LOGLI MASSIMO
SAINT-GOBAIN

NEWS_2019

DEFENDER 8+8

BALUSTRADES WITHOUT GLASS CUT-OUT

UNI 11678:2017

NTC 2018

Test CSTB

• TEST REPORT •
Politecnico di Milano

SAINT-GOBAIN

UNI 11678:2017

NTC 2018

• TEST REPORT •
Politecnico di Milano
Test Report
n° 2019/0876
n° 2019/0877

Test CSTB
n° FaCeT 19-0085-26080755/A
n° FaCeT 19-0085-26080755/B
n° FaCeT 19-0085-26080755/E

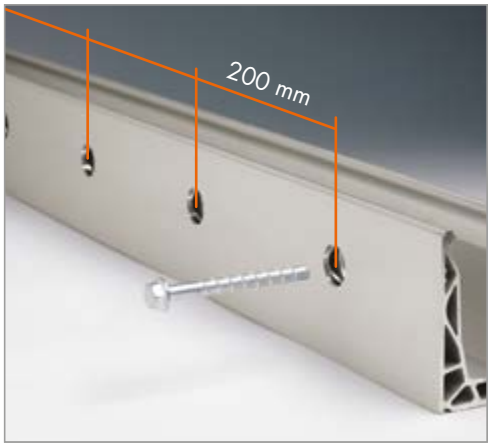
PATENTED SYSTEM

DEFENDER88

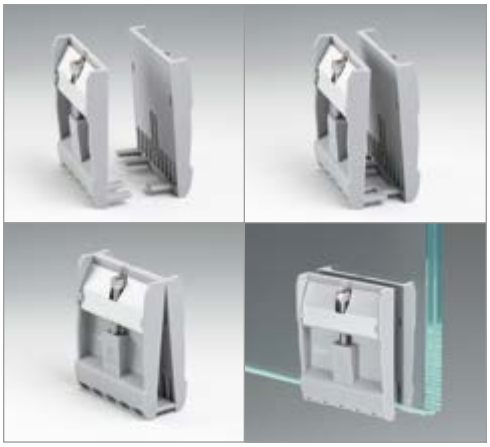
FEATURES:

- ✔ Patented system for glass clamping and adjusting alignment, WITHOUT WEDGES
- ✔ POM clamps and aluminum pressing device with A4 stainless steel clamping screw
- ✔ **QUICK ALIGNMENT OF SCREENS** with hexagonal key
- ✔ Extremely resistant lattice aluminum profile
- ✔ Small dimensions (l = 72 mm x h = 120 mm)
- ✔ Supplied pre-drilled with 200 mm center distance
- ✔ WITHOUT COVER, the supporting profile is already ANODIZED
- ✔ ANODIZED **20 microns**
- ✔ Supplied with adhesive protective film

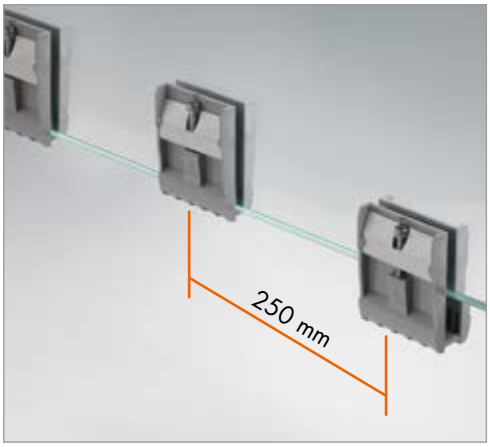
✔ INSTALLATION EVEN SIMPLER AND FASTER >>>



1 Anchoring distance 200 mm.



2 Clamp assembly.

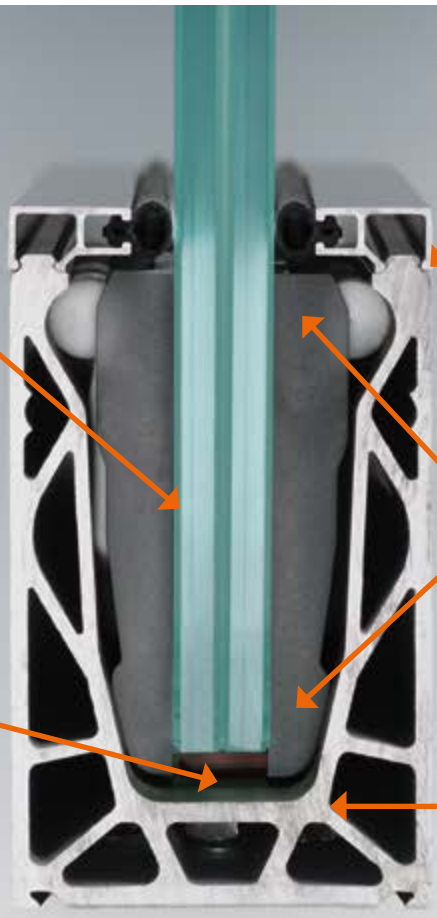


3 Install the clamps on the glass at a distance of 250 mm - 4 clamps / metre.

4 Insert the glass into the profile that has been fixed to the support / floor.

5 POM wedges insertion. The wedges ensure the best load distribution to the glass / clamp / profile interface, maximizing system performance.

6 Adjustment from the top of the pre-installed aluminum presser, using a hexagonal head screwdriver. Maximized adjustment speed. It is possible to complete the adjustment using an automatic screwdriver.
Tightening torque 3 Nm.



Even without external actions, the glass is **pre-stressed** in the rest position.

Perfect distribution of thrust stresses along the whole height of the section.

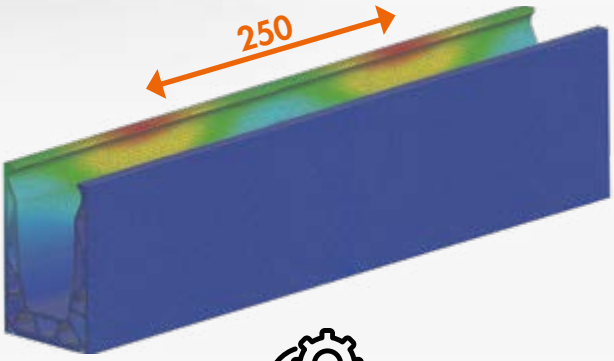
Thrust points in the upper part of the profile optimize the **stiffness** and the profile **material**

MAX

Maximized the distance between the **contact points** for the best performance

Clamping system designed for the installation of **IP66 LEDs**

Dimension optimization, maximum **performance** for minimum **weight**

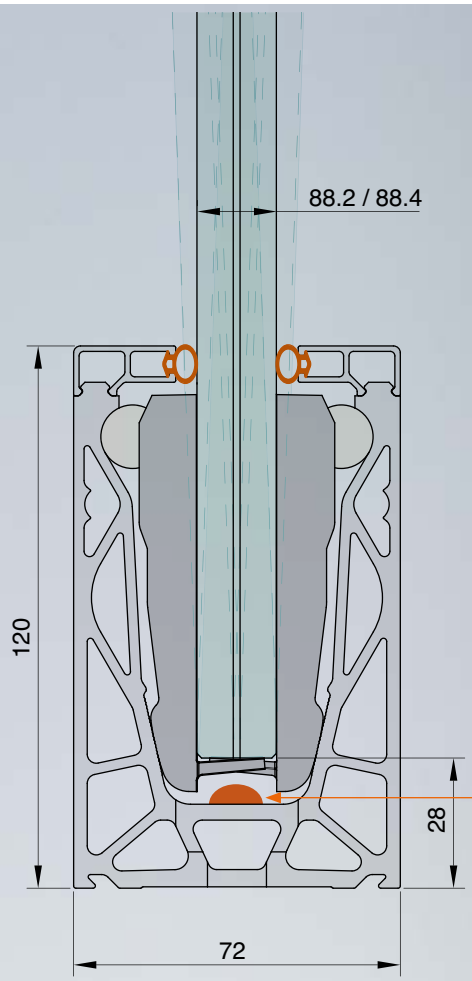


Pressures up to **12 kN** can be concentrated on each clamp (approx. 1.2 t)

Design with **FEM numerical verification** to optimize the system according to the maximum performance of the glass.

Interaxis ideal for a perfect load distribution

Optimal stress distribution on profile and glass thanks to **POM rollers**.
Maximized the strength of the glass panel

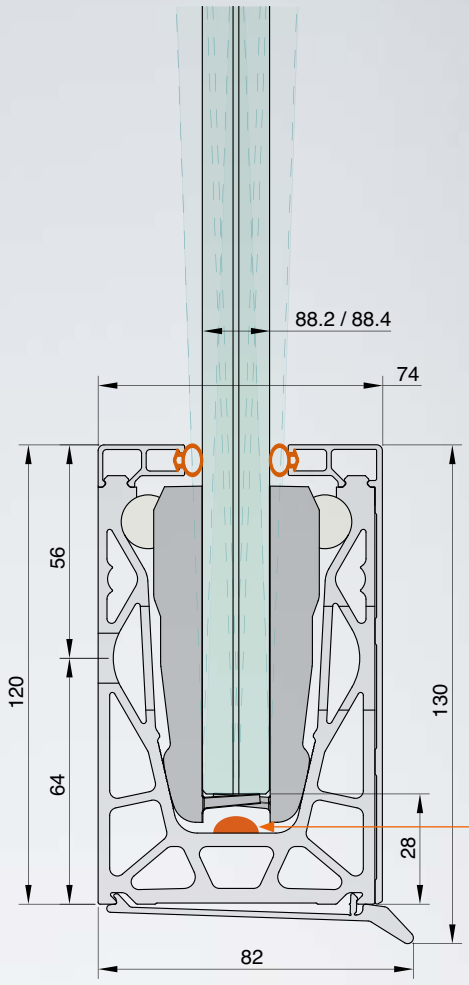


4.52 kN/m with tempred glass 88.4 SentryGlas®

DEFENDER DF88LM
FLOOR INSTALLATION

Patented structural aluminum system for band parapets and glass anchorage to the support. **Floor installation or recess installation**. The finishing accessories complete the system for every architectural requirement.

LED Strip
H_{max}=4.5 mm



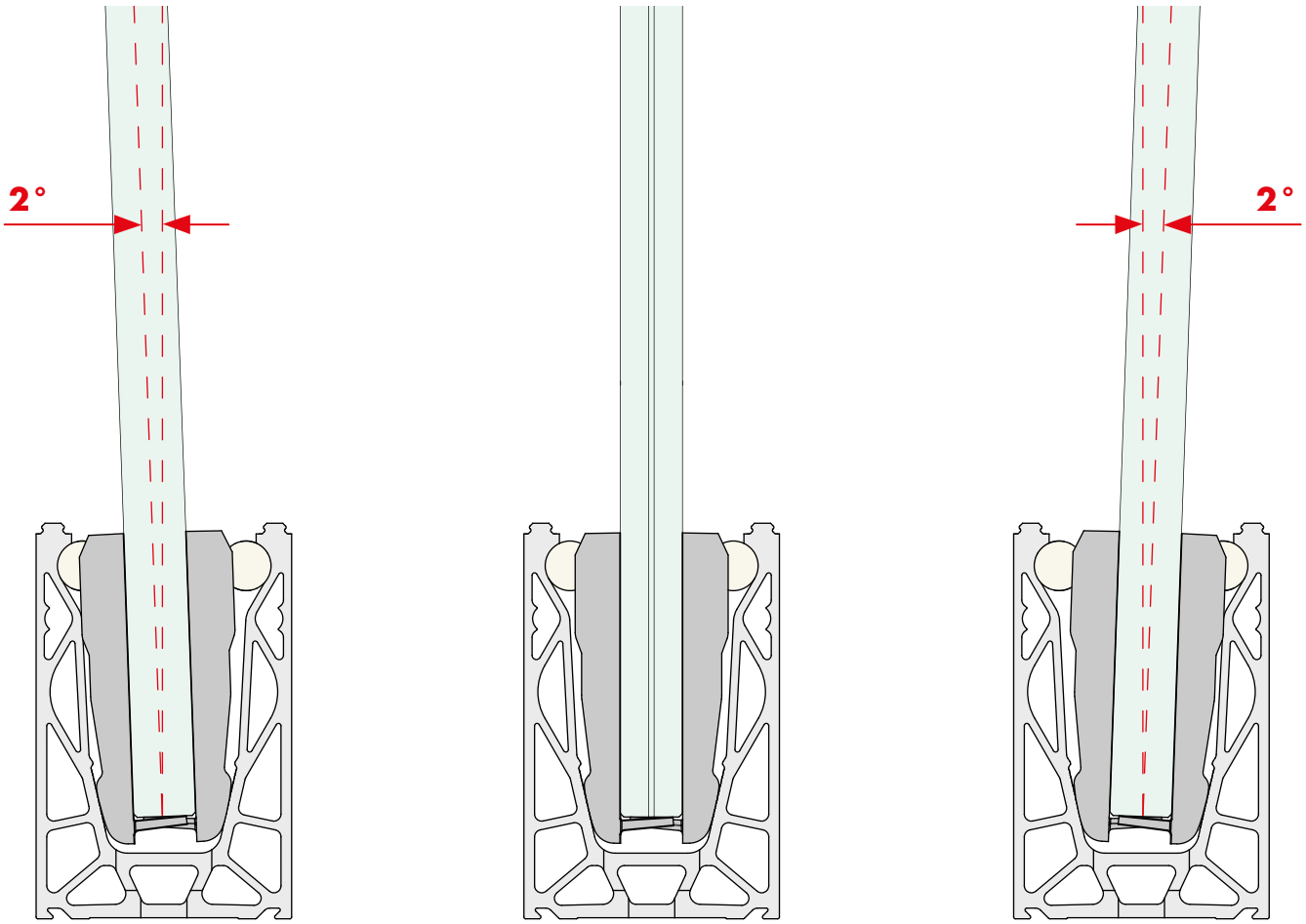
4.14 kN/m with tempred glass 88.4 SentryGlas®

