LOGLI MASSIMO
SAINT-GOBAIN

UPDATE_2019

ELU PRODUIT DU BTP PAR LES PROFESSIONNELS 2018

La Tensilina

ETA

Quality, resistance and durability
Evaluated at European level

ITC • TEST REPORT • Politecnico di Milano

SAINT-GOBAIN

The very first product on the market with no glass cut out required to get the ETA

La Pensilina

A perfect balance between elements

"La Pensilina", with balanced proportions and novel forms, uses a minimalist approach, providing a clean and luminous look.

QUALITAL

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

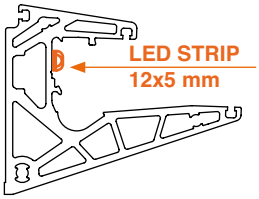
LA PENSILINA - CLASS 20
Minimum anodising thickness **20 micron**
Indicated for outdoor installations

KIT FOR CANTILEVERED ROOF
NO RODS AND NO GLASS CUT OUT REQUIRED

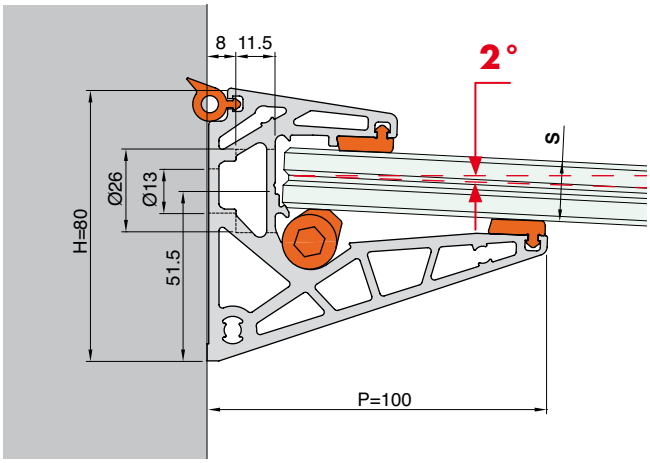
The kit is made up of a load-bearing profile in aluminum, pre-drilled with 200 mm center distance, gaskets, safety accessories and includes finishing end-caps **without visible screws**.

Features:
Load-bearing extruded aluminium 6063-T6 for glass composition 88.2 (16.76 mm) or 88.4 (17.52 mm).
TPE glass holder and wall gaskets, grey coloured. Grivory® locking cams and safety elements for maximum mechanical and ageing resistance.
End caps in aluminium, to be applied with silicone.

Finish: matt aluminium, brushed-steel-effect aluminium,
RAL 9010 polished white aluminium, raw aluminium.
Other anodised and RAL finishes are available on demand



- EXTERNAL APPLICATION
LED5050RGB66
LED505066
LED352866



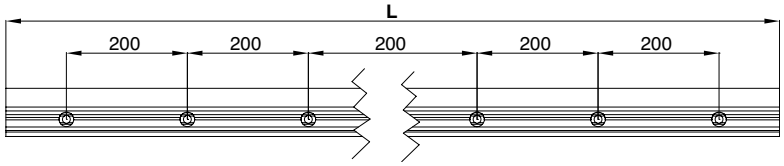
It is possible to insert LEDs between the profile and the glass.
We recommend the use of an ultra-thin high brightness LED with a minimum value of IP65 (Resistance class 6 to dust, class 5 to water jets)

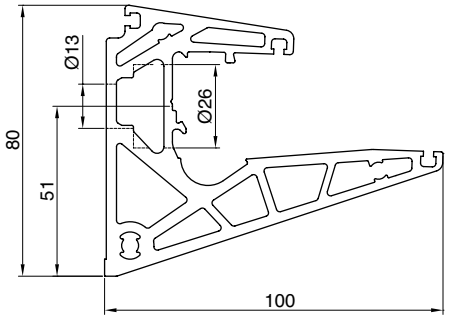
Art.	Description	Length	S = For glass	Q.ty
PENKIT10	La Pensilina Kit H80 x P100 mm for glass 88.2 or 88.4	1000 mm	16.76 / 17.52 mm	1 Kit
PENKIT15	La Pensilina Kit H80 x P100 mm for glass 88.2 or 88.4	1500 mm	16.76 / 17.52 mm	1 Kit
PENKIT20	La Pensilina Kit H80 x P100 mm for glass 88.2 or 88.4	2000 mm	16.76 / 17.52 mm	1 Kit
PENKIT30	La Pensilina Kit H80 x P100 mm for glass 88.2 or 88.4	3000 mm	16.76 / 17.52 mm	1 Kit

