS4</b>	600 mm	600 mm	4	1 Pc
<b>DFFOROAS2</b>	449 mm	600 mm	2	1 Pc
<b>DFFOROAS</b>	-	-	Additional slot	1 Pc



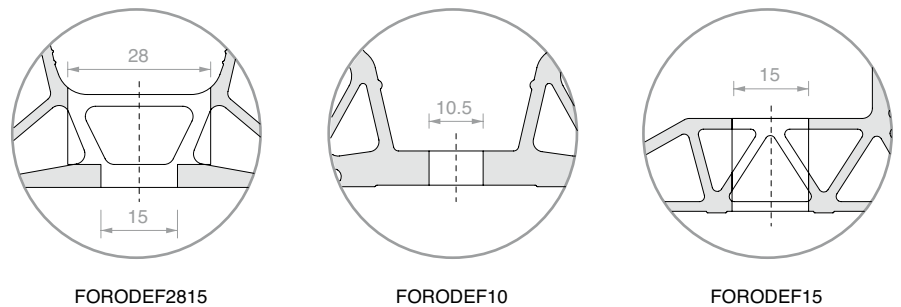
**PROCESSING FOR WATER DRAINAGE HOLES AND SLOTS ON PROFILE  
DF810SP - DF1012SP**



Art.	B	C	No. of slots + holes	Qty
<b>DFFORODRAS9</b>	600 mm	600 mm	9	1 Pc
<b>DFFORODRAS4</b>	600 mm	600 mm	4	1 Pc
<b>DFFORODRAS2</b>	449 mm	600 mm	2	1 Pc
<b>DFFORODRAS</b>	-	-	Additional hole and slot	1 Pc



**PROCESSING FOR ADDITIONAL ANCHORING HOLES  
ON DEFENDER PROFILES**



Art.	For profiles	Qty
<b>DFFORO2815</b>	DF810LM - DF810MR - DF810FR - DF810MF - DF810SP - DF1012LM - DF1012FR	1 Pc
<b>DFFORO10</b>	DFXP88 - DFP88	1 Pc
<b>DFFORO15</b>	DF810DK - DF1012DK - DF1012SP	1 Pc





### DEFENDER 810 DOUBLE-SIDED ADJUSTABLE CLAMPS

Material: POM, Stainless steel

Clamp configured for glass 8+8 mm. It uses adapter plate DFAD17.

By removing the adaptor plate DFAD17, the clamp can be used for glass of 10+10 mm.

Art.	For glass	Quantity	Qty
<b>DF1721KIT6</b>	From 16.7 to 21.5 mm	6 clamps	1 Pc
<b>DF1721</b>	From 16.7 to 21.5 mm	1 clamp	1 Pc

This model of clamp is already configured for 10+10 panes of glass. It does not use the DFAD17 thickness adaptors.



Art.	For glass	Quantity	Qty
<b>DF2121KIT6</b>	From 20.7 to 21.5 mm	6 clamps	1 Pc
<b>DF2121</b>	From 20.7 to 21.5 mm	1 clamp	1 Pc

### 1 DEFENDER 810 THICKNESS ADAPTOR FOR DOUBLE-SIDED CLAMP

Material: POM



Art.	For glass	Quantity	Qty
<b>DFAD17</b>	From 16.7 to 17.5 mm		1 Pc



### SINGLE-SIDED ADJUSTABLE DEFENDER 810MR CLAMPS

Material: POM, Stainless steel

Clamp configured for glass 8+8 mm. It uses adaptor plate DFAD17MR.

By removing the adaptor plate DFAD17MR, the clamp can be used for glass of 10+10 mm.

Art.	For glass	Quantity	Qty
<b>DF1721MRKIT3</b>	From 16.7 to 21.5 mm	3 clamps	1 Pc
<b>DF1721MR</b>	From 16.7 to 21.5 mm	1 clamp	1 Pc

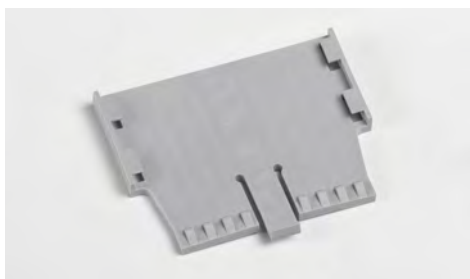
Clamp configured for 10+10 panes of glass. It does not use the adaptor DFAD17MR.



Art.	For glass	Quantity	Qty
<b>DF2121MRKIT3</b>	From 20.7 to 21.5 mm	3 clamps	1 Pc
<b>DF2121MR</b>	From 20.7 to 21.5 mm	1 clamp	1 Pc

### 1 DEFENDER 810MR THICKNESS ADAPTOR FOR SINGLE-SIDED CLAMP

Material: POM



Art.	For glass	Quantity	Qty
<b>DFAD17MR</b>	From 16.7 to 17.5 mm		1 Pc

### ADJUSTMENT TOOL DEFENDER 810MR FOR SINGLE-SIDED CLAMP

Material: POM



Art.	Quantity	Qty
<b>DFUT01</b>		1 Pc



**DEFENDER XP DOUBLE-SIDED ADJUSTABLE CLAMPS**

Material: POM, Grivory, Stainless steel

Art.	For glass	Quantity	Qty
<b>DFXP66KIT12</b>	From 12.7 to 13.5 mm	12 clamps	1 Pc
<b>DFXP15KIT12</b>	15 mm	12 clamps	1 Pc
<b>DFXP88KIT12</b>	From 16.7 to 17.5 mm	12 clamps	1 Pc
<b>DFXP135</b>	From 12.7 to 13.5 mm	1 clamp	1 Pc
<b>DFXP150</b>	15 mm	1 clamp	1 Pc
<b>DFXP175</b>	From 16.7 to 17.5 mm	1 clamp	1 Pc



**DEFENDER PICO SINGLE-SIDED CLAMPS**

Material: POM, Aluminium (DFP17) or Grivory, Stainless steel

Art.	For glass	Quantity	Qty
<b>DFP66KIT12</b>	From 12.7 to 13.5 mm	12 clamps	1 Pc
<b>DFP15KIT12</b>	15 mm	12 clamps	1 Pc
<b>DFP88KIT12</b>	From 16.7 to 17.5 mm	12 clamps	1 Pc
<b>DFP135</b>	From 12.7 to 13.5 mm	1 clamp	1 Pc
<b>DFP150</b>	15 mm	1 clamp	1 Pc
<b>DFP175</b>	From 16.7 to 17.5 mm	1 clamp	1 Pc



**DEFENDER 1212 DOUBLE-SIDED ADJUSTABLE CLAMPS WITH BLACK BALLOON GASKET**

Material: POM, Aluminium, Stainless steel, TPE

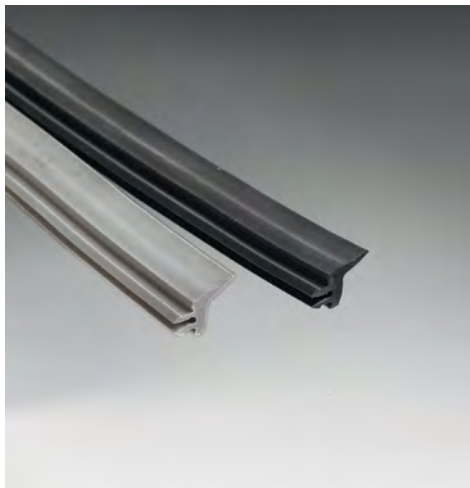
Art.	For glass	Quantity	Qty
<b>DF1212KIT12</b>	From 24.7 to 25.5 mm	12 clamps + 6 m of gasket	1 Pc



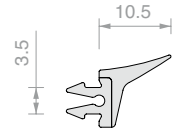
**DEFENDER 1212 DOUBLE-SIDED ADJUSTABLE CLAMP**

Material: POM, Aluminium, Stainless steel, TPE

Art.	For glass	Quantity	Qty
<b>DF1212255</b>	From 24.7 to 25.5 mm	1 clamp	1 Pc

**GASKET WITH SHORT LIP**

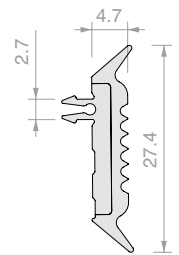
Material: TPE

Finish: **/6** /97

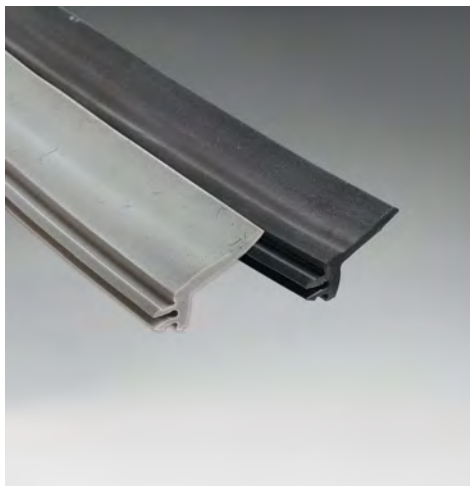
Art.	Package	Qty
<b>DFP88G01</b>		1 m
<b>DFP88G01.03</b>	3 m profile	1 Pc
<b>DFP88G01.60</b>	60 m roll	1 Pc

**FLAT GASKET**

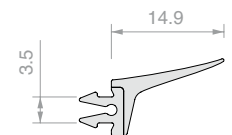
Material: TPE

Finish: **/6** /97

Art.	Package	Qty
<b>DFPG03</b>		1 m
<b>DFPG03.03</b>	3 m profile	1 Pc
<b>DFPG03.60</b>	60 m roll	1 Pc

**GASKET WITH LONG LIP**

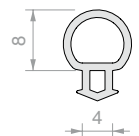
Material: TPE

Finish: **/6** /97

Art.	For glass	Package	Qty
<b>DFP15G01</b>	12.7 mm/13.5 mm/15 mm		1 m
<b>DFP15G01.03</b>	12.7 mm/13.5 mm/15 mm	3 m profile	1 Pc
<b>DFP15G01.60</b>	12.7 mm/13.5 mm/15 mm	60 m roll	1 Pc

**BALLOON GASKET**

Material: TPE

Finish: **/6** /56

Art.	For glass	Package	Qty
<b>DF1010</b>	From 16.7 to 25.5 mm		1 m
<b>DF1010.60</b>	From 16.7 to 25.5 mm	60 m roll	1 Pc



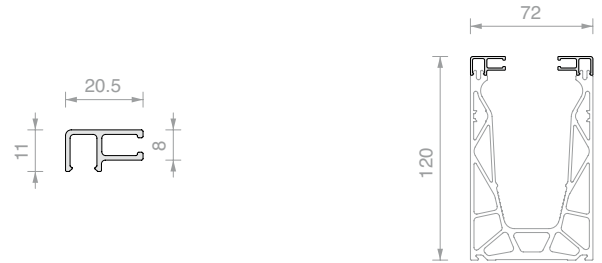


**SNAP-ON FINISHING PROFILE FOR DEFENDER 810**

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF100.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF100.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF100.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

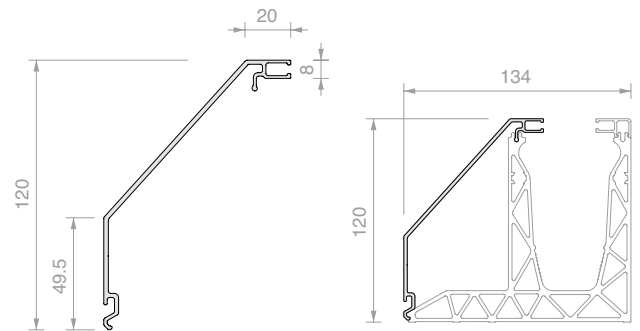


**INCLINED SNAP-ON FINISHING PROFILE WITH DRIP GUARD FOR DEFENDER 810DK**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DFDK07.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DFDK07.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DFDK07.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

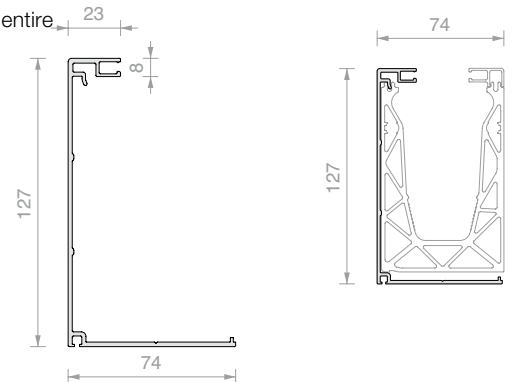


**SIDE AND LOWER FINISHING PROFILE WITH DRIP GUARD FOR DEFENDER 810FR, 810MF**

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DFS15.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DFS15.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DFS15.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

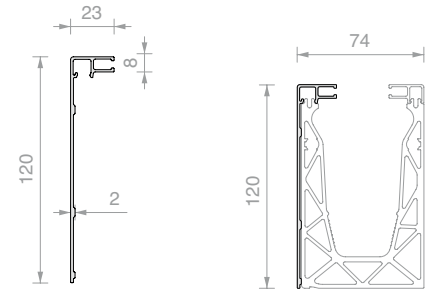


**SIDE SNAP-ON FINISHING PROFILE FOR THE DEFENDER 810 RANGE**

Material: Aluminium

Finish:  /6  /10  /88  /97  /RAL

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DFS03.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DFS03.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DFS03.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

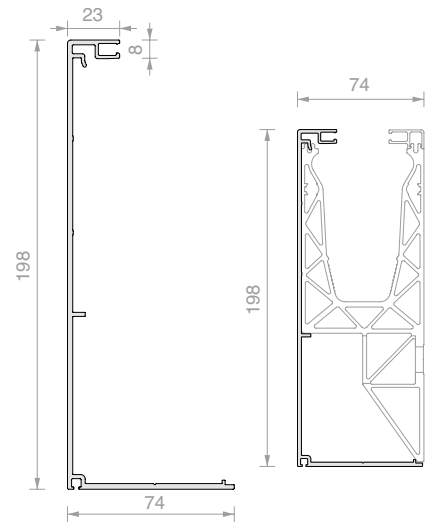


**SIDE AND LOWER SNAP-ON FINISHING PROFILE WITH DRIP GUARD FOR DEFENDER 810SP**

Material: Aluminium

Finish:  /97

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DFS17.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DFS17.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DFS17.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

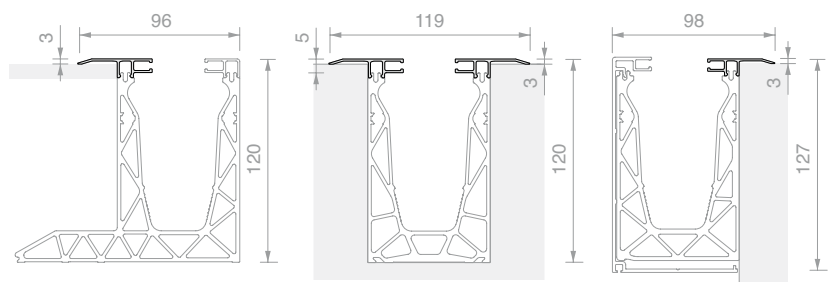
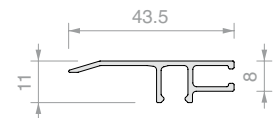


**SNAP-ON THRESHOLD FINISHING PROFILE FOR DEFENDER 810**

Material: Aluminium

Finish:  /6  /10  /88  /97  /RAL

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF101.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF101.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF101.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

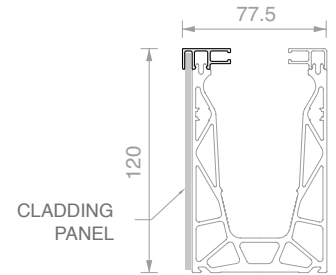
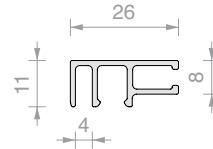


**SNAP-ON FINISHING PROFILE FOR FRONT 4 MM CLADDING INSERTION FOR DEFENDER 810**

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF204.60</b>	<b>6000 mm</b>	1 Pc
<b>DF204.30</b>	<b>3000 mm</b>	1 Pc
<b>DF204.15</b>	<b>1498 mm</b>	1 Pc

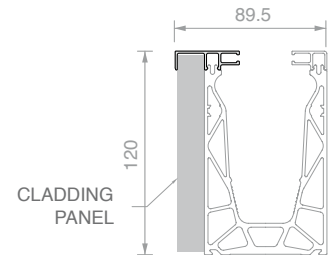
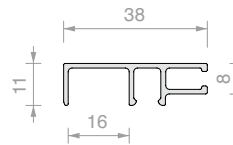


**SNAP-ON FINISHING PROFILE FOR FRONT 16 MM CLADDING INSERTION FOR DEFENDER 810**

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF216.60</b>	<b>6000 mm</b>	1 Pc
<b>DF216.30</b>	<b>3000 mm</b>	1 Pc
<b>DF216.15</b>	<b>1498 mm</b>	1 Pc

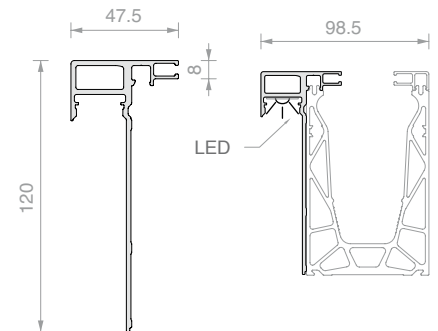


**FRONT SNAP-ON FINISHING PROFILE FOR INSERTING LEDS FOR DEFENDER 810**

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

**Note:** Supplied with 2 self-drilling screws Art. PENLVIT  
For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF147L.60</b>	<b>6000 mm</b>	1 Pc
<b>DF147L.30</b>	<b>3000 mm</b>	1 Pc
<b>DF147L.15</b>	<b>1498 mm</b>	1 Pc



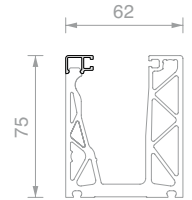
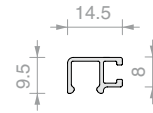


### UPPER SNAP-ON FINISHING PROFILE FOR DEFENDER XP / PICO

Material: Aluminium

Finish: **/6** /10 /88 /97 /RAL

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DFP100.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DFP100.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DFP100.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

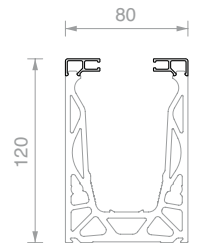
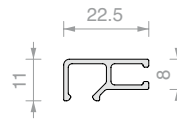


### SNAP-ON FINISHING PROFILE FOR DEFENDER 1212

Material: Aluminium

Finish: **/97**

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF105.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF105.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF105.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

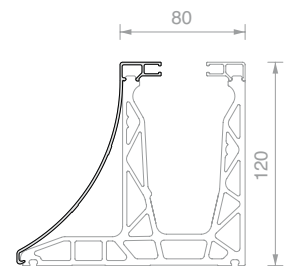
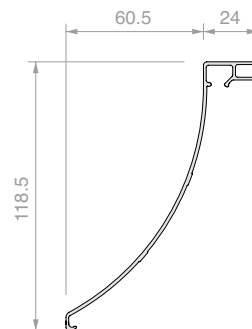


### INCLINED SNAP-ON FINISHING PROFILE FOR DEFENDER 1212DK

Material: Aluminium

Finish: **/97**

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DFDK05.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DFDK05.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DFDK05.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

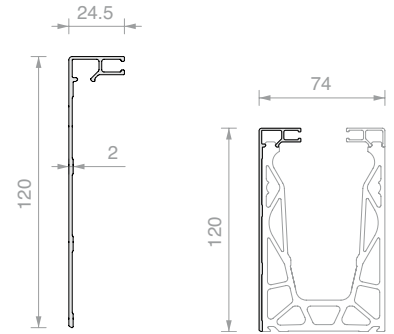


**SNAP-ON SIDE FINISHING PROFILE FOR DEFENDER 1212**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF8803.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF8803.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF8803.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

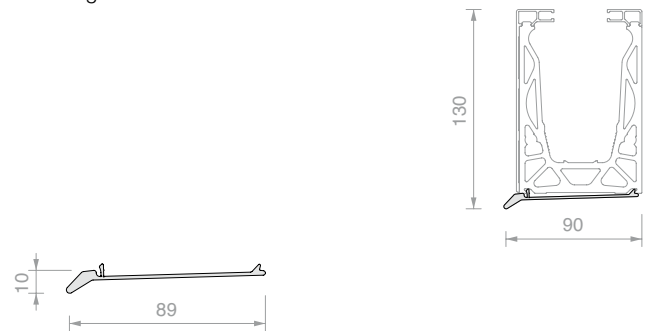


**LOWER SNAP-ON FINISHING PROFILE WITH DRIP GUARD FOR DEFENDER 1212FR**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DFS09.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DFS09.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DFS09.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

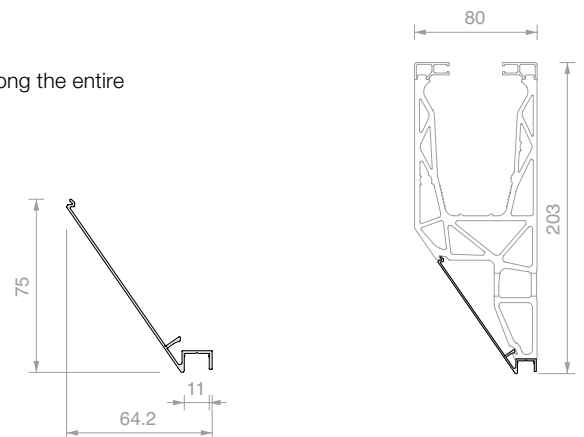


**LOWER SNAP-ON FINISHING PROFILE FOR DEFENDER 1212SP**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DFS11.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DFS11.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DFS11.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

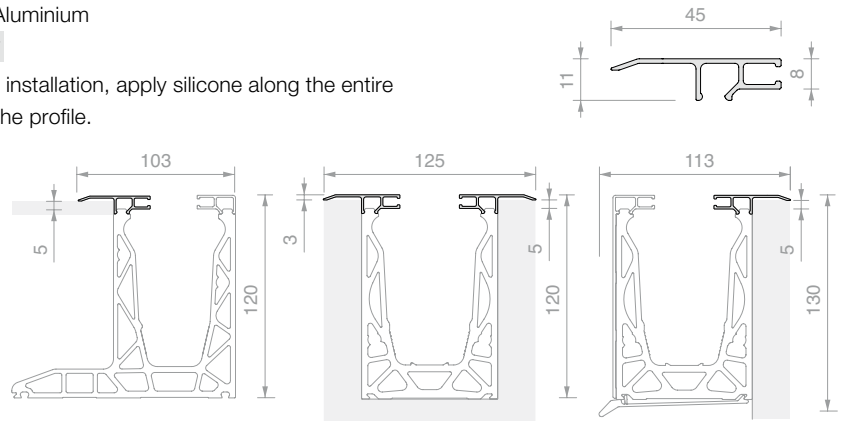


**SNAP-ON THRESHOLD FINISHING PROFILE FOR DEFENDER 1212**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF8801.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF8801.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF8801.15</b>	<b>1498 mm</b>	<b>1 Pc</b>



**SNAP-ON FINISHING PROFILE FOR FRONT 4 MM CLADDING INSERTION FOR DEFENDER 1212**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF104.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF104.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF104.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

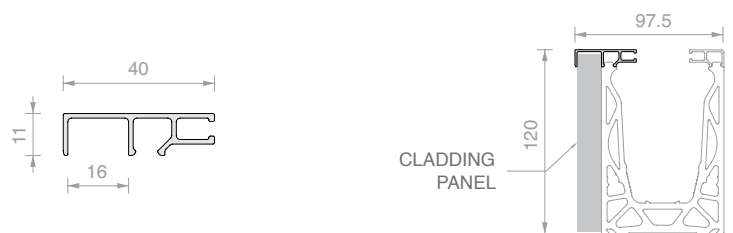


**SNAP-ON FINISHING PROFILE FOR FRONT 16 MM CLADDING INSERTION FOR DEFENDER 1212**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone along the entire length of the profile.



Art.	Length	Qty
<b>DF116.60</b>	<b>6000 mm</b>	<b>1 Pc</b>
<b>DF116.30</b>	<b>3000 mm</b>	<b>1 Pc</b>
<b>DF116.15</b>	<b>1498 mm</b>	<b>1 Pc</b>

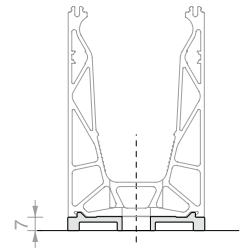
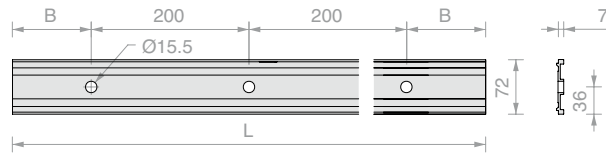




**WATER DRAINAGE PROFILE FOR DEFENDER 810LM / 810MR**

Material: Aluminium

Finish: /10 /88 /97



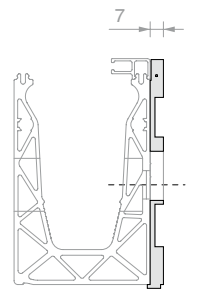
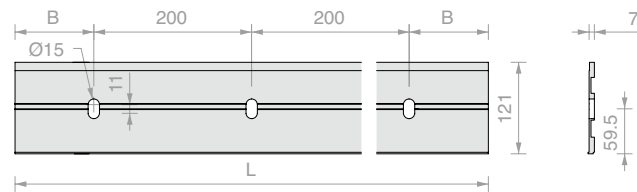
Art.	L	B	No. of holes	Qty
<b>DFA7260</b>	<b>6000 mm</b>	<b>100 mm</b>	<b>30</b>	<b>1 Pc</b>
<b>DFA7230</b>	<b>3000 mm</b>	<b>100 mm</b>	<b>15</b>	<b>1 Pc</b>
<b>DFA72054</b>	<b>540 mm</b>	<b>70 mm</b>	<b>3</b>	<b>1 Pc</b>



**WATER DRAINAGE PROFILE FOR DEFENDER 810FR / 810MF / 1212FR**

Material: Aluminium

Finish: /10 /88 /97



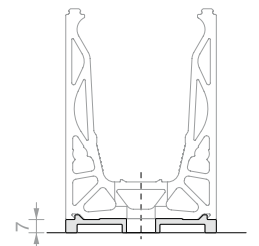
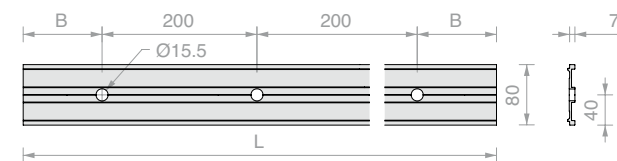
Art.	L	B	No. of slots	Qty
<b>DFSA12160</b>	<b>6000 mm</b>	<b>100 mm</b>	<b>30</b>	<b>1 Pc</b>
<b>DFSA12130</b>	<b>3000 mm</b>	<b>100 mm</b>	<b>15</b>	<b>1 Pc</b>
<b>DFSA121054</b>	<b>540 mm</b>	<b>70 mm</b>	<b>3</b>	<b>1 Pc</b>



**WATER DRAINAGE PROFILE FOR DEFENDER 1212LM**

Material: Aluminium

Finish: /97



Art.	L	B	No. of holes	Qty
<b>DFA8060</b>	<b>6000 mm</b>	<b>100 mm</b>	<b>30</b>	<b>1 Pc</b>
<b>DFA8030</b>	<b>3000 mm</b>	<b>100 mm</b>	<b>15</b>	<b>1 Pc</b>
<b>DFA80054</b>	<b>540 mm</b>	<b>70 mm</b>	<b>3</b>	<b>1 Pc</b>



A



B



C

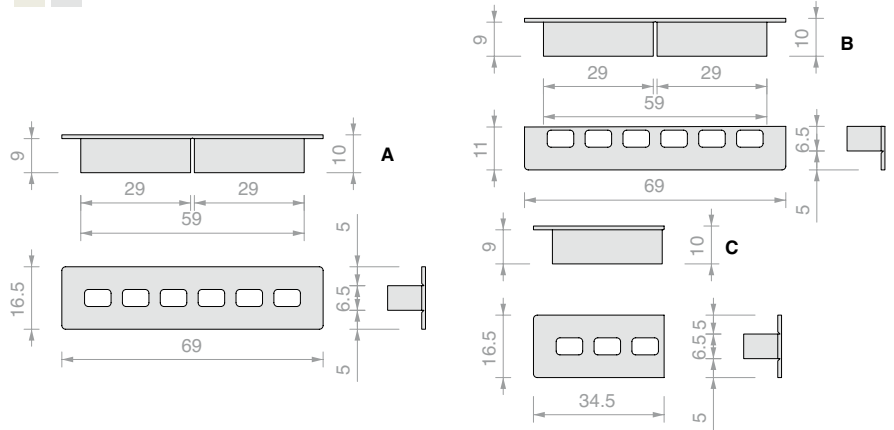
**GRATE FOR WATER DRAINAGE PROFILES FOR DEFENDER**

Material: POM

Grate for DFA and DFSA profiles to stop detritus carried by draining water.

Adaptable to the three sizes A, B, C.

Finish: /88 /97



Art.

**DFGD**

Qty

1 Pc



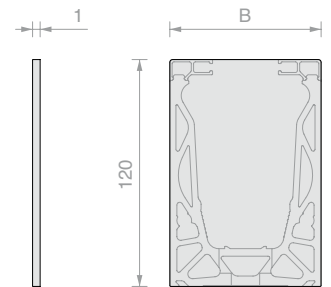
**CLOSED END CAP**

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

Finish: /97 \*

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.

**DF12072AL**

B

72 mm

For profiles

DF810LM - DF810MR

Qty

1 Pc

**DF12080AL \***

80 mm

DF1212LM

1 Pc



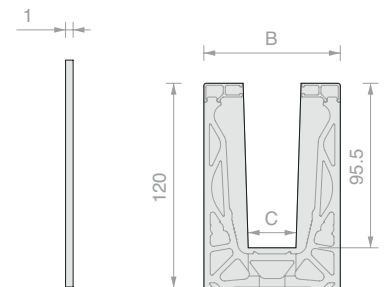
**END CAP WITH V-SHAPED OPENING**

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

Finish: /97 \*

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.