DEFENDER DF88FR
SLAB INSTALLATION

Patented structural aluminum system for band parapets and glass anchorage to the support. **Slab installation model**, equipped with a snap finishing profile, and perforated for the installation with screws. The finishing accessories complete the system for every architectural requirement.

LED Strip
H_{max}=4.5 mm

✔ New patented system for fixing and adjusting the alignment of the glass.



INTERNATIONAL TECHNICAL APPROVALS

The balustrades are anti-fall protections subject to regulations and Standards that each member state of the European Community defines independently. To date the Eurocodes published in the final version are 10 (from zero to nine) but none of them deals with the glass material specifying the calculation procedures for applications such as balustrades.

Regulatory references:

Italy
- **NTC 2018** - Technical Building Regulations, they contain the definition of the working loads for buildings according to the intended use (Tab. 3.1.II) in force since 22 March 2018
- **UNI 11678:2017** - Glass in building - Glass infill panels serving as safety parapet - Resistance to horizontal static linear load and dynamic load - Test methods
- **UNI 7697:2015** - Safety criteria for glazing applications

France
- **NF P 06-001:1986** - Working loads for buildings
- **NF P 01-012:1988** - Dimensions of balustrades
- **NF P 01-013:1988** - Resistance tests on balustrades
- **NF EN 14179** - Glass in building - Thermally toughened soda lime silicate safety glass subjected to heat soak test
- **Cahier CSTB n.3034:1998** - Test procedure for non-traditional balustrades and glass products fixed at the base

Germany
- **DIN 18008-4:2013** - Glass in building - Design and construction rules - Part 4: Additional requirements for barrier glazing

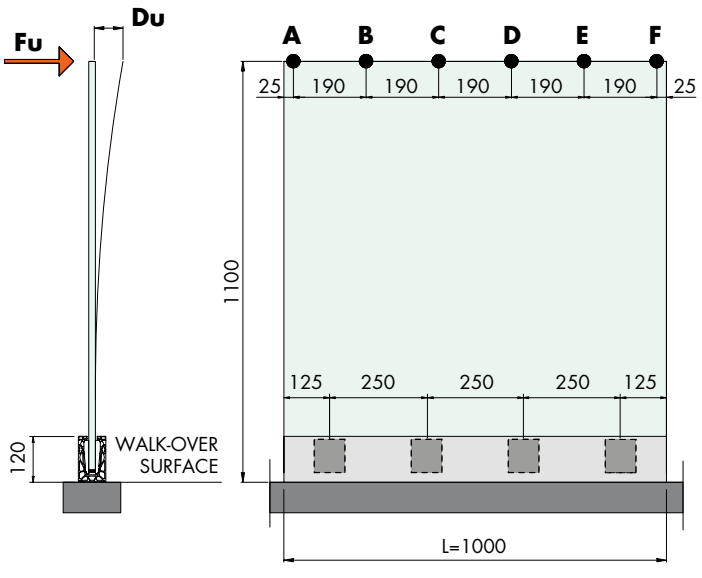
England
- **BS 6180:2011** - Barriers in and about buildings. Code of practice.

Belgium
- **NBN B 03-004:2017** - Balustrades in buildings.

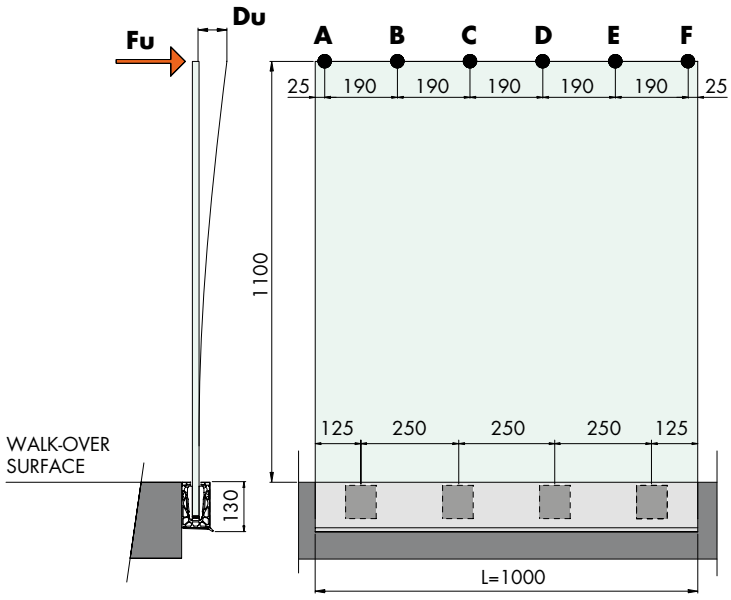
Logli Massimo systems are tested taking into account a **height of the upper edge of the glass** (or of the handrail, when present or mandatory) **of 1100 mm**, all the solutions required by the various regulations are thus covered.

All the procedures in the various countries require to check resistance to both static a dynamic loads, differing only by certain technical aspects. In fact, the requirements remain comparable and the safety level required at European level can be considered virtually uniform.

Load diagram for static tests on **mod. DF88LM**



Load diagram for static tests on **mod. DF88FR**



Fu =
horizontal thrust direction

Du =
Deformation of the upper edge of the balustrade

A,F =
application points of the linear load

Chart of classes of use by glass type: **ITALY** (NTC 2018 + UNI 11678 + UNI 7697)

System	Interlayer	Glass type	Maximum heights of the system [cm]	
DF88LM floor mounting	PVB	**F - F**	**110**	**55***
	EVA	**F - F**	**110**	**55***
	PVB	**I – I**	**120**	**65***
	EVA	**I – I**	**120**	**65***
	SECURE	**T - T**	**120**	**110**
	Saflex DG41	**T - T**	**120#**	
	Trosifol® Extra Stiff	**T - T**	**120#**	
	SentryGlas®	**T - T**	**120**	
DF88FR slab installation	PVB	**F - F**	**100**	**45***
	EVA	**F - F**	**100**	**45***
	PVB	**I – I**	**110**	**55***
	EVA	**I – I**	**110**	**55***
	SECURE	**T - T**	**110**	**100**
	Saflex DG41	**T - T**	**110#**	
	Trosifol® Extra Stiff	**T - T**	**110#**	
	SentryGlas®	**T - T**	**110**	

The information reported in the following tables is developed on the basis of experimental tests, conducted on representative elements of the final installation and carried out in a laboratory. The suggested values and fields of use take into consideration the relevant regulatory information in different countries according to the intended use classes. Unless otherwise specified, the suggested values reported in the schedules refer to tests conducted at the LISVET internal laboratory.

* infill elements without anti-fall function
recommended for indoor installations
Glass type: F = float EN 572 - **I** = hardened glass EN 1863 - **T** = tempered glass EN 12150

Load Legend of the load category according to the Technical Standards for Construction (NTC) - D.M. 17 January 2018 - Tab. 3.1.II:

Categories	Nominal linear horizontal loads Hk	Descriptions‡
A, B1, B2, C1, E1, F, G, H	**1,0 kN/m**	For residential use, offices or garages with the exception of common staircases, balconies and balconies
A, B, C2, D1, D2	**2,0 kN/m**	Residential buildings and offices, crowded areas with fixed seating, shops and department stores

‡ see the full text of the standard for a detailed description of the categories listed

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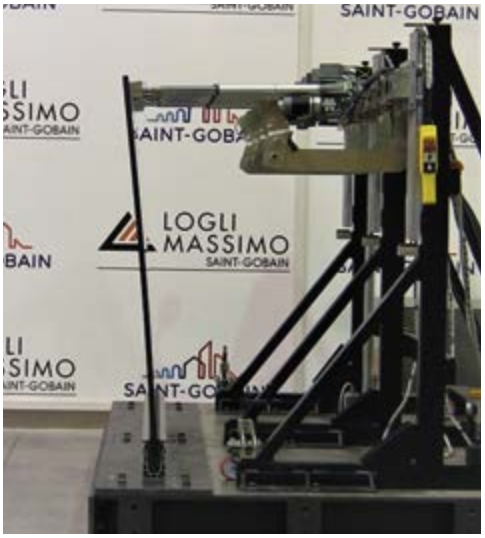


SLU static load test, 3.0 kN / m, Hs = 120 cm

Maximum static load test. Resistance to the system breakage profile / glass / anchors


Dynamic impact test from a semi-rigid body 50 kg (EN12600) Hc = 70 cm, Hv = 110 cm

Legend: **SLU** – Ultimate Limit Status - **Hs** – Thrust height on the upper shore compared to floor - **Hc** – Falling height of the semi-rigid impactor complying with UNI EN 12600 and UNI 11678
Hv – Height of the glass panel with respect to the walking surface

Chart of classes of use by glass type: **FRANCE (NF P 06-001 + Cahier CSTB n.3034 + EN 14179)**

System	Interlayer	Glass type	Maximum heights of the system [cm]
DF88LM floor mounting	PVB	**TH - TH**	**110 PV**
	EVA	**TH - TH**	**110**
	SECURE	**TH - TH**	**110 PV**
	DG41	**TH - TH**	**110 PV***
	SentryGlas®	**TH - TH**	**120**
DF88FR slab installation	PVB	**TH - TH**	**110 PV**
	EVA	**TH - TH**	**110**
	SECURE	**TH - TH**	**110**
	SentryGlas®	**TH - TH**	**110**

The information shown in the table is developed on the basis of experimental tests, conducted on representative elements of the final installation and carried out in a laboratory.
The suggested values and fields of use take into consideration the pertinent regulatory indications according to the classes of use.