ALUMINIUM PROFILE

Material: aluminum 6063-T6
Features: load-bearing extruded aluminum 6063-T6 for glass composition 88.2 (16.76 mm) or 88.4 (17.52 mm).
Pre-drilled with 200 mm center distance
TPE glass holder and wall gaskets, grey coloured.
Finish: matt aluminum, brushed-steel-effect aluminum, RAL 9010 polished white aluminum, raw aluminum.
Other anodised and RAL finishes are available on demand

DRILLING SCHEME





Art.	Dimensions	Length	Q.ty
PEN10	H80 x P100 mm for glass 88.2 or 88.4	1000 mm	1 Pc
PEN15	H80 x P100 mm for glass 88.2 or 88.4	1500 mm	1 Pc
PEN20	H80 x P100 mm for glass 88.2 or 88.4	2000 mm	1 Pc
PEN30	H80 x P100 mm for glass 88.2 or 88.4	3000 mm	1 Pc

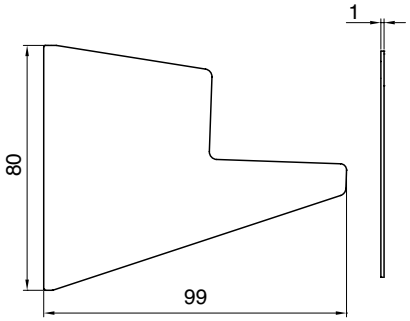
LOCKING CAMS

Material: Grivory®
Features: Grivory® locking cams and safety elements for maximum mechanical and ageing resistance.

Art.	Description	Q.ty
PENGRY	Locking cams	1 Kit

CAP KIT

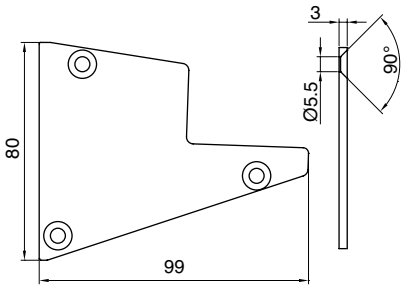
Material: aluminum
Features: end caps in aluminum to be applied with silicone
Finish: matt aluminum, brushed-steel-effect aluminum, RAL 9010 polished white aluminum, raw aluminium



Art.	Description	Q.ty
PENT01	Pair of aluminium end caps	1 Pair

CAP KIT WITH SCREWS

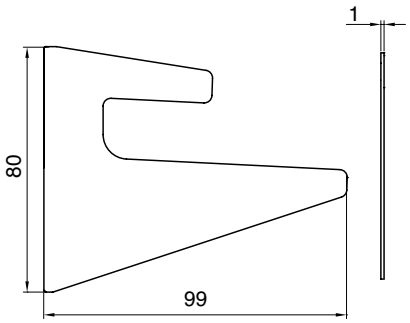
Material: aluminium caps, class A4 fastening screws
Features: pair of end caps with screw fastening for profile La Pensilina, the kit includes the fastening screws
Finish: matt aluminium,
brushed-steel-effect aluminium,
RAL 9010 polished white aluminium,
raw aluminium
Other anodised and RAL finishes
are available on demand



Art.	Description	Q.ty
PENT03	Two end caps with fastening screws	1 Kit

OPEN CAPS KIT

Material: aluminium
Features: pair of open aluminium end caps
Finish: matt aluminium,
brushed-steel-effect aluminium,
RAL 9010 polished white aluminium,
raw aluminium
Other anodised and RAL finishes
are available on demand



Art.	Description	Q.ty
PENT05	Pair of open end caps	1 Pair

KEY FOR LOCKING CAM LA PENSILINA

Material: alloy steel
Features: hexagonal bent key
size 8 for locking cam La Pensilina.

Art.	Dimensions	Q.ty
PENCH	208x43 mm	1 Pc

CUSTOM CUTTING FOR LA PENSILINA PROFILE

Art.	Description	Q.ty
PENTAGLIO	Custom cutting for La Pensilina profile	1 Pc

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Designated according to Article 29 of Regulation (EU) N° 305/2011.

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European Organisation for Technical Assessment

European Technical Assessment ETA 19/0181 of 30/04/2019

GENERAL PART

Trade name of the construction product	**"La Pensilina" made of:** Base Rail Clamping System Structural laminated safety glass Safety cams
Product family to which the construction product belongs	**PAC 22: ROOF COVERINGS, LIGHTS, WINDOWS, RELATED KITS AND ANCILLARIES** **EAD 220025-00-0401: Cantilevered Structural Horizontal Glazing (Structural Glass Canopy/Roof)**
Manufacturer	**Logli Massimo S.p.A.** **Via Ettore Romagnoli, 6** **I - 20146 Milano - Italia**
Manufacturing plant	**Logli Massimo S.p.A.** **Via Chemnitz, 49/51** **I - 59100 Prato - Italia**
This European Technical Assessment contains:	**17 pages, including 7 annexes which form an integral part of this assessment**
This European Technical Assessment is issued in accordance with Regulation (EU) n° 305/2011, on the basis of	**EAD 220025-00-0401: Cantilevered Structural Horizontal Glazing (Structural Glass Canopy/Roof)**

The full document is available on www.loglimassimo.it

Logli Massimo S.p.A. has checked the strength and durability of the system by carrying out all the tests necessary to obtain the **ETA (European Technical Assessment)**. Voluntary document containing the performance of a construction product; issued to products for which, in the absence of a harmonized standard, a European Assessment Document (EAD) or an ETAG is available as a reference.