**DF2TPAL**

B

72 mm

C

24 mm

For profiles

DF810LM - DF810MR

Qty

1 Pc

**DF4TPAL \***

80 mm

28 mm

DF1212LM

1 Pc



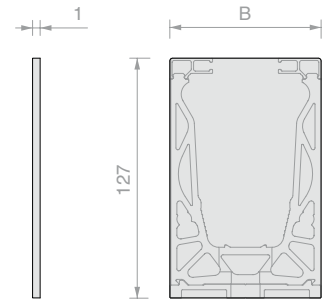
**CLOSED END CAP FOR PROFILE WITH DFA**

Material: Aluminium

Finish: /10 /88 /97

Finish: /97 \*

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	B	For profiles	Qty
<b>DF12772AL</b>	72 mm	DF810LM - DF810MR	1 Pc
<b>DF12780AL*</b>	80 mm	DF1212LM	1 Pc



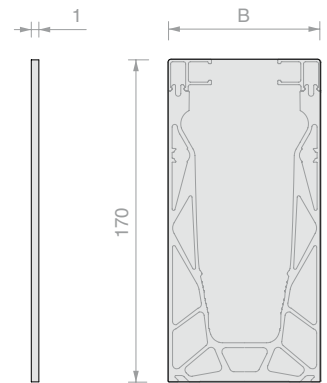
**CLOSED END CAP FOR INCLINED INSTALLATION**

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

Finish: /97 \*

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	B	For profiles	Qty
<b>DF17072AL</b>	72 mm	DF810LM - DF810MR	1 Pc
<b>DF17080AL *</b>	80 mm	DF1212LM	1 Pc

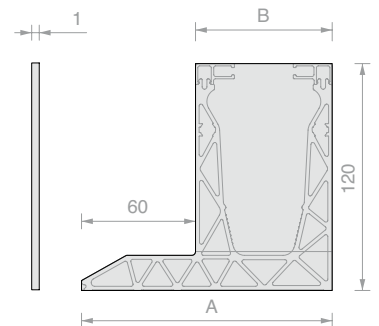


**CLOSED END CAP**

Material: Aluminium

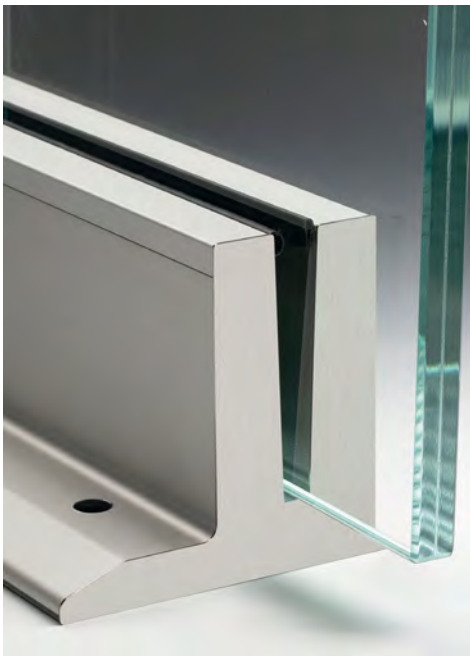
Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	A	B	For profiles	Qty
<b>DFDKTP08AL</b>	132 mm	72 mm	DF810DK	1 Pc
<b>DFDKTP17AL</b>	140 mm	80 mm	DF1212DK	1 Pc



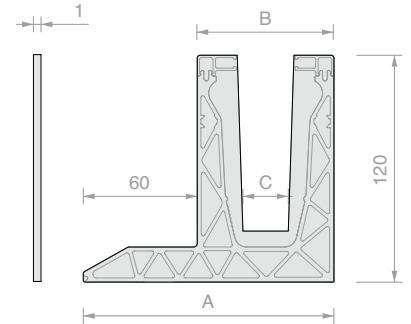


**END CAP WITH V-SHAPED OPENING**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	A	B	C	For profiles	Qty
<b>DFDKTP10AL</b>	<b>132 mm</b>	<b>72 mm</b>	<b>24 mm</b>	DF810DK	1 Pc
<b>DFDKTP21AL</b>	<b>140 mm</b>	<b>80 mm</b>	<b>28 mm</b>	DF1212DK	1 Pc

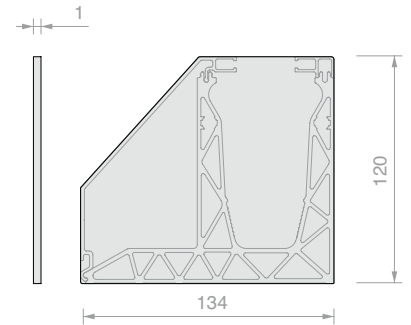


**CLOSED END CAP FOR PROFILE WITH DFDK07**

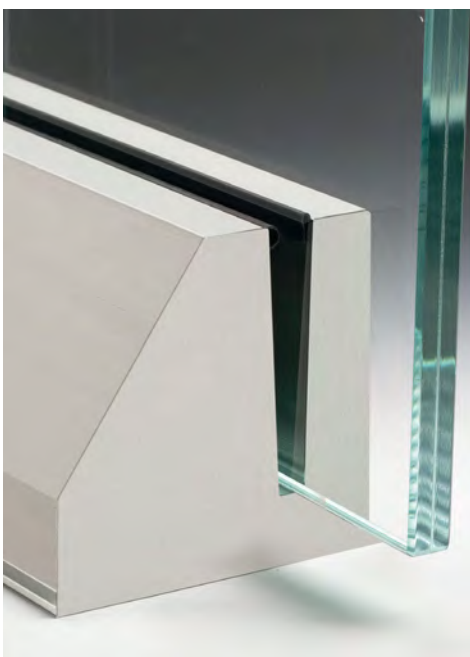
Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	For profiles	Qty
<b>DFDKTP29AL</b>	DF810DK	1 Pc

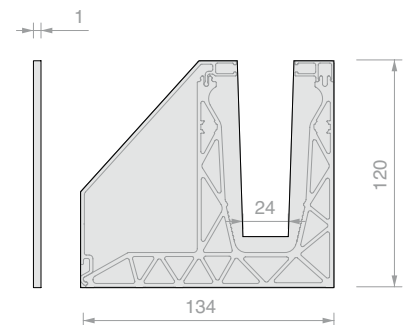


**END CAP WITH V-SHAPED OPENING FOR PROFILE WITH DFDK07**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	For profiles	Qty
<b>DFDKTP31AL</b>	DF810DK	1 Pc

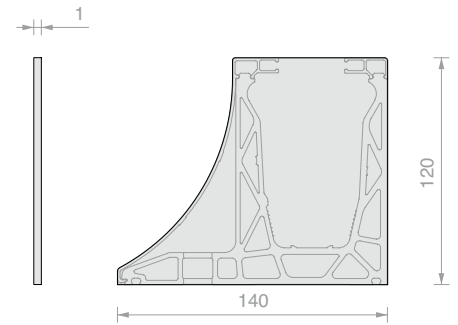


**CLOSED END CAP FOR PROFILE WITH DFDK05**

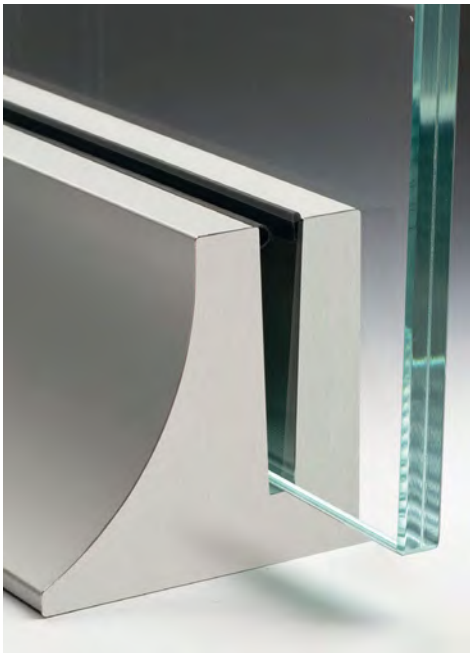
Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	For profiles	Qty
<b>DFDKTP23AL</b>	DF1212DK	1 Pc

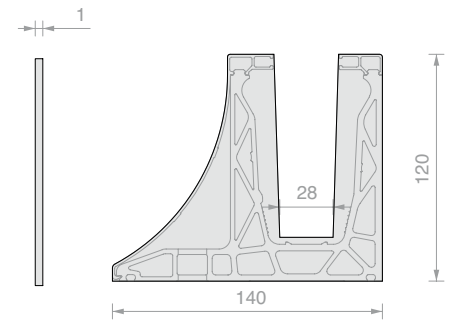


**END CAP WITH V-SHAPED OPENING FOR PROFILE DKFDK05**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	For profiles	Qty
<b>DFDKTP27AL</b>	DF1212DK	1 Pc

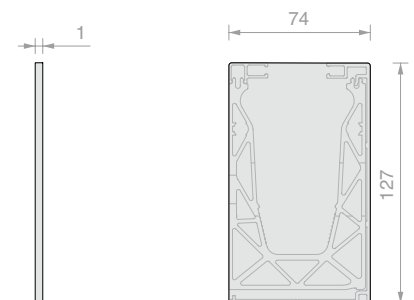


**CLOSED END CAP**

Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

**Note:** For installation, apply silicone to the entire surface of the cap.

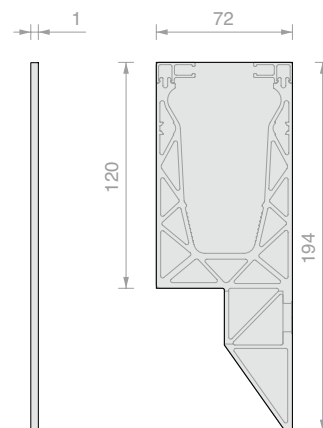
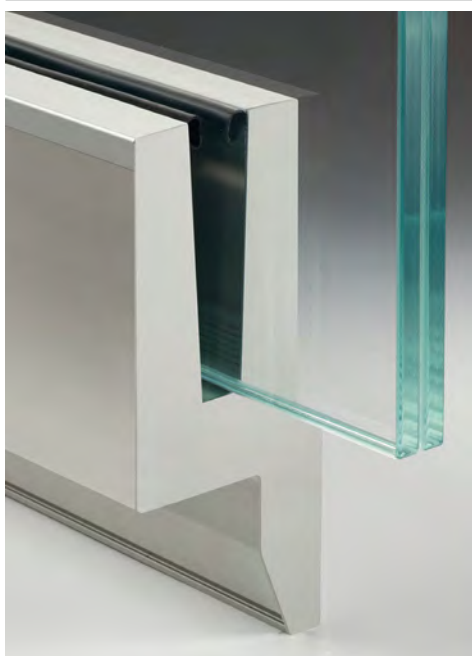


Art.	For profiles	Qty
<b>DF12774AL</b>	DF810FR	1 Pc

**CLOSED END CAP**

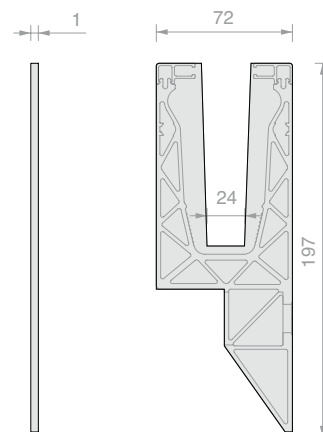
Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.Art.  
**DFSPTP08AL**For profiles  
DF810SPQty  
1 Pc**END CAP WITH V-SHAPED OPENING**

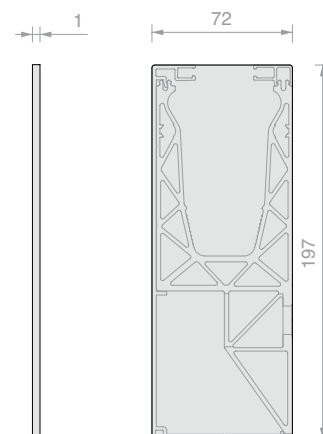
Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.Art.  
**DFSPTP10AL**For profiles  
DF810SPQty  
1 Pc**CLOSED END CAP FOR PROFILE WITH DFS17**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.Art.  
**DFSPTP12AL**For profiles  
DF810SPQty  
1 Pc



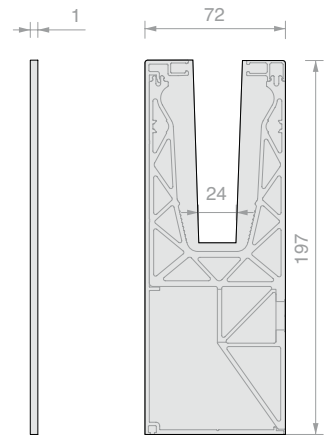


**END CAP WITH V-SHAPED OPENING FOR PROFILE WITH DFS17**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	For profiles	Qty
<b>DFSPTP14AL</b>	DF810SP	1 Pc

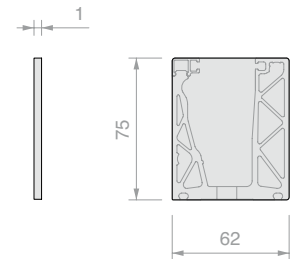


**CLOSED END CAP**

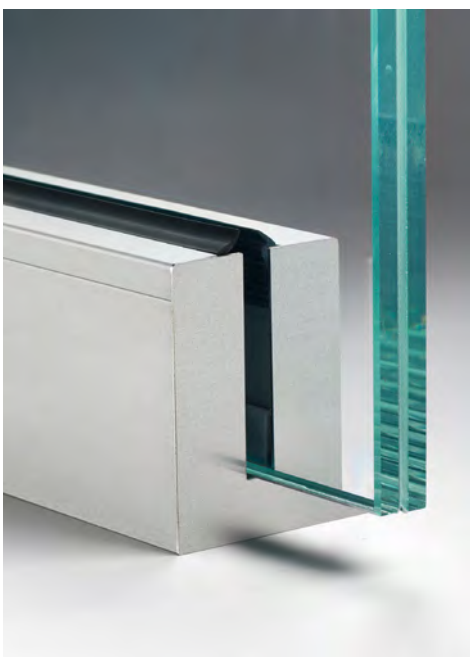
Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

**Note:** For installation, apply silicone to the entire surface of the cap.



Art.	For profiles	Qty
<b>DFP7562AL</b>	DFP88 - DFXP88	1 Pc

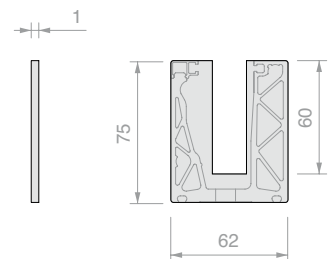


**END CAP WITH U-SHAPED OPENING**

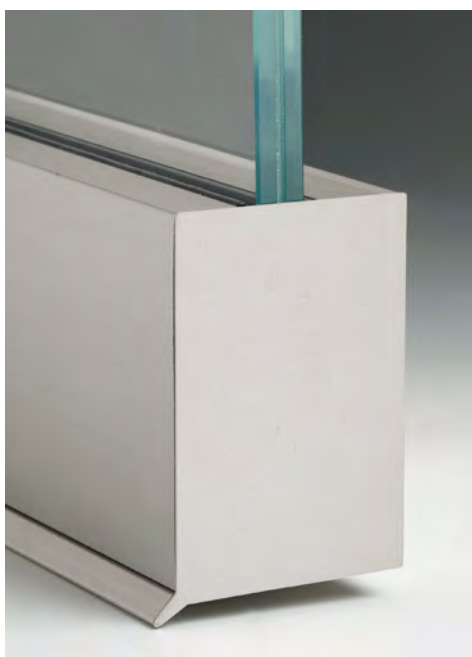
Material: Aluminium

Finish: /6 /10 /88 /97 /RAL

**Note:** For installation, apply silicone to the entire surface of the cap.

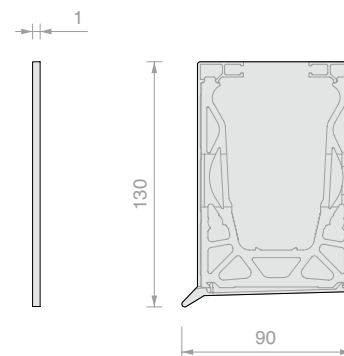
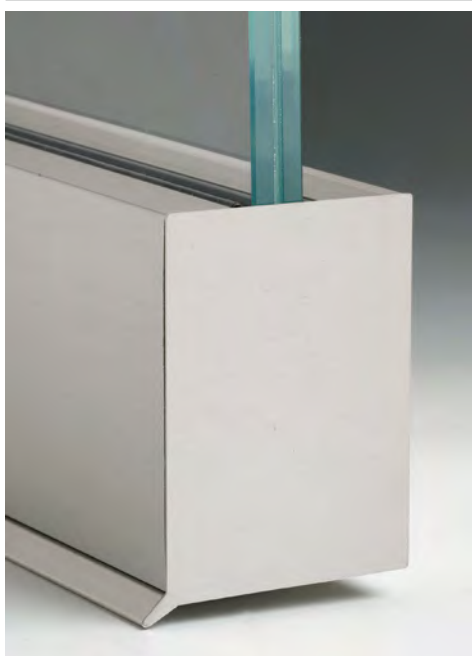


Art.	For profiles	Qty
<b>DFP7562UAL</b>	DFP88 - DFXP88	1 Pc

**CLOSED END CAP**

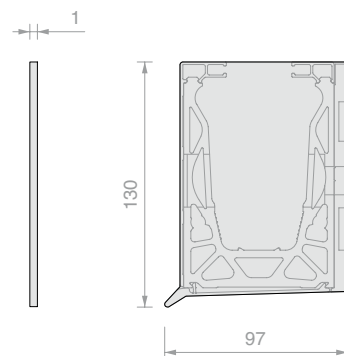
Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.Art.  
**DFS13083AL**For profiles  
DF1012FRQty  
1 Pc**CLOSED END CAP WITH PROFILE DFSA**

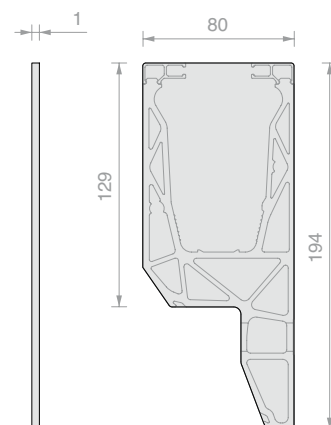
Material: Aluminium

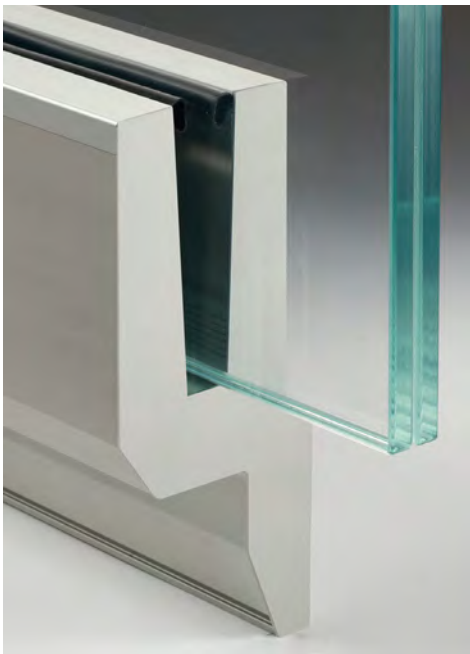
Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.Art.  
**DFS13090AL**For profiles  
DF1012FRQty  
1 Pc**CLOSED END CAP**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.Art.  
**DFSPTP17AL**For profiles  
DF1012SPQty  
1 Pc

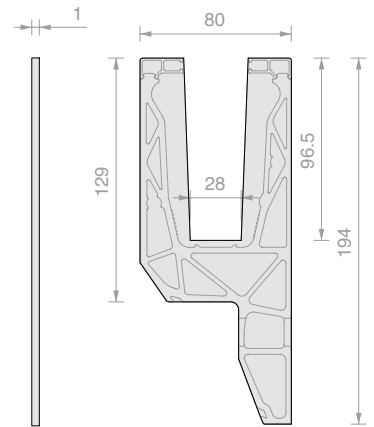


**END CAP WITH V-SHAPED OPENING**

Material: Aluminium

Finish: /97

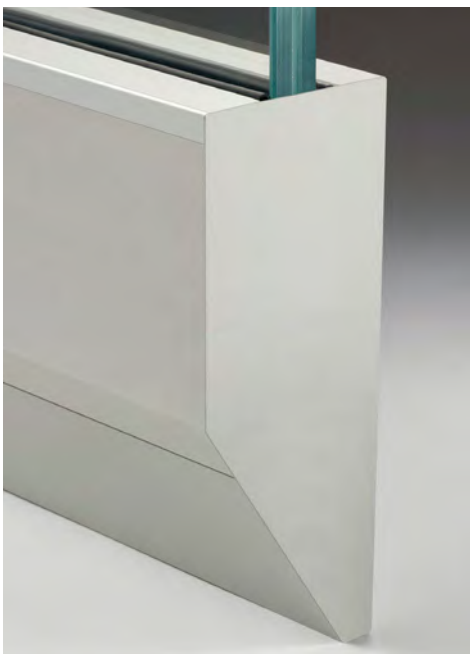
**Note:** For installation, apply silicone to the entire surface of the cap.



Art. **DFSP21AL**

For profiles  
DF1012SP

Qty  
1 Pc

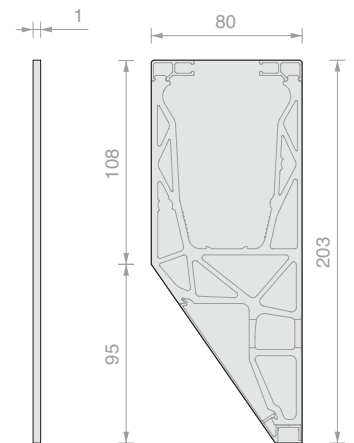


**CLOSED END CAP FOR PROFILE WITH DFS11**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.



Art. **DFSP23AL**

For profiles  
DF1012SP

Qty  
1 Pc

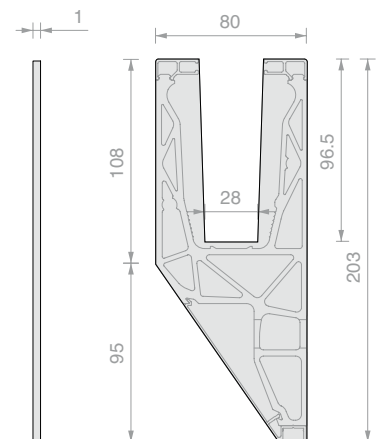


**END CAP WITH V-SHAPED OPENING FOR PROFILE WITH DFS11**

Material: Aluminium

Finish: /97

**Note:** For installation, apply silicone to the entire surface of the cap.



Art. **DFSP27AL**

For profiles  
DF1012SP

Qty  
1 Pc

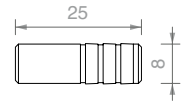
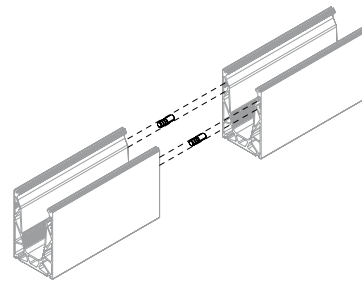






**2 IN-LINE CENTRING PINS**

Material: Aluminium  
Finish: aluminium



Art.

**DF25**

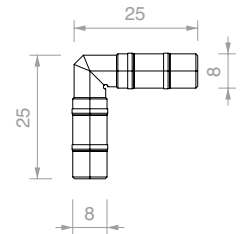
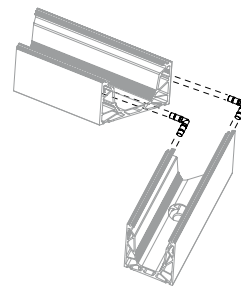
Qty

1 Pc



**2 X 90° CENTRING PINS**

Material: Grivory®  
Finish: black



Art.

**DF2525**

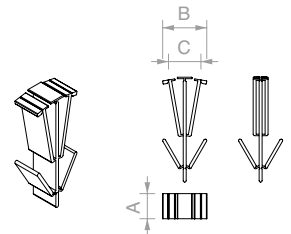
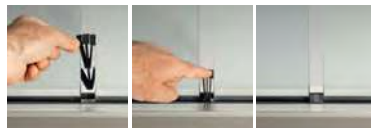
Qty

1 Pc



**EXPANDABLE COVER CAP FOR DFXP88/DFP88 PROFILES**

Material: POM  
Finishes: black, grey



Art.

**DFP88TEC**

B

18/26 mm

C

10/18.5 mm

For glass – A

17.5 mm

Finishes

Black

Qty

1 Pc

**DFP88TECG**

18/26 mm

10/18.5 mm

17.5 mm

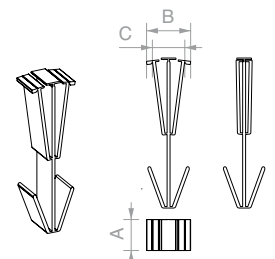
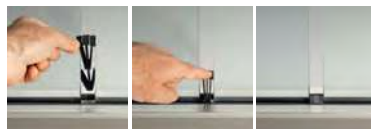
Grey

1 Pc



**EXPANDABLE COVER CAP FOR DF810/DF1212 PROFILES**

Material: POM  
Finishes: black, grey



Art.

**DFTEC88**

B

18/26 mm

C

10/18.5 mm

For glass – A

17.5 mm

Finishes

Black

Qty

1 Pc

**DFTEC88G**

18/26 mm

10/18.5 mm

17.5 mm

Grey

1 Pc

**DFTEC1010**

18/26 mm

10/18.5 mm

21.5 mm

Black

1 Pc

**DFTEC1010G**

18/26 mm

10/18.5 mm

21.5 mm

Grey

1 Pc

**DFTEC1212**

18/26 mm

10/18.5 mm

25.5 mm

Black

1 Pc

**DFTEC1212G**

18/26 mm

10/18.5 mm

25.5 mm

Grey

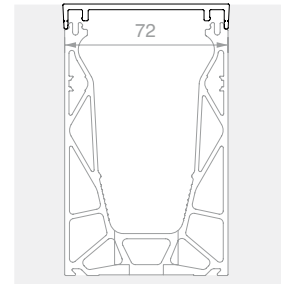
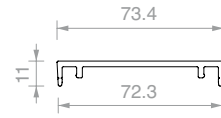
1 Pc



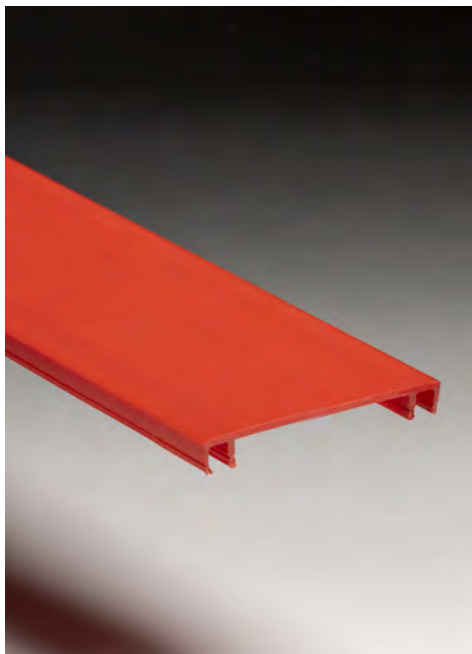


**TEMPORARY CLOSING PROFILE**

Material: PVC

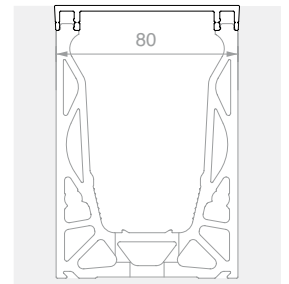
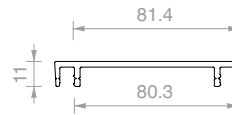


Art.	Length	For profiles	Qty
<b>DFCLS72.30</b>	<b>3000 mm</b>	DF810LM - DF810FR - DF810MF - DF810DK - DF810SP	1 Pc

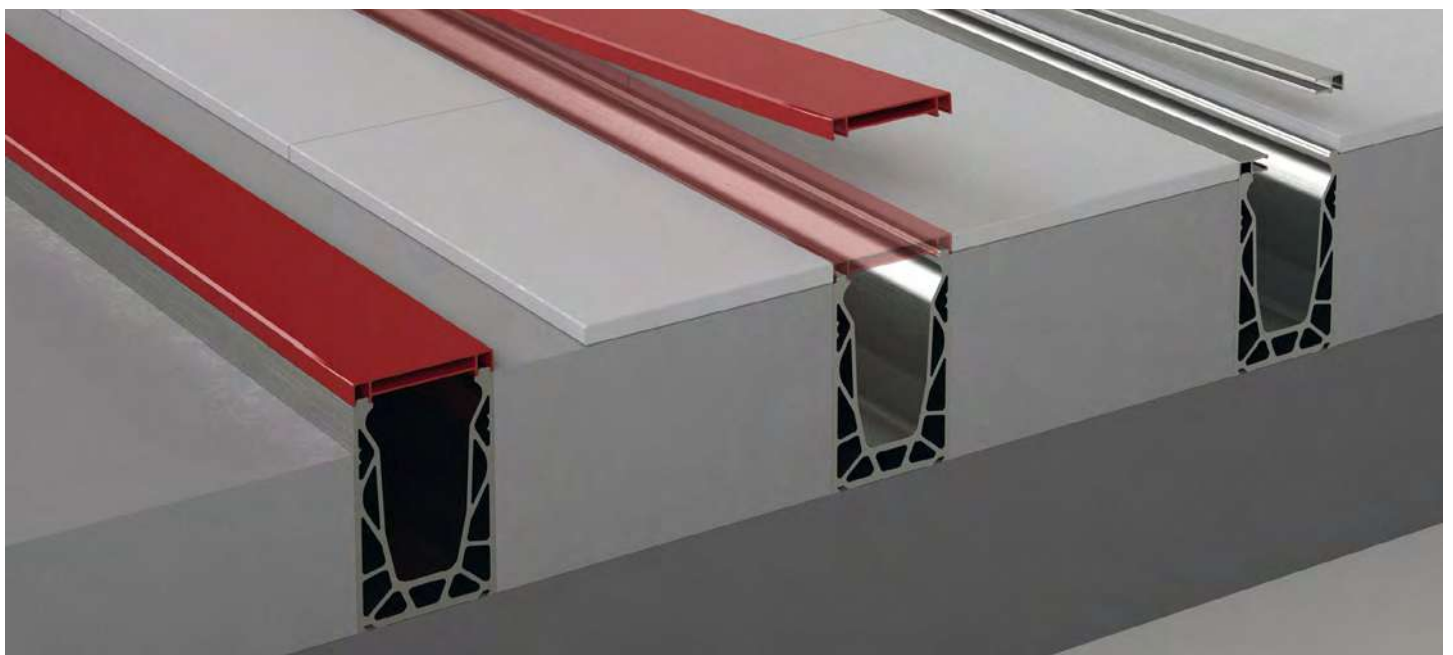


**TEMPORARY CLOSING PROFILE**

Material: PVC



Art.	Length	For profiles	Qty
<b>DFCLS80.30</b>	<b>3000 mm</b>	DF1012LM - DF1012FR - DF1012DK - DF1012SP	1 Pc







**FLEXIBLE SCREWDRIVER WITH CH5 INSERT**

Art.	Qty
<b>DFFLEX03</b>	1 Pc



**MAKITA GUN SCREWDRIVER**

Dual speed - Clutch release - LED lighting - Reversible  
**TIGHTENING TORQUE = 2.9 Nm**

Art.	Qty
<b>DFMAK21</b>	1 Pc



**FLEXIBLE EXTENSION FOR SCREWDRIVER**

May be used in combination with MAKITA screwdriver Art. DFMAK21 or similar

Art.	Description	Qty
<b>DFFLEX01</b>	Flexible extension with CH5 hexagonal insert	1 Pc
<b>DFFLEX05</b>	CH5 hexagonal insert	1 Pc



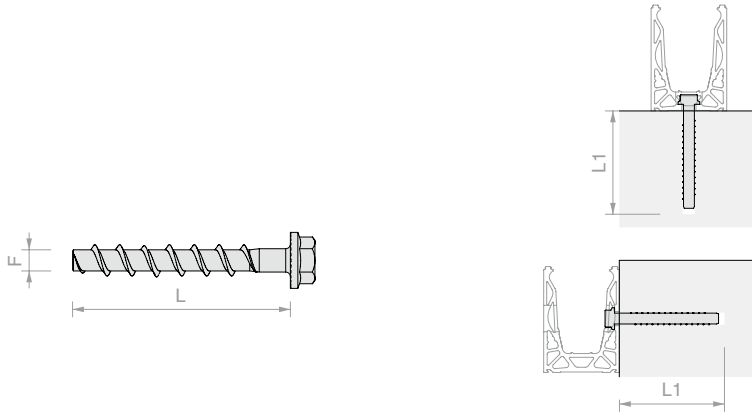
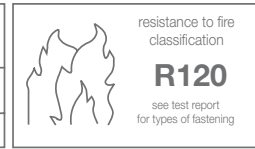
**CALCULATION AND CUTTING**

Custom inclined cut (22°–89°)

Art.	Description	Qty
<b>DFTAGLIO</b>	Custom inclined cut (22°–89°)	1 Pc
<b>DFTAG90</b>	Straight cut	1 Pc

**CONCRETE ANCHORS  
FOR DF810/DF1012 PROFILES**

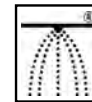
Material: Galvanised steel/A4 stainless steel  
 Properties: High-performance concrete anchor with  
 C20/25 to C50/60 resistance class,  
 fissured and non-fissured.  
**Package: 15 Pcs**



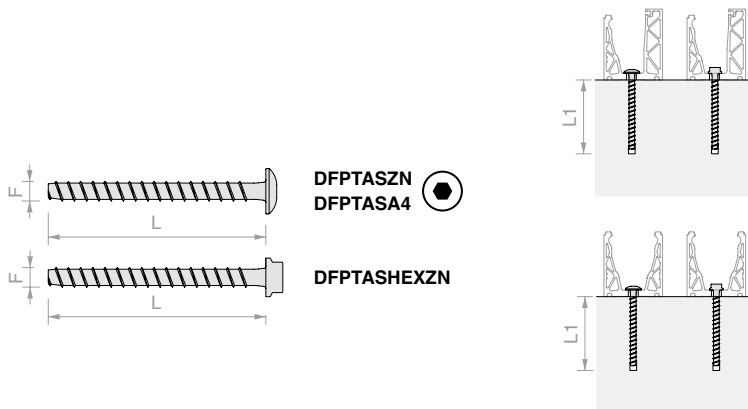
Art.	L - anchor length	F - Hole Ø	L1 - Hole depth	Tightening wrench	Material	Qty
<b>DFFH10ZN</b>	100 mm	10 mm	110 mm	<b>SW16</b>	Galvanised steel	1 Pc
<b>DFFH10A4</b>	100 mm	10 mm	110 mm	<b>SW16</b>	Stainless steel A4	1 Pc
<b>DFFH12ZN</b>	110 mm	12 mm	120 mm	<b>SW17</b>	Galvanised steel	1 Pc
<b>DFFH12A4</b>	110 mm	12 mm	120 mm	<b>SW17</b>	Stainless steel A4	1 Pc

**CONCRETE ANCHORS  
FOR DFXP/DFPICO PROFILES**

Material: Galvanised steel/A4 stainless steel  
 Properties: High-performance concrete anchor with  
 C20/25 to C50/60 resistance class,  
 fissured and non-fissured.  
**Package: 15 Pcs**

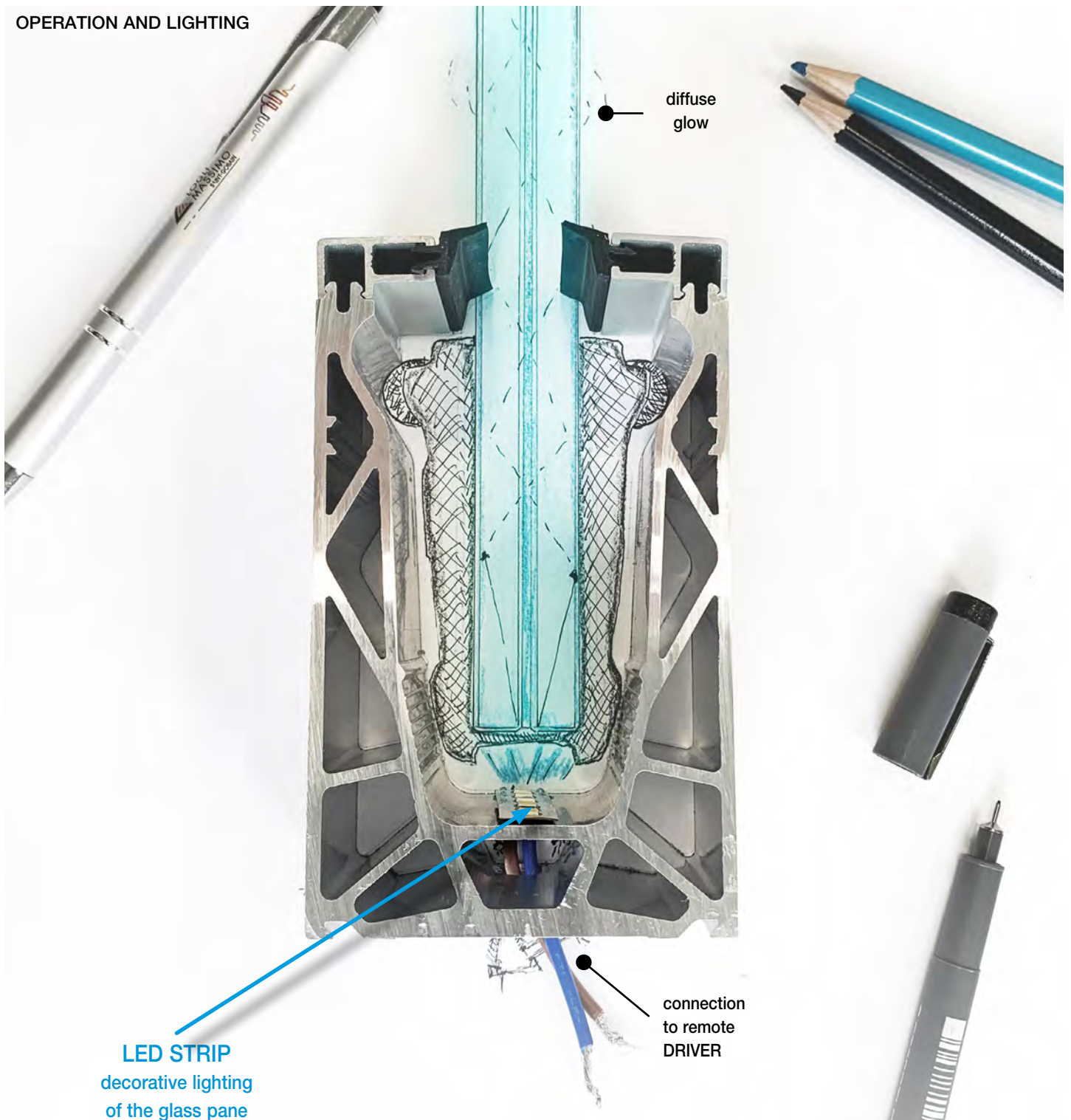


ETA homology Option 1  
 Certified double anchoring depth  
 AbZ homology for fixings in fresh concrete  
 R120 fire certification, even for masonry



Art.	L - anchor length	F - Hole Ø	L1 - Hole depth	Tightening wrench	Material	Qty
<b>DFPTASZN</b>	80 mm	6 mm	90 mm	<b>TORX T-30</b>	Galvanised steel	1 Pc
<b>DFPTASA4</b>	90 mm	6 mm	100 mm	<b>TORX T-30</b>	Stainless steel A4	1 Pc
<b>DFPTASHEXZN</b>	80 mm	6 mm	90 mm	<b>SW10</b>	Galvanised steel	1 Pc

## OPERATION AND LIGHTING



For LED STRIP applications which are longer than 5 m, it is recommended to use multiple power supplies to reduce the effects of natural voltage drops. Applications with multiple branch circuits are possible with suitably sized DRIVERS.

Where appropriate, it is recommended to apply an outdoor use silicone to properly protect the cables from the weather.

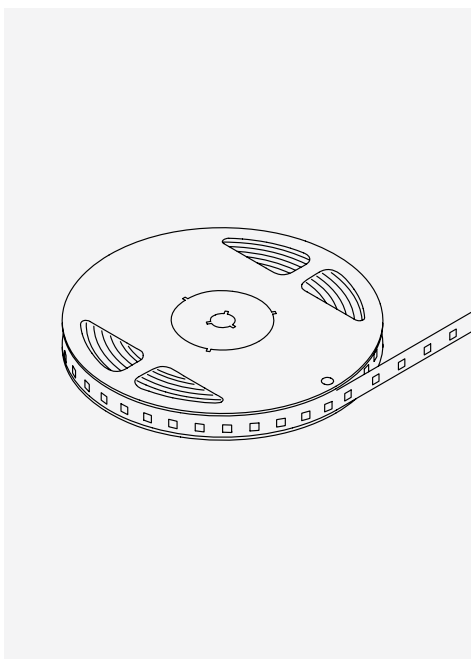
It is recommended to contact a qualified electrician to connect the LED STRIP to the mains.