Glass type: **TH** = ISO 12543 tempered glass with heat-soak test (HST) EN 14179

PV: Test report at the CSTB laboratories (Paris), according to Cahier **CSTB n.3034_V2:2018**

* indoor installations

Legend of the load category according to NF EN 1991-1, NF EN 1991-2, PR NF P 06-111-2/A1

Categories	Nominal linear horizontal loads Hk	Descriptions‡
A, B, C1	**0,6 kN/m**	Residential, hotel rooms, offices and restaurants
C2, C3, C4, D	**1,0 kN/m**	Public spaces, potentially crowded such as theaters, cinemas, museums or dance halls

‡ see the full text of the standard for a detailed description of the categories listed

SLE static load test, 1.0 kN / m, Hs = 110 cm

Static load test 3.0 kN / m Hs = 110 cm

Dynamic impact test from hard body D1 (Mass in steel 1 kg)

Dynamic impact test from soft body M50, Hc = 183.6 cm (900 J), Hglass = 110 cm

Chart of classes of use by glass type: **GERMANY** (DIN 18008-4)

System	Interlayer	Glass type	Maximum heights of the system [cm]
DF88LM floor mounting	PVB	**T - T**	**110**
	EVA	**T - T**	**110**
	SECURE	**T - T**	**110**
	DG41	**T - T**	**110**
	SentryGlas®	**T - T**	**110**
DF88FR slab installation	PVB	**T - T**	**110**
	EVA	**T - T**	**110**
	SECURE	**T - T**	**110**
	DG41	**T - T**	**110**
	SentryGlas®	**T - T**	**110**

Glass type: **T – T** = tempered + tempered

The information shown in the table is developed on the basis of experimental tests, conducted on representative elements of the final installation and carried out in a laboratory.
The suggested values and fields of use take into consideration the pertinent regulatory indications according to the classes of use.

Note: The Test procedure for the approval of the System in Germany involves the use of handrails. The configurations in the table provide that the System is equipped with a CORLM structural handrail by Logli Massimo.

Legend of the load category according to DIN 18008:

Categories*	Nominal linear horizontal loads Hk	Descriptions
A, B1, H, F1-F4, T1, Z	**0,5 kN/m**	Private or residential constructions or offices with limited crowding
B2, B3, C1-C4, D, E1.1, E1.2, E2.1-E2.5, FL1-FL6, HC,T2,Z	**1,0 kN/m**	Crowded offices and public places

Second class DIN EN 1991-1-1/NA.
* For a detailed description of the categories and exceptions, refer to the norm

Chart of classes of use by glass type: **ENGLAND** (BS 6180)

System	Interlayer	Glass type	Maximum heights of the system [cm]	
DF88LM floor mounting	PVB	**F - F**	**120**	**900**
	EVA	**F - F**	**120**	**900**
	PVB	**I – I**	**120**	**900**
	EVA	**I – I**	**120**	**900**
	SECURE	**T - T**	**120**	**110**
	Saflex DG41	**T - T**	**120**	
	Trosifol® Extra Stiff	**T - T**	**120**	
	SentryGlas®	**T - T**	**120**	
DF88FR slab installation	PVB	**I – I**	**110**	**100**
	EVA	**I – I**	**110**	**100**
	SECURE	**T - T**	**110**	**100**
	Saflex DG41	**T - T**	**110**	**100**
	Trosifol® Extra Stiff	**T - T**	**110**	**100**
	SentryGlas®	**T - T**	**110**	**100**

The information shown in the table is developed on the basis of experimental tests, conducted on representative elements of the final installation and carried out in a laboratory.
The suggested values and fields of use take into consideration the pertinent regulatory indications according to the classes of use.

British Standard
6180:2011

Glass type:
F = float EN 572
I = hardened glass EN 1863
T = tempered glass EN 12150

Legend of the load category according to BS 6180:2011

Categories	Nominal linear horizontal loads Hk	Descriptions‡
(i) (iii) (iv)	**0,36 kN/m**	Domestic spaces or offices, stairs included and balconies not included
(ii) (v) (viii) (ix)	**0,74 kN/m**	Balconies in domestic areas, offices and non-crowded areas

‡ see the full text of the standard for a detailed description of the categories listed

Chart of classes of use by glass type: **BELGIUM** (NBN B 03-004)

System	Interlayer	Glass type	Maximum parapet heights [cm] with maximum wind exposure class
DF88LM floor mounting	PVB	**I – I**	**110 [Class 2]**
	EVA	**I – I**	**110 [Class 2]**
	SECURE	**T - T**	**120 [Class 4]**
	Saflex DG41	**T - T**	**120 [Class 6]**
	Trosifol® Extra Stiff	**T - T**	**120 [Class 6]**
	SentryGlas®	**T - T**	**120 [Class 7]**
DF88FR slab installation	PVB	**I – I**	**110 [Class 1]**
	EVA	**I – I**	**110 [Class 1]**
	SECURE	**T - T**	**120 [Class 3]**
	Saflex DG41	**T - T**	**120 [Class 5]**
	Trosifol® Extra Stiff	**T - T**	**120 [Class 5]**
	SentryGlas®	**T - T**	**120 [Class 6]**

The information shown in the table is developed on the basis of experimental tests, conducted on representative elements of the final installation and carried out in a laboratory.
The suggested values and fields of use take into consideration the pertinent regulatory indications according to the classes of use.

Glass type: **F** = float EN 572 - **I** = hardened glass EN 1863 - **T** = tempered glass EN 12150

NOTE: According to NBN B 03-004 the wind pressure can be classified according to dynamic peak pressure values increasing from class 1 to 7.
Class 1 - 544 Pa | Class 2 - 693 Pa | Class 3 - 815 Pa | Class 4 - 950 Pa | Class 5 - 1086 Pa | Class 6 - 1224 Pa | Class 7 - 1364 Pa

Legend of the load category according to NBN B 03-004:2017

Categories	Nominal linear horizontal loads Hk	Descriptions‡
A	**0,5 kN/m**	Residential
B	**1,0 kN/m**	Offices, meeting places and shops

‡ see the full text of the standard for a detailed description of the categories listed

RAL & SPECIAL FINISHES
ON REQUEST

QUALITAL

OXY STYLE - Licence no.758
GEAL - Licence no.740
COROXAL - Licence no.753

DEFENDER – **CLASS 20** – Minimum anodising thickness **20 microns**
Suitable for outdoor installations, even in aggressive environments

RAL COLORS ON REQUEST

PROTECTION AGAINST SCRATCHES
ALL THE PROFILES ARE PROTECTED BY FILM
TO PREVENT SCRATCHES DURING INSTALLATION

SPECIAL CUTS
ON REQUEST

DEFENDER DF88LM FLOOR INSTALLATION KIT

Material: extruded aluminium (6063-T6)

Features:

kit L= 6000 mm composed of:

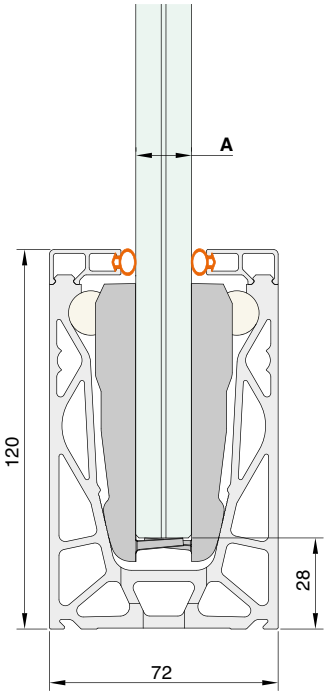
1 Pc "U" profile L= 6000 mm, predrilled Art. DF88LM.60
24 Pcs clamps complete with adjustable pressing devices Art. DF88175
12 m of balloon gasket Art. DF1010 **black**
2 Pcs snap finishing profiles L= 6000 mm Art. DF105.60

kit L= 3000 mm composed of:

1 Pc "U" profile L= 3000 mm, predrilled Art. DF88LM.30
12 Pcs clamps complete with adjustable pressing devices Art. DF88175
6 m of balloon gasket Art. DF1010 **black**
2 Pcs snap finishing profiles L= 3000 mm Art. DF105.30

kit L= 1498 mm composed of:

1 Pc "U" profile L= 1498 mm, predrilled Art. DF88LM.15
6 Pcs clamps complete with adjustable pressing devices Art. DF88175
3 m of balloon gasket Art. DF1010 **black**
2 Pcs snap finishing profiles L= 1498 mm Art. DF105.15



Finishes: brushed stainless steel-effect aluminium, matt aluminum, matt black aluminum, RAL 9010 (glossy white), raw
On request (not available in stock) other colors in anodized or RAL finish

Art.	Dimensions	For glass	Q.ty
DF88LMKIT.60	120 x 72 x L 6000 mm	**A** = 88.2 (16.76 mm) / 88.4 (17.52 mm)	1 Kit
DF88LMKIT.30	120 x 72 x L 3000 mm	**A** = 88.2 (16.76 mm) / 88.4 (17.52 mm)	1 Kit
DF88LMKIT.15	120 x 72 x L 1498 mm	**A** = 88.2 (16.76 mm) / 88.4 (17.52 mm)	1 Kit

DEFENDER DF88FR SLAB INSTALLATION KIT

Material: extruded aluminium (6063-T6)

Features:

kit L= 6000 mm composed of:

1 Pc "U" profile L= 6000 mm, predrilled Art. DF88FR.60
24 Pcs clamps complete with adjustable pressing devices Art. DF88175
12 m of balloon gasket Art. DF1010 **black**
1 Pc snap finishing profile L= 6000 mm Art. DF105.60
1 Pc side snap finishing cladding L= 6000 mm Art. DF8803.60
1 Pc bottom finishing cladding L= 6000 mm Art. DFS07.60

kit L= 3000 mm composed of:

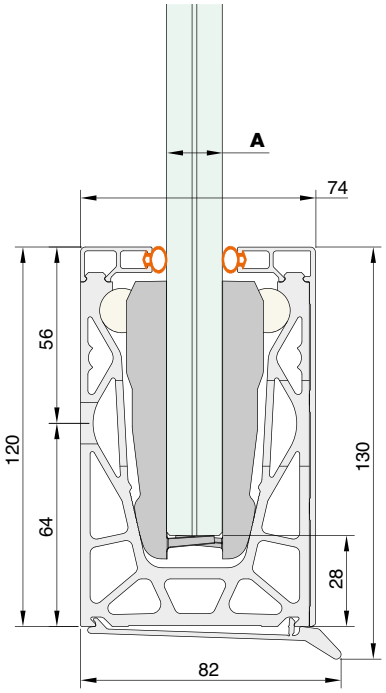
1 Pc "U" profile L= 3000 mm, predrilled Art. DF88FR.30
12 Pcs clamps complete with adjustable pressing devices Art. DF88175
6 m of balloon gasket Art. DF1010 **black**
1 Pc snap finishing profile L= 3000 mm Art. DF105.30
1 Pc side snap finishing cladding L= 3000 mm Art. DF8803.30
1 Pc bottom finishing cladding L= 3000 mm Art. DFS07.30

kit L= 1498 mm composed of:

1 Pc "U" profile L= 1498 mm, predrilled Art. DF88FR.15
6 Pcs clamps complete with adjustable pressing devices Art. DF88175
3 m of balloon gasket Art. DF1010 **black**
1 Pc snap finishing profile L= 1498 mm Art. DF105.15
1 Pc side snap finishing cladding L= 1498 mm Art. DF8803.15
1 Pc bottom finishing cladding L= 1498 mm Art. DFS07.15

Finishes: brushed stainless steel-effect aluminium, matt aluminum, raw.
On request (not available in stock) other colors in anodized or RAL finish

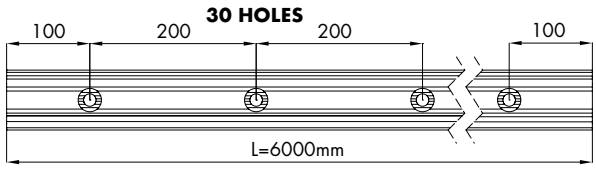
Important! Snap finishing profile Art. DFS07 to be fixed on profile Art. DF88FR before installation to the slab with the aid of silicone along the entire length. This warning is necessary because a detachment from the supporting profile might occur as a result of e.g. strong wind, shocks and vibrations.