The release of ETA, as well as the definition of special EADs, are the responsibility of the Technical Assessment Body - TAB. The ITC is TAB designated on many product areas and can therefore define EAD, or collaborate on their definition, and release ETA.
The ETA of a product contains the performance/s to be declared, expressed in levels or classes, or in a description, of the essential characteristics agreed by the manufacturer and by the TAB that receives the ETA request for the stated intended use and the technical details necessary to apply the system of evaluation and verification of constancy of performance (VVCP).

The strict procedure is useful to justify:

STEP 1 - Resistance to static load (Snow load)
STEP 2 - Resistance to static equivalent lifting load (Wind action)
STEP 3 - Resistance to the impact of a soft body and a hard body
STEP 4 - Resistance of glass to post-breakage
STEP 5 - Resistance to the extraction of the slab

STEP 1
Snow overload

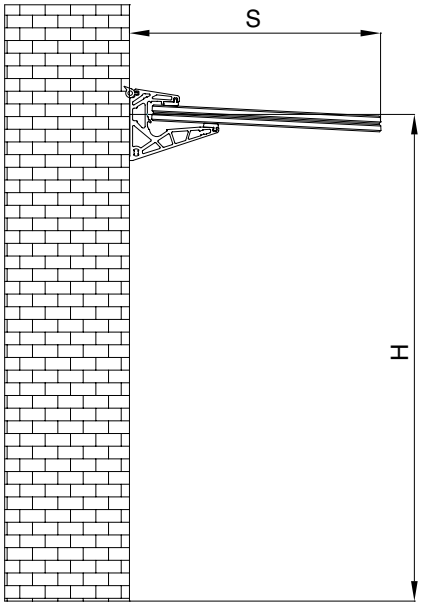
STEP 2
Wind overload (upside down profile)

STEP 3
Impact resistance

STEP 4
Post-breakage resistance

STEP 5
Resistance to extraction

ETA



Thickness	Glass Type	Interlayer	Snow Load max [kg/m²]	Wind Load max [kg/m²]	Application
88.4	F - F	PVB	105	26	Cantilevered Canopy
	H - H	PVB	220	86	
	H - H	SentryGlas®	380	93	
88.4	T - T	PVB	265	86	Cantilevered Roof H > 350 + S
106.4 (EGLAS)	T - T	DG41	380	80	

Table 1 - Fields of application for the different types of glass (max values for overhang 120 cm)

Glass type: F = Float EN 572 - **H** = Hardened EN 1863 - **T** = Tempered EN 12150

Legend of the fields of use:
Cantilevered Canopy: installation without any height limitation
Cantilevered Roof H > 350 + S: installation with height limitation of: H = 350 cm + S (glass overhang)

IMPORTANT: SNOW LOAD and **WIND LOAD** must be evaluated according to Eurocode 1 or specific norm in such application, depending of: geography and building form: Geography - Morfology - Elevation - Building geometric parameters

Glass type / Overhang[m]	Characteristic Values for Resistance to Snow Load [kN/m²]				
	F-F PVB	H-H PVB	H-H SentryGlas®	T-T PVB	T-T (EGLAS) DG41
1.20	1.05	2.20	3.80	2.65	3.80
1.15	1.14	2.40	4.14	2.89	4.14
1.10	1.25	2.62	4.52	3.15	4.52
1.05	1.37	2.87	4.96	3.46	4.96
1.00	1.51	3.17	5.47	3.82	5.47
0.95	1.68	3.51	6.06	4.23	6.06
0.90	1.87	3.91	6.76	4.71	6.76
0.85	2.09	4.38	7.57	5.28	7.57
≤ 0.80	2.36	4.95	8.55	5.96	8.55