**LED STRIP: decorative lighting for the glass pane (recommended LEDST001)**

The effect of decorative lighting on glass can highlight defects on the surface or inside the panes of glass, due to the glow of the lights. These defects tend to become more evident with increasing light intensity. Pay close attention during the production of the panes of glass and use only medium brightness LED STRIPS.

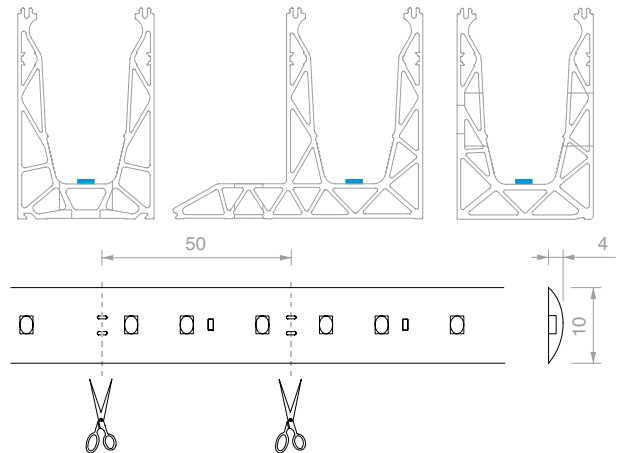
Check the operation of each LED STRIP before proceeding with installation.



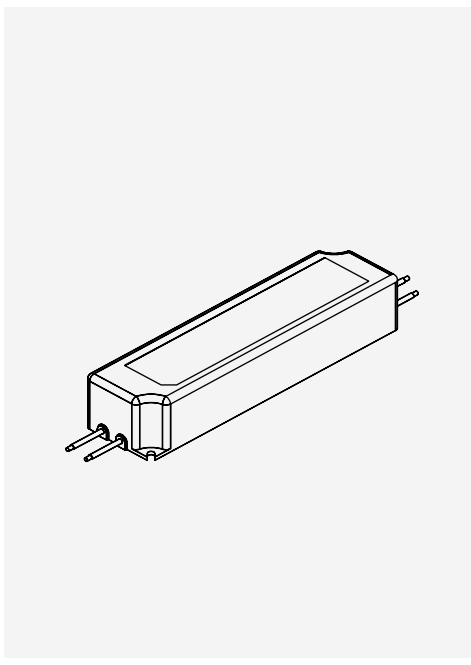


**LED STRIP IP66**

Also suitable for outdoor use  
 Input: 24V DC, Power 9.6 W/m  
 L = 5000 mm - 140 LED/m - lm/m 922 - lm/W 96  
 CCT 4000K



Art.	Description	Length	Qty
<b>LEDST001</b>	LED STRIP 24 V IP67 9.6 W/m 140 LED/m	<b>5000 mm</b>	<b>1 Pc</b>



**POWER SUPPLY 24V DC IP67**

Also suitable for outdoor use  
 Input: 100–240 VAC  
 Output: 24V DC, Power 35W, 60W, 100W, 150W  
 IN/OUT cables - Protection class II



Art.	Description	H	B	L	Qty
<b>LED24035IP</b>	24 VDC 35 W IP67	<b>30 mm</b>	<b>40 mm</b>	<b>150 mm</b>	<b>1 Pc</b>
<b>LED24060IP</b>	24 VDC 60 W IP67	<b>32 mm</b>	<b>42 mm</b>	<b>162 mm</b>	<b>1 Pc</b>
<b>LED24100IP</b>	24 VDC 100 W IP67	<b>37 mm</b>	<b>52 mm</b>	<b>190 mm</b>	<b>1 Pc</b>
<b>LED24150IP</b>	24 VDC 150 W IP67	<b>38 mm</b>	<b>68 mm</b>	<b>222 mm</b>	<b>1 Pc</b>

- Pay attention to the polarity of the products.
- Only use stabilised 24V DC power supplies.
- After having calculated the total power draw of the devices to be installed, select a power supply unit which always has a load margin of more than 15/20% over the calculated load.
- During maintenance, disconnect the power supply.

**Connect multiple devices in parallel:**

to avoid damaging the LEDs, make all connections before powering on  
 Max. continuous length 5 metres.

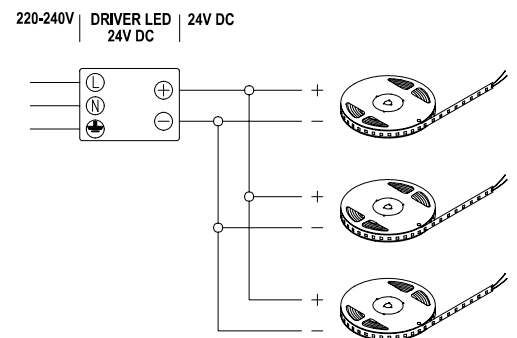
**Example:** Length of STRIP 3 m

Type LED STRIP 1 24 V DC MAX 9.6 W/m (Art. LEDST001)

**Choosing the power supply unit DRIVER:** LED type absorption x LED length + 15%  
 (minimum increase due to voltage drop)  $9.6 \times 3 \times 1.15 = 33.15 \text{ W (MIN)}$ .

The power supply DRIVER to select: 24V DC 35 W LED24035IP

**Full list of articles:** LEDST001 1 Pc - LED24035IP 1 Pc











# DEFENDER systems

## Sizing tables

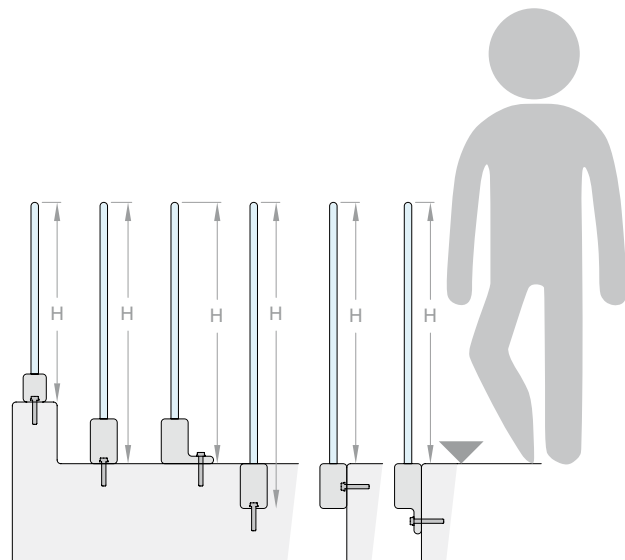
The following pages provide useful information, an extract of the state of the art following the documentation and experience of our company. This information is provided to facilitate the selection of the most adequate construction system and its sizing, presenting a range of technical alternatives allowed according to the standards and usage classes envisaged in different situations.

The descriptions in the tables are a simplified, summary representation of the required principles. The designer must therefore refer to the integral text of the standards for more details and in-depth information. The assessment regarding compliance of the system with the overall safety requirements is performed by the qualified technician in charge of the installation. The technician will verify the applicability of the results to the installation conditions (system loads and pressures, support characteristics, temperature effects, geometry of the panes and profiles, type and sizing of anchors, etc.).

For more information and documentation, visit [www.sg-logli.it](http://www.sg-logli.it) or contact the Logli technical office.

As of publication, a harmonised European standard is not available. Technical requirements and project criteria differ from country to country, where applicable national standards must be respected. Depending on these differences, the solutions suggested may be determined through experimental tests or numerical calculations. It is therefore not surprising that the feasible technical solutions are not the same between countries, even under the same conditions and for the same intended use.

**Reference protection height H depending on the type of system**



**Legend, tables pages 160–170:**

types of glass:

F – pane of float glass EN 572

I – pane of hardened glass EN 1863

T – pane of tempered glass EN 12150

TH – pane of tempered glass with 'heat soak test' EN 14179

<sup>1</sup> Protection height H depending on the type of fixing. It is measured differently for floor or slab systems (see diagram above).

<sup>2</sup> Value referring to the correct functioning of the aluminium and glass system. The resistance of the anchors and structure needs to be evaluated case-by-case, and more anchoring points may be required. No bar should be secured with less than 3 anchor points.

<sup>3</sup> Circled values ✓ indicate solutions for which testing documents or specific calculations are available. In countries where validation processes relating to the complete system exist (such as ATec in France or AbP Germany), these positions may be accompanied by the related documentation. Values that are not circled ✓ refer to positions that have been recognised as satisfactory on the basis of tests on similar glass compositions or extrapolations from more extensive tests. The designer should request and verify the technical documentation before ordering.

<sup>4</sup> In cases where it is possible to design without considering the wind and the support profile is not recessed below the walking surface, the height of the system may be higher than the indicated value (the required tests would be similar to those already made). In the specific case of Avis Techniques for balustrades in France, their application is limited to a height of 1.10 m from the walking surface. Greater heights exclude the product from the balustrade category, classifying it as a wall or divider.

<sup>5</sup> Except for areas liable to exceptional crowding, such as concert halls, stadiums, stairways and tribunes.

<sup>6</sup> The numerical values refer to the wind exposure category for a -2 exposure coefficient. Values on a black background ❶...❸ indicate solutions for which testing certificates are available. The other values ②...③ refer to solutions that may be recognised as satisfactory on the basis of tests on similar glass compositions or extrapolations from more extensive tests.

<sup>7</sup> Envisages the use of a structural handrail for distribution between adjacent panes or anchored to the structure.

<sup>8</sup> Envisages the use of more anchoring holes for the upper profile than is standard.

<sup>9</sup> Envisages the use of more clamps than is standard for the kit.

<sup>10</sup> Only for indoors.

## EUROPEAN standards

(adopted in all EU countries)

EN 12150 - Tempered glass

EN 12543 - Laminated glass and laminated safety glass

EN 12600 - Pendulum test

EN 13200 - Spectator viewing areas

EN 14179 - Heat soak test

EN 16612 - Calculation methods for panes of glass

EN 16613 - Mechanical properties of the interlayer

## ITALY

NTC 2018 - Technical standards

UNI 7697 - Glazing applications

UNI 10809 - Railings and balustrades

UNI 11678 - Testing methods for glass balustrades

## FRANCE

NF P 06-001 - Actions on structures

NF P 01-012 - Sizing of balustrades

Cahier CSTB 3034 - Testing procedure for glass balustrades

## GERMANY

DIN 1990 and DIN 1990/NA - Structural engineering and national annex

DIN 1991-1 - Actions on structures

DIN 18008 - Glass constructions

## BELGIUM

NBN B 03-004 - Balustrades for buildings

## UNITED KINGDOM

BS 6180 - Indoor and outdoor barriers

Approved Document K - Protection against falls

## SWITZERLAND

SIA 261 - Actions on constructions

SIA 358 - Railings and balustrades

SIA 2057 - Glass in constructions

## NETHERLANDS

NEN 2608 - Glass in constructions

BRL 4107 - Balustrade design

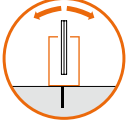
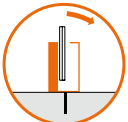
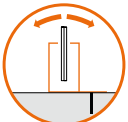
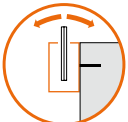

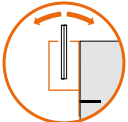
## SPAIN

SE-AE base document - Actions in structures

SU base document - Usage safety

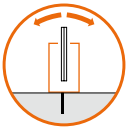
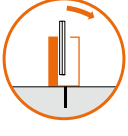



**ITALY NTC 2018 - UNI 11678**
**DEFENDER 810 SYSTEMS** P. 44-81

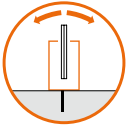
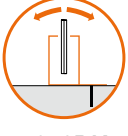
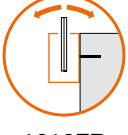
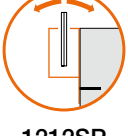
System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
				Interlayer	Glass	Private stairs	Private	Public
						1.0 kN/m	2.0 kN/m	3.0 kN/m
 <b>810LM</b>	8+8	110	40	PVB	T/I	✓	⊗	
			20	SentryGlas®	T/T	✓	✓	⊗
		120 <sup>(4)</sup>	40	PVB	T/I	✓	✓	
				EVA SECURE	T/T	✓	✓	
	10+10	110	20	PVB	T/I	✓	✓	⊗
				EVA SECURE	T/T	✓	✓	✓
				DG41	T/T	✓	✓	✓
		120 <sup>(4)</sup>	20	SentryGlas®	T/T	✓	✓	⊗
 <b>810MR</b>	8+8	110	40	PVB	T/I	✓	⊗	
			20	SentryGlas®	T/T	✓	✓	✓
		120 <sup>(4)</sup>	40	PVB	T/I	✓	✓	
				EVA SECURE	T/T	✓	✓	
	10+10	110	20	PVB	T/I	✓	✓	⊗
				EVA SECURE	T/T	✓	✓	✓
				DG41	T/T	✓	✓	✓
		120 <sup>(4)</sup>	20	SentryGlas®	T/T	✓	✓	✓
 <b>810DK</b>	8+8	110	40	SentryGlas®	T/T	✓	✓	✓
			60	PVB	T/I	✓	⊗	
		120 <sup>(4)</sup>	60	EVA SECURE	T/T	✓	✓	
				DG41	T/T	✓	✓	
	10+10	110	40	PVB	T/I	✓	✓	✓
				EVA SECURE	T/T	✓	✓	✓
				DG41	T/T	✓	✓	✓
120 <sup>(4)</sup>	20	SentryGlas®	T/T	✓	✓	⊗		
 <b>810FR</b>	8+8	110	40	PVB	T/I	✓	⊗	
		120 <sup>(4)</sup>	20	SentryGlas®	T/T	✓	✓	
	10+10	110	20	SentryGlas®	T/T	✓	✓	⊗
				EVA SECURE	T/T	✓	✓	
		120 <sup>(4)</sup>	20	DG41	T/T	✓	✓	
 <b>810MF</b>	8+8	110	40	PVB	T/I	✓	✓	
		120 <sup>(4)</sup>	20	SentryGlas®	T/I	✓	✓	
	10+10	110	20	SentryGlas®	T/T	✓	✓	✓
				EVA SECURE	T/T	✓	✓	
		120 <sup>(4)</sup>	20	DG41	T/T	✓	✓	
 <b>810SP</b>	8+8	110	20	PVB	T/I	✓	✓	
		120 <sup>(4)</sup>	20	SentryGlas®	T/T	✓	✓	
	10+10	110	20	SentryGlas®	T/T	✓	✓	✓
				EVA SECURE	T/T	✓	✓	
		120 <sup>(4)</sup>	20	DG41	T/T	✓	✓	




**DEFENDER XP/PICO SYSTEMS** P. 84–97

System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Private stairs	Private	Public
				Interlayer	Glass	1.0 kN/m	2.0 kN/m	3.0 kN/m
 <b>XP</b>	6+6	60	25	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		80	25	PVB	T/I	✓		
		100	25	SentryGlas®	T/T	✓		
	8+8	80	25	PVB	T/I	✓	⊗	
		100	25	PVB	T/I	✓		
		110	25	SentryGlas®	T/T	✓		
 <b>PICO</b>	6+6	60	25	PVB	T/I	✓	⊗ <sup>(7)</sup>	
		80	25	SentryGlas®	T/T	✓	⊗ <sup>(7)</sup>	
		100	25	SentryGlas®	T/T	✓		
	8+8	80	25	PVB	T/I	✓	⊗	
		100	25	PVB	T/I	✓ <sup>(7)</sup>		
		110	25	SentryGlas®	T/T	✓ <sup>(7)</sup>		


**DEFENDER 1212 SYSTEMS** P. 100–115

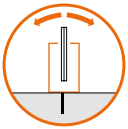

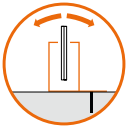
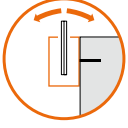

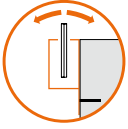
System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Private stairs	Private	Public
				Interlayer	Glass	1.0 kN/m	2.0 kN/m	3.0 kN/m
 <b>1212LM</b>	12+12	120 <sup>(4)</sup>	40	DG41	F/F	✓	⊗	
				EVA SECURE	T/T	✓	✓	✓
 <b>1212DK</b>			20	DG41	T/T	✓	✓	✓
				SentryGlas®	T/T	✓	✓	✓
 <b>1212FR</b>	12+12	110	20	DG41	F/F	✓	✓	
				PVB	T/T	✓	✓	✓ <sup>(7)</sup>
				EVA SECURE	T/T	✓	✓	✓
				DG41	T/T	✓	✓	✓
		 <b>1212SP</b>		120 <sup>(4)</sup>	SentryGlas®	T/T	✓	✓

**Research lies at the basis of any technological evolution**

For more than 15 years, we have been first in assessing and verifying the performance of balustrade glass, working with important subjects at universities and in research.

With advanced equipment and technical/scientific contributions from universities, we continuously develop new construction solutions. We also perform tests on our systems in combination with many types of glass to provide clear, reliable indications for designers and installers.


**FRANCE NF 1991-1-1/Cahier CSTB 3034**
**DEFENDER 810 SYSTEMS** P. 44-81

System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.6 kN/m	1.0 kN/m	3.0 kN/m
 <b>810LM</b>	8+8	110	40	PVB	TH/TH	☑		
				EVA Daylight	TH/TH	☑		
	10+10	160 <sup>(4)</sup>	20	PVB	TH/TH	✓	☑	
				EVALAM	I/I	✓	☑	
				EVA Daylight	TH/TH	✓	☑	
 <b>810MR</b>	8+8	110	40	PVB	TH/TH	☑		
				EVA Daylight	TH/TH	✓		
	10+10	160 <sup>(4)</sup>	20	PVB	TH/TH	✓	☑	
				EVALAM	I/I	✓	☑	
				EVA Daylight	TH/TH	✓	☑	
 <b>810DK</b>	8+8	110	60	PVB	TH/TH	☑		
				EVA Daylight	TH/TH	✓		
	10+10	160 <sup>(4)</sup>	40	SentryGlas®	TH/TH	✓	☑	
				PVB	TH/TH	✓	☑	
				EVA Daylight	TH/TH	✓	✓	
				EVALAM	I/I	✓	✓	
 <b>810FR</b>	8+8	110	40	PVB	TH/TH	☑		
				EVA Daylight	TH/TH	☑		
	10+10	110	20	SentryGlas®	TH/TH	✓	☑	
				EVALAM	I/I	✓	☑	
		160 <sup>(4)</sup>	20	PVB	TH/TH	✓	☑	
				EVA Daylight	TH/TH	✓	☑	
 <b>810MF</b>	8+8	110	40	PVB	TH/TH	☑		
				EVA Daylight	TH/TH	✓		
	10+10	110	20	SentryGlas®	TH/TH	✓	☑	
				EVALAM	I/I	✓	☑	
		160 <sup>(4)</sup>	20	PVB	TH/TH	✓	☑	
				EVA Daylight	TH/TH	✓	☑	
 <b>810SP</b>	8+8	110	40	PVB	TH/TH	☑		
				EVA Daylight	TH/TH	✓		
	10+10	160 <sup>(4)</sup>	20	SentryGlas®	TH/TH	✓	☑	
				EVALAM	I/I	✓	✓	
				PVB	TH/TH	✓	☑	
				EVA Daylight	TH/TH	✓	✓	



## DEFENDER XP/PICO SYSTEMS P. 84–97

System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.6 kN/m	1.0 kN/m	3.0 kN/m
 XP	8+8	80	25	PVB	TH/TH	√ <sup>(7)</sup>	√ <sup>(7)</sup>	
		90	25	SentryGlas®	TH/TH	√ <sup>(7)</sup>		
 PICO	8+8	80	25	PVB	TH/TH	√	⊙	
		90	25	SentryGlas®	TH/TH	√	√	
		110	25	SentryGlas®	TH/TH	⊙		

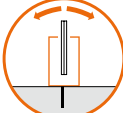
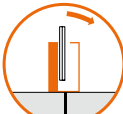
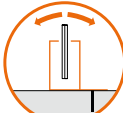


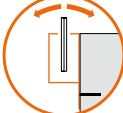
## DEFENDER 1212 SYSTEMS P. 100–115

System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.6 kN/m	1.0 kN/m	3.0 kN/m
 1212LM	12+12	60	20	PVB	TH/TH	√	√	√
		110	10 <sup>(8)</sup>	SentryGlas®	TH/TH	√	√	⊙ <sup>(9)</sup>
 1212DK	12+12	60	20	PVB	TH/TH	√	√	√
		110		SentryGlas®	TH/TH	√	√	√ <sup>(9)</sup>
 1212FR	12+12	50	20	PVB	TH/TH	√	√	√
		70		SentryGlas®	TH/TH	√	√	√
 1212SP	12+12	50	20	PVB	TH/TH	√	√	√
		70		SentryGlas®	TH/TH	√	√	√

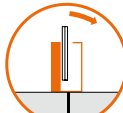



**GERMANY** DIN 18008

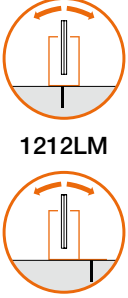
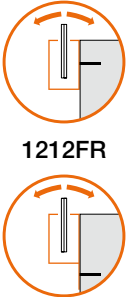
**DEFENDER 810 SYSTEMS** P. 44-81

System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.5 kN/m	1.0 kN/m	2.0 kN/m
 <b>810LM</b>	8+8	100	20	PVB	T/T	✓	✓	
		110	40	PVB	T/T	✓		
		110	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
	10+10	80	20	SentryGlas®	T/T	✓	✓	✓ <sup>(7)(10)</sup>
		120	20	PVB	T/T	✓	✓ <sup>(7)</sup>	
 <b>810MR</b>	8+8	110	40	PVB	T/T	✓		
		110	20	PVB	T/T	✓	✓	
	10+10	80	20	PVB	T/T	✓	✓	✓ <sup>(7)</sup>
		120	20	PVB	T/T	✓	✓	
 <b>810DK</b>	8+8	100	20	PVB	T/T	✓	✓	
		110	40	PVB	T/T	✓		
		110	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
	10+10	110	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	✓ <sup>(7)(10)</sup>
120		20	PVB	T/T	✓	✓ <sup>(7)</sup>		
 <b>810FR</b>	8+8	90	20	PVB	T/T	✓	✓	
		100	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		110	40	PVB	T/T	✓		
	10+10	80	20	SentryGlas®	T/T	✓	✓	✓ <sup>(7)(10)</sup>
		120	20	PVB	T/T	✓	✓	
 <b>810MF</b>	8+8	110	40	PVB	T/T	✓		
		110	20	PVB	T/T	✓	✓	
	10+10	110	20	SentryGlas®	T/T	✓	✓	✓ <sup>(7)(10)</sup>
		120	20	PVB	T/T	✓	✓	
 <b>810SP</b>	8+8	90	20	PVB	T/T	✓	✓	
		100	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		110	40	PVB	T/T	✓		
	10+10	100	20	SentryGlas®	T/T	✓	✓	✓ <sup>(7)(10)</sup>
		120	20	PVB	T/T	✓	✓	

**DEFENDER PICO SYSTEMS** P. 90-97

System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.5 kN/m	1.0 kN/m	2.0 kN/m
 <b>PICO</b>	8+8	60	25	PVB	T/T	✓	✓ <sup>(7)</sup>	✓ <sup>(7)</sup>
		90	25	PVB	T/T	✓	✓ <sup>(7)</sup>	
		80	12.5	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	✓ <sup>(7)</sup>
		100	25	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		110	25	SentryGlas®	T/T	✓ <sup>(7)</sup>		

## DEFENDER 1212 SYSTEMS P. 100–115

System DEFENDER	Composition	Environment	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
							Private	Public	Stadiums
					Interlayer	Glass	0.5 kN/m	1.0 kN/m	2.0 kN/m
 1212LM 1212DK	12+12	indoor	120	20	PVB	T/T	√ <sup>(7)</sup>	√ <sup>(7)</sup>	√ <sup>(7)</sup>
			130	20	SentryGlas®	T/T	√ <sup>(7)</sup>	√ <sup>(7)</sup>	√ <sup>(7)</sup>
		outdoor	110	20	PVB	T/T	√ <sup>(7)</sup>	√ <sup>(7)</sup>	√ <sup>(7)</sup>
			130	20	SentryGlas®	T/T	√ <sup>(7)</sup>	√ <sup>(7)</sup>	√ <sup>(7)</sup>
 1212FR 1212SP	12+12	indoor	110	20	PVB	T/T	√ <sup>(7)</sup>	√ <sup>(7)</sup>	√ <sup>(7)</sup>
			130	20	SentryGlas®	T/T	√ <sup>(7)</sup>	√ <sup>(7)</sup>	√ <sup>(7)</sup>
		outdoor	100	20	PVB	T/T	√ <sup>(7)</sup>	√ <sup>(7)</sup>	√ <sup>(7)</sup>
			130	20	SentryGlas®	T/T	√ <sup>(7)</sup>	√ <sup>(7)</sup>	√ <sup>(7)</sup>

**Why use a rigid interlayer?**

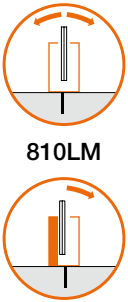
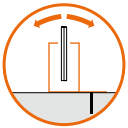
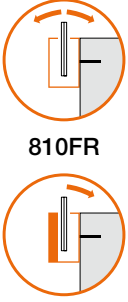
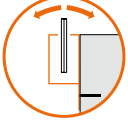
The interlayer plays a fundamental role!

In addition to guaranteeing that the shards of glass are not dangerous if the glass breaks, this layer of plastic allows the panes of glass to work together for higher performance.

Glass with rigid interlayers may resist greater loads or, for equal resistance, have a lower thickness without compromising safety!

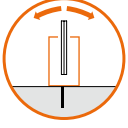


**BELGIUM** NBN B 03-004

**DEFENDER 810 SYSTEMS** P. 44-81

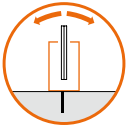
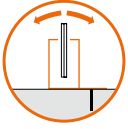

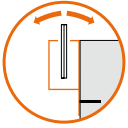
System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(6)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.5 kN/m	1.0 kN/m	3.0 kN/m
 810LM 810MR	8+8	110	40	DG41	F/F	②		
			20		T/T	⑤	④	
		120	40		T/T	⑥	⑤	
			20		F/F	①		
	10+10	110	40		T/T	⑤	④	
			20		F/F	⑦	⑥	
		120	40		T/T	⑦	⑥	
			20					
 810DK	8+8	110	60	DG41	F/F	②		
		120			F/F	①		
	10+10	110			F/F	⑦	⑥	
		120			F/F	⑥	⑤	
 810FR 810MF	8+8	110	40	DG41	F/F	③		
			20		T/T	③	③	
		120	40		F/F	②		
			20		T/T	②	②	
	10+10	110	20		T/T	⑥	⑤	
			20		T/T	⑤	④	
		120	40					
			20					
 810SP	8+8	110	40	DG41	F/F	②		
			20		T/T	②	②	
	10+10	110	20		T/T	⑤	④	
			20		T/T	④	③	



## DEFENDER XP/PICO SYSTEMS P. 84–97

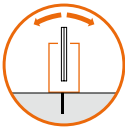
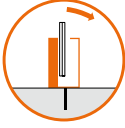
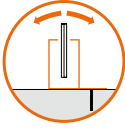
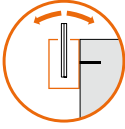

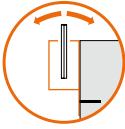
System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(6)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.5 kN/m	1.0 kN/m	3.0 kN/m
 XP	6+6	50	25	DG41	F/F	7		
	8+8	110		PVB	F/F	0		
		120		DG41	T/T	1		
 PICO	6+6	50	25	DG41	T/T	7		
	8+8	110		PVB	F/F	0		
		120		DG41	T/T	2		

## DEFENDER 1212 SYSTEMS P. 100–115

System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(6)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.5 kN/m	1.0 kN/m	3.0 kN/m
 1212LM	12+12	120	40	DG41	F/F	8	7	
		120	20	DG41	T/T	8	8	7
 1212DK	12+12	120	40	DG41	F/F	8	7	
		120	20	DG41	T/T	8	8	7
 1212FR	12+12	110	20	DG41	T/T	7	7	
		120	20	DG41	T/T	6	6	
 1212SP	12+12	110	20	DG41	T/T	6	6	
		120	20	DG41	T/T	5	5	

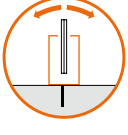
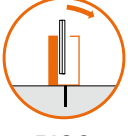

**UNITED KINGDOM** British Standard 6180

**DEFENDER 810 SYSTEMS** P. 44-81

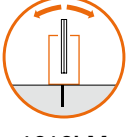
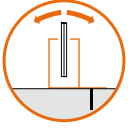

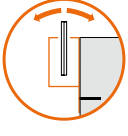
System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
				Interlayer	Glass	Private	Public	Stadiums
						0.74 kN/m	1.5 kN/m	3.0 kN/m
 810LM	8+8	60	40	PVB	T/T	✓	✓	✓
		100		PVB	T/T	✓	✓	
		110		PVB	T/T	⊗		
		110	SentryGlas®	T/T	✓	⊗		
	10+10	120	40	SentryGlas®	T/T	✓		
		80	20	PVB	T/T	✓	✓	✓
		110		PVB	T/T	✓	⊗	
		120		SentryGlas®	T/T	✓	⊗	
140	SentryGlas®	T/T		✓				
 810MR	8+8	60	40	PVB	T/T	✓	✓	✓
		100		PVB	T/T	✓	✓	
		110		PVB	T/T	✓		
		110	SentryGlas®	T/T	✓	✓		
	10+10	120	40	SentryGlas®	T/T	✓		
		80	20	PVB	T/T	✓	✓	✓
		110		PVB	T/T	✓	✓	
		120		SentryGlas®	T/T	✓	✓	
140	SentryGlas®	T/T		✓				
 810DK	8+8	60	60	PVB	T/T	✓	✓	✓
		100		PVB	T/T	✓	✓	
		120		PVB	T/T	⊗		
		110		SentryGlas®	T/T	✓	✓	
	10+10	80	40	PVB	T/T	✓	✓	✓
		120		PVB	T/T	✓	⊗	
		140		SentryGlas®	T/T	✓		
 810FR	8+8	60	20	PVB	T/T	✓	✓	✓
		100	40	PVB	T/T	✓	✓	
		110		PVB	T/T	⊗		
	10+10	80	20	PVB	T/T	✓	✓	✓
		110		SentryGlas®	T/T	✓	⊗	
		140		SentryGlas®	T/T	✓		
 810MF	8+8	60	20	PVB	T/T	✓	✓	✓
		100	40	PVB	T/T	✓	✓	
		110		PVB	T/T	✓		
	10+10	80	20	PVB	T/T	✓	✓	✓
		110		SentryGlas®	T/T	✓	✓	
		140		SentryGlas®	T/T	✓		
 810SP	8+8	60	20	PVB	T/T	✓	✓	✓
		100	40	PVB	T/T	✓	✓	
		110		PVB	T/T	✓		
	10+10	80	20	PVB	T/T	✓	✓	✓
		110		SentryGlas®	T/T	✓	✓	
		140		SentryGlas®	T/T	✓		



## DEFENDER XP/PICO SYSTEMS P. 84–97

System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.74 kN/m	1.5 kN/m	3.0 kN/m
 XP	6+6	50	25	PVB	T/T	✓	✓	
		60	25	PVB	T/T	✓		
		80	25	SentryGlas®	T/T	✓		
 PICO	8+8	40	25	PVB	T/T	✓	✓	✓
		60	25	PVB	T/T	✓	✓	
		70	25	PVB	T/T	✓		
	15	90	25	SentryGlas®	T/T	✓		
		50	25	-	T	✓	✓	✓
		70	25	-	T	✓	✓	
		90	25	-	T	✓		

## DEFENDER 1212 SYSTEMS P. 100–115

System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Private	Public	Stadiums
				Interlayer	Glass	0.74 kN/m	1.5 kN/m	3.0 kN/m
 1212LM	12+12	100	20	SentryGlas®	T/T	✓	⊗	✓
		110	10 <sup>(9)</sup>	SentryGlas®	T/T	✓	✓	⊗ <sup>(9)</sup>
		130	20	SentryGlas®	T/T	✓	✓	
		140	10 <sup>(9)</sup>	SentryGlas®	T/T	✓	✓ <sup>(9)</sup>	
		150	20	SentryGlas®	T/T	✓		
		180	10 <sup>(9)</sup>	SentryGlas®	T/T	✓ <sup>(9)</sup>		
 1212DK	12+12	100	20	SentryGlas®	T/T	✓	✓	✓
		130	20	SentryGlas®	T/T	✓	✓	
		150	20	SentryGlas®	T/T	✓		
 1212FR	12+12	70	20	SentryGlas®	T/T	✓	✓	✓
		100	20	SentryGlas®	T/T	✓	✓	
		130	20	SentryGlas®	T/T	✓		
 1212SP								

## Responsible project

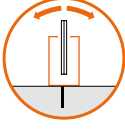
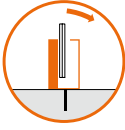
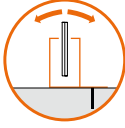
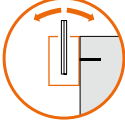
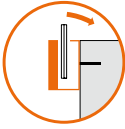
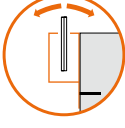
It is important to identify the supporting areas that may be used to scale the balustrade, which reduces safety for adults and children.

Likewise, if there is terracing or fixed elements near the balustrade, it may be necessary to increase the minimum height expected for normal situations.