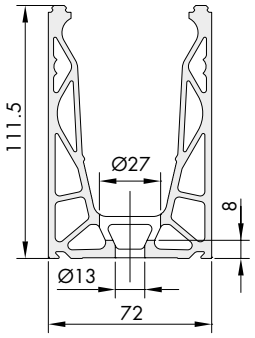


Art.	Dimensions	For glass	Q.ty
DF88FRKIT.60	130 x 82 x L 6000 mm	**A** = 88.2 (16.76 mm) / 88.4 (17.52 mm)	1 Kit
DF88FRKIT.30	130 x 82 x L 3000 mm	**A** = 88.2 (16.76 mm) / 88.4 (17.52 mm)	1 Kit
DF88FRKIT.15	130 x 82 x L 1498 mm	**A** = 88.2 (16.76 mm) / 88.4 (17.52 mm)	1 Kit

DEFENDER DF88LM PROFILE
FLOOR INSTALLATION - PRE-DRILLED

Material: extruded aluminum (6063-T6)
Features: continuous perforated structural U-shaped profile.
Finishes: brushed stainless steel-effect aluminium, matt aluminum, matt black aluminum, RAL 9010 (glossy white), raw
On request (not available in stock)
other colors in anodized or RAL finish

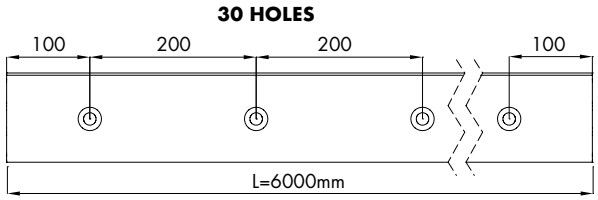


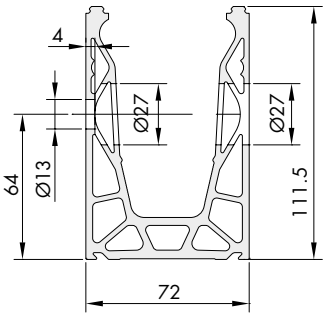


Art.	Dimensions	Q.ty
DF88LM.60	111.5 x 72 x L 6000 mm	1 Pc
DF88LM.30	111.5 x 72 x L 3000 mm	1 Pc
DF88LM.15	111.5 x 72 x L 1498 mm	1 Pc

DEFENDER DF88FR PROFILE
SLAB ASSEMBLY - PRE-DRILLED

Material: extruded aluminum (6063-T6)
Features: continuous perforated structural U-shaped profile.
Finishes: matt aluminum, raw
On request (not available in stock)
other colors in anodized or RAL finish

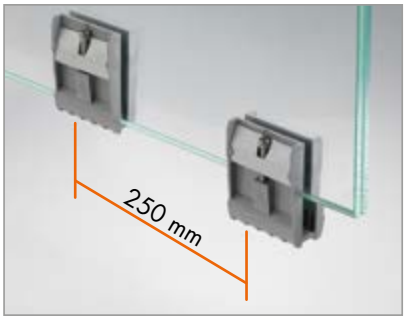




Art.	Dimensions	Q.ty
DF88FR.60	111.5 x 72 x L 6000 mm	1 Pc
DF88FR.30	111.5 x 72 x L 3000 mm	1 Pc
DF88FR.15	111.5 x 72 x L 1498 mm	1 Pc

CLAMP WITH ADJUSTABLE
PRESSING DEVICES AND WEDGES DF88LM / DF88FR

Material: polyoxymethylene (POM), aluminum and stainless steel
Features: plastic clamp including pressers adjustable with appropriate hexagonal key art. DFFLEX03 and wedges in POM



Art.	For glass	Q.ty
DF88175	88.2 (16.76 mm) / 88.4 (17.52 mm)	1 Pc

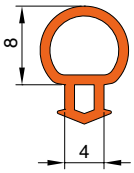
KIT OF 12 CLAMPS WITH PRESSING DEVICES AND GASKET

Material: polyoxymethylene (POM) clamp, aluminum pressers, stainless steel screws, POM wedges, TPE seal
Description: kit composed of 12 clamps with pressers and POM rollers of 6 meters of black seal.

Art.	For glass	Q.ty
DF88KIT12	88.2 (16.76 mm) / 88.4 (17.52 mm)	1 Kit

BALLOON GASKET

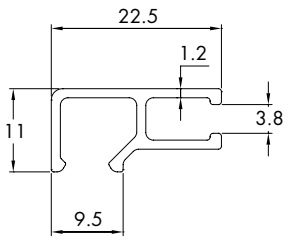
Material: TPE
Finish: black, grey



Art.	For glass	Q.ty
DF1010	88.2 (16.76 mm) / 88.4 (17.52 mm)	Per m
DF1010.60	88.2 (16.76 mm) / 88.4 (17.52 mm) - 60 m ROLL	1 Cf

FINISHING PROFILE DF105

Material: extruded aluminum (6063-T6)
Features: snap-on finishing profile with ball seal DF1010 housing.
Finishes: brushed stainless steel-effect aluminium, matt aluminum, matt black aluminum, RAL 9010 (glossy white), raw
On request (not available in stock)
other colors in anodized or RAL finish

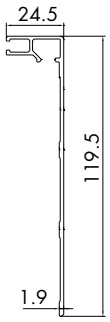


Art.	Dimensions	Q.ty
DF105.60	22.5 x 11 x L 6000 mm	1 Pc
DF105.30	22.5 x 11 x L 3000 mm	1 Pc
DF105.15	22.5 x 11 x L 1498 mm	1 Pc

SIDE FINISHING COVER DF8803

Material: extruded aluminum (6063-T6)
Features: clip-on finishing cover with ball seal housing.
Finishes: brushed stainless steel-effect aluminium, matt aluminum, matt black aluminum, RAL 9010 (glossy white), raw
On request (not available in stock)
other colors in anodized or RAL finish

Important! To be secured with the aid of silicone along the entire length of the profile. This warning is necessary because a detachment from the supporting profile might occur as a result of e.g. strong wind, shocks and vibrations.

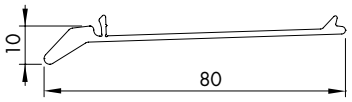


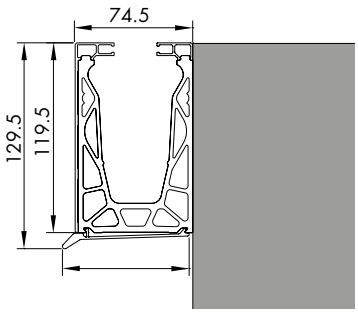
Art.	Dimensions	Q.ty
DF8803.60	23 x 120 x L 6000 mm	1 Pc
DF8803.30	23 x 120 x L 3000 mm	1 Pc
DF8803.15	23 x 120 x L 1498 mm	1 Pc

LOWER SNAP FINISH PROFILE FOR DF88FR

Material: extruded aluminum (6063-T6)
Features: clip-on profile with drip guard appendix.
Finishes: brushed stainless steel-effect aluminium, matt aluminum, raw
On request (not available in stock)
other colors in anodized or RAL finish

Important! To be secured with the aid of silicone along the entire length of the profile. This warning is necessary because there a detachment from the supporting profile might occur as a result of e.g. strong wind, shocks and vibrations.



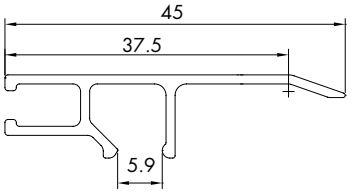


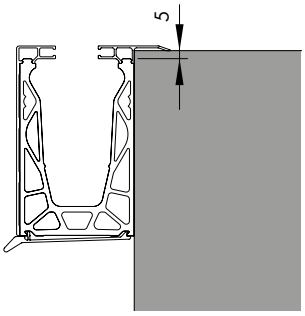
Art.	Dimensions	Q.ty
DFS07.60	80 x 10 x L 6000 mm	1 Pc
DFS07.30	80 x 10 x L 3000 mm	1 Pc
DFS07.15	80 x 10 x L 1498 mm	1 Pc

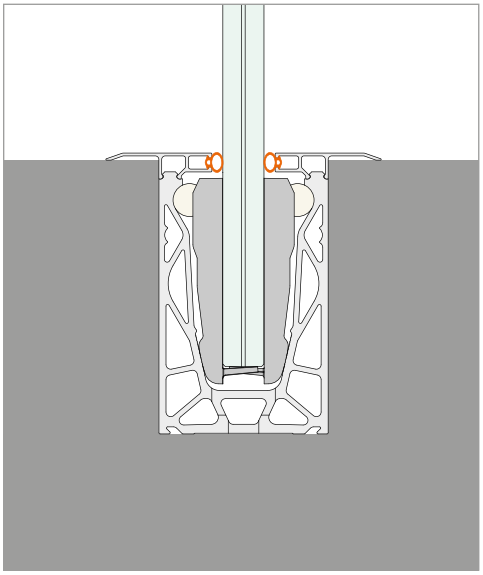
FOOTBOARD PROFILE FOR DEFENDER DF88LM (RECESSED INSTALLATION) AND DF88FR

Material: extruded aluminum (6063-T6)
Features: clip-on finishing cover with ball seal housing, ideal for floor installation DEFENDER
Finishes: brushed stainless steel-effect aluminium, matt aluminum, raw
On request (not available in stock)
other colors in anodized or RAL finish

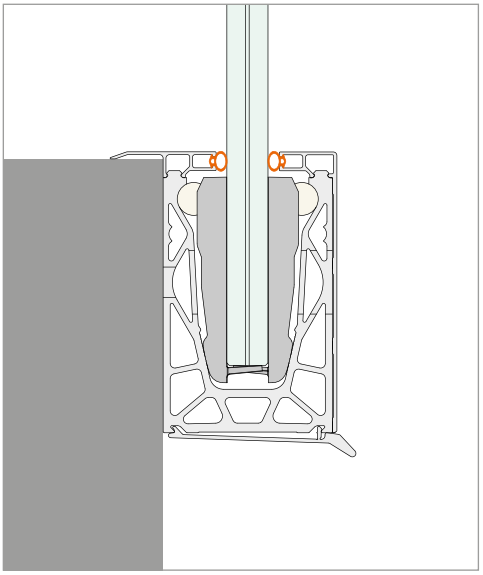
Important! To be secured with the aid of silicone along the entire length of the profile.
This will allow better resistance to water infiltration.







Defender DF88LM installation example with DF101 footboard profile on both sides

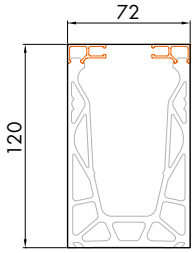


The DF881 defender is equipped with a DF101 profile, DF8803 cover and DFS07 cover

Art.	Dimensions	Q.ty
DF8801.60	43.5 x 11 x L 6000mm	1 Pc
DF8801.30	43.5 x 11 x L 3000 mm	1 Pc
DF8801.15	43.5 x 11 x L 1500 mm	1 Pc

DEFENDER DF88LM FINISHING CAP

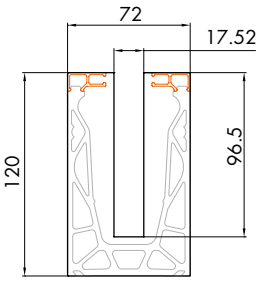
Material: AISI 316 stainless steel / aluminum
Features: supplied with protective adhesive film
AISI 316 stainless steel finish: brushed stainless steel
Aluminum finish: brushed stainless steel-effect aluminium,
matt aluminum, matt black aluminum, RAL 9010 (glossy white), raw
On request (not available in stock)
other colors in anodized or RAL finish



Art.	Dimensions	Material	Q.ty
DF12072	120 x 72 mm - Thickness 1 mm	Stainless Steel	1 Pc
DF12072AL	120 x 72 mm - Thickness 1 mm	Aluminium	1 Pc

DEFENDER DF88LM OPEN FINISHING CAP

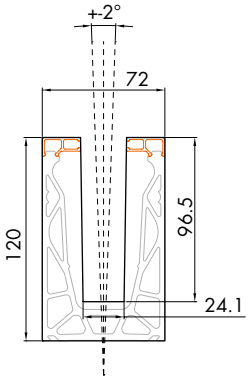
Material: AISI 316 stainless steel / aluminum
Features: supplied with protective adhesive film
AISI 316 stainless steel finish: brushed stainless steel
Aluminum finish: brushed stainless steel-effect aluminium,
matt aluminum, matt black aluminum, RAL 9010 (glossy white), raw
On request (not available in stock)
other colors in anodized or RAL finish