**SWITZERLAND** SIA 261 - SIA2057

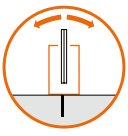
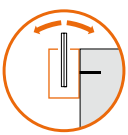
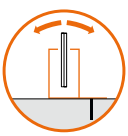
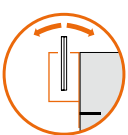
**DEFENDER 810 SYSTEMS** P. 44-81

System DEFENDER	Composi- tion	Environment	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
							Private	Public	Stadiums
					Interlayer	Glass	0.8 kN/m	1.6 kN/m	3.0 kN/m
 810LM	8+8	outdoor	70	20	PVB	T/T	✓	✓	
			130	20	PVB	T/T	✓		
	10+10	outdoor	100	20	PVB	T/T	✓	✓	
			110	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
 810MR	8+8	outdoor	80	20	PVB	T/T	✓	✓	
			110	40	PVB	T/T	✓		
			130	20	PVB	T/T	✓		
	10+10	outdoor	110	20	PVB	T/T	✓	✓	
130			20	PVB	T/T	✓			
 810DK	8+8	outdoor	70	20	PVB	T/T	✓	✓	
			130	20	PVB	T/T	✓		
	10+10	indoor	130	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		outdoor	100	20	PVB	T/T	✓	✓	
			110	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
 810FR	8+8	outdoor	50	20	PVB	T/T	✓	✓	
			60	20	PVB	T/T	✓	✓ <sup>(7)</sup>	
			110	40	PVB	T/T	✓		
			120	20	PVB	T/T	✓ <sup>(7)</sup>		
	10+10	indoor	110	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		outdoor	90	20	PVB	T/T	✓	✓	
			100	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		130	20	PVB	T/T	✓			
 810MF	8+8	outdoor	70	20	PVB	T/T	✓	✓	
			130	40	PVB	T/T	✓		
	10+10	outdoor	110	20	PVB	T/T	✓	✓	
			130	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		130	20	PVB	T/T	✓			
 810SP	8+8	outdoor	50	20	PVB	T/T	✓	✓	
			60	20	PVB	T/T	✓	✓ <sup>(7)</sup>	
			110	40	PVB	T/T	✓		
			120	40	PVB	T/T	✓ <sup>(7)</sup>		
	10+10	indoor	120	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		outdoor	90	20	PVB	T/T	✓	✓	
			100	20	SentryGlas®	T/T	✓	✓ <sup>(7)</sup>	
		130	20	PVB	T/T	✓			

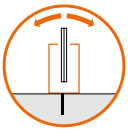
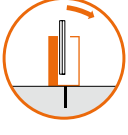
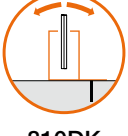
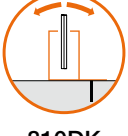
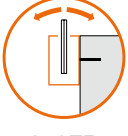
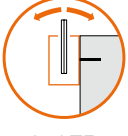

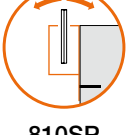
## DEFENDER XP/PICO SYSTEMS P. 84–97

System DEFENDER	Composition	Environment	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
							Private	Public	Stadiums
					Interlayer	Glass	0.8 kN/m	1.6 kN/m	3.0 kN/m
 XP	8+8	indoor	40	25	PVB	I/I	✓	✓	
			90	25	PVB	I/I	✓		
		outdoor	60	25	SentryGlas®	I/I	✓	✓	
			90	25	SentryGlas®	I/I	✓		
 PICO	8+8	indoor	50	25	PVB	I/I	✓	⊙	
			80	25	SentryGlas®	I/I	✓	⊙	
		outdoor	70	25	SentryGlas®	I/I	✓	⊙	
			90	25	PVB	I/I	⊙		



## DEFENDER 1212 SYSTEMS P. 100–115

System DEFENDER	Composition	Environment	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
							Private	Public	Stadiums
					Interlayer	Glass	0.8 kN/m	1.6 kN/m	3.0 kN/m
 1212LM  1212FR	12+12	indoor	100	20	SentryGlas®	F/F	✓	⊙	
			120	40	PVB	F/F	⊙		
			120	20	PVB	I/I	✓	⊙	
			120	20	PVB	T/T	✓	✓	⊙
		outdoor	80	20	SentryGlas®	F/F	✓	⊙	
			90	20	SentryGlas®	I/I	✓	✓	⊙
			100	20	PVB	T/T	✓	✓	⊙
			110	20	SentryGlas®	T/T	✓	✓	⊙
 1212DK  1212SP	12+12	indoor	120	40	PVB	F/F	✓		
			120	20	PVB	I/I	✓	✓	
			120	20	PVB	T/T	✓	✓	✓
		outdoor	90	20	SentryGlas®	I/I	✓	✓	✓
			100	20	PVB	T/T	✓	✓	✓
			110	20	SentryGlas®	T/T	✓	✓	✓


**NETHERLANDS NEN-EN 1991-1-1**
**DEFENDER 810 SYSTEMS** P. 44-81

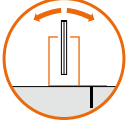
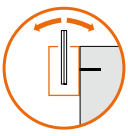
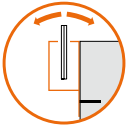
System DEFENDER	Composition	Handrail	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
							Residential, private	Residential, common	Public <sup>(5)</sup>
					Interlayer	Glass	0.3 kN/m	0.5 kN/m	0.8 kN/m
 <b>810LM</b>	8+8	no	120	40	PVB	T/T	✓		
 <b>810MR</b>		yes	110		PVB		✓ <sup>(7)</sup>	✓ <sup>(7)</sup>	
			130		SentryGlas®		✓ <sup>(7)</sup>	✓ <sup>(7)</sup>	
 <b>810DK</b>	10+10	no	110	20	PVB		✓	✓	
 <b>810DK</b>		yes	120		PVB		✓ <sup>(7)</sup>	✓ <sup>(7)</sup>	✓ <sup>(7)</sup>
			130		SentryGlas®		✓ <sup>(7)</sup>	✓ <sup>(7)</sup>	✓ <sup>(7)</sup>
 <b>810FR</b>	8+8	no	110	40	PVB	T/T	✓		
 <b>810FR</b>		yes	110		PVB		✓ <sup>(7)</sup>	✓ <sup>(7)</sup>	
			120		SentryGlas®		✓ <sup>(7)</sup>	✓ <sup>(7)</sup>	
 <b>810MF</b>	10+10	no	110	20	PVB		✓	✓	
 <b>810SP</b>		yes	100		PVB		✓ <sup>(7)</sup>	✓ <sup>(7)</sup>	✓ <sup>(7)</sup>
			120		SentryGlas®		✓ <sup>(7)</sup>	✓ <sup>(7)</sup>	✓ <sup>(7)</sup>

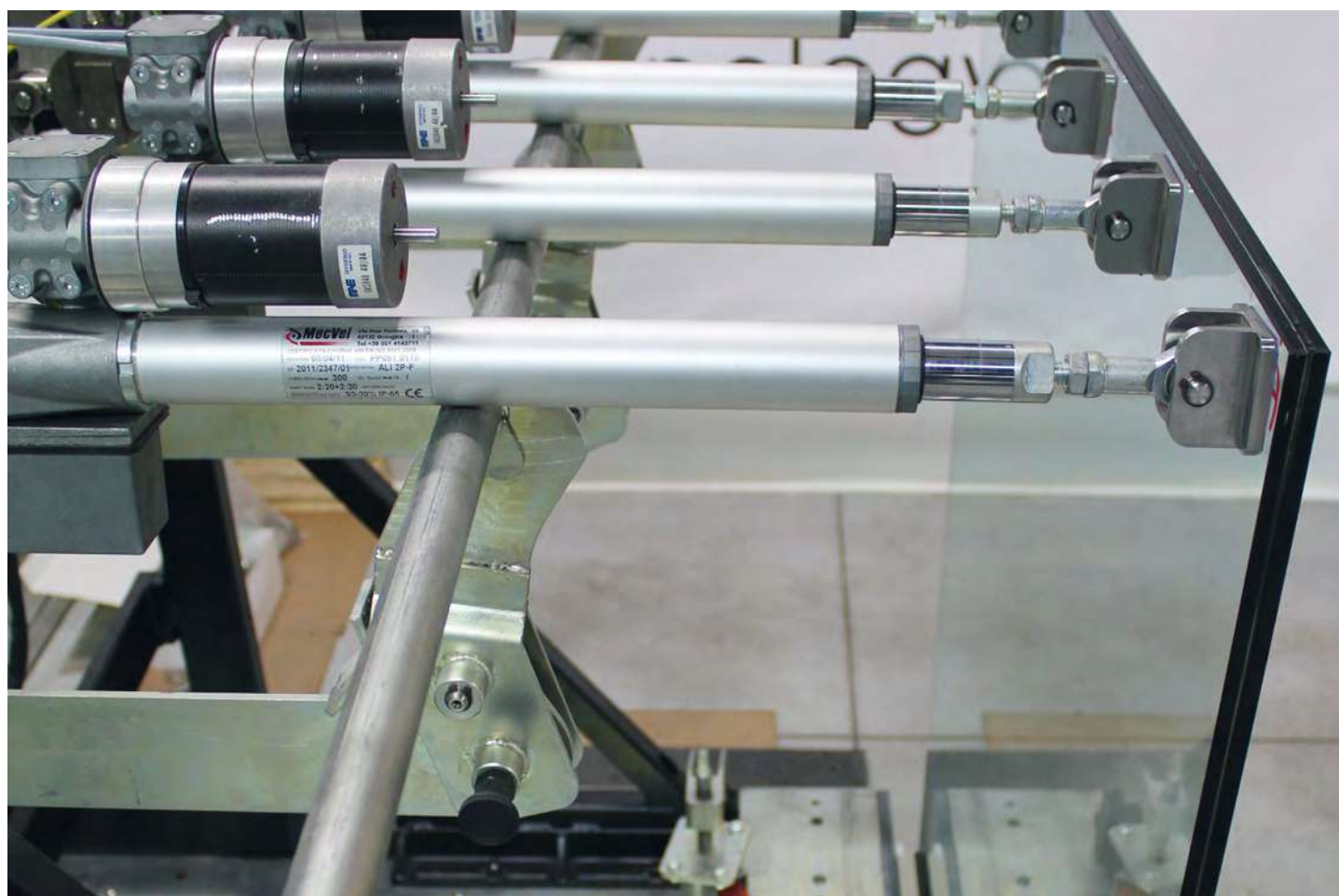
**DEFENDER PICO SYSTEMS** P. 90-97

System DEFENDER	Composition	Handrail	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
							Residential, private	Residential, common	Public <sup>(5)</sup>
					Interlayer	Glass	0.3 kN/m	0.5 kN/m	0.8 kN/m
 <b>PICO</b>	8+8	no	120	25	PVB	T/T	⊗		
 <b>PICO</b>		yes	110		PVB		✓ <sup>(7)</sup>	⊗ <sup>(7)</sup>	
			120		SentryGlas®		✓ <sup>(7)</sup>	⊗ <sup>(7)</sup>	



## DEFENDER 1212 SYSTEMS P. 100-115

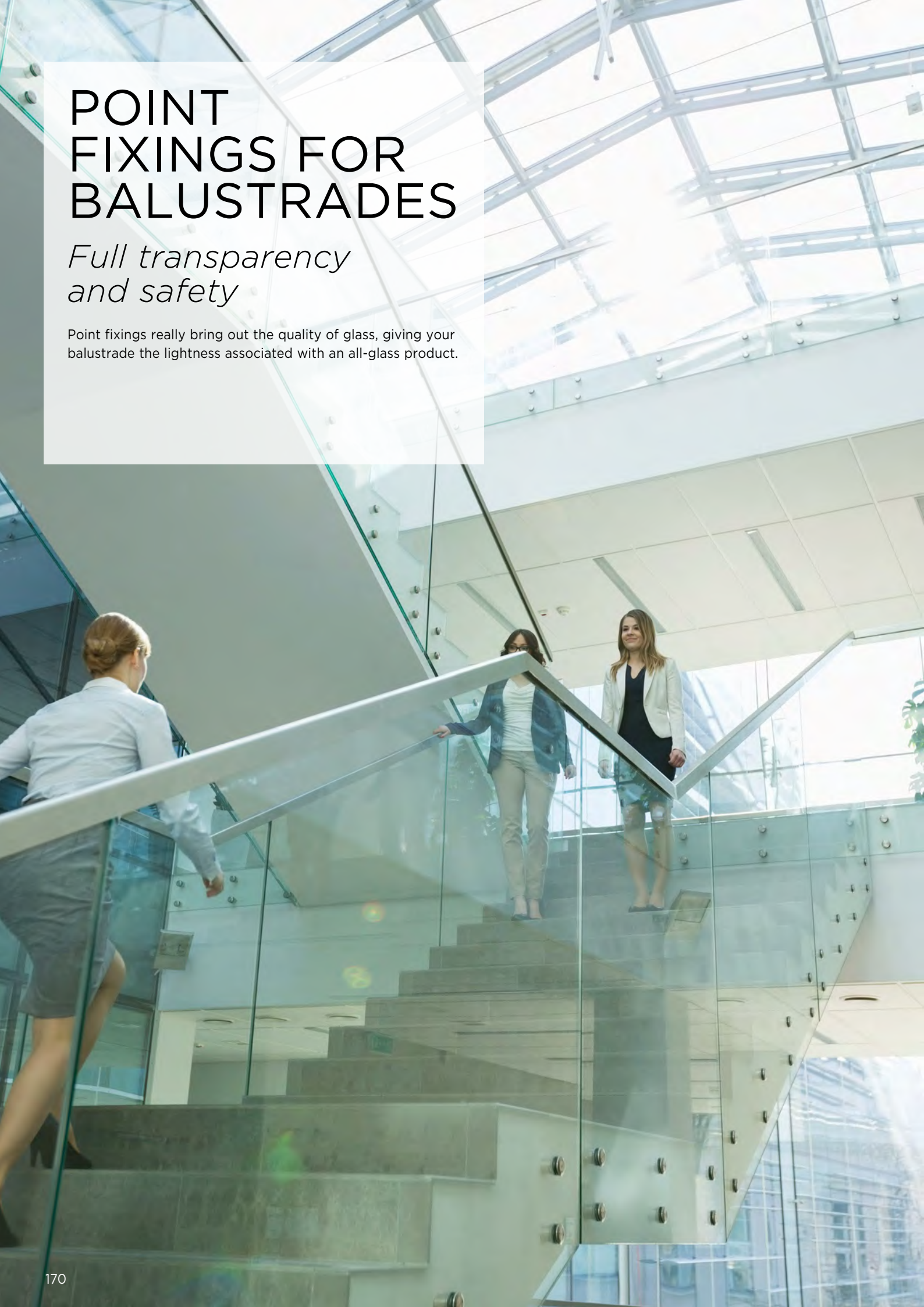
System DEFENDER	Composition	Height <sup>(1)</sup> [cm]	Fixings <sup>(2)</sup> [cm]	pane composition		Intended use <sup>(3)</sup>		
						Residential,	Public	Stadiums
				Interlayer	Glass	0.5 kN/m	0.8 kN/m	3.0 kN/m
 1212LM	12+12	120	20	PVB	T/T	✓	⊗	
 1212DK	10+10+4	110		Sentryglas®	T/T	✓	✓	⊗
 1212FR	12+12	110	20	PVB	T/T	✓	⊗	
 1212SP	10+10+4	100		Sentryglas®	T/T	✓	✓	⊗



# POINT FIXINGS FOR BALUSTRADES

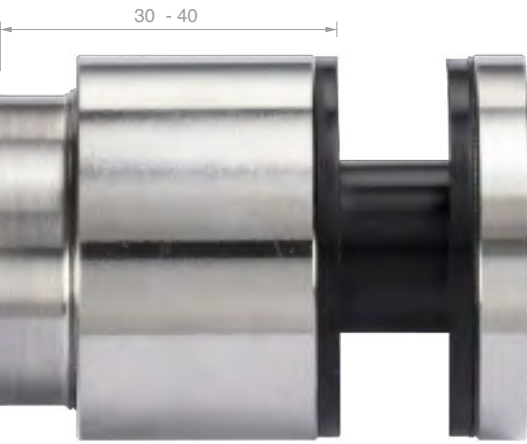
*Full transparency  
and safety*

Point fixings really bring out the quality of glass, giving your balustrade the lightness associated with an all-glass product.





# EVO series



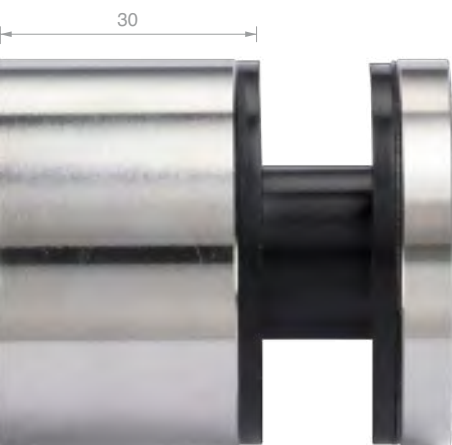
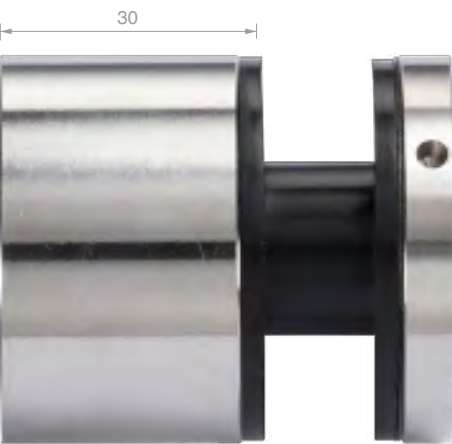
A range of point fixings with high mechanical properties that are suitable for every requirement.

Choose from visible screws or blind studs, adjustable or fixed spacers: every option in the EVO range offers enviable levels of performance.

A material for every application: EVO point fixings are made of solid stainless steel and are available in:

**AISI 304**  
for indoor use

**AISI 316**  
for use in more hostile environments



- 3** MODELS
- 2** MATERIALS
- 5** FINISHES

**AISI 316 /8 /15**

**AISI 304 /8 /15**

**/97**

**/R2**

**/RAL**







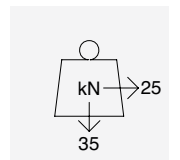
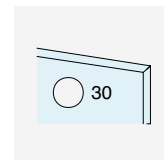
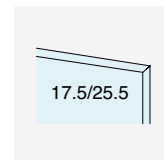


**POINT FIXING WITH ADJUSTABLE SPACER AND BLIND STUD**

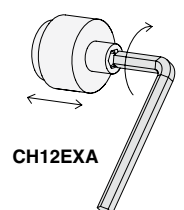
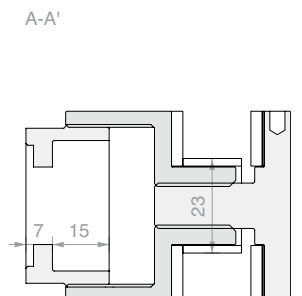
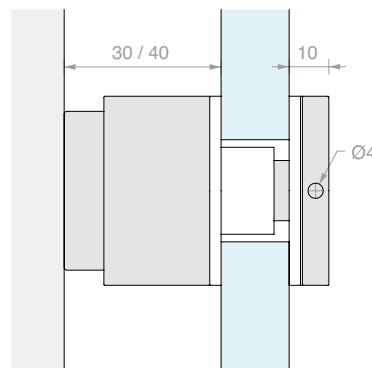
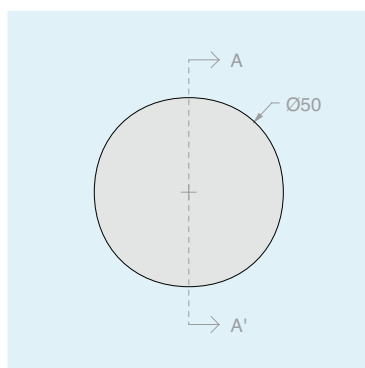
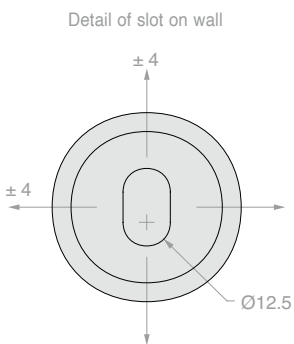
10 mm front adjustment of the spacer, from 30 to 40 mm. Adjustment of the wall position by  $\pm 4$  mm in all directions.

Anchoring with by M12 threaded rod (not supplied)

Recommended installation tool Art. CHSETT32/CH12EXA



HOLE RECOMMENDED



Material: AISI 304 stainless steel

Finish: /8 /15 /97 /R2 /RAL

Art. **EVODR304**

Qty 1 Pc

Material: AISI 316 stainless steel

Finish: /8 /15

Art. **EVODR316**

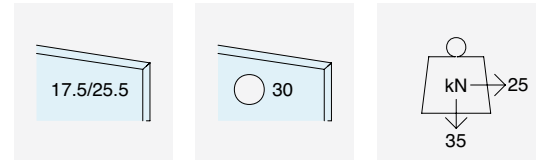
Qty 1 Pc





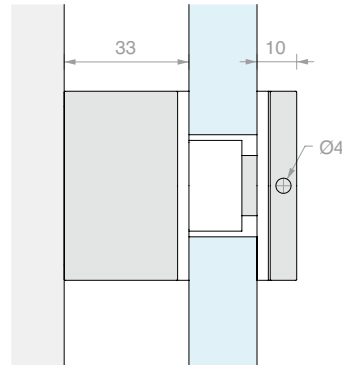
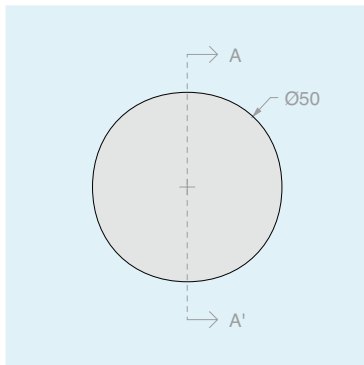
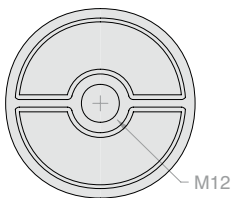
**POINT FIXING WITH BLIND STUD**

Anchoring with M12 threaded rod (not supplied)  
Recommended installation tool Art. CHSETT32

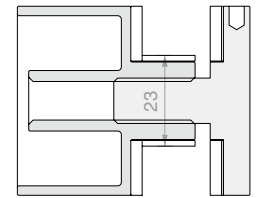


HOLE RECOMMENDED

Detail of hole on wall



A-A'



Material: AISI 304 stainless steel

Finish: /8 /15 /97 /R2 /RAL

Art. **EVOFIX304**

Qty 1 Pc

Material: AISI 316 stainless steel

Finish: /8 /15

Art. **EVOFIX316**

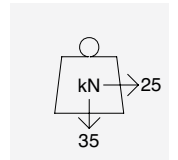
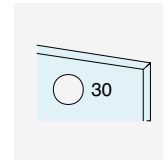
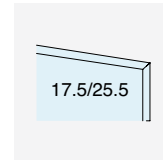
Qty 1 Pc





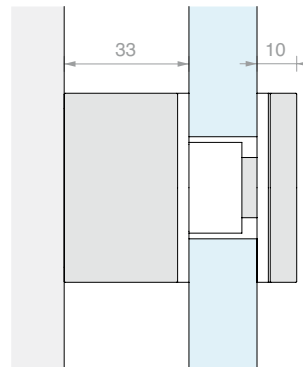
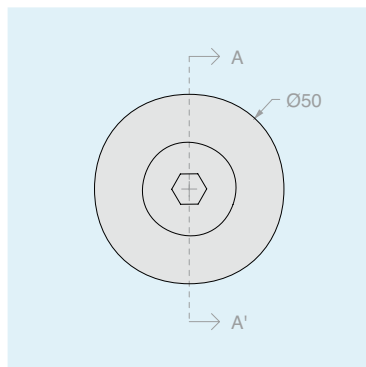
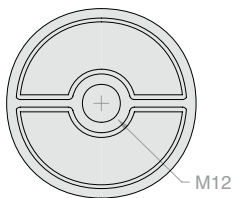
**POINT FIXING  
WITH VISIBLE SCREWS**

Anchoring with M12 threaded rod (not supplied)

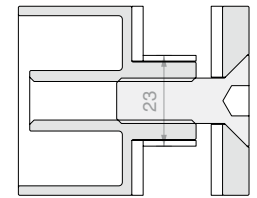


HOLE  
RECOMMENDED

Detail of hole on wall



A-A'



Material: AISI 304 stainless steel

Finish: /8 /15 /97 /R2 /RAL

Art.  
**EVOBOR304**

Qty  
1 Pc

Material: AISI 316 stainless steel

Finish: /8 /15

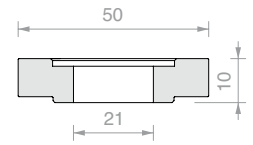
Art.  
**EVOBOR316**

Qty  
1 Pc



**ADDITIONAL SPACER FOR EVODR**

Multiple spacers can be used to increase the distance.



Material: AISI 304 stainless steel  
Finish: /8 /15 /97 /R2 /RAL

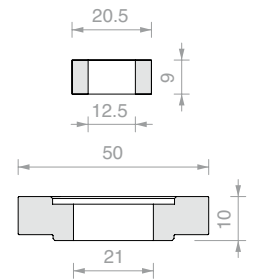
Material: AISI 316 stainless steel  
Finish: /8 /15

Art.	Qty	Art.	Qty
<b>EVODR304DIST</b>	1 Pc	<b>EVODR316DIST</b>	1 Pc



**ADDITIONAL SPACER FOR EVOFIX AND EVOBOR**

Multiple spacers can be used to increase the distance.



Material: AISI 304 stainless steel  
Finish: /8 /15 /97 /R2 /RAL

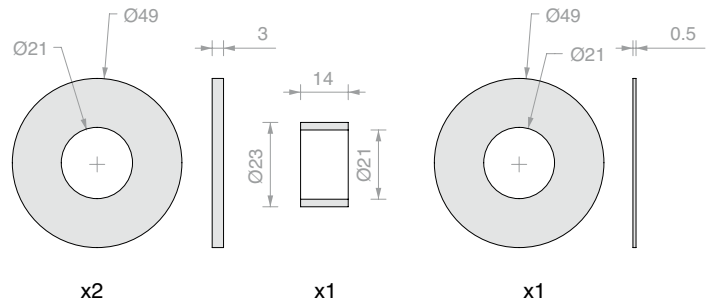
Material: AISI 316 stainless steel  
Finish: /8 /15

Art.	Qty	Art.	Qty
<b>EVOBOR304DIST</b>	1 Pc	<b>EVOBOR316DIST</b>	1 Pc



**SET OF GREY GASKETS FOR EVO FIXINGS**

Material: EPDM, POM



Art.	Qty
<b>EVODRG</b>	1 Pc

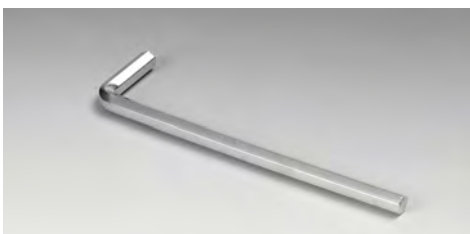


**HOOK WRENCH**

Material: steel

Tool required for tightening all metal parts with blind holes around their axis.

Art.	Extension	Pin	For blind hole	Qty
<b>CHSETT19</b>	Ø19/50 mm	Ø2.8 mm	Ø3 mm	1 Pc
<b>CHSETT32</b>	Ø32/75 mm	Ø3.8 mm	Ø4 mm	1 Pc



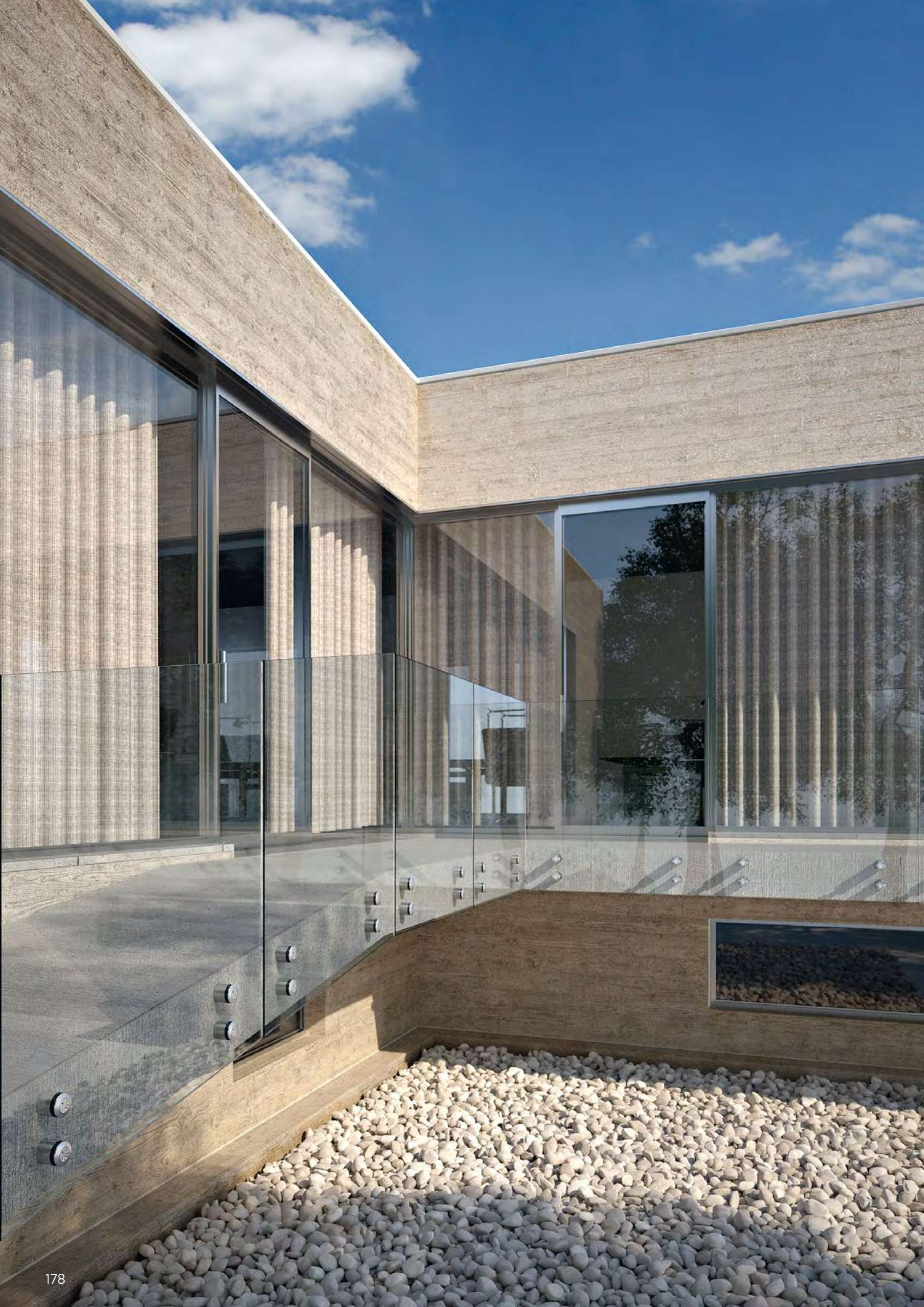
**12 MM HEX KEY**

Material: steel

Art.	Qty
<b>CH12EXA</b>	1 Pc











**POINT FIXING  
WITH ADJUSTABLE SPACER**

Material: AISI 316 stainless steel

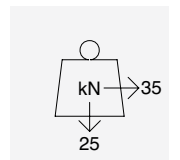
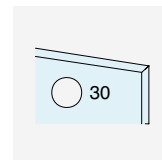
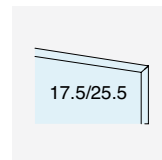
8 mm front adjustment of the spacer, from 43 to 51 mm

Adjustment of the wall position  $\pm 5$  mm in all directions

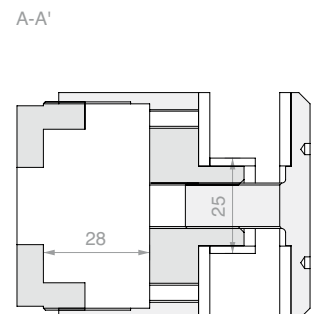
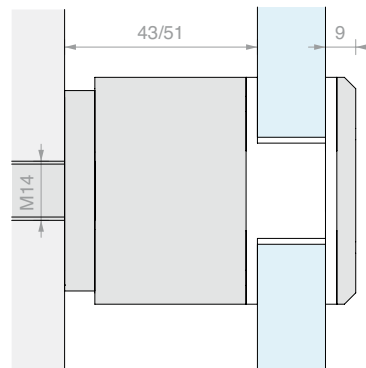
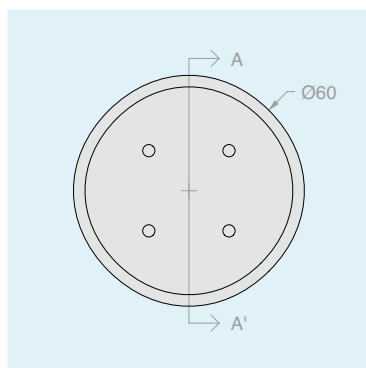
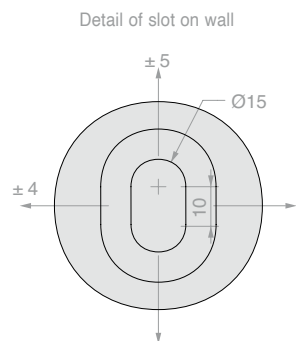
Anchoring with M14 x 140 threaded rod (included)

Finish: /8 /15

Recommended installation tool Art. UT300



HOLE  
RECOMMENDED





**POINT FIXING  
WITH ADJUSTABLE SPACER**

Material: AISI 316 stainless steel

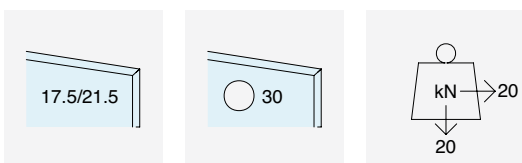
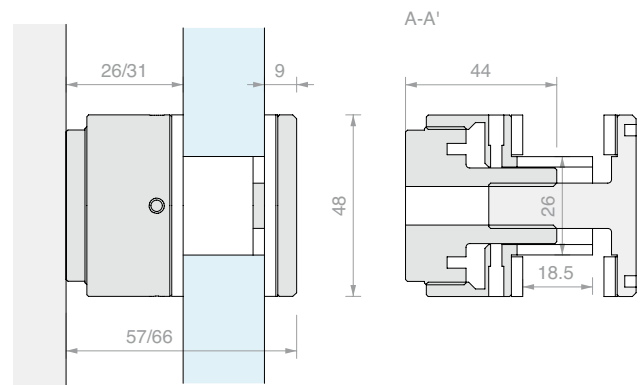
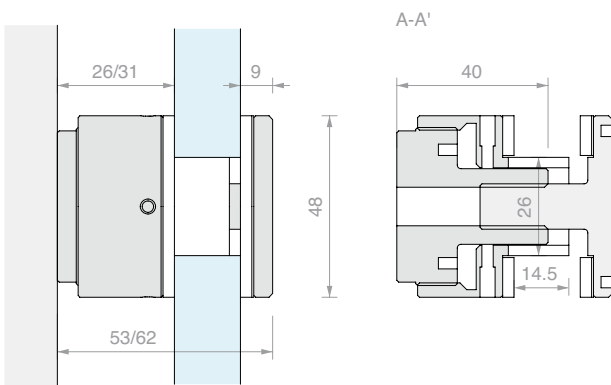
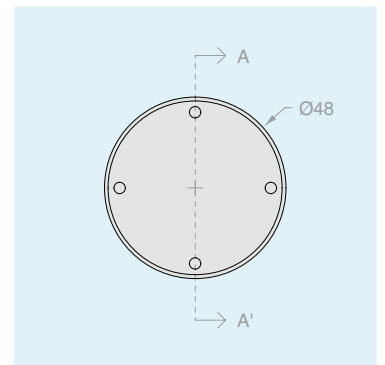
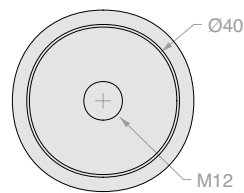
5 mm front adjustment of the spacer, from 26 to 31 mm

Anchoring with M12 threaded rod (not supplied)

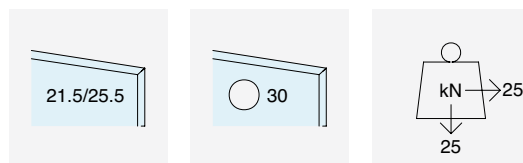
Finish: /8 /15

Recommended installation tool Art. UT300/CHSETT32

Detail of hole on wall



HOLE  
RECOMMENDED



HOLE  
RECOMMENDED

Art.  
**SB40DR**

Qty  
1 Pc

Art.  
**SB48DR**

Qty  
1 Pc



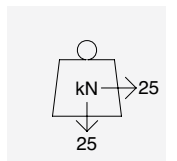
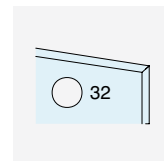
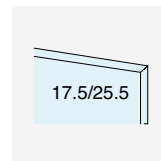
**FIXING STUD**

Material: AISI 316 stainless steel

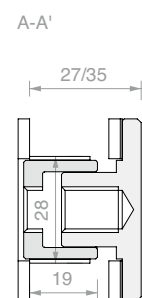
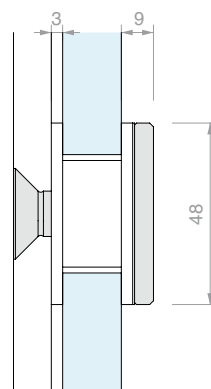
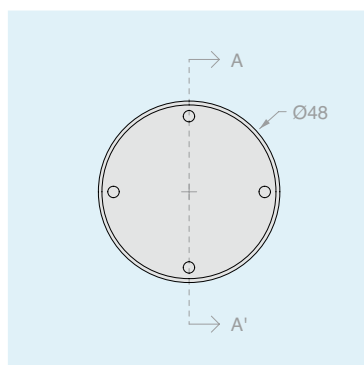
With countersunk screws M12 x 30 mm, M12 x 35 mm, M12 x 40 mm

Finish: /8 /15

Recommended installation tool Art. UT300



HOLE  
RECOMMENDED



Art.

**SB-BORK**

Qty

1 Pc



**POINT FIXING  
WITH ADJUSTABLE SPACER**

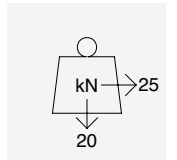
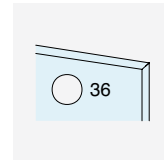
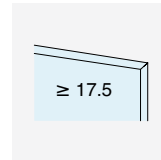
Material: AISI 304 stainless steel

8 mm front adjustment of the spacer, from 42 to 50 mm

Anchoring with M14 x 140 threaded rod (included)

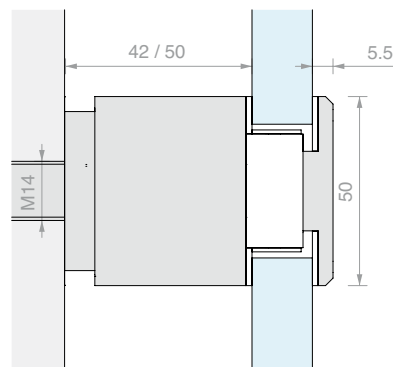
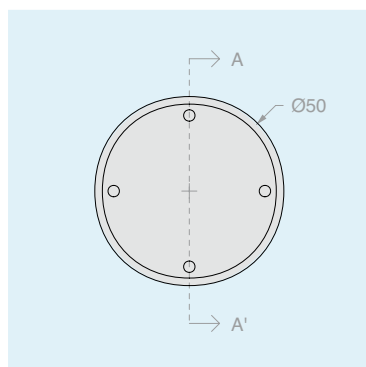
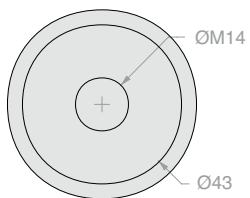
Finish: /9

Recommended installation tool Art. UT300

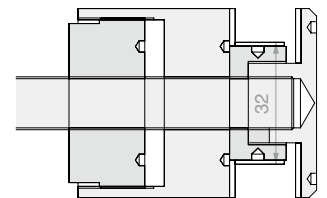


HOLE  
RECOMMENDED

Detail of hole on wall



A-A'



Art.  
**ATP50**

Qty  
1 Pc







**POINT FIXINGS**

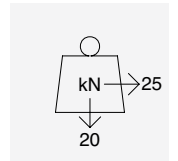
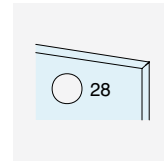
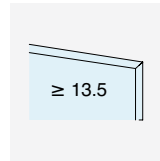
Material: AISI 304 stainless steel

Can fit 11.5 mm glass with the addition of article ATP452

Anchoring with M14 x 140 threaded rod (included)

Finish: /9

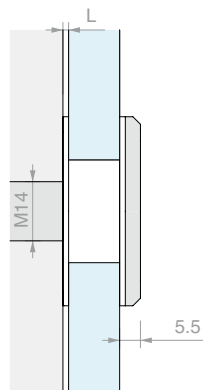
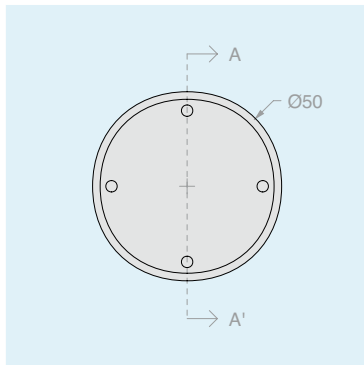
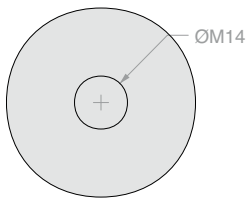
Recommended installation tool Art. UT300



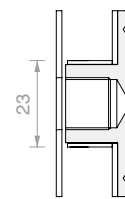
HOLE RECOMMENDED

ATP5365

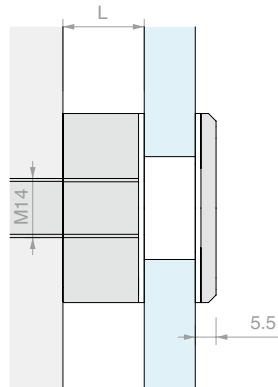
Detail of hole on wall



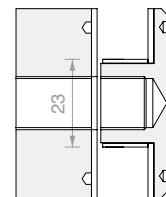
A-A'



**ATP515**



A-A'



**ATP565  
ATP5215  
ATP5365**

Art.	L	Qty
<b>ATP515</b>	<b>1.5 mm</b>	1 Pc
<b>ATP565</b>	<b>6.5 mm</b>	1 Pc
<b>ATP5215</b>	<b>21.5 mm</b>	1 Pc
<b>ATP5365</b>	<b>36.5 mm</b>	1 Pc



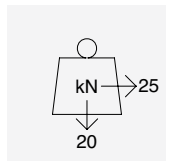
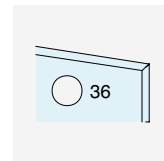
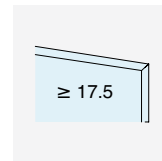
**POINT FIXINGS WITH COLLAR**

Material: AISI 304 stainless steel

Anchoring with M14 x 140 threaded rod (included)

Finish: /9

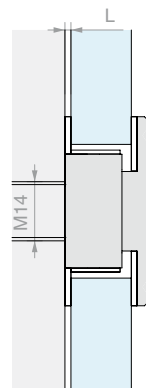
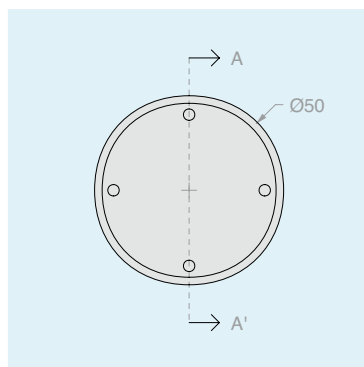
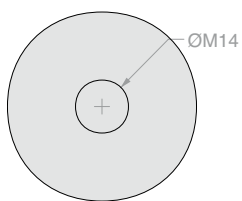
Recommended installation tool Art. UT300



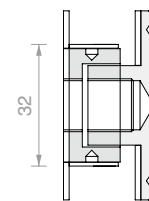
HOLE RECOMMENDED

ATP503365

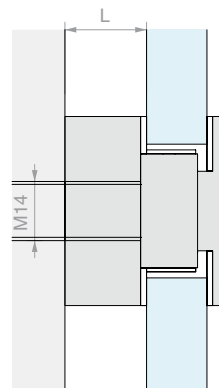
Detail of hole on wall



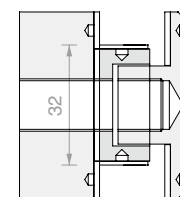
A-A'



**ATP50315**



A-A'



**ATP50365  
ATP503215  
ATP503365**

Art.	L	Qty
<b>ATP50315</b>	1.5 mm	1 Pc
<b>ATP50365</b>	6.5 mm	1 Pc
<b>ATP503215</b>	21.5 mm	1 Pc
<b>ATP503365</b>	36.5 mm	1 Pc

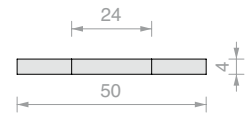


**EXPANSION SEAL**

Material: PVC

Additional seal for using articles ATP515, ATP565, ATP5215 and ATP5365 with 11.5 mm glass

Finish: white



Art.  
**ATP452**

Qty  
1 Pc

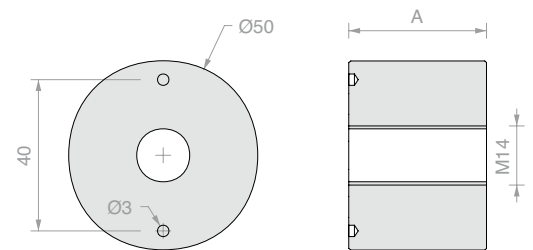


**SPACER**

material: AISI 304 stainless steel

Finish: /9

Recommended installation tool Art. UT300



Art.	A
<b>DISTCOFIS11</b>	20 mm
<b>DISTCOFIS12</b>	35 mm

Qty
1 Pc
1 Pc



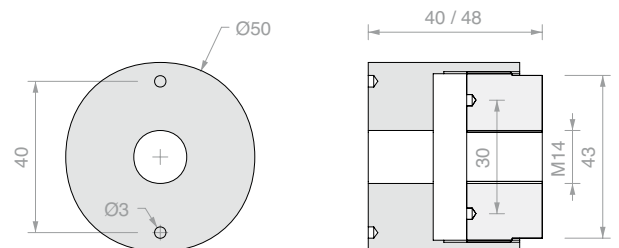
**ADJUSTABLE SPACER**

Material: AISI 304 stainless steel

8 mm front adjustment of the spacer, from 40 to 48 mm

Finish: /9

Recommended installation tool Art. UT300



Art.  
**DISTCOFISR**

Qty  
1 Pc





**POINT FIXING WITH VISIBLE SCREWS**

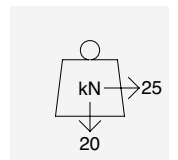
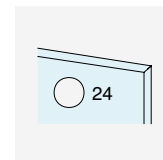
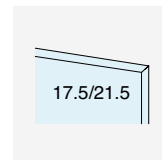
Material: AISI 304 stainless steel

Supplied with M10 x 35 mm screw

Anchoring to the wall with M10 threaded rod (not supplied)

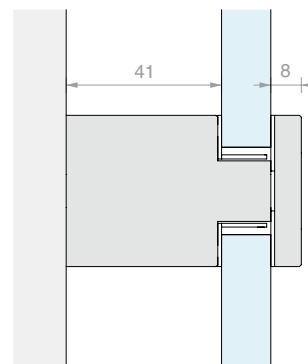
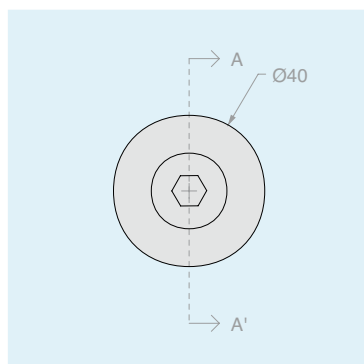
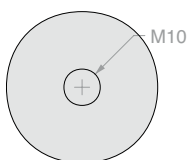
Finish: /9

Recommended installation tool Art. UT300

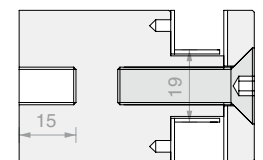


HOLE  
RECOMMENDED

Detail of hole on wall



A-A'



Art.

**DISTB40**

Qty

1 Pc



**POINT FIXING WITH VISIBLE SCREWS**

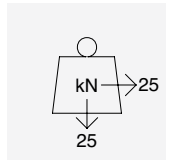
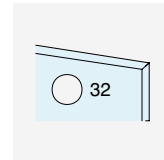
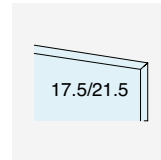
Material: AISI 304 stainless steel

Supplied with M12 x 35 mm screw.

Anchoring to the wall with M12 threaded rod (not supplied)

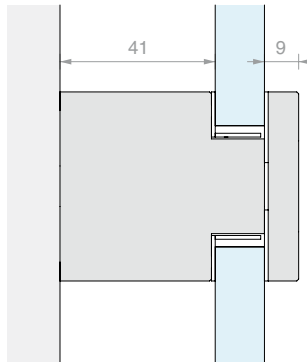
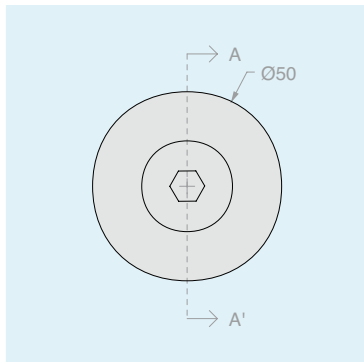
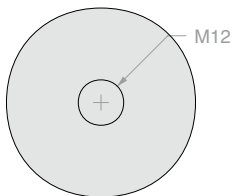
Finish: /9

Recommended installation tool Art. UT300/CH12EXA

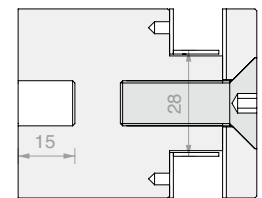


HOLE RECOMMENDED

Detail of hole on wall



A-A'



Art.

**DISTB50**

Qty

1 Pc





# DOUBLE BRACKETS FOR BALUSTRADES

## *Patented solidity*

Features of the product range:

Two brackets, different distances from the wall, but the same exceptionally high mechanical properties.

Choose from an adjustable spacer or no spacer; the SB brackets range offers all of the practicality of a single threaded rod for fixing but with two attachment points on the glass.

The guarantee of stainless steel:  
made of AISI 316 for use in the most hostile environments





### BRACKET WITH ADJUSTABLE SPACERS

Material: AISI 316 stainless steel

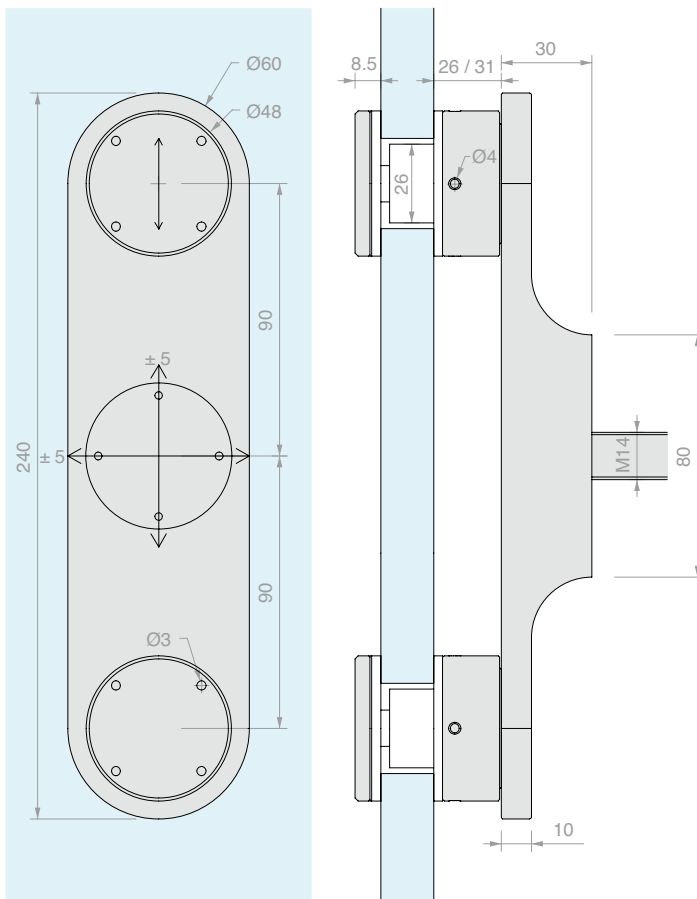
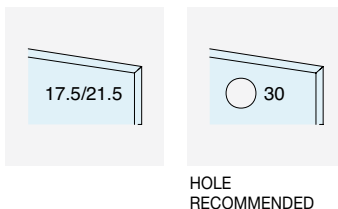
5 mm adjustment of the spacer from 26 to 31 mm  
and 5 mm adjustment of its position in all directions.

Adjustment of the wall position of the whole bracket  $\pm 5$  mm in all directions.

Anchoring with a single M14 x 200 mm threaded rod (included)

Finish: /8 /15

Recommended installation tool Art. UT300/CHSETT32/UT250



Art.  
**SB200K**

Qty  
1 Pc









**BRACKET ONLY**

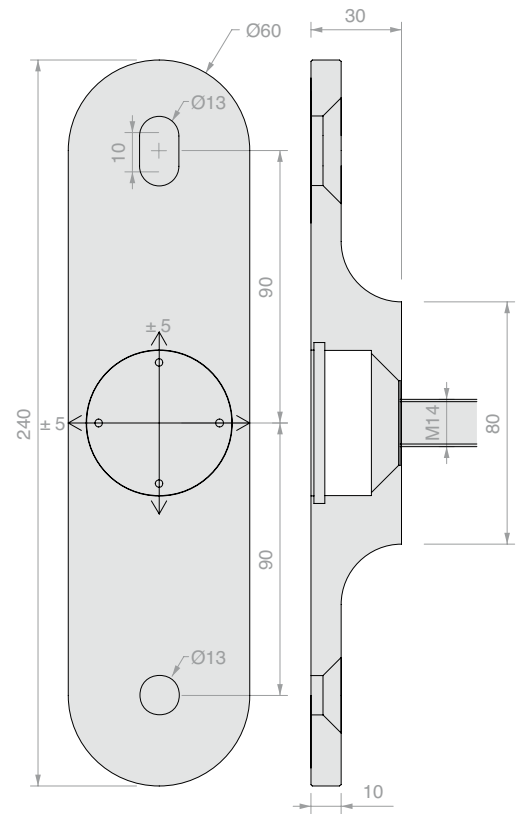
Material: AISI 316 stainless steel

Front fixing slots and adjustment of the whole bracket  $\pm 5$  mm in all directions.

Anchoring with a single M14 x 200 mm threaded rod (included)

Finish: /8 /15

Recommended installation tool Art. UT300



Art.	Qty
<b>SB200ST</b>	1 Pc



**POINT FIXING WITH ADJUSTABLE SPACER**

Material: AISI 316 stainless steel

Front adjustment from 26 to 31 mm

Anchoring with M12 threaded rod (not supplied).

Recommended hole size Ø30 mm

Recommended tool for installation

Art. UT300/CHSETT32

Finish: /8 /15



**FIXING STUD**

Material: AISI 316 stainless steel

With countersunk screws M12 x 30 mm, M12 x 35 mm, M12 x 40 mm. Compatible with bracket SB200ST.

Recommended hole size Ø32 mm

Recommended tool for installation

Art. UT300

Finish: /8 /15



**SPARE PARTS FOR BRACKETS**

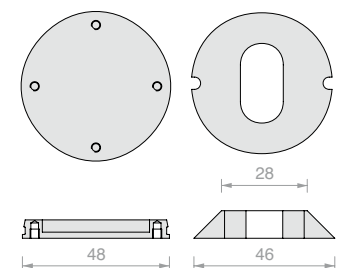
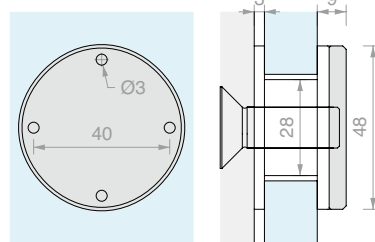
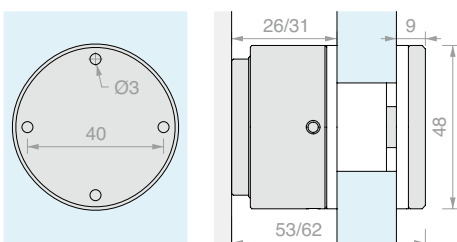
Material: AISI 316 stainless steel

Cap, nut and spare parts for brackets Art. SB200ST, SB200K, SB148.

Recommended tool for installation

Art. UT250

Finish: /8 /15



Art.	For glass	Qty	Art.	For glass	Qty	Art.	Qty
<b>SB40DR</b>	From 17.5 to 21.5 mm	1 Pc	<b>SB-BORK</b>	From 17.5 to 25.5 mm	1 Pc	<b>SBSTACC</b>	1 Pc

**12 MM HEX KEY**

Material: steel

Art.	Qty
<b>CH12EXA</b>	1 Pc

**PIN WRENCH  
FOR Ø3/Ø2.5/Ø2 mm BLIND HOLES**

Material: iron body and steel pins

The compass opening allows to operate with wide radiuses, for pair of holes with a centre distance between 9 mm and 55 mm

Art.	Description	Qty
<b>UT300</b>	Pin wrench with Ø2.9 mm pins	1 Pc
<b>UTC300R</b>	N.2 spare pins Ø2.9 mm	1 Pc
<b>UT250</b>	Pin wrench with Ø2.4 mm pins	1 Pc
<b>UTC250R</b>	N.2 spare pins Ø2.4 mm	1 Pc
<b>UT200</b>	Pin wrench with Ø1.8 mm pins	1 Pc
<b>UTC200R</b>	N.2 spare pins Ø1.8 mm	1 Pc

**HOOK WRENCH**

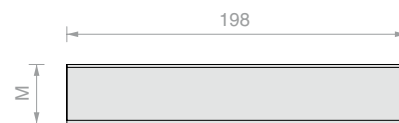
Material: steel

Tool required for tightening all metal parts with blind holes around their axis.

Art.	Extension	Pin	For blind hole	Qty
<b>CHSETT19</b>	Ø19/50 mm	Ø2.8 mm	Ø3 mm	1 Pc
<b>CHSETT32</b>	Ø32/75 mm	Ø3.8 mm	Ø4 mm	1 Pc

**THREADED ROD DIN 975**

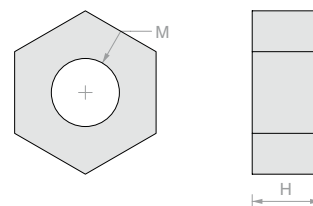
Material: Galvanised steel, Stainless steel AISI 316



Art.	Material	M	Qty
<b>BFM975-10-ZN</b>	Galvanised steel	<b>M10</b>	1 Pc
<b>BFM975-12-ZN</b>	Galvanised steel	<b>M12</b>	1 Pc
<b>BFM975-14-ZN</b>	Galvanised steel	<b>M14</b>	1 Pc
<b>BFM975-10-A4</b>	AISI 316 stainless steel	<b>M10</b>	1 Pc
<b>BFM975-12-A4</b>	AISI 316 stainless steel	<b>M12</b>	1 Pc
<b>BFM975-14-A4</b>	AISI 316 stainless steel	<b>M14</b>	1 Pc

**NUT FOR THREADED ROD DIN 934**

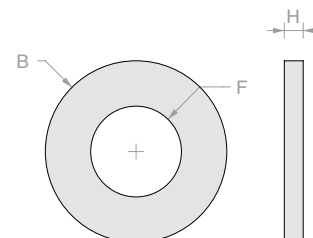
Material: Galvanised steel, Stainless steel AISI 316



Art.	Material	H	M	Qty
<b>DEX934-10-ZN</b>	Galvanised steel	<b>8 mm</b>	<b>M10</b>	1 Pc
<b>DEX934-12-ZN</b>	Galvanised steel	<b>10 mm</b>	<b>M12</b>	1 Pc
<b>DEX934-14-ZN</b>	Galvanised steel	<b>11 mm</b>	<b>M14</b>	1 Pc
<b>DEX934-10-A4</b>	AISI 316 stainless steel	<b>8 mm</b>	<b>M10</b>	1 Pc
<b>DEX934-12-A4</b>	AISI 316 stainless steel	<b>10 mm</b>	<b>M12</b>	1 Pc
<b>DEX934-14-A4</b>	AISI 316 stainless steel	<b>11 mm</b>	<b>M14</b>	1 Pc

**WASHER FOR THREADED ROD DIN 125**

Material: Galvanised steel, Stainless steel AISI 316



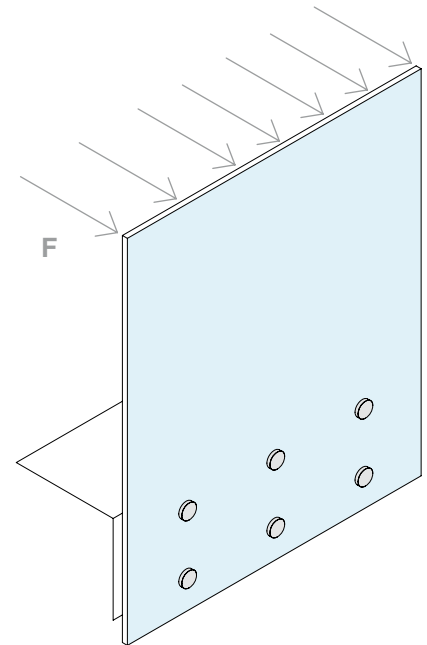
Art.	Material	B	H	F	Qty
<b>RON125-10-ZN</b>	Galvanised steel	<b>Ø20 mm</b>	<b>2 mm</b>	<b>10.5 mm</b>	1 Pc
<b>RON125-12-ZN</b>	Galvanised steel	<b>Ø24 mm</b>	<b>2.5 mm</b>	<b>13 mm</b>	1 Pc
<b>RON125-14-ZN</b>	Galvanised steel	<b>Ø28 mm</b>	<b>2.5 mm</b>	<b>15 mm</b>	1 Pc
<b>RON125-10-A4</b>	AISI 316 stainless steel	<b>Ø20 mm</b>	<b>2 mm</b>	<b>10.5 mm</b>	1 Pc
<b>RON125-12-A4</b>	AISI 316 stainless steel	<b>Ø24 mm</b>	<b>2.5 mm</b>	<b>13 mm</b>	1 Pc
<b>RON125-14-A4</b>	AISI 316 stainless steel	<b>Ø28 mm</b>	<b>2.5 mm</b>	<b>15 mm</b>	1 Pc







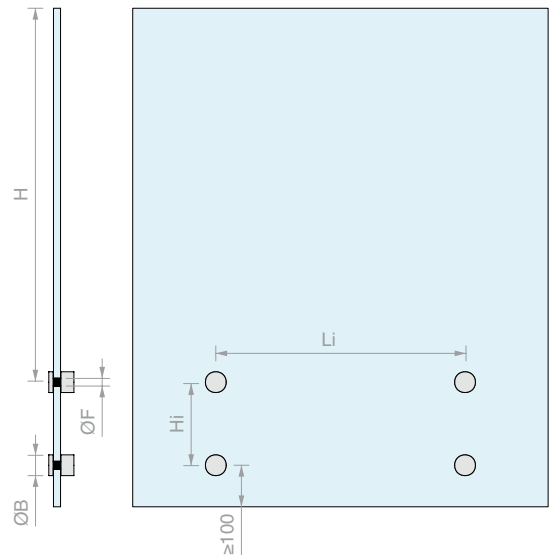
# Balustrades on point fixings sizing tables

The following pages contain a range of feasible solutions for experimental verification (trials or tests). The information is presented to facilitate the choice of the fixing and to size the system for the most common situation of uniform linear horizontal load  $F$  applied to the handrail. The information determined from experimental results is an extract of the state of the art upon publication according to the documentation and experience of the company. Computational checks on similar solutions err on the side of safety, resulting in lower strength values and implying the use of thicker slabs or more favourable geometries.

In the absence of a harmonised European standard, national standards may limit the type of laminates that can be used or provide for additional verifications, such as the application of point loads or impact tests. Because the effect of these actions is tied to the specific geometry of the construction (for example, the dimensions of the pane, the number of fixings per pane, the position on the building, the height of the walking surface or the presence of a structural handrail), the behaviour of glass systems cannot be generalised and must be assessed by the designer case by case.



-  In addition to the static load, dynamic impact and post-breakage tests are required in Italy. In the case of laminates with non-rigid interlayers, the use of a structural handrail is required.
-  In France, dynamic impact tests are required, in addition to the HST test according to EN 14179 if the glass is tempered.
-  The values in the tables below are not applicable for Germany, where verifications via calculation and the AbP certificate are required. Calculation tests and AbP certificate are available for some classes of products. For further information, please contact the technical office.
-  In addition to verifying the resistance per linear load, the United Kingdom requires that the maximum deflection at the height of the handrail be respected.



Detailed information supporting the design may be requested from the Logli technical office, along with extensive documentation on tests and certificates available on our website. The Logli technical office provides support for designers, as long as an assessment regarding compliance of the system with the overall safety requirements must be performed by a qualified technician. The technician will verify the applicability of the results to the installation conditions (system loads and pressures, support characteristics, geometry of the panes and fixings, type and sizing of anchors, etc.).

The use of a handrail is always preferred with regard to safety, and its installation is recommended.

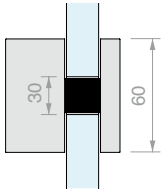
**Table legend:**

Values in coloured cells refer to the recommended characteristic load value  $F_k$  expressed in kN/m, which it is linearly applied to the upper edge height of the pane (or handrail) that may be assessed during experimental tests. The values indicated correspond to the load used for tests at the serviceability limit state (SLS), considering a safety coefficient of 1.5 for the strength test at the ultimate limit state (ULS). For example, a cell with a value of 3.0 means that the maximum project load per ULS is  $3.0 \times 1.5 = 4.5$  kN/m. Cells that contain a round symbol ● indicate positions for which reports for static loads tests carried out by independent laboratories are available. Cells that contain a diamond symbol ◆ indicate positions for which reports for dynamic impact tests carried out by independent laboratories are available.

<sup>1</sup> The protection height  $H$  is measured vertically from the highest fixing to the upper edge of the pane (or handrail).  
<sup>2</sup> 'Rigid interlayer' means a polymer used to laminate the glass meeting the criteria in EN 16613 for rigidity class 2; the suggestions in the table are based on the use of Sentryglas®. The data reported in the table for traditional interlayers (non-rigid) are based on the use of PVB. During the design phase, attention should be paid to national standards regulating the use of interlayers for glass balustrades, with particular reference to the operating temperature (inside/outside) and the requirement to use structural handrails with regard to post-breakage requests, if non-rigid products (those not in class 2) are used.  
<sup>3</sup> The use of an interlayer with a thickness greater than or equal to 1.52 mm is recommended. The panes are tempered according to EN 12150. HST treatment according to EN 14179 is recommended, and required for installations in France.