Art.	Dimensions	For glass	Material	Q.ty
DF175TP	120 x 72 mm - Thickness 1 mm	**A** = 17.52 mm	Stainless Steel	1 Pc
DF175TPAL	120 x 72 mm - Thickness 1 mm	**A** = 17.52 mm	Aluminium	1 Pc

DEFENDER DF88LM "V" OPEN FINISHING CAP

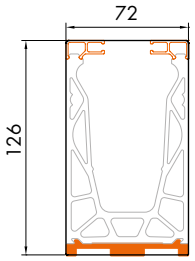
Material: AISI 316 stainless steel / aluminum
Features: supplied with protective adhesive film
AISI 316 stainless steel finish: brushed stainless steel
Aluminum finish: brushed stainless steel-effect aluminium,
matt aluminum, matt black aluminum, RAL 9010 (glossy white), raw
On request (not available in stock)
other colors in anodized or RAL finish



Art.	Dimensions	For glass	Material	Q.ty
DF2TP	120 x 72 mm - Thickness 1 mm	**A** = 17.52 mm	Stainless Steel	1 Pc
DF2TPAL	120 x 72 mm - Thickness 1 mm	**A** = 17.52 mm	Aluminium	1 Pc

FINISHING CAP FOR INSTALLATION WITH PROFILE DFA72

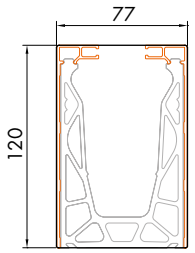
Material: AISI 316 stainless steel / aluminum
Features: 1 mm thick finishing cap to be used in installations with DFA72, supplied with adhesive protective film
AISI 316 stainless steel finish: brushed steel
Finish: raw-finish aluminium, matt aluminium, brushed stainless steel-effect aluminium
On request (not available in stock)
other colors in anodized or RAL finish



Art.	Dimensions	Material	Q.ty
DF12772	126 x 72 mm - Thickness 1 mm	Stainless Steel	1 Pc
DF12772AL	126 x 72 mm - Thickness 1 mm	Aluminium	1 Pc

FINISHING CAP FOR INSTALLATION WITH DOUBLE COVER DF8803

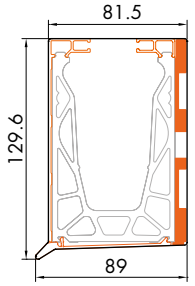
Material: AISI 316 stainless steel / aluminum
Features: 1 mm thick finishing cap,
supplied with adhesive protective film
AISI 316 stainless steel finish: brushed steel
Finish: raw-finish aluminium, matt aluminium, brushed stainless steel-effect aluminium
On request (not available in stock)
other colors in anodized or RAL finish



Art.	Dimensions	Material	Q.ty
DF12077	120 x 77 mm - Thickness 1 mm	Stainless Steel	1 Pc
DF12077AL	120 x 77 mm - Thickness 1 mm	Aluminium	1 Pc

FINISHING CAP FOR INSTALLATION WITH PROFILE DFSA121 + DFS07

Material: AISI 316 stainless steel / aluminum
Features: 1 mm thick finishing cap to be used in installations with spacer profile DFSA121 + DFS07, supplied with adhesive protective film
Available in the right and left version.
AISI 316 stainless steel finish: brushed steel
Finish: raw-finish aluminium, matt aluminium, brushed stainless steel-effect aluminium
On request (not available in stock)
other colors in anodized or RAL finish



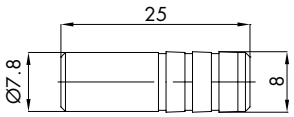
Art.	Dimensions	Material	Q.ty
DFS130DX	129,6 x 89 mm - Thickness 1 mm - RIGHT	Stainless Steel	1 Pc
DFS130SX	129,6 x 89 mm - Thickness 1 mm - LEFT	Stainless Steel	1 Pc
DFS130DXAL	129,6 x 89 mm - Thickness 1 mm - RIGHT	Aluminium	1 Pc
DFS130SXAL	129,6 x 89 mm - Thickness 1 mm - LEFT	Aluminium	1 Pc

DF25 CENTERING DOWELS

Material: aluminium

Features: optional accessory recommended for the perfect alignment of continuous structural "U" profiles; 2pcs per connection.

Finish: aluminium



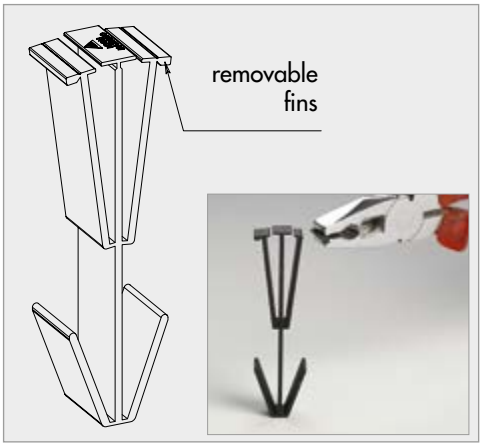
Art.	Dimensions	Q.ty
DF25	Ø8 x 25 mm	1 Pair

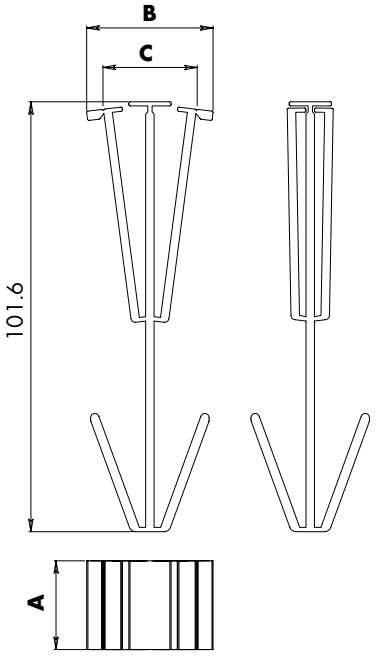
COVER STRIP EXPANDABLE CAP

Material: POM

Features: expandable fan-shaped cap which acts as cover strip between two glass panes with a minimum distance of 10 mm, maximum 25 mm. Consisting of an underlying "V-shaped" fan for easier insertion into the strip and of the removable fins to cover said spaces.

Finish: black





Art.	Dimensions	For Glass Panes	Q.ty
DFTEC88	**B** with fins = 18/26 mm - **C** without fins = 10/18.5 mm	**A** = 17.5 mm	1 Pc

FLEXIBLE SCREWDRIVER FOR ADJUSTMENT DEFENDER 88

Features: Screwdriver with flexible body and head for hexagonal insert. Equipped with insert size. CH5, allows the action on the hexagonal screws of the pressers for fixing and adjusting the alignment of the glasses.

Note: the maximum recommended tightening torque is **3.0 Nm**.
Check the value with the aid of a torque wrench or using the friction mechanism of the screwgun art. DFMAK21

Art.	Description	Q.ty
DFFLEX03	Screwdriver	1 Pc
DFFLEX05	Hexagonal insert CH5	1 Pc

MAKITA SCREWGUN

Features: Screwdriver suitable for light tightening. Compact and lightweight, can be used as a straight screwdriver and as a pistol screwdriver.
- Double speed
- Release clutch
- LED lighting
- Reversible

TIGHTENING TORQUE = **2.9 Nm**
with ring in pos. 21
(recommended for tightening Defender 88 pressers)

Voltage: **7,2V**	Dimensions: **218x44x142mm**
Capacity: **1,2Ah**	Weight (EPTA): **0,55 kg**
No-load speed RPM: **200 - 650g/min**	Metal drilling: **5mm**
Max Fastening Torque: **5,6Nm**	Wood drilling: **6mm**
Tightening torque Flexible coupling: **3,6Nm**	Torque adjustment: **21**

Art.	Q.ty
DFMAK21	1 Pc

FLEXIBLE EXTENSION FOR SCREWDRIVERS

Features: Flexible insert with head for hexagonal insert size CH5.
Allows the action on the hexagonal screws of the pressers for fixing and adjusting the alignment of the glasses.
Usable in combination with MAKITA screwgun art. DFMAK21 or similar

Art.	Description	Q.ty
DFFLEX01	Flexible extension	1 Pc
DFFLEX05	Hexagonal insert CH5	1 Pc

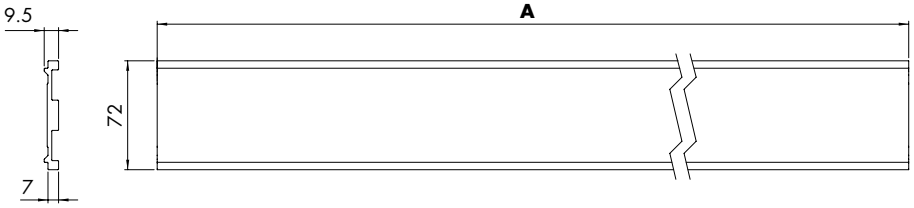
CALCULATION AND SLANTED CUT

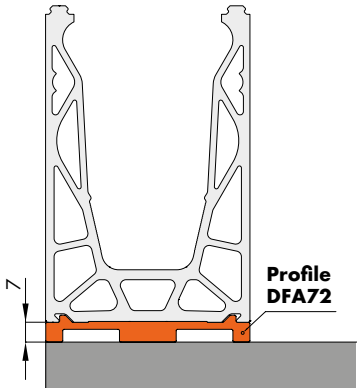
Slanted cut on design (22° - 89°)

Art.	Q.ty
DFTAGLIO	1 Pc

GUIDE TRACK FOR POINT FIXING

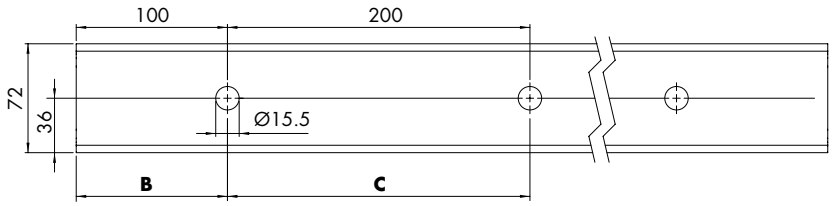
Material: 6060-T6 aluminum alloy
Guide profile for mounting the Defender 88. The DFA 72 guide allows the profile to be aligned so that it can be used as a mounting template in segmented installations.
Finishes: brushed stainless steel-effect aluminium, matt aluminum, raw
On request (not available in stock)
other colors in anodized or RAL finish





Mounting example with DF88LM segments and DF8803 side covers

NOTE: System compliance with regulatory requirements must be verified on a case-by-case basis.

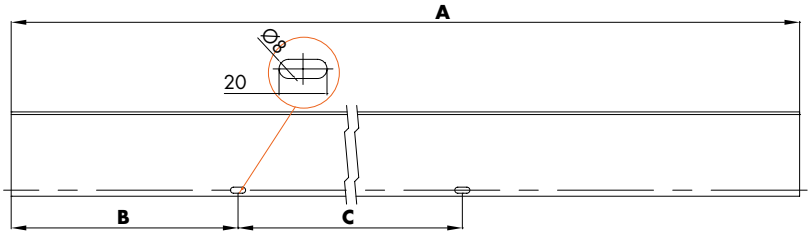


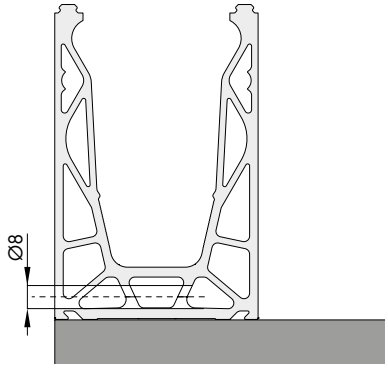
RECOMMENDED DRILLING

Art.	Dimensions	Drilling	Hole centre distance	Q.ty
DFA7230NF	72 x 9.5 x **A** 3000			1 Pc
DFA7260NF	72 x 9.5 x **A** 6000			1 Pc
DFA7230	72 x 9.5 x **A** 3000	15 holes	**B** 100 - **C** 200	1 Pc
DFA7260	72 x 9.5 x **A** 6000	30 holes	**B** 100 - **C** 200	1 Pc

BASE FIXING PROFILE WITH WATER DRAINING VIA SLOTS

Water evacuation system realized by lateral slotting of the DEFENDER profile. The slotting dim. Ø8x20 mm connects the hollow parts of the profile, making possible the exit of water possibly present inside the channel. Possible to increase the number of slots on the profile. On request.