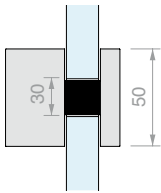


table for point fixings with 60-mm stud in a 30-mm hole



		Layer <sup>(3)</sup>	12+12mm				10+10mm				8+8mm				
		Li(cm)	30	40	50	60	30	40	50	60	30	40	50	60	
Indoor	rigid interlayer (Sentryglas®)	30	Hi(cm)	H <sup>(1)</sup> (cm)											
			90	5,0	5,0	5,0	4,5	4,0	4,0	3,5	3,0	2,5	2,5	2,0	2,0
100			5,0	5,0	4,5	4,0	3,5	3,5	3,0	3,0	2,5	2,0	2,0	2,0	
110			5,0	4,5	4,0	3,5	3,5	3,0	3,0	2,5	2,0	2,0	2,0	1,5	
120			4,5	4,0	3,5	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	
130		4,0	3,5	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5		
20		90	5,0	5,0	4,5	4,0	4,0	3,5	3,0	3,0	2,5	2,5	2,0	2,0	
		100	5,0	4,5	4,0	3,5	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	
		110	4,5	4,0	3,5	3,0	3,0	3,0	2,5	2,0	2,0	2,0	1,5	1,5	
		120	4,0	3,5	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	
		130	4,0	3,5	3,0	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	
12		90	5,0	4,5	3,5	3,0	3,5	3,0	2,5	2,5	2,5	2,0	1,5	1,5	
	100	4,5	4,0	3,5	3,0	3,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5		
	110	4,0	3,5	3,0	2,5	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,0		
	120	3,5	3,0	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0		
	130	3,5	3,0	2,5	2,0	2,5	2,0	1,5	1,5	1,5	1,5	1,0	1,0		
traditional interlayer (PVB)	30	90	3,5	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	
		100	3,5	3,0	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	
		110	3,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	
		120	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	1,0	
		130	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	
	20	90	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	
		100	3,0	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	
		110	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	1,0	
		120	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,0	1,0	1,0	1,0	0,5	
		130	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	
	12	90	3,5	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	
		100	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	0,5	
110		2,5	2,5	2,0	1,5	2,0	1,5	1,5	1,0	1,0	1,0	0,5	0,5		
120		2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	0,5	0,5	0,5		
130		2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	0,5	0,5	0,5		
Outdoor	rigid-interlayer (Sentryglas®)	30	90	4,5	4,0	4,0	3,5	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5
			100	4,0	4,0	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5
			110	3,5	3,5	3,0	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0
			120	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0
			130	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0
	20	90	4,5	4,0	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	
		100	4,0	3,5	3,0	2,5	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,0	
		110	3,5	3,0	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	
		120	3,0	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	
		130	3,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	
	12	90	4,0	3,5	3,0	2,5	2,5	2,5	2,0	1,5	1,5	1,5	1,0	1,0	
		100	3,5	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	
110		3,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0		
120		3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,0	1,0	1,0	1,0	0,5		
130		2,5	2,0	2,0	2,0	2,0	1,5	1,5	1,0	1,0	1,0	1,0	0,5		
traditional interlayer (PVB)	30	90	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	
		100	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	
		110	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	1,0	
		120	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	
		130	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	0,5	0,5	
	20	90	3,0	3,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,0	1,0	1,0	
		100	3,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,0	1,0	1,0	1,0	
		110	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,0	1,0	1,0	1,0	0,5	
		120	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	0,5	0,5	
		130	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	
	12	90	3,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	
		100	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,0	1,0	1,0	1,0	0,5	
110		2,5	2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5		
120		2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5		
130		2,0	2,0	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	0,5		

table for point fixings with 50-mm stud in a 30-mm hole

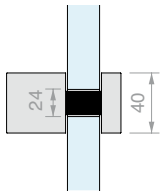


		Layer <sup>(3)</sup> →		12+12mm				10+10mm				8+8mm					
		Li(cm) →		30	40	50	60	30	40	50	60	30	40	50	60		
		Hi(cm)	H <sup>(1)</sup> (cm)														
Indoor	rigid interlayer (Sentryglas®)	30	90	5,0	5,0	4,5	4,0	4,0	3,5	3,0	3,0	2,5	2,5	2,0	2,0		
			100	5,0	4,5	4,0	3,5	3,0	3,0	2,5	2,0	2,0	1,5	1,5	1,5	1,5	
			110	4,5	4,0	3,5	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5
			120	4,0	3,5	3,5	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0
		20	90	5,0	4,5	4,0	3,5	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5
			100	4,5	4,0	3,5	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5
			110	4,0	4,0	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5
			120	4,0	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0
		12	90	3,5	3,0	3,0	2,5	2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	1,0
			100	4,5	4,0	3,5	3,0	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,0	1,0
			110	4,5	3,5	3,0	3,0	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,0	1,0
			120	4,0	3,0	3,0	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	1,0
	traditional interlayer (PVB)	30	90	3,5	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	
			100	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	
			110	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	
			120	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	
		20	90	2,5	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	0,5	
			100	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,0	1,0	
			110	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	0,5	
			120	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	0,5
		12	90	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	0,5
			100	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	1,0	
			110	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	0,5	0,5	0,5
			120	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	0,5
Outdoor	rigid interlayer (Sentryglas®)	30	90	4,5	4,0	3,5	3,0	3,0	2,5	2,0	2,0	1,5	1,5	1,0	1,0		
			100	4,0	3,5	3,0	3,0	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0		
			110	3,5	3,0	3,0	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,0	1,0	
			120	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,0	1,0	
		20	90	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	1,0	
			100	4,0	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,0	
			110	3,5	3,0	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,0	
			120	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
		12	90	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
			100	3,5	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
			110	3,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
			120	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
	traditional interlayer (PVB)	30	90	3,0	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,0	1,0	
			100	3,0	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	1,0	
			110	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	1,0	
			120	2,5	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	1,0	
		20	90	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	
			100	3,0	3,0	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
			110	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
			120	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	
		12	90	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	
			100	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
			110	2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	
			120	2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,0	1,0	1,0	1,0	0,5	0,5	





table for point fixings with 40-mm stud in a 24-mm hole



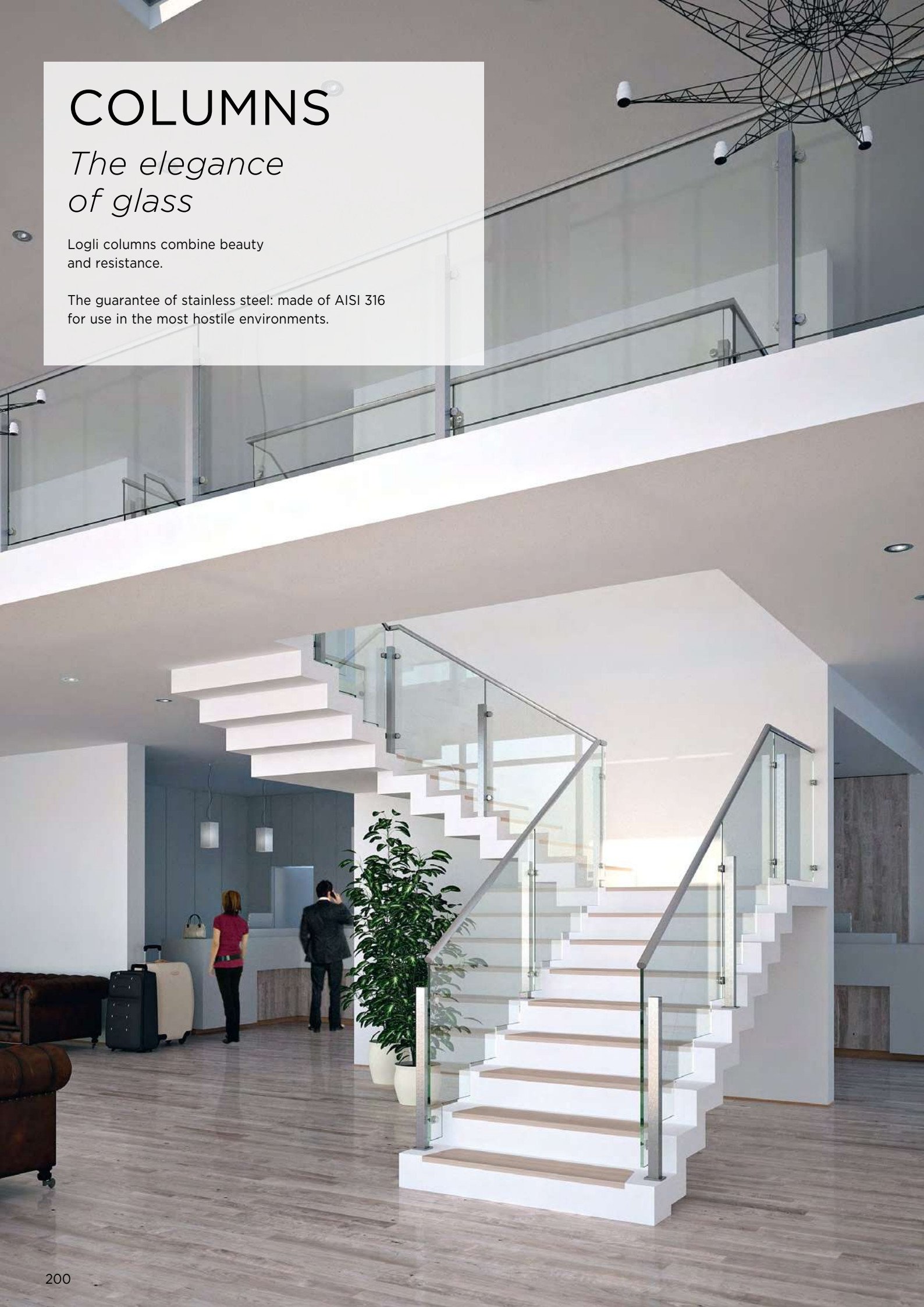
		Layer <sup>(3)</sup> →		12+12mm				10+10mm				8+8mm						
		Li(cm) →		30	40	50	60	30	40	50	60	30	40	50	60			
		Hi(cm)	H <sup>(1)</sup> (cm)															
Indoor	rigid interlayer (Sentryglas®)	30	90	5,0	4,5	4,5	4,0	3,5	3,5	3,0	2,5	2,5	2,0	2,0	2,0	1,5		
			100	4,5	4,0	4,0	3,5	3,5	3,0	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
			110	4,0	4,0	3,5	3,0	3,0	2,5	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5
			120	4,0	3,5	3,0	3,0	2,5	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0
			130	3,5	3,0	3,0	2,5	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0
		20	90	5,0	4,5	4,0	3,5	3,5	3,0	2,5	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5
			100	4,5	4,0	3,5	3,0	3,0	2,5	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5
			110	4,0	3,5	3,0	2,5	2,5	2,5	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5
			120	3,5	3,0	3,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,0	1,0	1,0
			130	3,5	3,0	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	1,0	1,0
		12	90	4,5	3,5	3,0	2,5	2,5	2,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,0
			100	4,0	3,0	2,5	2,5	2,5	2,0	2,5	2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,0
	110		3,5	3,0	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
	120		3,0	2,5	2,0	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
	130		3,0	2,5	2,0	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,0	
	traditional interlayer (PVB)	30	90	3,5	3,0	2,5	2,5	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	
			100	3,0	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
			110	2,5	2,5	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
			120	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
			130	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
		20	90	3,0	3,0	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	
			100	3,0	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
			110	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
			120	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
130			2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
12		90	3,0	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
		100	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
	110	2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5			
	120	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5			
	130	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5			
Outdoor	rigid interlayer (Sentryglas®)	30	90	4,0	3,5	3,5	3,0	3,0	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5		
			100	3,5	3,5	3,0	2,5	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	
			110	3,5	3,0	2,5	2,5	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	
			120	3,0	2,5	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	
			130	3,0	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
		20	90	4,0	3,5	3,0	2,5	2,5	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	
			100	3,5	3,0	2,5	2,5	2,5	2,5	2,5	2,0	2,0	2,0	1,5	1,5	1,5	1,5	
			110	3,0	2,5	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	
			120	3,0	2,5	2,0	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	
			130	2,5	2,5	2,0	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	
		12	90	3,5	3,0	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	
			100	3,0	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
	110		2,5	2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
	120		2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
	130		2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
	traditional interlayer (PVB)	30	90	3,0	3,0	2,5	2,5	2,5	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5		
			100	2,5	2,5	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
			110	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
			120	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
			130	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
		20	90	3,0	2,5	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5		
			100	2,5	2,5	2,0	2,0	2,0	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5		
			110	2,5	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
			120	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5		
130			2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5			
12		90	2,5	2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5			
		100	2,5	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5			
	110	2,0	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5				
	120	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5				
	130	2,0	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5				

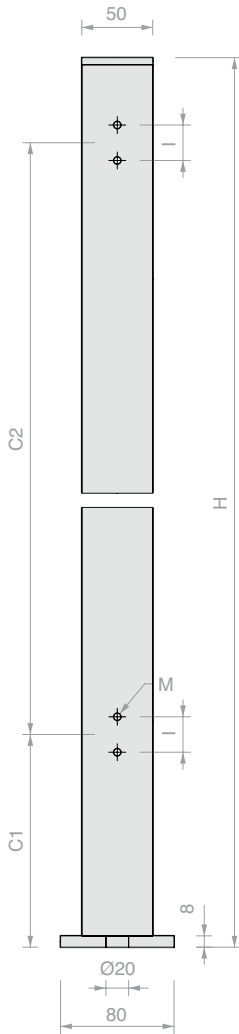
# COLUMNS

## *The elegance of glass*

Logli columns combine beauty  
and resistance.

The guarantee of stainless steel: made of AISI 316  
for use in the most hostile environments.





**SERIES 400 AND 500 SQUARE COLUMNS FOR ATT SERIES POINT FIXINGS**

Material: AISI 316 stainless steel

50 x 50 mm columns with floor fixing.

Base plate 80 x 80, welded to the column.

Anchoring with a single M16 x 200 mm threaded rod, with nut and washer

Finish: /8 /15

Recommended installation tool Art. MONCH16, to be ordered separately

CONFIGURATION OF THE COLUMN

4 HOLES



Art.	H	I	M	C1	C2	Qty
<b>MQ404-AISI316</b>	970 mm	26 mm	<b>M6</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
<b>MQ504-AISI316</b>	970 mm	27 mm	<b>M8</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
<b>MQC54-AISI316</b>	max 1100 mm	26/27 mm	<b>M6/M8</b>	to order	max 750 mm	1 Pc

8 HOLES



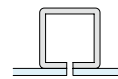
Art.	H	I	M	C1	C2	Qty
<b>MQ408-AISI316</b>	970 mm	26 mm	<b>M6</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
<b>MQ508-AISI316</b>	970 mm	27 mm	<b>M8</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
<b>MQC58-AISI316</b>	max 1100 mm	26/27 mm	<b>M6/M8</b>	to order	max 750 mm	1 Pc

LAYOUT GUIDE:

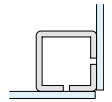
A) ON END



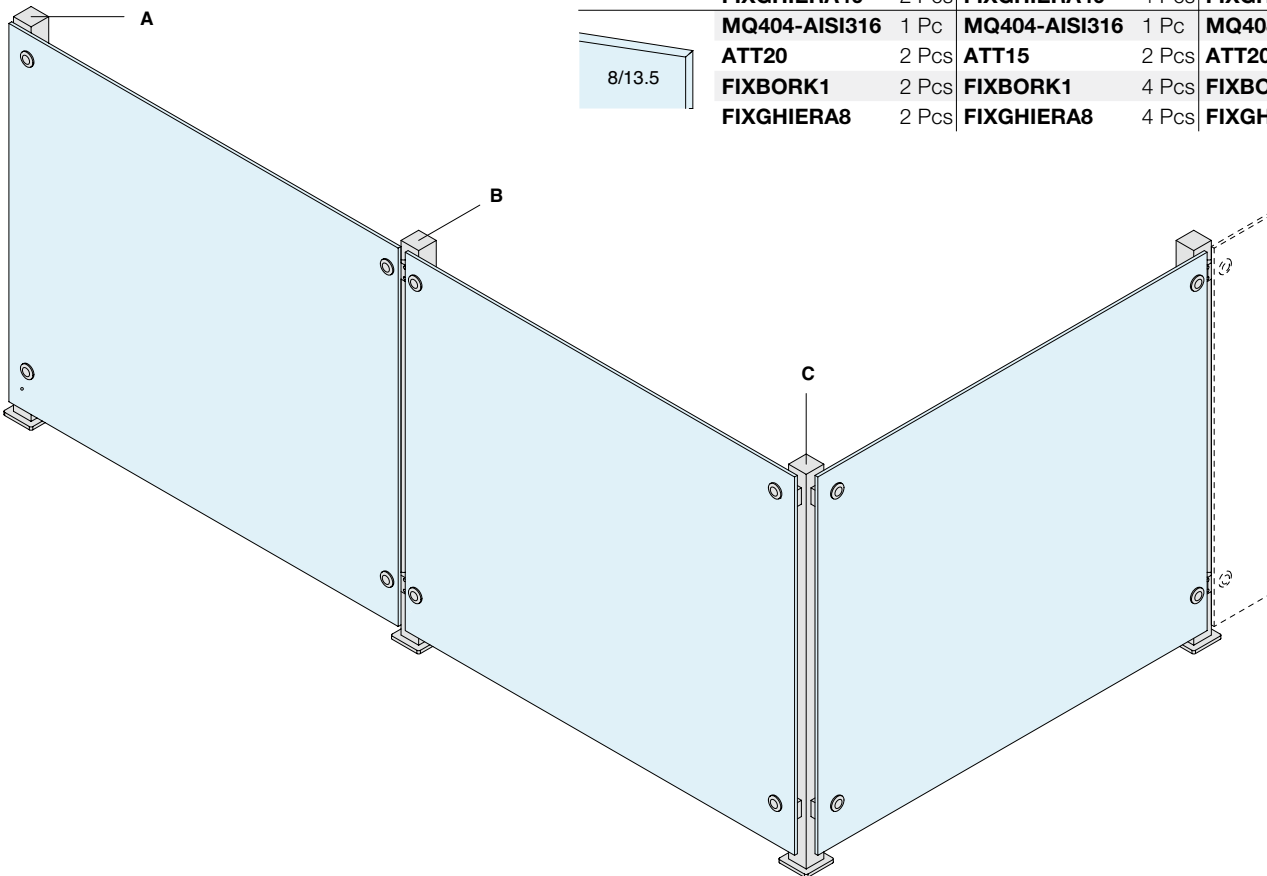
B) IN LINE



C) 90° CORNER



Art.	Qty	Art.	Qty	Art.	Qty
<b>MQ504-AISI316</b>	1 Pc	<b>MQ504-AISI316</b>	1 Pc	<b>MQ508-AISI316</b>	1 Pc
<b>ATT50</b>	2 Pcs	<b>ATT45</b>	2 Pcs	<b>ATT50</b>	4 Pcs
<b>FIXBORK40</b>	2 Pcs	<b>FIXBORK40</b>	4 Pcs	<b>FIXBORK40</b>	4 Pcs
<b>FIXGHIERA40</b>	2 Pcs	<b>FIXGHIERA40</b>	4 Pcs	<b>FIXGHIERA40</b>	4 Pcs
<b>MQ404-AISI316</b>	1 Pc	<b>MQ404-AISI316</b>	1 Pc	<b>MQ408-AISI316</b>	1 Pc
<b>ATT20</b>	2 Pcs	<b>ATT15</b>	2 Pcs	<b>ATT20</b>	4 Pcs
<b>FIXBORK1</b>	2 Pcs	<b>FIXBORK1</b>	4 Pcs	<b>FIXBORK1</b>	4 Pcs
<b>FIXGHIERA8</b>	2 Pcs	<b>FIXGHIERA8</b>	4 Pcs	<b>FIXGHIERA8</b>	4 Pcs

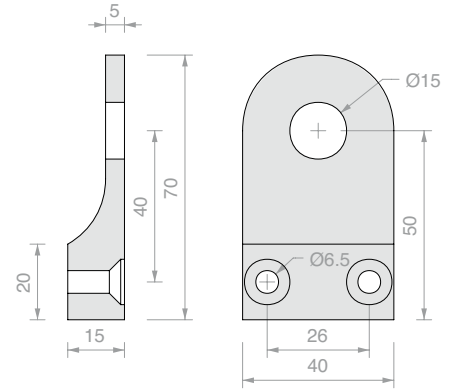
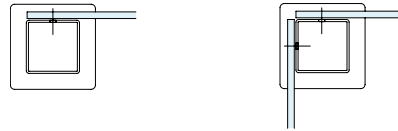






**SINGLE BRACKET FOR  
FIXING ON COLUMNS**

Material: AISI 304 stainless steel  
 Can be used for fixing end panes and at 90° on series 400 MQ columns.  
 Recommended connector Art. FIXBORK1 with ring Art. FIXGHIERA8  
 Finish: /8 /15

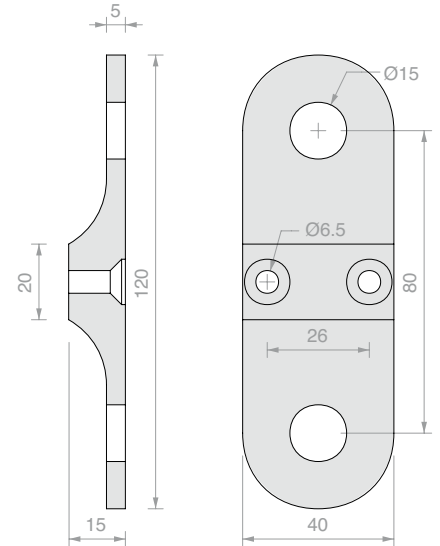
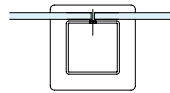


Art.	Qty
<b>ATT20</b>	1 Pc



**DOUBLE BRACKET FOR  
FIXING ON COLUMNS**

Material: AISI 304 stainless steel  
 Can be used for in-line fixing of glass on series 400 MQ columns.  
 Recommended connector Art. FIXBORK1 with ring Art. FIXGHIERA8  
 Finish: /8 /15

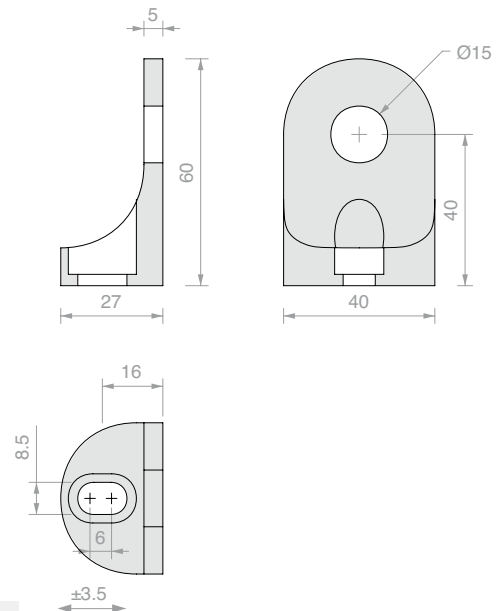


Art.	Qty
<b>ATT15</b>	1 Pc



**SINGLE BRACKET**

Material: AISI 304 stainless steel  
 Ancoraggio staffa a pavimento mediante vite a testa cilindrica con cava esagonale M8x40 mm (in dotazione).  
 Recommended connector Art. FIXBORK1 with ring Art. FIXGHIERA8  
 Finish: /8 /15

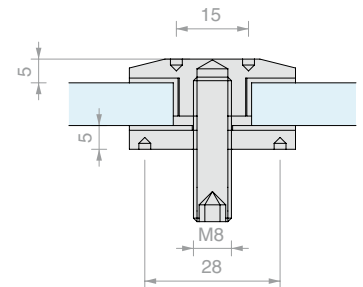
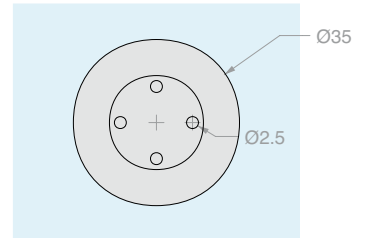


Art.	Qty
<b>ATT10</b>	1 Pc



### FIXING STUD FOR ATT SERIES BRACKETS

Material: AISI 304 stainless steel  
 Compatible with fixing glass to brackets  
 ATT10/15/20  
 Supplied with M8 x 30 mm grub screw  
 Recommended glass hole size Ø18 mm  
 Finish: /9  
 Recommended installation tool Art. UT250

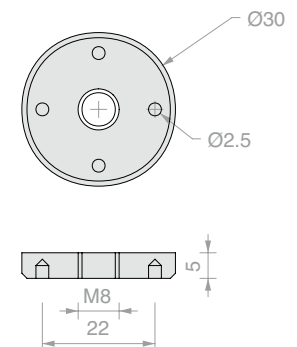


Art.	For glass	Qty
<b>FIXBORK1</b>	From 8 mm	1 Pc



### BACK FIXING RING FOR ATT SERIES BRACKETS

Material: AISI 304 stainless steel  
 Compatible with fixing article FIXBORK1\*  
 to brackets ATT10/15/20  
 Finish: /9  
 Recommended installation tool Art. UT250



Art.	M	Qty
<b>FIXGHIERA8*</b>	<b>M8</b>	1 Pc
<b>FIXGHIERA10</b>	<b>M10</b>	1 Pc



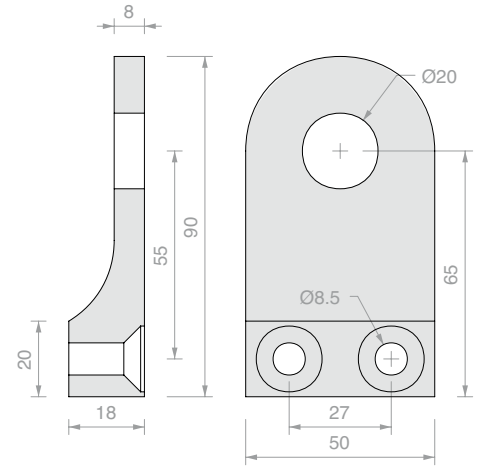
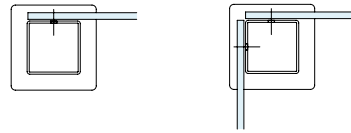
**SINGLE BRACKET FOR FIXING ON COLUMNS**

Material: AISI 316 stainless steel

Can be used for fixing end panes and at 90° on series 500 MQ columns.

Recommended connector Art. FIXBORK40 with ring Art. FIXGHIERA40 or Art. PVTB or Art. PVTS.

Finish: /8 /15



Art.	Qty
<b>ATT50</b>	1 Pc



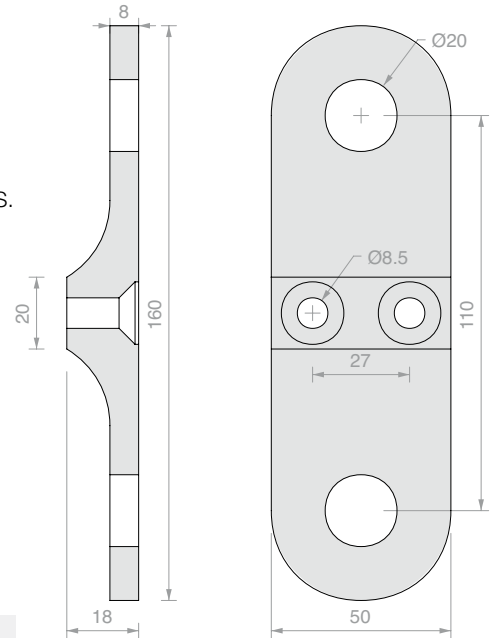
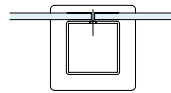
**DOUBLE BRACKET FOR FIXING ON COLUMNS**

Material: AISI 316 stainless steel

Can be used for in-line fixing of glass on series 500 MQ columns.

Recommended connector Art. FIXBORK40 with ring Art. FIXGHIERA40 or Art. PVTB or Art. PVTS.

Finish: /8 /15



Art.	Qty
<b>ATT45</b>	1 Pc



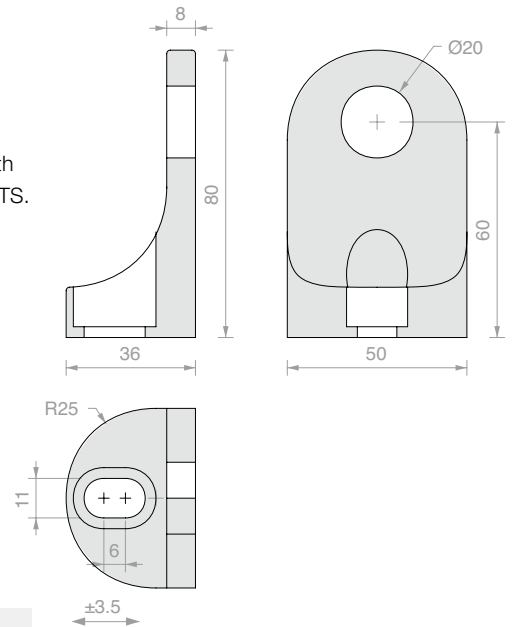
**SINGLE BRACKET FOR FIXING**

Material: AISI 316 stainless steel

Ancoraggio staffa a pavimento mediante vite a testa cilindrica con cava esagonale M10 x 40 mm (in dotazione).

Recommended connector Art. FIXBORK40 with ring Art. FIXGHIERA40 or Art. PVTB or Art. PVTS.

Finish: /8 /15

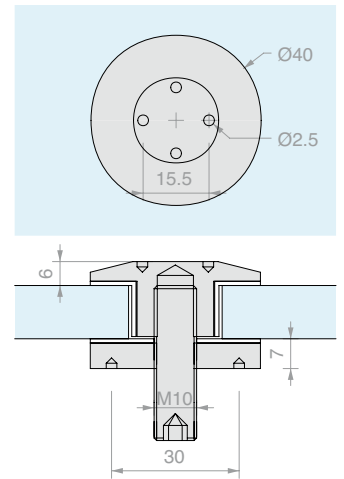


Art.	Qty
<b>ATT40</b>	1 Pc



**FIXING STUD**

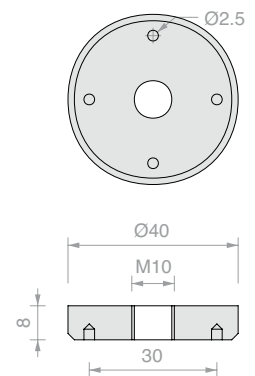
Material: AISI 316 stainless steel  
 Supplied with M10 x 45 mm grub screw  
 Recommended glass hole size  $\varnothing 22$  mm  
 Finish: /9  
 Recommended installation tool Art. UT250



Art.	For glass	Qty
<b>FIXBORK40</b>	From 10 mm	1 Pc

**FIXING RING**

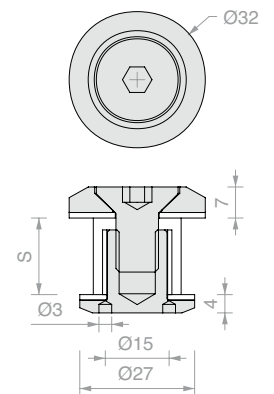
Material: AISI 304 stainless steel  
 Can be used to fix Art. FIXBORK40  
 on clamps ATT40/45/50  
 Finish: /9  
 Recommended installation tool Art. UT250



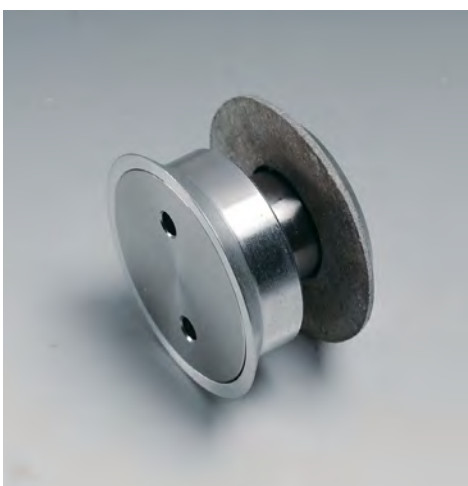
Art.	Qty
<b>FIXGHIERA40</b>	1 Pc

**FIXING STUD**

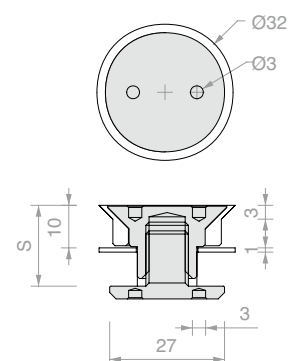
Material: AISI 316 stainless steel  
 Recommended glass hole size  $\varnothing 18$  mm  
 Finish: /9  
 Recommended installation tool Art. UT300



Art.	S	Qty
<b>PVTB</b>	From 16 to 22 mm	1 Pc

**COUNTERSUNK FIXING CONNECTOR**

Material: AISI 316 stainless steel  
 Recommended glass hole size  $\varnothing 26$  countersink  
 3 mm  
 Finish: /9  
 Recommended installation tool Art. UT300



Art.	S	Qty
<b>PVTS</b>	From 18 to 24 mm	1 Pc

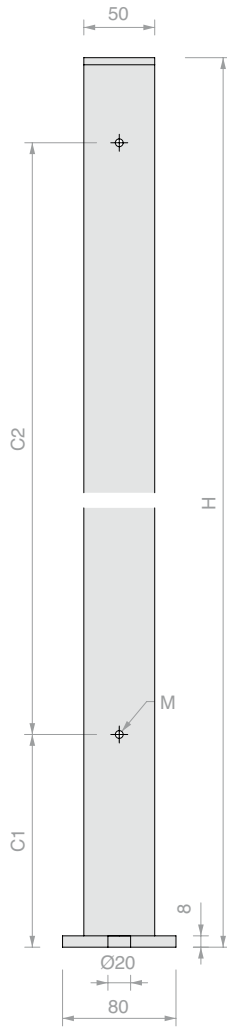
# COLUMNS

*The rigidity  
of glass*

Logli columns combine beauty and resistance.

The guarantee of stainless steel: made of AISI 316 for use in the most hostile environments.





**SERIES 600 AND 700 SQUARE COLUMNS FOR FIXING WITH CLAMPS**

Material: AISI 316 stainless steel

50 x 50 mm columns with floor fixing.

H cut to size (max. 1100 mm) with customised hole spacing.

Base plate 80 x 80, welded to the column.

Anchoring with a single M14 x 200 mm threaded rod, with nut and washer

Finish: /8 /15

Recommended installation tool Art. MONCH16, to be ordered separately

CONFIGURATION OF THE COLUMN

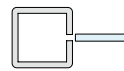
2 HOLES	Art.	H	M	C1	C2	Qty
	<b>MQ602-AISI316</b>	970 mm	<b>M8</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
	<b>MQ702-AISI316</b>	970 mm	<b>M10</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
	<b>MQC72-AISI316</b>	max 1100 mm	<b>M8/M10</b>	to order	max 750 mm	1 Pc

4 HOLES	Art.	H	M	C1	C2	Qty
	<b>MQ606LIN-316</b>	970 mm	<b>M8</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
	<b>MQ706LIN-316</b>	970 mm	<b>M10</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
	<b>MQC76LIN-316</b>	max 1100 mm	<b>M8/M10</b>	to order	max 750 mm	1 Pc

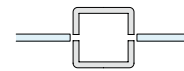
4 HOLES	Art.	H	M	C1	C2	Qty
	<b>MQ60490-316</b>	970 mm	<b>M8</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
	<b>MQ70490-316</b>	970 mm	<b>M10</b>	<b>115 mm</b>	<b>650 mm</b>	1 Pc
	<b>MQC7490-316</b>	max 1100 mm	<b>M8/M10</b>	to order	max 750 mm	1 Pc

LAYOUT GUIDE:

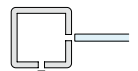
A) ON END



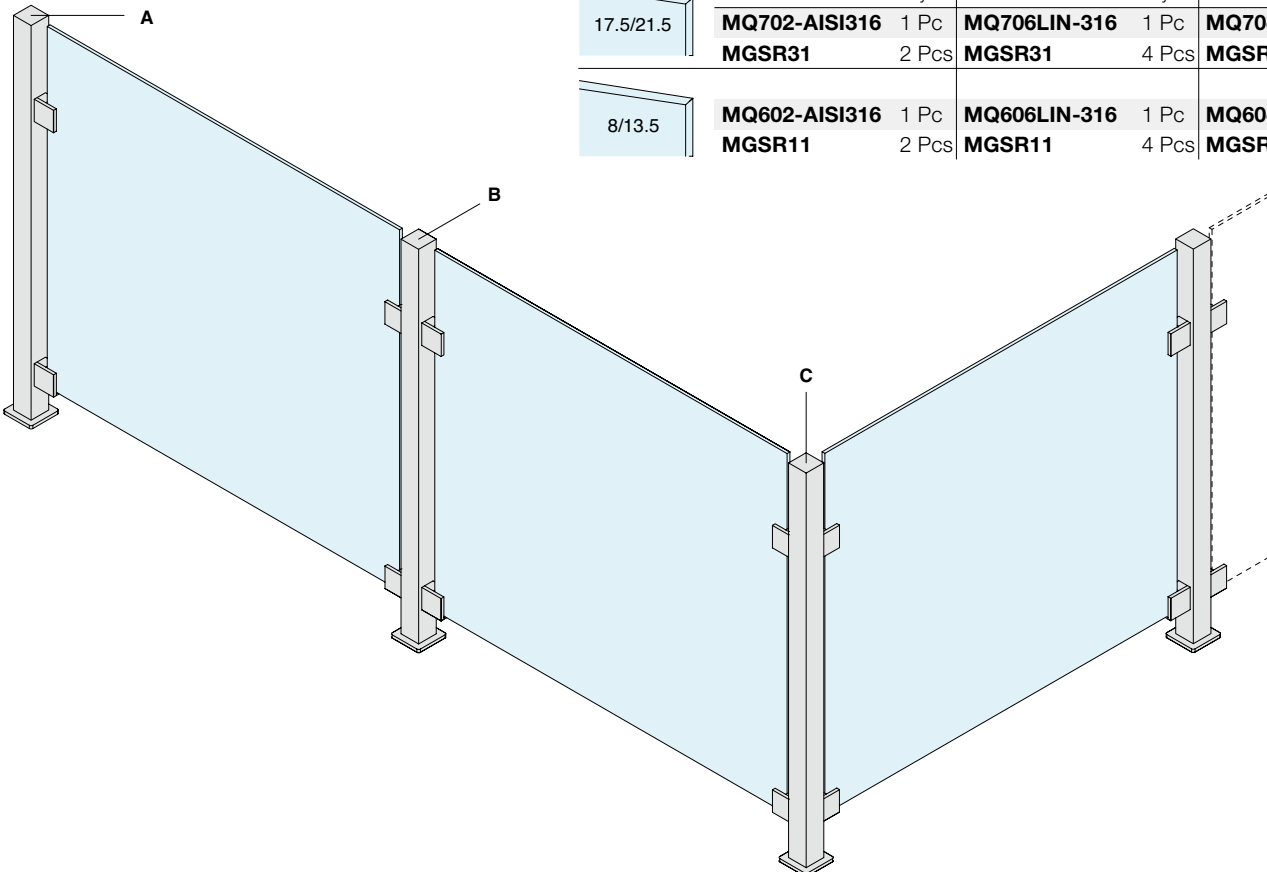
B) IN LINE



C) 90° CORNER



	Art.	Qty	Art.	Qty	Art.	Qty
	<b>MQ702-AISI316</b>	1 Pc	<b>MQ706LIN-316</b>	1 Pc	<b>MQ70490-316</b>	1 Pc
	<b>MGSR31</b>	2 Pcs	<b>MGSR31</b>	4 Pcs	<b>MGSR31</b>	4 Pcs
	<b>MQ602-AISI316</b>	1 Pc	<b>MQ606LIN-316</b>	1 Pc	<b>MQ60490-316</b>	1 Pc
	<b>MGSR11</b>	2 Pcs	<b>MGSR11</b>	4 Pcs	<b>MGSR11</b>	4 Pcs







**CARRÉ SERIES CLAMP**

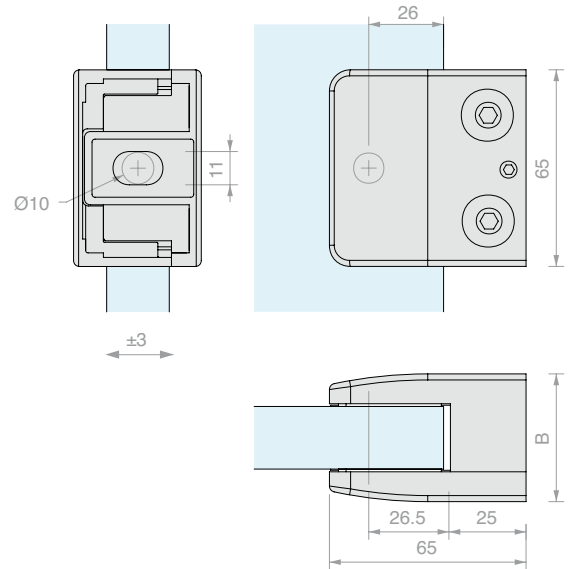
Material: AISI 316 stainless steel

Can be used for fixing glass to MQ columns 700 series.

Supplied with support angle and removable safety pin.

Recommended optional glass hole size Ø12 mm.

Finish: /8 /15



Art.	B	For glass	Qty
<b>MGSR31</b>	42.2 mm	17.5 - 21.5 mm	1 Pc
<b>MGSR31255</b>	45.2 mm	25.5 mm	1 Pc



**CARRÉ SERIES CLAMP**

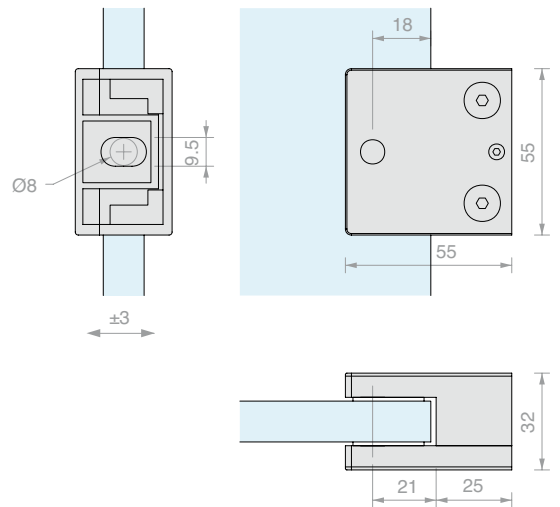
Material: AISI 316 stainless steel

Can be used for fixing glass to MQ columns 600 series.

Supplied with support angle and removable safety pin.

Recommended optional glass hole size Ø10 mm.

Finish: /8 /15



Art.	For glass	Qty
<b>MGSR11</b>	8 - 10 - 11.5 - 13.5 mm	1 Pc



### CARRÉ SERIES CLAMP FOR TUBULAR COLUMNS

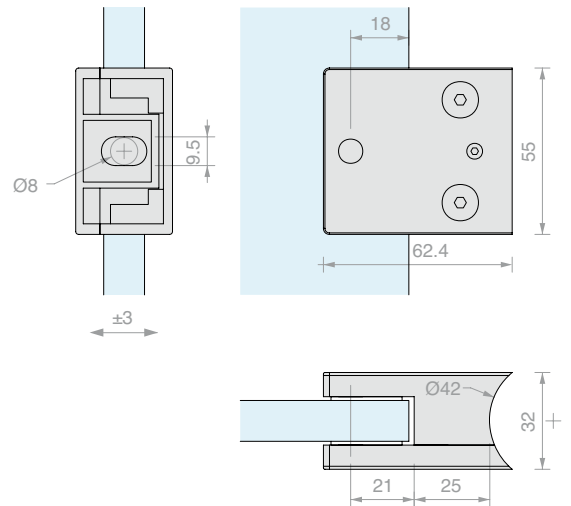
Material: AISI 316 stainless steel

Can be used for fixing glass on Ø42 mm columns.

Supplied with support angle and removable safety pin.

Recommended optional glass hole size Ø10 mm.

Finish: /8 /15



Art.	For glass	Qty
<b>MGSR13</b>	<b>8 - 10 - 11.5 - 13.5 mm</b>	<b>1 Pc</b>



### CARRÉ SERIES CLAMP

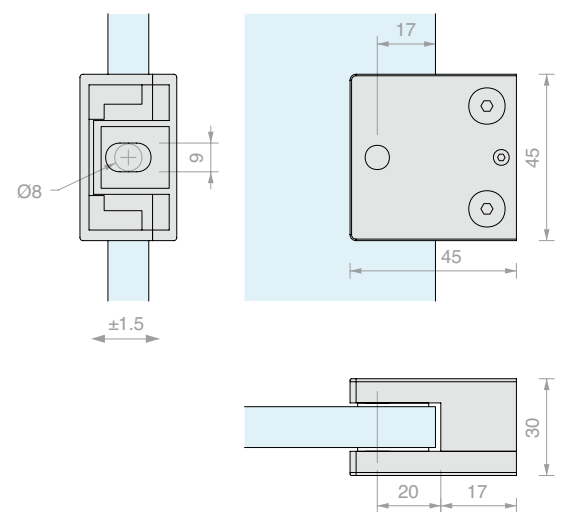
Material: AISI 316 stainless steel

Can be used for fixing glass to MQ columns 600 series.

Supplied with support angle and removable safety pin.

Recommended optional glass hole size Ø10 mm.

Finish: /8 /15



Art.	For glass	Qty
<b>MGSR01</b>	<b>6 - 8 - 10 mm</b>	<b>1 Pc</b>



**BALLON SERIES CLAMP**

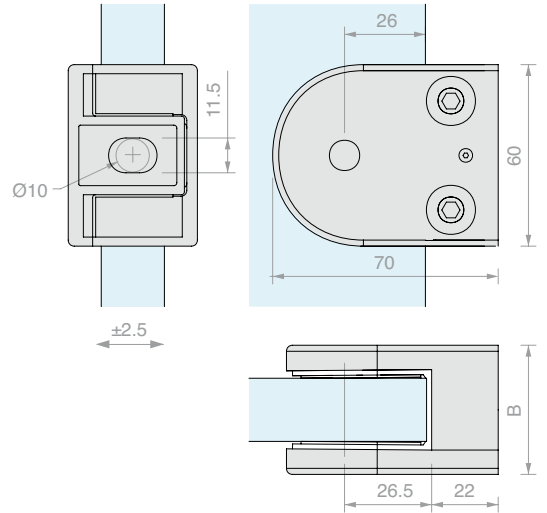
Material: AISI 316 stainless steel

Can be used for fixing glass to MQ columns 700 series.

Supplied with removable safety pin.

Recommended optional glass hole size Ø12 mm.

Finish: /8 /15



Art.	B	For glass	Qty
<b>MGS21</b>	43 mm	17.5 - 21.5 mm	1 Pc
<b>MGS21255</b>	47 mm	25.5 mm	1 Pc



**BALLON SERIES CLAMP**

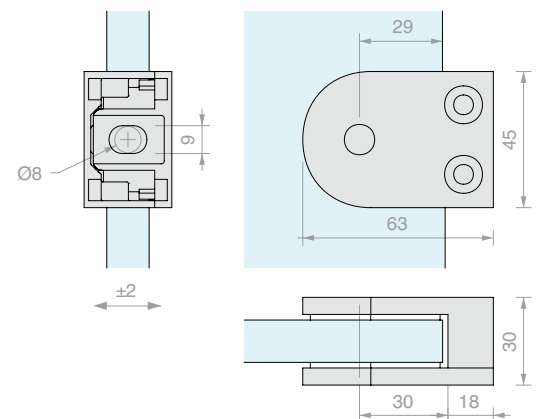
Material: AISI 316 stainless steel

Can be used for fixing glass to MQ columns 600 series.

Supplied with removable safety pin.

Recommended optional glass hole size Ø14 mm.

Finish: /8 /15



Art.	For glass	Qty
<b>MS1207.006</b>	6 mm	1 Pc
<b>MS1207.008</b>	8 mm	1 Pc
<b>MS1207.087</b>	8.7 mm	1 Pc
<b>MS1207.010</b>	10 mm	1 Pc
<b>MS1207.107</b>	10.7 mm	1 Pc
<b>MS1207.012</b>	12 mm	1 Pc
<b>MS1207.127</b>	12.7 mm	1 Pc





**BALLON SERIES CLAMP**

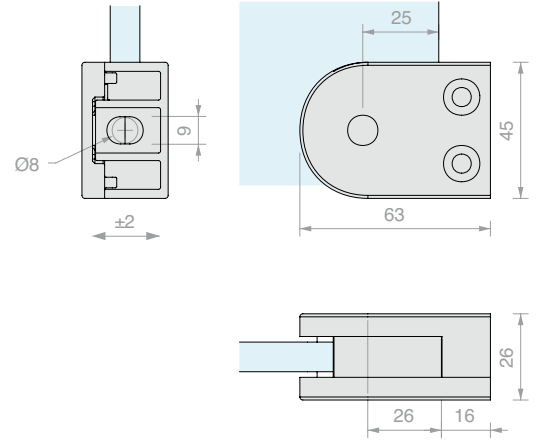
Material: AISI 316 stainless steel

Can be used for fixing glass on MQ columns 600 series,

Supplied with support angle and removable safety pin.

Recommended optional glass hole size Ø14 mm.

Finish: /8 /15



Art.	For glass	Qty
<b>MS1250</b>	From 6 to 12.7 mm	1 Pc

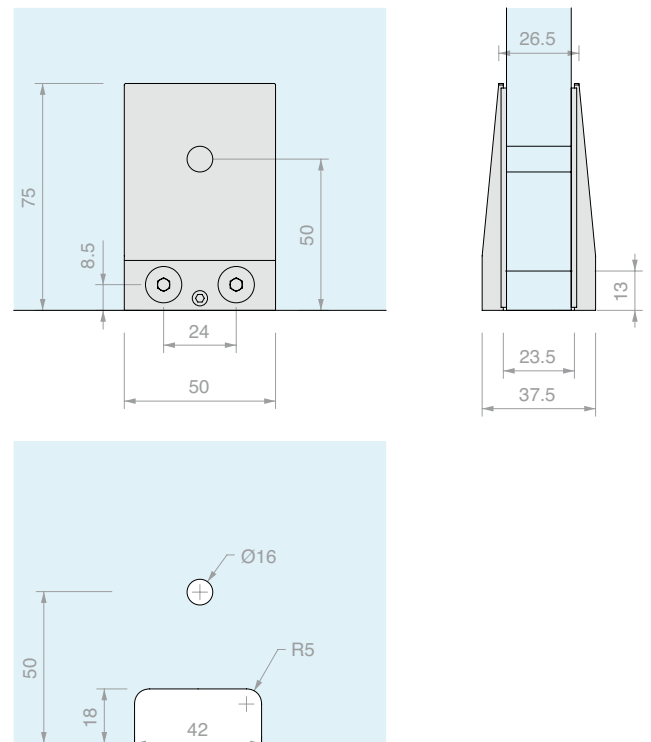


**TRAPEZOIDAL CLAMP**

Material: AISI 316 stainless steel

Removable safety pin

Finish: /8 /15



Art.	For glass	Qty
<b>MA402</b>	From 15 to 21.5 mm	1 Pc



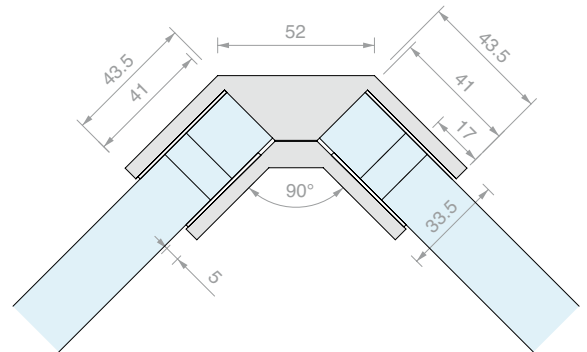
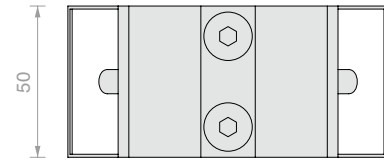
**90° CLAMP**

Material: AISI 316 stainless steel

Removable security pins

Recommended optional glass hole size Ø12 mm.

Finish: /8 /15



Art.	For glass	Qty
<b>MBLK90</b>	From 17.5 to 21.5 mm	1 Pc



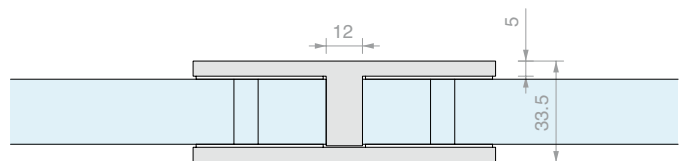
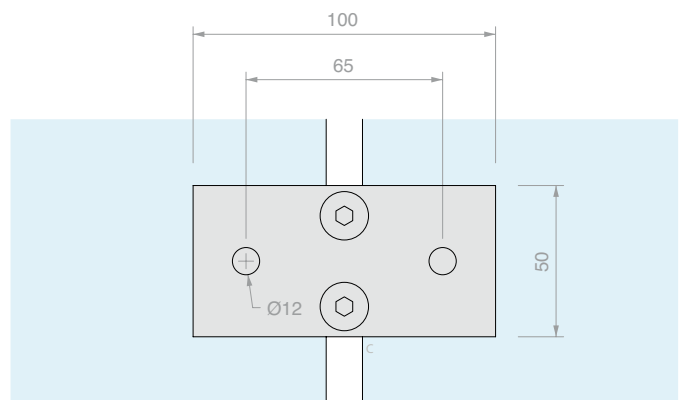
**180° CLAMP**

Material: AISI 316 stainless steel

Removable security pins

Recommended optional glass hole size Ø10 mm.

Finish: /8 /15



Art.	For glass	Qty
<b>MBLK180</b>	From 17.5 to 21.5 mm	1 Pc



### SPARE PARTS FOR COLUMNS

Material: AISI 316 stainless steel, galvanised steel

Spare parts for MQ series columns comprising a top cap, M16 x 200 mm threaded rod, nut and washer.

Finish: /8 /15

Art.	Qty
<b>MONACC</b>	1 Pc



### WRENCH FOR COLUMNS

Material: steel

Tool required for floor installation of MQ series columns

Art.	Qty
<b>MONCH16</b>	1 Pc



### PIN WRENCH

#### FOR Ø3/Ø2.5/Ø2 mm BLIND HOLES

Material: iron body and steel pins

The compass opening allows to operate with wide radiuses, for pair of holes with a centre distance between 9 mm and 55 mm

Art.	Description	Qty
<b>UT300</b>	Pin wrench with Ø2.9 mm pins	1 Pc
<b>UTC300R</b>	N.2 spare pins Ø2.9 mm	1 Pc
<b>UT250</b>	Pin wrench with Ø2.4 mm pins	1 Pc
<b>UTC250R</b>	N.2 spare pins Ø2.4 mm	1 Pc
<b>UT200</b>	Pin wrench with Ø1.8 mm pins	1 Pc
<b>UTC200R</b>	N.2 spare pins Ø1.8 mm	1 Pc



# HANDRAILS

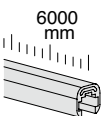
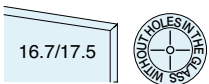




**SQUARE STRUCTURAL HANDRAIL KIT FOR GLASS 8+8 MM**

Material: Aluminium

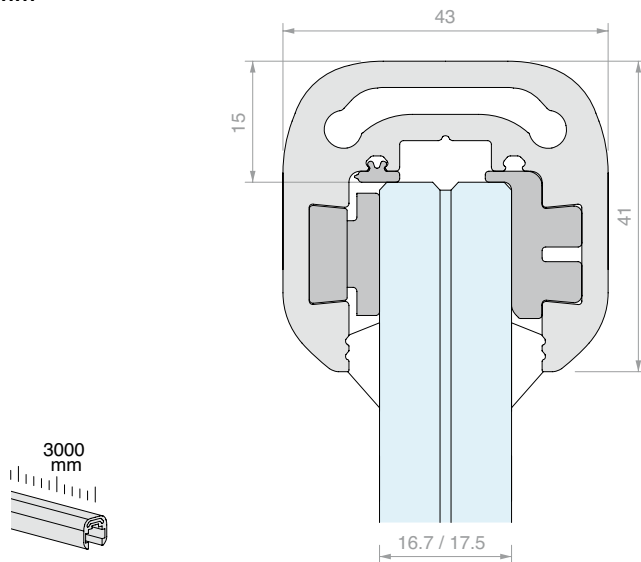
Finish: /10 /88 /97



Kit comprising:

Art.	Description	Qty.
<b>CORLM01</b>	Round handrail profile	1 Pc
<b>CORLM33</b>	Pressor	24 Pcs
<b>CORLM41</b>	Glass clamping seal	6 m
<b>GTUP4</b>	Glass holder seal	12 m

Art.	Length	Qty
<b>CORLM1760C</b>	<b>6000 mm</b>	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>CORLM03</b>	Round handrail profile	1 Pc
<b>CORLM33</b>	Pressor	12 Pcs
<b>CORLM41</b>	Glass clamping seal	3 m
<b>GTUP4</b>	Glass holder seal	6 m

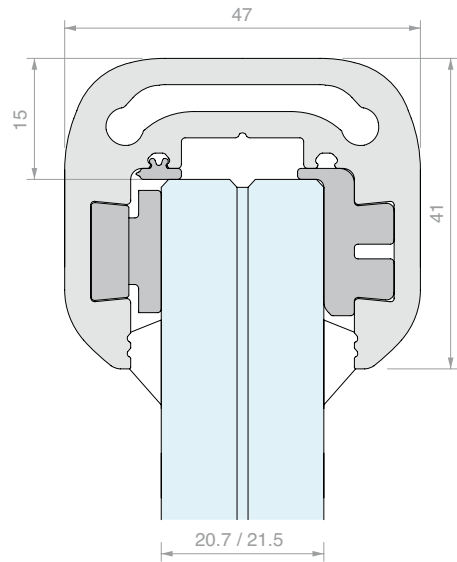
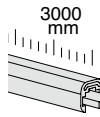
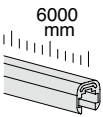
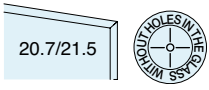
Art.	Length	Qty
<b>CORLM1730C</b>	<b>3000 mm</b>	1 Pc



**SQUARE STRUCTURAL HANDRAIL KIT FOR GLASS 10+10 MM**

Material: Aluminium

Finish: /10 /88 /97



Kit comprising:

Art.	Description	Qty.
<b>CORLM05</b>	Round handrail profile	1 Pc
<b>CORLM33</b>	Pressor	24 Pcs
<b>CORLM41</b>	Glass clamping seal	6 m
<b>GTUP4</b>	Glass holder seal	12 m

Kit comprising:

Art.	Description	Qty.
<b>CORLM07</b>	Round handrail profile	1 Pc
<b>CORLM33</b>	Pressor	12 Pcs
<b>CORLM41</b>	Glass clamping seal	3 m
<b>GTUP4</b>	Glass holder seal	6 m

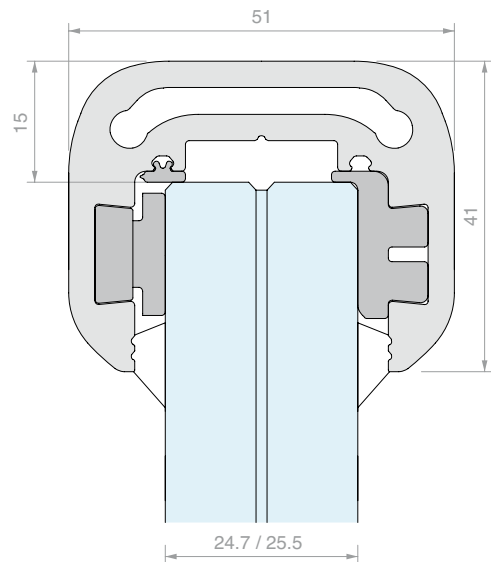
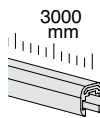
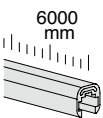
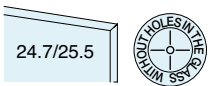
Art.	Length	Qty.
<b>CORLM2160C</b>	6000 mm	1 Pc

Art.	Length	Qty.
<b>CORLM2130C</b>	3000 mm	1 Pc

**SQUARE STRUCTURAL HANDRAIL KIT FOR GLASS 12+12 MM**

Material: Aluminium

Finish: /10 /88 /97



Kit comprising:

Art.	Description	Qty.
<b>CORLM255C.60</b>	Round handrail profile	1 Pc
<b>CORLM33</b>	Pressor	24 Pcs
<b>CORLM41</b>	Glass clamping seal	6 m
<b>GTUP4</b>	Glass holder seal	12 m

Kit comprising:

Art.	Description	Qty.
<b>CORLM255C.30</b>	Round handrail profile	1 Pc
<b>CORLM33</b>	Pressor	12 Pcs
<b>CORLM41</b>	Glass clamping seal	3 m
<b>GTUP4</b>	Glass holder seal	6 m

Art.	Length	Qty.
<b>CORLM2560C</b>	6000 mm	1 Pc

Art.	Length	Qty.
<b>CORLM2530C</b>	3000 mm	1 Pc

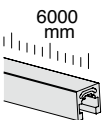




**SQUARE STRUCTURAL HANDRAIL KIT FOR GLASS 8+8 MM**

Material: Aluminium

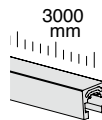
Finish: /10 /88 /97



Kit comprising:

Art.	Description	Qty.
<b>CORLM09</b>	Square handrail profile	1 Pc
<b>CORLM33</b>	Pressor	24 Pcs
<b>CORLM41</b>	Glass clamping seal	6 m
<b>GTUP4</b>	Glass holder seal	12 m

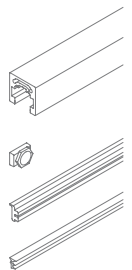
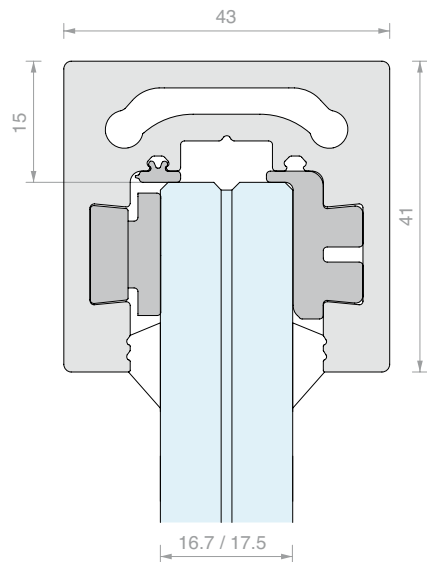
Art.	Length	Qty
<b>CORLM1760S</b>	<b>6000 mm</b>	1 Pc



Kit comprising:

Art.	Description	Qty.
<b>CORLM11</b>	Square handrail profile	1 Pc
<b>CORLM33</b>	Pressor	12 Pcs
<b>CORLM41</b>	Glass clamping seal	3 m
<b>GTUP4</b>	Glass holder seal	6 m

Art.	Length	Qty
<b>CORLM1730S</b>	<b>3000 mm</b>	1 Pc

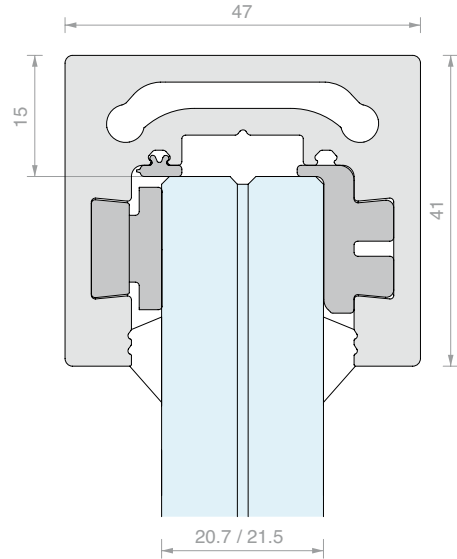
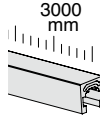
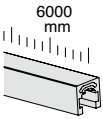
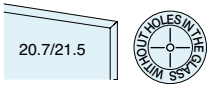




SQUARE STRUCTURAL HANDRAIL KIT FOR GLASS 10+10 MM

Material: Aluminium

Finish: /10 /88 /97



Kit comprising:

Art.	Description	Qty.
<b>CORLM13</b>	Square handrail profile	1 Pc
<b>CORLM33</b>	Pressor	24 Pcs
<b>CORLM41</b>	Glass clamping seal	6 m
<b>GTUP4</b>	Glass holder seal	12 m

Kit comprising:

Art.	Description	Qty.
<b>CORLM15</b>	Square handrail profile	1 Pc
<b>CORLM33</b>	Pressor	12 Pcs
<b>CORLM41</b>	Glass clamping seal	3 m
<b>GTUP4</b>	Glass holder seal	6 m

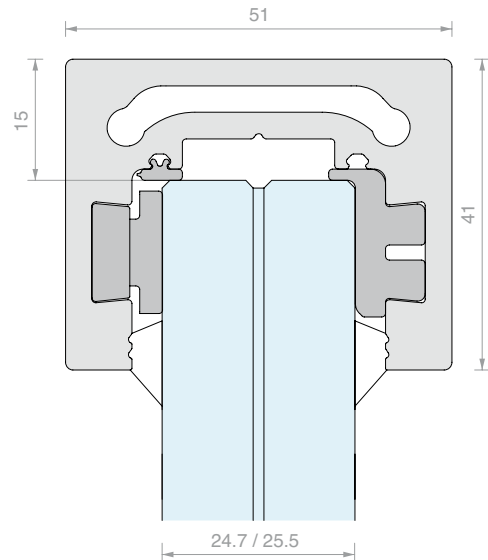
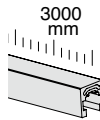
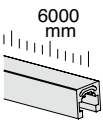
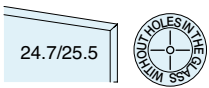
Art.	Length	Qty.
<b>CORLM2160S</b>	6000 mm	1 Pc

Art.	Length	Qty.
<b>CORLM2130S</b>	3000 mm	1 Pc

SQUARE STRUCTURAL HANDRAIL KIT FOR GLASS 12+12 MM

Material: Aluminium

Finish: /10 /88 /97



Kit comprising:

Art.	Description	Qty.
<b>CORLM255S.60</b>	Square handrail profile	1 Pc
<b>CORLM33</b>	Pressor	24 Pcs
<b>CORLM41</b>	Glass clamping seal	6 m
<b>GTUP4</b>	Glass holder seal	12 m

Kit comprising:

Art.	Description	Qty.
<b>CORLM255S.30</b>	Square handrail profile	1 Pc
<b>CORLM33</b>	Pressor	12 Pcs
<b>CORLM41</b>	Glass clamping seal	3 m
<b>GTUP4</b>	Glass holder seal	6 m

Art.	Length	Qty.
<b>CORLM2560S</b>	6000 mm	1 Pc

Art.	Length	Qty.
<b>CORLM2530S</b>	3000 mm	1 Pc





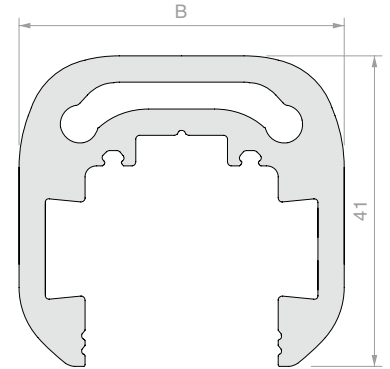




**ROUND HANDRAIL PROFILE**

Material: Aluminium

Finish: /10 /88 /97



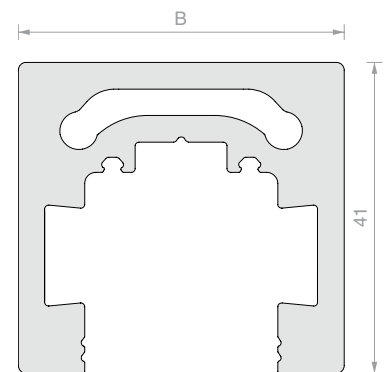
Art.	B	Length	For glass	Qty
<b>CORLM01</b>	43 mm	6000 mm	16.7/17.5 mm	1 Pc
<b>CORLM03</b>	43 mm	3000 mm	16.7/17.5 mm	1 Pc
<b>CORLM05</b>	47 mm	6000 mm	20.7/21.5 mm	1 Pc
<b>CORLM07</b>	47 mm	3000 mm	20.7/21.5 mm	1 Pc
<b>CORLM255C.60</b>	51 mm	6000 mm	24.7/25.5 mm	1 Pc
<b>CORLM255C.30</b>	51 mm	3000 mm	24.7/25.5 mm	1 Pc



**SQUARE HANDRAIL PROFILE**

Material: Aluminium

Finish: /10 /88 /97

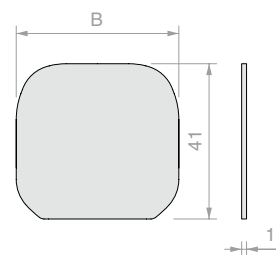


Art.	B	Length	For glass	Qty
<b>CORLM09</b>	43 mm	6000 mm	16.7/17.5 mm	1 Pc
<b>CORLM11</b>	43 mm	3000 mm	16.7/17.5 mm	1 Pc
<b>CORLM13</b>	47 mm	6000 mm	20.7/21.5 mm	1 Pc
<b>CORLM15</b>	47 mm	3000 mm	20.7/21.5 mm	1 Pc
<b>CORLM255S.60</b>	51 mm	6000 mm	24.7/25.5 mm	1 Pc
<b>CORLM255S.30</b>	51 mm	3000 mm	24.7/25.5 mm	1 Pc

**ROUND HANDRAIL CLOSED CAP**

Material: Aluminium

Finish: /10 /88 /97

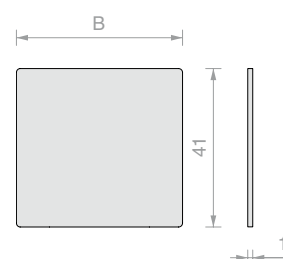


Art.	B	Qty
<b>CORLM17</b>	43 mm	1 Pc
<b>CORLM19</b>	47 mm	1 Pc
<b>CORLM55</b>	51 mm	1 Pc

**SQUARE HANDRAIL CLOSED CAP**

Material: Aluminium

Finish: /10 /88 /97

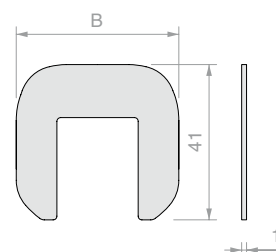


Art.	B	Qty
<b>CORLM21</b>	43 mm	1 Pc
<b>CORLM23</b>	47 mm	1 Pc
<b>CORLM57</b>	51 mm	1 Pc

**ROUND HANDRAIL OPEN CAP**

Material: Aluminium

Finish: /10 /88 /97

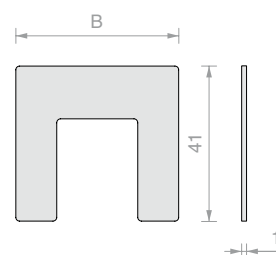


Art.	B	For glass	Qty
<b>CORLM25</b>	43 mm	16.7/17.5 mm	1 Pc
<b>CORLM27</b>	47 mm	20.7/21.5 mm	1 Pc
<b>CORLM59</b>	51 mm	24.7/25.5 mm	1 Pc

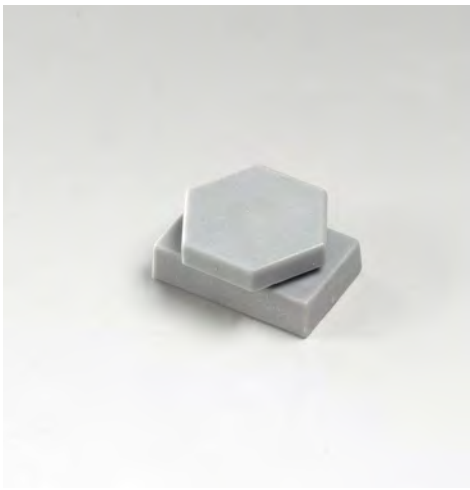
**SQUARE HANDRAIL OPEN CAP**

Material: Aluminium

Finish: /10 /88 /97



Art.	B	For glass	Qty
<b>CORLM29</b>	43 mm	16.7/17.5 mm	1 Pc
<b>CORLM31</b>	47 mm	20.7/21.5 mm	1 Pc
<b>CORLM61</b>	51 mm	24.7/25.5 mm	1 Pc

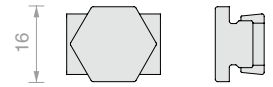


**PRESSOR**

Material: POM

Nut and screw for fastening of structural handrail.

Recommended tool for tightening Art. CORLM45



Art.

**CORLM33**

Qty

1 Pc

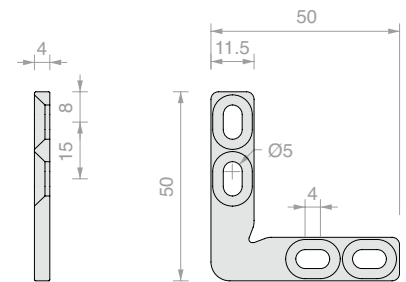


**ANGLE JUNCTION BRACKET FOR CORLM**

Material: AISI 316 stainless steel

Requires set of screws Art. CORLM43

for fixing to the handrail



Art.

**CORLM35**

Qty

1 Pc

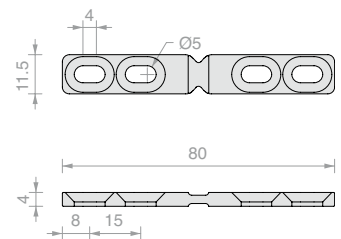


**IN-LINE JUNCTION BRACKET FOR CORLM**

Material: AISI 316 stainless steel

Requires set of screws Art. CORLM43

for fixing to the handrail



Art.

**CORLM37**

Qty

1 Pc

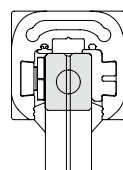


**WALL ANCHORING PLUG FOR CORLM**

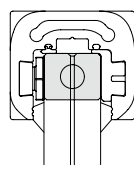
Material: POM

For securing the handrail to the wall.

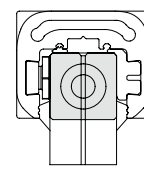
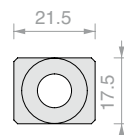
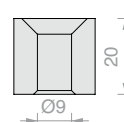
To be fastened onto the handrail using Art. CORLM33.



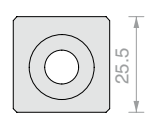
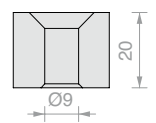
Installation for glass 8+8  
**CORLM39**



Installation for glass 10+10  
**CORLM39**



Installation for glass 12+12  
**CORLM39B**



Art.