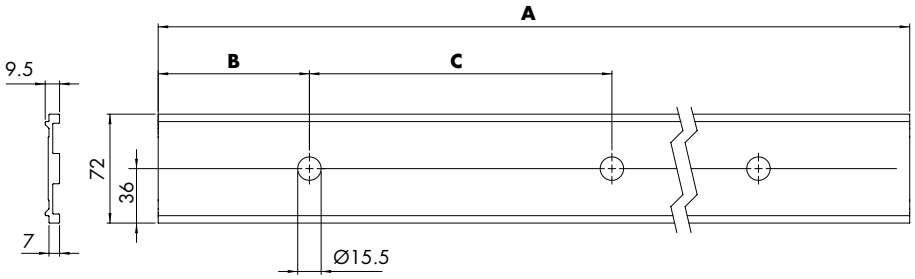


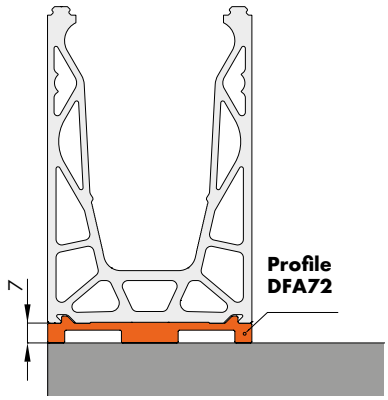
Art.	Dimensions	Drilling	Slot centre distance	Q.ty
DF88LM.60AS	111.5 x 72 x **A** 6000	9 slots	**B** 600 - **C** 600	1 Pc
DF88LM.30AS	111.5 x 72 x **A** 3000	4 slots	**B** 600 - **C** 600	1 Pc
DF88LM.15AS	111.5 x 72 x **A** 1498	2 slots	**B** 449 - **C** 600	1 Pc
DF88FOROAS	**Additional slot** Ø8 x 20 mm			1 Pc

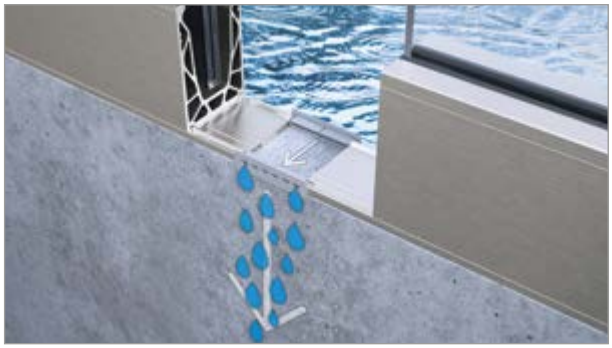
WATER EVACUATION PROFILE - FOR FLOOR MOUNTING

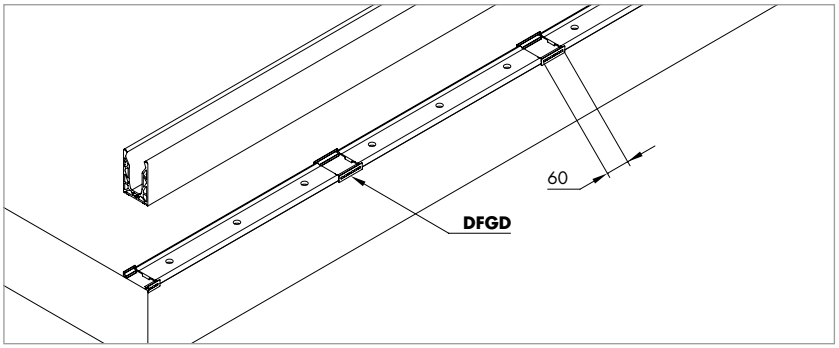
Material: 6060-T6 aluminum alloy

Water evacuation system manufactured by a DFA 72 section cut into 540 mm segments, drilled and anodized to 20 microns. The dimensions and holes allow you to leave a gap of 60 mm in which to insert the DFGD drainage grate. The profile is also available in 3m and 6m pre-drilled bars. Finishes: brushed stainless steel-effect aluminium, matt aluminum, raw (other colors in anodized or RAL finish)









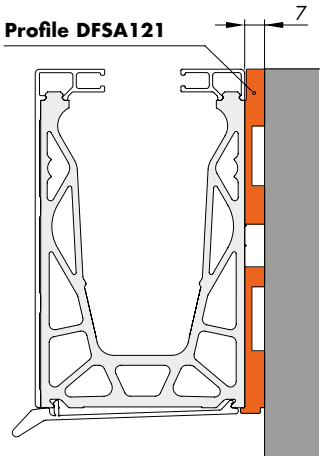
Art.	Dimensions	Drilling	Hole centre distance	Q.ty
DFA72054	72 x 9.5 x **A** 540	3 holes	**B** 70 - **C** 200	1 Pc
DFA7230	72 x 9.5 x **A** 3000	15 holes	**B** 100 - **C** 200	1 Pc
DFA7260	72 x 9.5 x **A** 6000	30 holes	**B** 100 - **C** 200	1 Pc

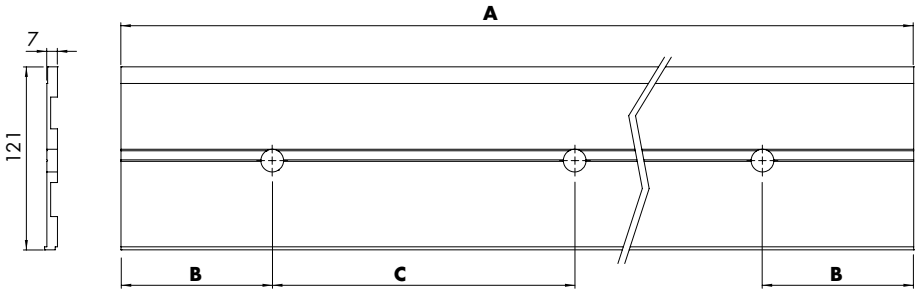
WATER EVACUATION PROFILE FOR SLAB ASSEMBLY

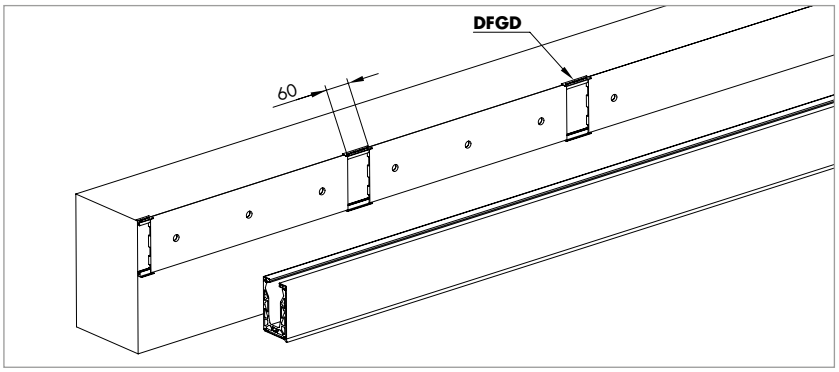
Material: 6060-T6 aluminum alloy

Water drainage system realized by profile DFSA121 cut in segments of 540 mm, drilled and anodized to 20 microns. The dimensions and holes allow you to leave a gap of 60 mm in which to insert the DFGD exhaust grille vertically between the slab and the profile. The profile is also available in 3m and 6m pre-drilled bars. Can be combined with the lower profile DFS07.

Finishes: brushed stainless steel-effect aluminium, matt aluminum, raw (other colors in anodized or RAL finish)







Art.	Dimensions	Drilling	Hole centre distance	Q.ty
DFSA121054	121 x 7 x **A** 540	3 holes	**B** 70 - **C** 200	1 Pc
DFSA12130	121 x 7 x **A** 3000	15 holes	**B** 100 - **C** 200	1 Pc
DFSA12160	121 x 7 x **A** 6000	30 holes	**B** 100 - **C** 200	1 Pc

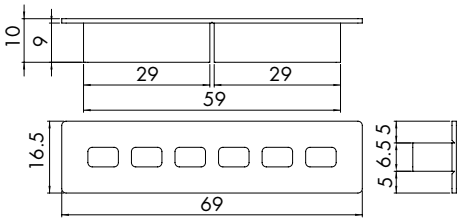
DRAINAGE GRATE

Material: POM

Dirt trap grate to be inserted in water drainage systems DFA and DFSA.

The grate is supplied with pre-cuts to remove the fins and resize to **A**, **B**, and **C**.

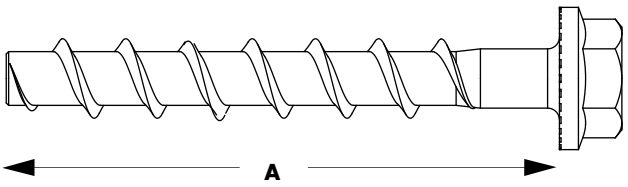
Finish: Grey colour aluminium, brushed steel effect



Art.	Dimensions	Q.ty
DFGD	**A** 69 x 16.5 x 10 - **B** 69 x 11.5 x 10 - **C** 34.5 x 16.5 x 10	1 Pc

CONCRETE ANCHOR

Material: galvanised steel / stainless steel A4
Features: High performance mechanical anchor for concrete with strength class from C20/25 to C50/60, cracked and non-cracked.
Package: 15 Pcs

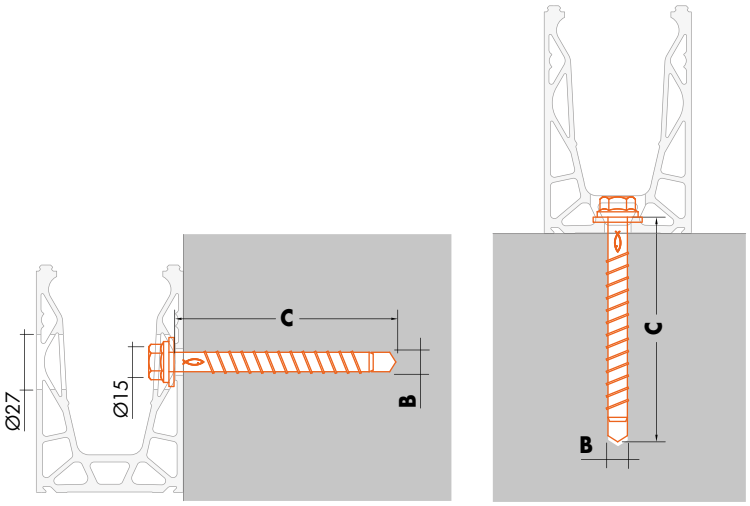


fischer®

ETA-11/0095
ETAG 001- 3
Option 1 for cracked concrete

Fire resistance classification
R120
see the test report for anchor types

EDELSTAHL Rostfrei
STAINLESS
STAINLESS STEEL



Art.	A - Anchor length	B - hole Ø	Hole depth	Tightening wrench	Material	Q.ty
DFFH10ZN	100 mm	10 mm	110 mm	SW16	Galvanised steel	1 Set
DFFH10A4	100 mm	10 mm	110 mm	SW16	Stainless Steel A4	1 Set

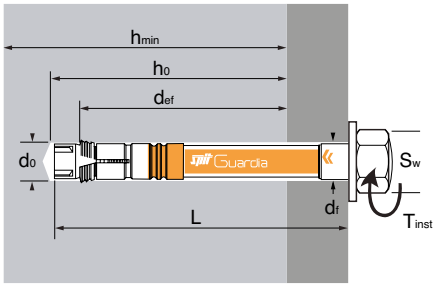
	Recommended nominal tightening torque of the pulse screwdriver [Nm]	Maximum tightening torque with torque or ratchet wrench [Nm]
DFFH10ZN	300	40
DFFH10A4	300	40

	Cracked concrete				Non-cracked concrete			
	Permissible traction load [kN]	Permissible shear load [kN]	Minimum fixing centre distance [mm]	Minimum distance from the edge [mm]	Permissible traction load [kN]	Permissible shear load [kN]	Minimum fixing centre distance [mm]	Minimum distance from the edge [mm]
DFFH10ZN	7,6	16,2	70	70	13,5	16,2	70	70
DFFH10A4	7,6	19,0	70	70	13,5	19,0	70	70

Further technical information available on www.loglimassimo.it

SPIT GUARDIA ANCHOR

Material: Stainless steel **A4** (For outdoors) / Zinc-electroplated steel
Features: Torque control expansion anchor (with expansion shell)
For use: Compressed concrete (not cracked): Ø12 - Concrete from C20/25 to C50/60



ATE Option 7
n° 07/0047

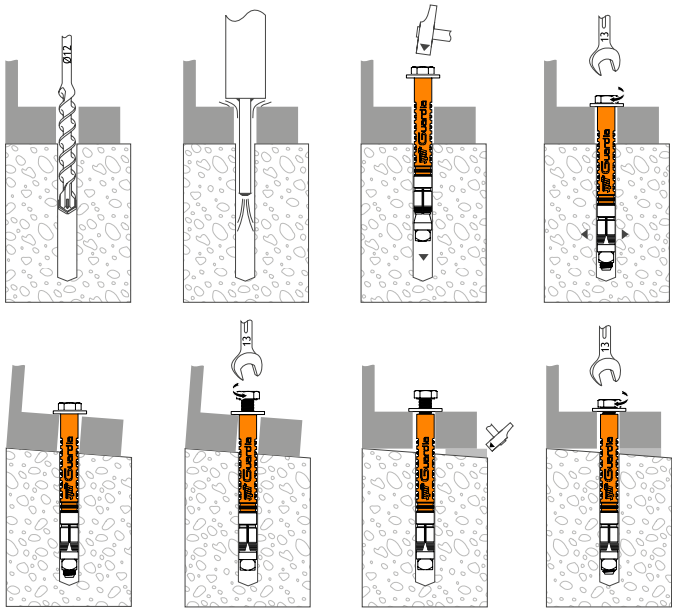
TECHNICAL FEATURES

SPIT GUARDIA	Min. anchoring depth (mm)	Fixing depth (mm)	Max. hole depth (mm)	Min. support thickness (mm)	Ø Hole (mm)	Ø Seat (mm)	Total length (mm)	Max. tightening torque (Nm)
	$h_{ef,min}$	**t_{fix}**	**h_o**	**h_{min}**	**d_o**	**d_f**	**L**	**T_{inst}**
DFTASA4	70	20	100	150	12	14	110	25
DFTAS	70	20	95	150	12	14	104	35

MECHANICAL PROPERTIES OF ANCHOR

Cone	DFTASA4	DFTAS
f_{uk} (N/mm^2) Min. tensile strength	500	1000
Body	DFTASA4	DFTAS
f_{uk} (N/mm^2) Min. tensile strength	700	550
W_{el} (mm^3) Flexural inertia modulus	50	50
$M^0_{Rk,s}$ (Nm) Characteristic bending moment	26	33
M (Nm) Permissible bending moment	10.8	13.7

INSTALLATION METHOD

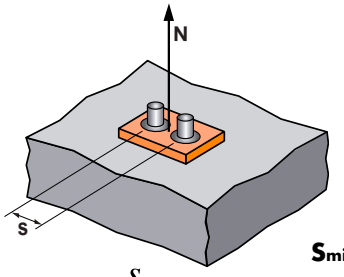


SPIT CC METHOD (VALUES DETECTED BY ETA)

INFLUENCE OF THE CENTRE DISTANCE ON THE TENSILE STRENGTH OF THE CONCRETE CONE

CENTRE DISTANCE S **Coefficient Ψ**

s MIN.ANCHORING DEPTH	
70	0.67
80	0.69
90	0.71
100	0.74
110	0.76
120	0.79
130	0.81
140	0.83
160	0.88
190	0.95
210	1.00



$$\Psi_S = 0{,}5 + \frac{s}{6.h_{ef}}$$

S_{min} < S < $S_{cr,N}$
$S_{cr,N}$ = 3.h_{ef}
ΨS evaluated in accordance with the centre distance

Art.	Description	Dimensions	Q.ty
DFTASA4	**A4** - For **indoor** and **outdoor installation**	12x110/20	1 Pc
DFTAS	For indoor **installation**	12x105/20	1 Pc

LED

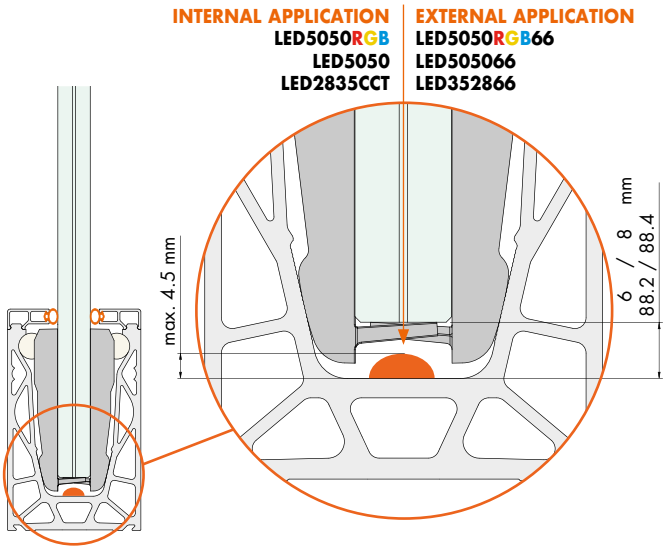
DEFENDER 88 is able to accommodate a strip of high brightness LEDs for the illumination of the glass panel.

Suggested uses:

- Better identification of the system either in the absence of light or at night
- Demarcating spaces also with different colors
- Aesthetic improvement of the system

We recommend the use a high brightness IP20 category LEDs for internal applications and IP66 for external applications.

Maximum LED thickness: 4.5 mm



Disclaimer: the following is only for information purposes and is subject to revisions and updates.

ANODISING

Anodising (also called anodic oxidation) is an electro-chemical process by which the formation of oxide (alumina) is induced on the extruded aluminium surface. **This treatment provides the product with the following characteristics**:

• resistance to corrosion • surface hardness • resistance to abrasion

The colouring applied to the products has a purely aesthetic impact and does not alter the protective ability of anodising.

The raw-finish aluminium profiles, specifically without anodising or painting, sold by Logli Massimo S.p.A. are intended for suitable coating by the customer. The customer exempts Logli Massimo S.p.A. from all liability for any problems resulting from using raw finish material. Furthermore, the customer accepts all liability regarding the finish applied by them to the raw finish profile.

Note: Galvanic corrosion: this is a phenomenon that can arise at the interface between two different metals in the presence of an electrolyte (e.g. water, especially if saltwater). This is an electro-chemical process that causes the dissolution of the metal with the lowest electric potential. In the most common metallic pairings, it is nearly always aluminium that plays the role of an anode and therefore corrodes. Obviously, this happens only when the aluminium is bare.

MAINTENANCE AND CLEANING

Periodic cleaning of the product is crucial in order to preserve its original appearance. In a marine or urban environment (atmospheric pollution), it is recommended to clean the surfaces at least once every three months. In relatively cleaner outdoor environments, it is recommended to clean them every six months. For indoor installations it is also recommended to clean the surfaces at least once a year.

Washing can be done with hot water and neutral soap; use a soft cloth or a non-abrasive sponge. Rinse thoroughly with clean water. Dry with a soft cloth.

During installation please note the following:

- To remove dirt, greasy stains and adhesive residues, turpentine can be used. Never use abrasive materials.
- To protect against corrosion to cuts and holes made after anodising, it is recommended to use sealants (e.g. silicone or butyl), paints (e.g. zinc metal spray) or other suitable corrosion inhibitors.

If installation is performed in winter, it is recommended to take into account the thermal expansion that will take place in summer due to the increased temperature, providing appropriate expansion joints.

The thermal expansion coefficient of aluminium is 2.3×10^{-5} °C^{-1}: for example, if the increase in temperature is equal to 35°C, the dilation of a 3m bar amounts to 2.3×10^{-5} °C-1 x 35°C x 3m = 2.4×10^{-3} m, or 2.4 mm.

MAIN WARNINGS FOR SAFE AND CORRECT INSTALLATION WITH POWER LED

1. All products with POWER LED must be CONNECTED IN SERIES and powered with DIRECT CURRENT at 350, 500 or 700mA.
2. Do not work on the installation before disconnecting mains power (220V).
   It is indispensable to connect ALL LEDs to the feeder complying with polarity and series, before connecting the feeder to the mains.
3. It is recommended to use cable length between Feeder and LED not exceeding 25 Metres.
4. It is not recommended to install switches on the current output of feeders (between feeder and LED).
   It is recommended to install the switch between the mains and the feeder.
5. It is recommended to carefully read the catalogue or the instruction sheet attached to the products, to identify the correct use.

PROTECTION RATING

The "resistance" by the fixture to the penetration of solids and liquids is indicated with the prefix **IP** (international protection) followed by two specific digits. The first digit identifies the degree of protection against the ingress of solids. The second digit identifies the degree of protection against the ingress of liquids.

IP0Y Not protected.

IP1Y Protected from the penetration of solids larger than 50mm.

IP2Y Protected from the penetration of solids larger than 12mm.

IP3Y Protected from the penetration of solids larger than 2.5mm.

IP4Y Protected from the penetration of solids larger than 1mm.

IP5Y Protected against penetration of dust.

IP6Y Protected against penetration of all dust.

IPX0 Not protected.

IPX1 Protected against vertical drops of water towards the product.

IPX2 Protects against drops of water at a maximum angle of 15°.

IPX3 Protected from rain.

IPX4 Protected from spraying.

IPX5 Protected from water jets.

IPX6 Protected against waves.

IPX7 Protected against temporary immersion.

Product subject to WEEE European regulations on disposal.

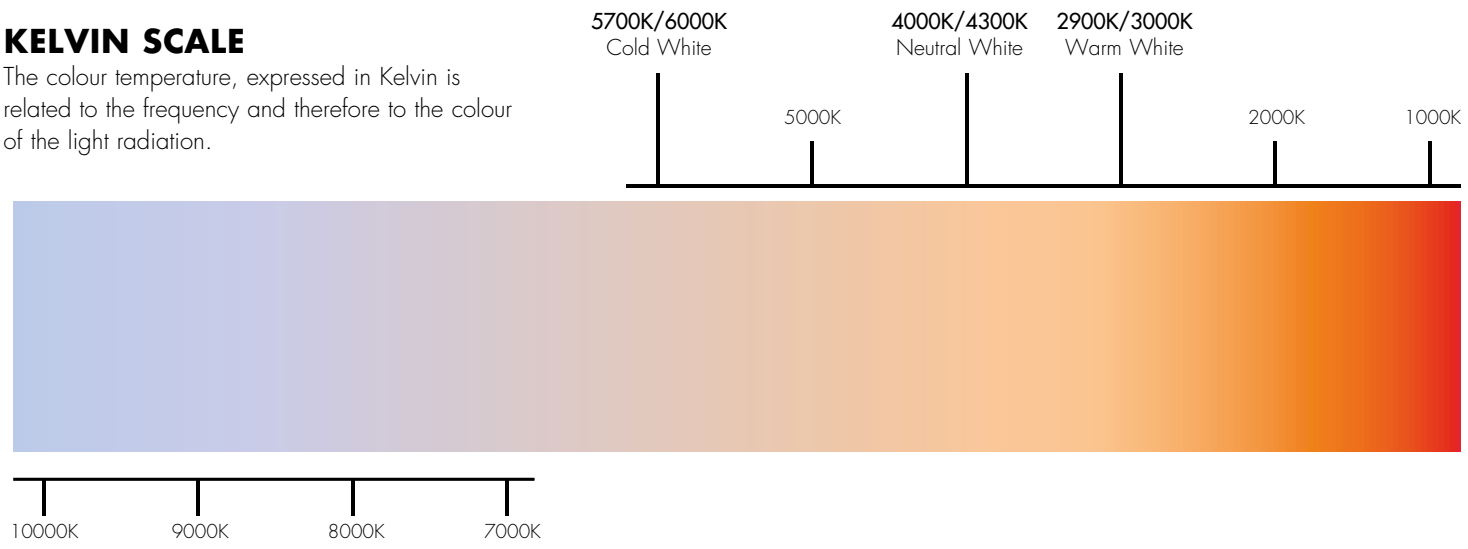
Product compliant with European regulations on electrical safety.