**CORLM39**

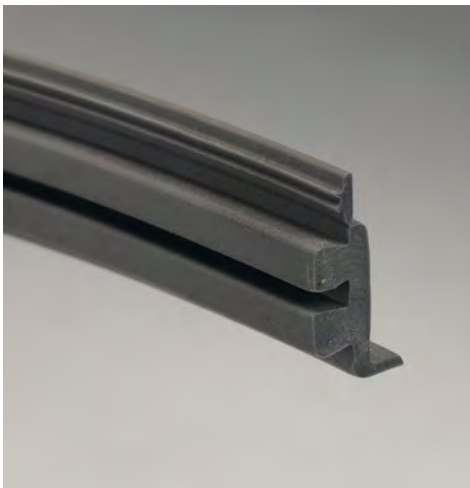
**CORLM39B**

Qty

1 Pc

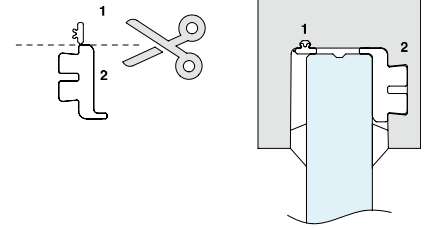
1 Pc





**GLASS CLAMPING SEAL**

Material: EPDM  
Colour: black



Art.	Qty
<b>CORLM41</b>	1 m



**GLASS HOLDER SEAL**

Material: PVC

Art.	Thickness	Colour	Qty	Art.	Thickness	Colour	Qty	Art.	Thickness	Colour	Qty
<b>GTUP2</b>	2 mm	Transparent	1 m	<b>GTUP2G</b>	2 mm	Embossed	1 m	<b>GTUP2N</b>	2 mm	Black	1 m
<b>GTUP3</b>	3 mm	Transparent	1 m	<b>GTUP3G</b>	3 mm	Embossed	1 m	<b>GTUP3N</b>	3 mm	Black	1 m
<b>GTUP4</b>	4 mm	Transparent	1 m	<b>GTUP4G</b>	4 mm	Embossed	1 m	<b>GTUP4N</b>	4 mm	Black	1 m
<b>GTUP5</b>	5 mm	Transparent	1 m	<b>GTUP5G</b>	5 mm	Embossed	1 m	<b>GTUP5N</b>	5 mm	Black	1 m
<b>GTUP6</b>	6 mm	Transparent	1 m	<b>GTUP6G</b>	6 mm	Embossed	1 m	<b>GTUP6N</b>	6 mm	Black	1 m



**4 SELF-DRILLING SCREWS**

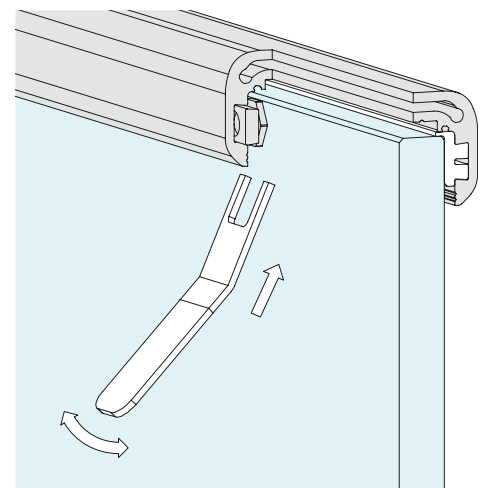
Stainless steel self-drilling screws.  
Drill and thread at the same time.

Art.	Qty
<b>CORLM43</b>	1 Pc



**PRESSOR TIGHTENING WRENCH  
CORLM33**

Material: Steel



Art.	Qty
<b>CORLM45</b>	1 Pc



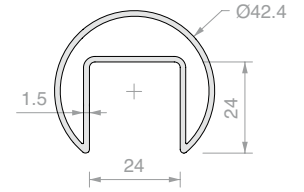






**FLUSH-FIT HANDRAIL**

Material: AISI 316 stainless steel  
Finish: /8

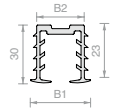


Art.	Length	Qty
<b>CORF50</b>	<b>3000 mm</b>	<b>1 Pc</b>



**GASKET FOR FLUSH-FIT HANDRAIL**

Material: EPDM  
Colour: black

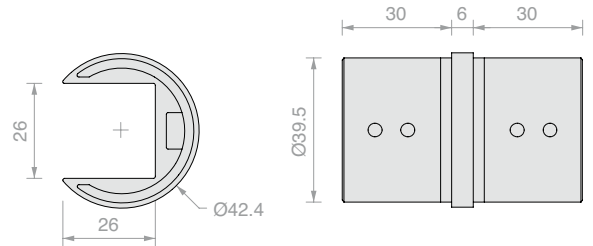


Art.	For glass	B1	B2	Qty
<b>CORFGM175</b>	<b>17.5 mm</b>	<b>32 mm</b>	<b>24 mm</b>	<b>1 m</b>
<b>CORFGM215</b>	<b>21.5 mm</b>	<b>36 mm</b>	<b>28 mm</b>	<b>1 m</b>



**IN-LINE JUNCTION FOR FLUSH-FIT HANDRAIL**

Material: AISI 316 stainless steel  
Supplied with 4 M6 grub screws  
Finish: /8

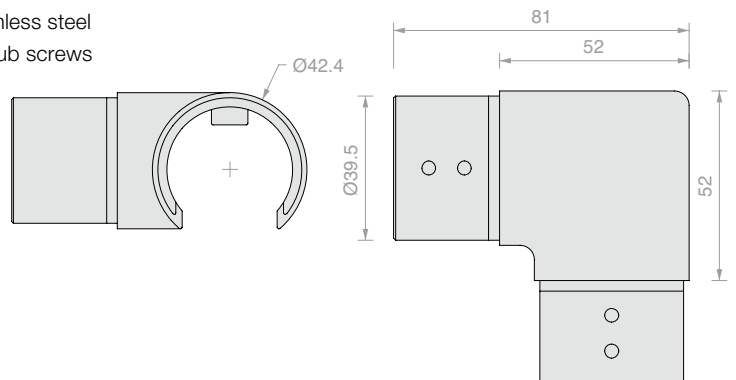


Art.	Qty
<b>CORF50357</b>	<b>1 Pc</b>



**CORNER JUNCTION FOR FLUSH-FIT HANDRAIL**

Material: AISI 316 stainless steel  
Supplied with 4 M6 grub screws  
Finish: /8



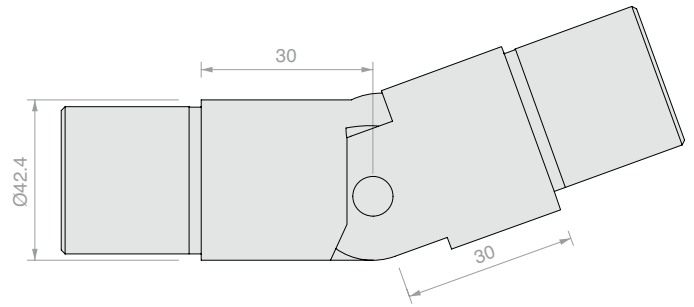
Art.	Qty
<b>CORF50359</b>	<b>1 Pc</b>





**ADJUSTABLE CORNER JUNCTION UPWARDS**

Material: AISI 316 stainless steel  
Supplied with 4 M6 grub screws  
Finish: /8

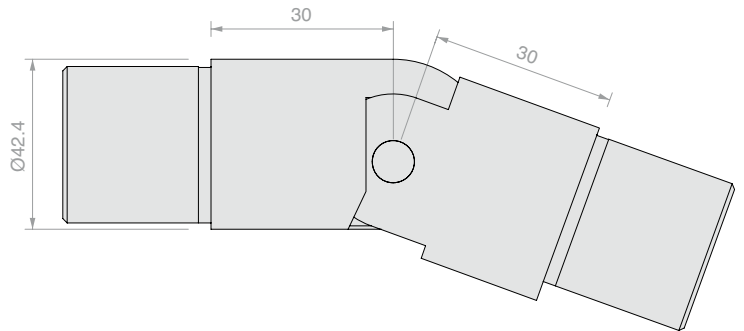


Art.	Description	Qty
<b>CORF-UP25-55</b>	Angle adjustable from 25° to 55°	1 Pc



**ADJUSTABLE CORNER JUNCTION DOWNWARDS**

Material: AISI 316 stainless steel  
Supplied with 4 M6 grub screws  
Finish: /8

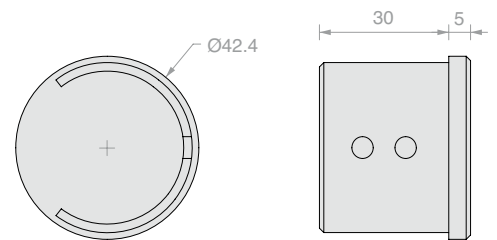


Art.	Description	Qty
<b>CORF-DOW25-55</b>	Angle adjustable from 25° to 55°	1 Pc

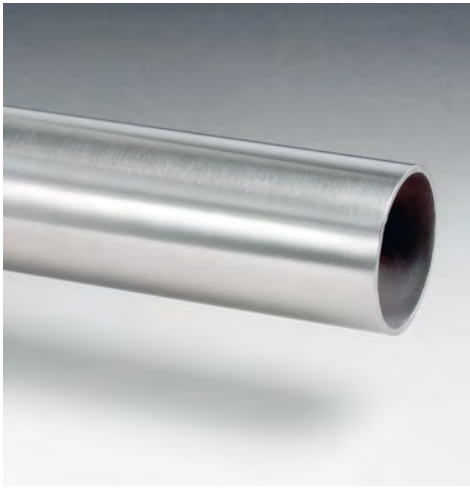


**END CAP FOR FLUSH-FIT HANDRAIL**

Material: AISI 316 stainless steel  
Supplied with 2 M6 grub screws  
Finish: /8

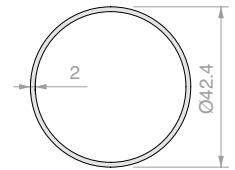


Art.	Qty
<b>CORF50364</b>	1 Pc

**TUBULAR HANDRAIL**

Material: AISI 316 stainless steel

Finish: /8

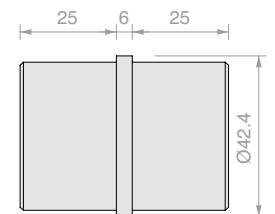


Art.	Length	Qty
<b>CORFT42316</b>	<b>3000 mm</b>	<b>1 Pc</b>

**IN-LINE JUNCTION FOR TUBULAR HANDRAIL**

Material: AISI 316 stainless steel

Finish: /8

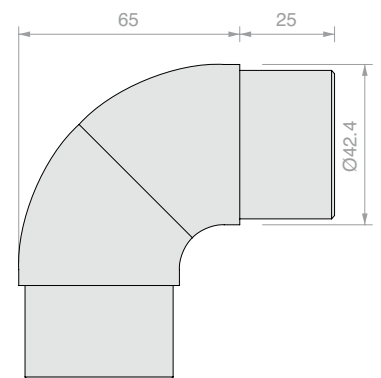


Art.	Qty
<b>CORFGLT4101</b>	<b>1 Pc</b>

**ARTICULATED JUNCTION FOR TUBULAR HANDRAIL**

Material: AISI 316 stainless steel

Finish: /8



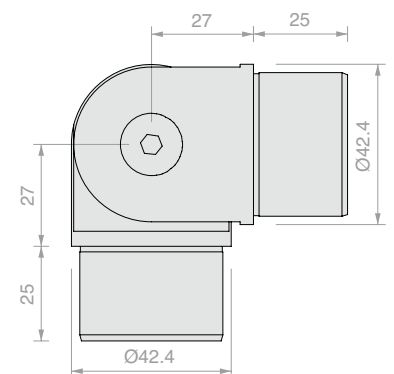
Art.	Qty
<b>CORFCR4140</b>	<b>1 Pc</b>

**ADJUSTABLE CORNER JUNCTION FOR TUBULAR HANDRAIL**

Material: AISI 316 stainless steel

Locked in position using the screw supplied.

Finish: /8



Art.	Qty
<b>CORF-52027</b>	<b>1 Pc</b>



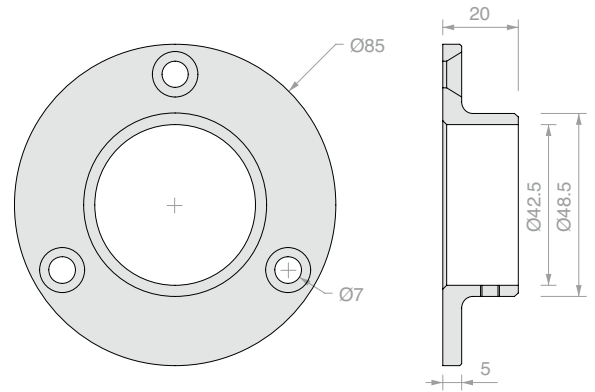




**WALL FLANGE FOR TUBULAR HANDRAIL**

Material: AISI 316 stainless steel

Finish: /8



Art. **CORFPP3110**

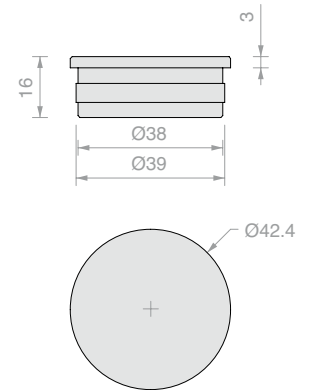
Qty  
1 Pc



**END CAP FOR TUBULAR HANDRAIL**

Material: AISI 316 stainless steel

Finish: /8



Art. **CORFTT4301**

Qty  
1 Pc

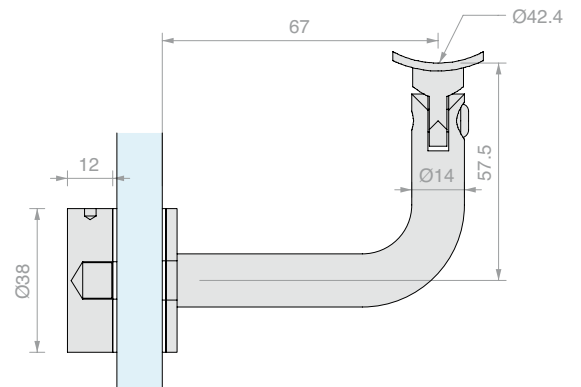


**ARTICULATED GLASS FIXING FOR TUBULAR HANDRAIL**

Material: AISI 316 stainless steel

Recommended glass hole size Ø15 mm

Finish: /8



Art. **CORFAV44106** For glass  
From 13.5 to 25.5 mm

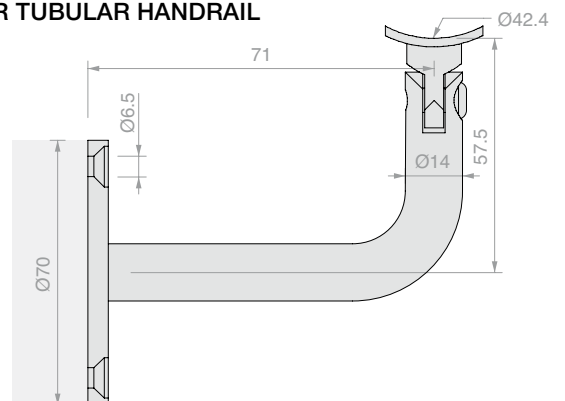
Qty  
1 Pc



**ARTICULATED WALL FIXING FOR TUBULAR HANDRAIL**

Material: AISI 316 stainless steel

Finish: /8

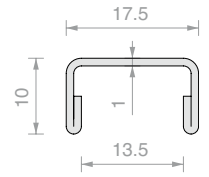


Art. **CORFAM3075**

Qty  
1 Pc

**FINISHING PROFILE**

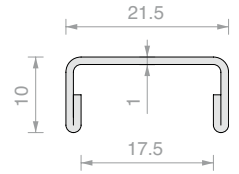
Material: AISI 316 stainless steel  
 For fixing on glass, use neutral silicone.  
 Finish: /8 /15



Art.	Length	For glass	Qty
<b>CPR66</b>	<b>2500 mm</b>	<b>13.5 mm</b>	<b>1 Pc</b>

**FINISHING PROFILE**

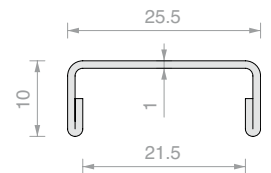
Material: AISI 316 stainless steel  
 For fixing on glass, use neutral silicone.  
 Finish: /8 /15



Art.	Length	For glass	Qty
<b>CPR88</b>	<b>2500 mm</b>	<b>17.5 mm</b>	<b>1 Pc</b>

**FINISHING PROFILE**

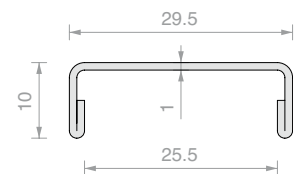
Material: AISI 316 stainless steel  
 For fixing on glass, use neutral silicone.  
 Finish: /8 /15



Art.	Length	For glass	Qty
<b>CPR1010</b>	<b>2500 mm</b>	<b>21.5 mm</b>	<b>1 Pc</b>

**FINISHING PROFILE**

Material: AISI 316 stainless steel  
 For fixing on glass, use neutral silicone.  
 Finish: /8 /15

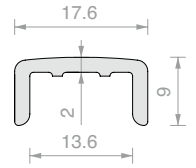


Art.	Length	For glass	Qty
<b>CPR1212</b>	<b>2500 mm</b>	<b>25.5 mm</b>	<b>1 Pc</b>



**FINISHING PROFILE**

Material: Aluminium  
 For fixing on glass, use neutral silicone.  
 Finish: /10 /88 /97 /RAL

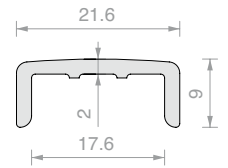


Art.	Length	For glass	Qty
<b>CPRAL66</b>	<b>3000 mm</b>	<b>13.5 mm</b>	<b>1 Pc</b>



**FINISHING PROFILE**

Material: Aluminium  
 For fixing on glass, use neutral silicone.  
 Finish: /10 /88 /97 /RAL

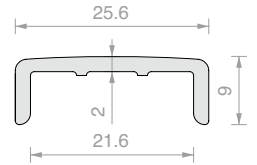


Art.	Length	For glass	Qty
<b>CPRAL88</b>	<b>3000 mm</b>	<b>17.5 mm</b>	<b>1 Pc</b>



**FINISHING PROFILE**

Material: Aluminium  
 For fixing on glass, use neutral silicone.  
 Finish: /10 /88 /97 /RAL

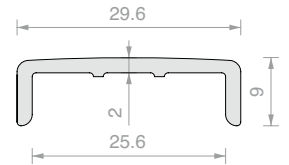


Art.	Length	For glass	Qty
<b>CPRAL1010</b>	<b>3000 mm</b>	<b>21.5 mm</b>	<b>1 Pc</b>



**FINISHING PROFILE**

Material: Aluminium  
 For fixing on glass, use neutral silicone.  
 Finish: /10 /88 /97 /RAL

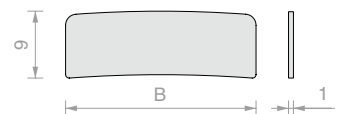


Art.	Length	For glass	Qty
<b>CPRAL1212</b>	<b>3000 mm</b>	<b>25.5 mm</b>	<b>1 Pc</b>



**FINISHING CAP FOR CPRAL**

Material: Aluminium  
 Finish: /10 /88 /97 /RAL



Art.	B	Qty
<b>CPRAL66TP</b>	<b>17.6 mm</b>	<b>1 Pc</b>
<b>CPRAL88TP</b>	<b>21.6 mm</b>	<b>1 Pc</b>
<b>CPRAL1010TP</b>	<b>25.6 mm</b>	<b>1 Pc</b>
<b>CPRAL1212TP</b>	<b>29.6 mm</b>	<b>1 Pc</b>

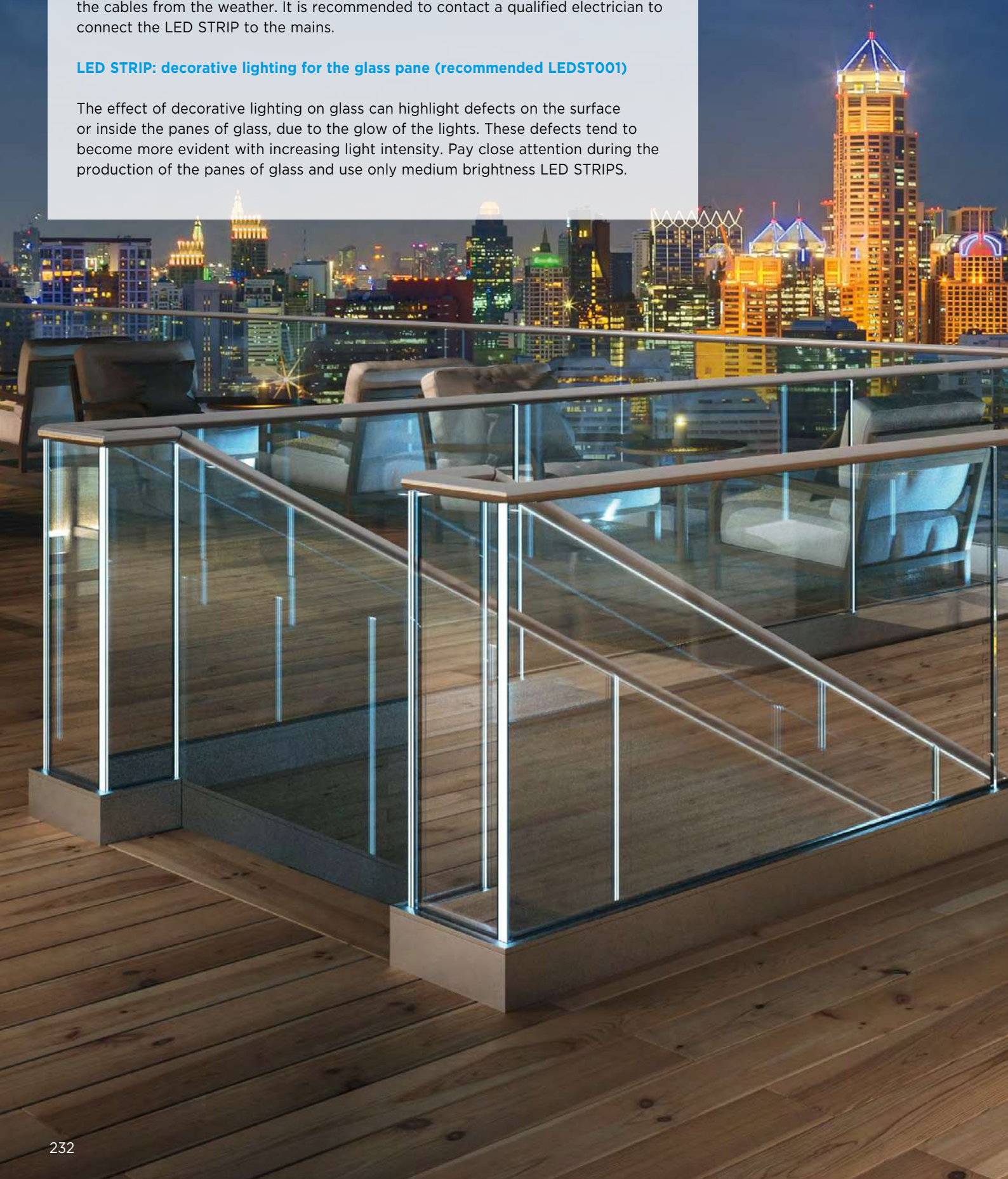


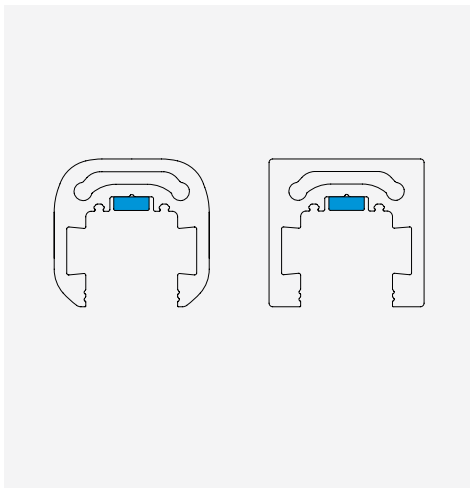
# LED

For LED STRIP applications which are longer than 5 m, it is recommended to use multiple power supplies to reduce the effects of natural voltage drops. Applications with multiple branch circuits are possible with suitably sized DRIVERS. Where appropriate, it is recommended to apply an outdoor use silicone to properly protect the cables from the weather. It is recommended to contact a qualified electrician to connect the LED STRIP to the mains.

## **LED STRIP: decorative lighting for the glass pane (recommended LEDST001)**

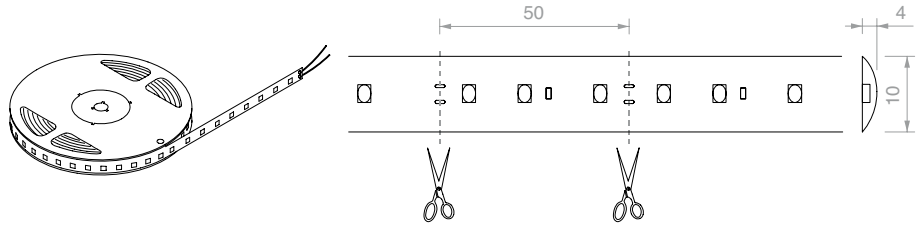
The effect of decorative lighting on glass can highlight defects on the surface or inside the panes of glass, due to the glow of the lights. These defects tend to become more evident with increasing light intensity. Pay close attention during the production of the panes of glass and use only medium brightness LED STRIPS.



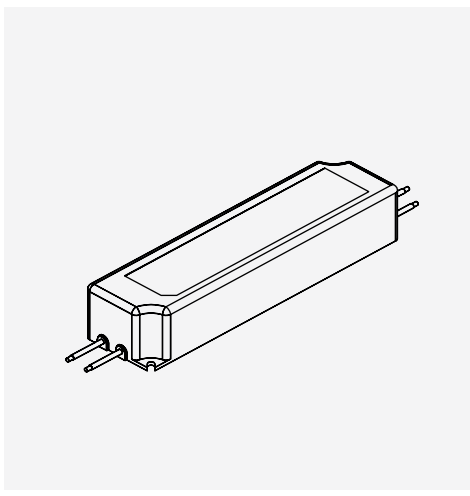


**LED STRIP IP66**

Also suitable for outdoor use  
 Input: 24V DC, Power 9.6 W/m  
 L = 5000 mm - 140 LED/m - lm/m 922 - lm/W 96  
 CCT 4000K White

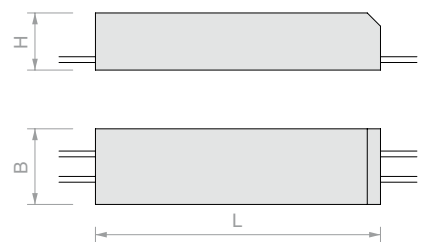


Art.	Qty
<b>LEDST001</b>	1 Pc



**POWER SUPPLY 24V DC IP67**

Also suitable for outdoor use  
 Input: 100-240 VAC  
 Output: 24V DC, Power 35W, 60W, 100W, 150W  
 IN/OUT cables - Protection class II



Art.	Description	H	P	L	Qty
<b>LED24035IP</b>	24 VDC 35 W IP67	30 mm	40 mm	150 mm	1 Pc
<b>LED24060IP</b>	24 VDC 60 W IP67	32 mm	42 mm	162 mm	1 Pc
<b>LED24100IP</b>	24 VDC 100 W IP67	37 mm	52 mm	190 mm	1 Pc
<b>LED24150IP</b>	24 VDC 150 W IP67	38 mm	68 mm	222 mm	1 Pc

**RECOMMENDED FOR CORRECT INSTALLATION:**

- Pay attention to the polarity of the products.
- Only use stabilised 24V DC power supplies.
- After having calculated the total power draw of the devices to be installed, select a power supply unit which always has a load margin of more than 15/20% over the calculated load.
- During maintenance, disconnect the power supply.

**Connect multiple devices in parallel:**

to avoid damaging the LEDs, make all connections before powering on  
 Max. continuous length 5 metres.

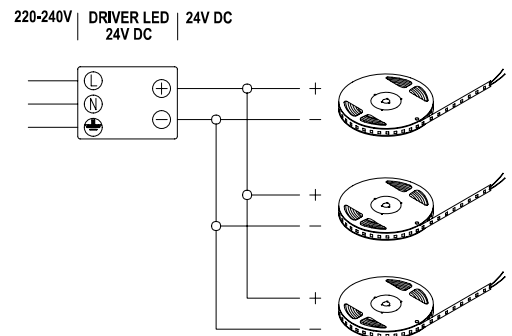
**Example:** Length of STRIP 3 m

Type LED STRIP 1 24 V DC MAX 9.6 W/m (Art. LEDST001)

**Choosing the power supply unit DRIVER:** LED type absorption x LED length + 15%  
 (minimum increase due to voltage drop) 9.6 x 3 x 1.15 = 33.15 W (MIN).

The power supply DRIVER to select: 24V DC 35 W LED24035IP

**Full list of articles:** LEDST001 1 Pc - LED24035IP 1 Pc







**FINISHES  
RAL & SPECIALS  
ON REQUEST\***

RAL 9005  
MATT/R2

RAL 7021  
MATT/R14

RAL 7016  
MATT/R13

RAL 7024  
MATT/R20

RAL RUST  
RIPPLED/R25

RAL 1004  
SHINY/R23

RAL 9010  
SHINY/RAL



**QUALITAL**

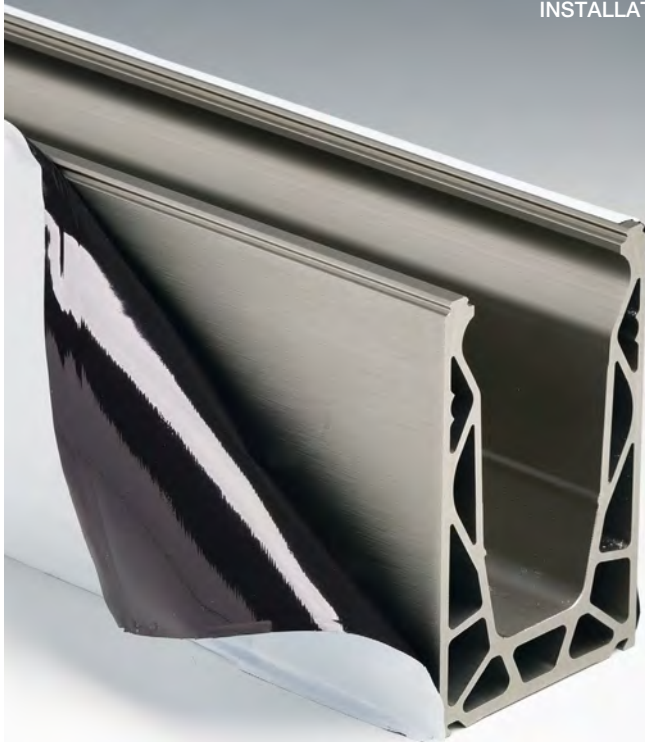
CLASS 20 Minimum galvanisation thickness 20 micron  
Suitable for outdoor installation, even in hostile environments

\*the production times for custom paint finishes are assessed on a case-by-case basis.  
Galvanised finishes are subject to minimum order quantities and productions times assessed on a case-by-case basis.

### CUSTOM RAL COLOURS

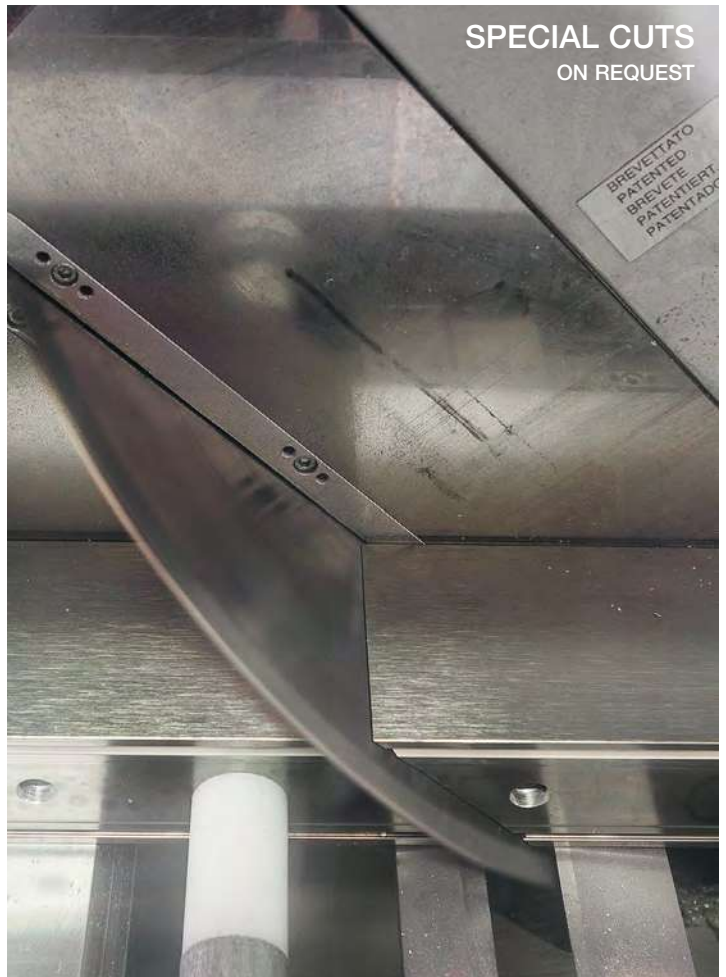
#### SCRATCH PROTECTION

ON REQUEST, THE VISIBLE SIDES OF THE PROFILES CAN BE PROTECTED TO AVOID SCRATCHES DURING INSTALLATION.



#### SPECIAL CUTS

ON REQUEST







## OUR SERVICES

### CUSTOMER CARE



### QUICK ORDER MANAGEMENT AND DELIVERY



**Waiver:** The following is provided for information purposes only and is subject to revision and updates.

### INSTALLATION GUIDANCE

**During installation, the following precautions are recommended:**

- Use neutral detergents to remove dirt, greasy marks and adhesive residues. Do not use abrasive materials.
- For aluminium profiles, to protect against corrosion with cuts and holes made after galvanisation, it is recommended to use sealants (e.g. silicone or butyl), paints (e.g. metal zinc spray) or other suitable corrosion inhibitors.

**If installing during winter,** it is recommended to take account of the thermal expansion which occurs in summer due to the increase in the ambient temperature, fitting suitable expansion joints.

The coefficient of thermal expansion of aluminium is  $2.3 \times 10^{-5} \text{ } ^\circ\text{C}^{-1}$ . For example, if the increase in temperature is  $35^\circ\text{C}$ , the expansion of a 3 m bar is  $2.3 \times 10^{-5} \text{ } ^\circ\text{C}^{-1} \times 35^\circ\text{C} \times 3 \text{ m} = 2.4 \times 10^{-3} \text{ m}$ , i.e. 2.4 mm.

### ANODISING

Anodising (also known as anodic oxidation) is an electrochemical process which induces the formation of an oxide (alumina) on the surface of the aluminium extrusion. **This treatment gives the product the following properties:**

- corrosion resistance • surface hardness • abrasion resistance

The colouration of the products has a purely aesthetic impact and does not alter the protection provided by the anodising.

**Raw aluminium profiles,** specifically those without anodising or painting, sold by Logli Massimo SpA, are to be given a suitable coating which the customer is responsible for applying. The customer shall discharge Logli Massimo SpA from any liability regarding any issues arising from the use of untreated materials. The customer also assumes all liability regarding the finish which it applies to the untreated profile.

**Note:** Galvanising corrosion: This is an issue which can arise at the interface between two different metals in the presence of an electrolyte (e.g. water, especially salt water). It involves an electrochemical process which causes the metal with the lowest electric potential to dissolve. In the most common combinations of metals, it is almost always aluminium which acts as the anode and therefore it corrodes. The obviously only occurs when the surface of the aluminium is not adequately protected.

### HANDLING AND CLEANING

Regular cleaning of the product is crucial for preserving the original appearance. In maritime and urban environments (polluting emissions in the atmosphere), it is recommended to clean the surfaces at least every three months. In relatively cleaner outdoor environments, the recommendation is to wash it every six months. For indoor installations, it is also recommended to clean the product at least once a year.

Wash with warm water and neutral detergent; use a soft cloth or a non-abrasive sponge. Rinse thoroughly with clean water. Dry with a soft cloth.



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