IP.. Protection rating

RoHS Compliance with Directive 2002/95/EC forbidding the use of hazardous substances in electrical and electronic equipment (lead, mercury, etc.)

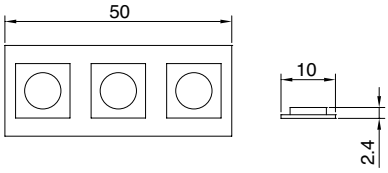
KELVIN SCALE

The colour temperature, expressed in Kelvin is related to the frequency and therefore to the colour of the light radiation.



LED 5050 STRIP IP20
LED STRIP 14.4 W/m

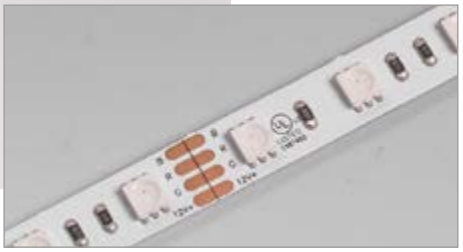
5 metre reel with 60 LED SMD 5050 per metre,
ideal for **indoor** lighting
Colour: 4000K
Power supply: 12Vdc.
Power: 14.4W per meter; 72W total.
Protection: **IP20**
Dimensions: 10mm **H 2.4mm**
Lumen: 1350 per meter, 6750 total

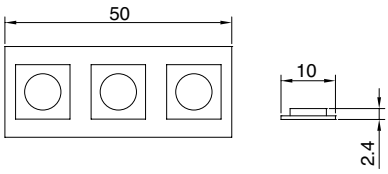


Art.	Description	Q.ty
LED5050	White LED STRIP 14.4 W/m IP20 10mm H 2.4mm X 5000mm	1 Pc

LED 5050RGB STRIP IP20
STRIP RGB4 LED 14.4 W/m

5 metre reel with 60 LEDs SMD 5050 per metre,
ideal as lighting for **indoors**
Colour: RGB
Power supply: 12Vdc.
Power: 14.4W per meter; 72W total.
Protection: **IP20**
Dimensions: 10mm **H 2.4mm**
Lumen: 1350 per meter, 6750 total

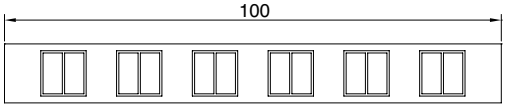


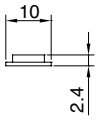


Art.	Description	Q.ty
LED5050RGB	RGB4 LED STRIP 14.4 W/m IP20 10mm H 2.4mm X 5000mm	1 Pc

LED 2835CCT STRIP IP20
LED STRIP 16.8 W/m CCT

5 m adhesive tape reel with 120LEDs SMD2835 per metre.
Ideal as lighting with dynamic effects in indoor **environments**,
thanks to the option to select the colour temperature of white
from **2700K to 6000K**
Colour: from 2700K to 6000K (white) - Power supply: 24Vdc.
MAX Power: 16.8W per metre with White 4500K, 84K total.
Protection: **IP20**
Dimensions: 10mm H 2.4mm
Lumen: 1850 with White 4500K
Use of the specific LEDCCT White Controller is required





Art.	Description	Q.ty
LED2835CCT	White LED STRIP 16.8 W/m IP20 10mm H 2.4mm X 5000mm	1 Pc

DYNAMIC WHITE CONTROLLER

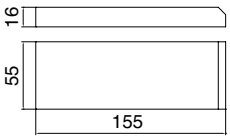
Unit for the radio-frequency control of LED STRIP
CCT with double LED (warm white + cold white).
By mixing these two components it is possible to adjust the colour temperature of the light. Simple to install, it assures intuitive management of dynamic white by means of a simple remote control with
on/off buttons, dimmer and white variation.
Features: Dynamic White LED STRIP connectable load
with constant voltage
- Power supply 12-24 Vdc
- Max Power (With 24Vdc) 96W (12Vdc) - 192W (24Vdc)
- Protection rating IP20
- Dimensions 145 x 47 x 16mm

The system can be expanded up to
a maximum number of 9 controllers.
Functions: • On / Off • Dimmer intensity
• White light temperature dimmer (2700-6000°K)

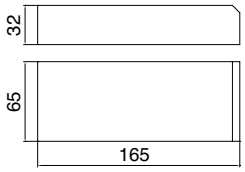
Art.	Description	Q.ty
LEDCCT	Control unit and dynamic white remote control	1 Kit

12Vdc FEEDERS FOR INDOORS

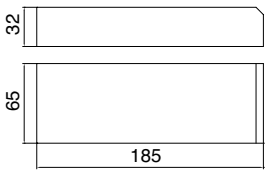
LED12030
Feeder 12Vdc 30W
Screw terminals - Class 2 protection
Operation 220-240V



LED12050
Feeder 12Vdc 50W
Screw terminals - Class 2 protection
Operation 100-240V



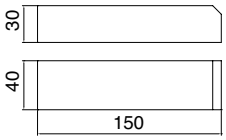
LED12075
Feeder 12Vdc 75W
Screw terminals - Class 2 protection
Operation 220-240V



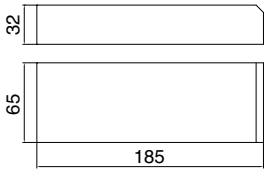
Art.	Description	Q.ty
LED12030	Feeder 12Vdc 30W	1 Pc
LED12050	Feeder 12Vdc 50W	1 Pc
LED12075	Feeder 12Vdc 75W	1 Pc

24Vdc FEEDERS FOR INDOORS

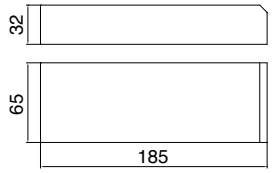
LED24035IP
- ALSO SUITABLE FOR OUTDOORS -
Feeder 24Vdc 35W IP67
IN/OUT cables - Class 2 protection
Operation 100-240V



LED24050
Feeder 24Vdc 50W
Screw terminals - Class 2 protection
Operation 100-240V



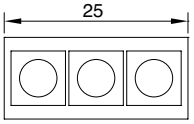
LED24100
Feeder 24Vdc 100W
Screw terminals - Class 2 protection
Operation 100-240V

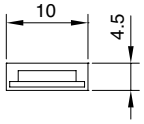


Art.	Description	Q.ty
LED24035IP	Feeder 24Vdc 35W IP67	1 Pc
LED24050	Feeder 24Vdc 50W	1 Pc
LED24100	Feeder 24Vdc 100W	1 Pc

LED 3528 STRIP IP66
STRIP LED 9.6 W/m

5 metre reel with 120 LEDs SMD 3528 per metre,
ideal as lighting for indoors and **OUTDOORS**
Colour: 4000K (white)
Power supply: 12Vdc.
Power: 9.6W per metre; 48W total.
Protection: **IP66**
Dimensions: 10mm **H 4.5mm**
Lumen: 850 per metre, 4250 total

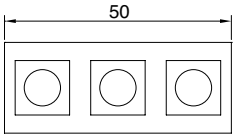


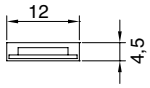


Art.	Description	Q.ty
LED352866	White LED STRIP 9.6 W/m IP66 10mm H 4.5mm X 5000mm	1 Pc

LED 5050 STRIP IP66
LED STRIP 14.4 W/m

5 metre reel with 60 LEDs SMD 5050 per metre,
ideal as lighting for indoors and **OUTDOORS**
Colour: 4000K (white)
Power supply: 12Vdc.
Power: 14.4W per meter; 72W total.
Protection: **IP66**
Dimensions: 12mm **H 4.5mm**
Lumen: 1350 per meter, 6750 total

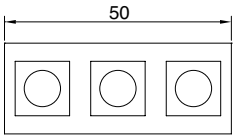


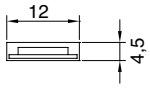


Art.	Description	Q.ty
LED505066	White LED STRIP 14.4 W/m IP66 12mm H 4.5mm X 5000mm	1 Pc

LED 5050 STRIP IP66
LED STRIP 14.4 W/m RGB

5 metre reel with 60 LEDs SMD 5050 per metre,
ideal as lighting for indoors and **OUTDOORS**
Colour: RGB
Power supply: 12Vdc.
Power: 14.4 W per metre in RGB; 72W in total in RGB
Protection: **IP66**
Dimensions: 16mm **H 4.5mm**
Lumen: 355 per metre in RGB, 1775 in total in RGB

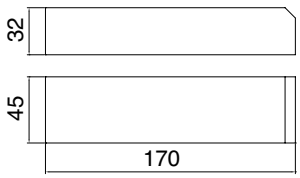




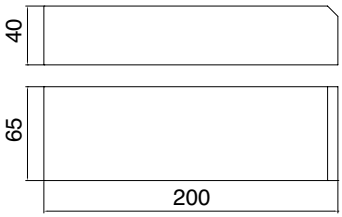
Art.	Description	Q.ty
LED5050RGB66	RGB LED STRIP 14.4 W/m IP66 12mm H 4.5mm X 5000mm	1 Pc

12Vdc FEEDERS FOR INDOORS AND OUTDOORS

LED12060IP
Feeder 12Vdc 60W **IP67**
IN/OUT cables - Class 2 protection
Operation 100-240V



LED12100IP
Feeder 12Vdc 100W **IP67**
IN/OUT cables - Class 2 protection
Operation 100-240V



Art.	Description	Q.ty
LED12060IP	Feeder 12Vdc 60W IP67	1 Pc
LED12100IP	Feeder 12Vdc 100W IP67	1 Pc

CONTROL UNIT RGB - RGB.RFL20K

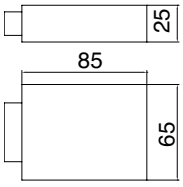
The control unit model RGB.RFL20K is specifically designed to control multicolour SIGNAL LED RGB and STRIP RGB LED.
Simple to install, it assures intuitive management of the colour change programs and to best use the RGB system thanks to the radio-frequencies remote control with colour and on/off buttons.

FEATURES
Aluminium cover with fixing holes
12 or 24Vdc power supply
Max Power 144W
The system can be expanded up to a maximum number of 9 amplifiers.

STATIC COLOURS
(it is possible to modify light intensity)
Red, Orange, Dark yellow, Yellow, Light yellow, Green, Light green, Aqua green, Light blue, Azure, Blue, Dark blue, Purple, Lilac, Pink, White.

COLOUR CHANGE PROGRAMS
(colour speed can be changed)
Sixteen colours with alternating change, Sixteen colours with strobe effect, Seven colours with fading change, Three colours with alternate change.

NOTE:
In case of external application, protect adequately from weathering.



Art.	Description	Q.ty
LEDCRGB	Control unit	1 Pc

SOLUTIONS FOR THE INSTALLATION

Externally, eg terrace, it may be necessary to evaluate the type of anchorage and the possibility of evacuating rainwater in the design phase.

FLOOR ANCHORAGE
Water drainage of the terrace and the profile

RECESSED FLOOR ANCHORAGE
Water drainage of the terrace thanks to drainage grid

SLAB ANCHORAGE WITH AN L-SHAPED REINFORCEMENT Drainage of the terrace water

FLOOR ANCHORAGE
Finishing with DF8801 profile for floating walking

FLOOR ANCHORAGE
Drainage of terrace water with U or V open end caps

The images and information contained in this catalogue are to be considered indicative and may be subject to variations without prior notice

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