Table 2 - Snow Load Resistance of the Types Tested

Glass type / Overhang[m]	Characteristic Values for Resistance to Wind Load [kN/m²]				
	F-F PVB	H-H PVB	H-H SentryGlas®	T-T PVB	T-T (EGLAS) DG41
1.20	0.26	0.86	0.93	0.86	0.80
1.15	0.28	0.94	1.01	0.94	0.87
1.10	0.31	1.02	1.11	1.02	0.95
1.05	0.34	1.12	1.21	1.12	1.04
1.00	0.37	1.24	1.34	1.24	1.15
0.95	0.41	1.37	1.48	1.37	1.28
0.90	0.46	1.53	1.65	1.53	1.42
0.85	0.52	1.71	1.85	1.71	1.59
≤ 0.80	0.59	1.94	2.09	1.94	1.80

Table 3 - Wind Load Resistance of the Types Tested

The Snow Load and Wind Load values refer to the configurations validated by the ETA.
The tables contain the resistance values corresponding to the variable overhang.
Extrapolate the values to get the maximum possible overhang in the analyzed case.

Overhang [cm]

Snow Load [kg/m²]	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120
50	0.69	0.78	0.88	0.99	1.10	1.21	1.33	1.46	1.59	1.72	1.86	2.01	2.16	2.31	2.47
60	0.73	0.84	0.95	1.07	1.19	1.32	1.46	1.60	1.75	1.90	2.06	2.22	2.39	2.57	2.75
70	0.78	0.90	1.02	1.15	1.29	1.43	1.58	1.74	1.90	2.08	2.25	2.44	2.63	2.83	3.03
80	0.83	0.96	1.09	1.24	1.39	1.54	1.71	1.88	2.06	2.25	2.45	2.65	2.87	3.09	3.32
90	0.88	1.02	1.16	1.32	1.48	1.65	1.83	2.02	2.22	2.43	2.65	2.87	3.10	3.35	3.60
100	0.93	1.08	1.23	1.40	1.58	1.76	1.96	2.17	2.38	2.61	2.84	3.09	3.34	3.61	3.88
110	0.98	1.14	1.30	1.48	1.67	1.87	2.09	2.31	2.54	2.78	3.04	3.30	3.58	3.87	4.16
120	1.03	1.20	1.38	1.57	1.77	1.98	2.21	2.45	2.70	2.96	3.23	3.52	3.82	4.13	4.45
130	1.08	1.26	1.45	1.65	1.87	2.09	2.34	2.59	2.86	3.14	3.43	3.74	4.05	4.39	4.73
140	1.13	1.31	1.52	1.73	1.96	2.21	2.46	2.73	3.02	3.31	3.63	3.95	4.29	4.64	5.01
150	1.18	1.37	1.59	1.82	2.06	2.32	2.59	2.87	3.18	3.49	3.82	4.17	4.53	4.90	5.29
160	1.22	1.43	1.66	1.90	2.15	2.43	2.71	3.02	3.33	3.67	4.02	4.38	4.77	5.16	5.58
170	1.27	1.49	1.73	1.98	2.25	2.54	2.84	3.16	3.49	3.85	4.22	4.60	5.00	5.42	5.86
180	1.32	1.55	1.80	2.06	2.35	2.65	2.96	3.30	3.65	4.02	4.41	4.82	5.24	5.68	6.14
190	1.37	1.61	1.87	2.15	2.44	2.76	3.09	3.44	3.81	4.20	4.61	5.03	5.48	5.94	6.42
200	1.42	1.67	1.94	2.23	2.54	2.87	3.22	3.58	3.97	4.38	4.80	5.25	5.72	6.20	6.71
225	1.54	1.82	2.12	2.44	2.78	3.14	3.53	3.94	4.37	4.82	5.29	5.79	6.31	6.85	7.41
250	1.67	1.97	2.29	2.64	3.02	3.42	3.84	4.29	4.77	5.26	5.79	6.33	6.90	7.50	8.12
275	1.79	2.12	2.47	2.85	3.26	3.69	4.16	4.65	5.16	5.71	6.28	6.87	7.50	8.15	8.83
300	1.91	2.26	2.65	3.06	3.50	3.97	4.47	5.00	5.56	6.15	6.77	7.41	8.09	8.80	9.53

Table 4 - Axial load in kN resulting on the single anchorage in function of Overhang and Snow Load

- Axial load on anchors in kN: the abacus reports the values of the resulting force on the single anchor in relation to the overhang and SNOW load, assuming 5 fixings per meter (distance between holes i = 200 mm).

- SNOW load in kg/m2: the snow load is defined by the National Regulations according to the geographical area, of the altitude and exposure.

Overhang [cm]

Wind Load [kg/m²]	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120
50	0.20	0.24	0.29	0.34	0.40	0.45	0.52	0.58	0.65	0.73	0.81	0.89	0.98	1.07	1.16
60	0.35	0.42	0.50	0.59	0.68	0.78	0.89	1.00	1.12	1.25	1.38	1.53	1.68	1.83	1.99
70	0.49	0.59	0.71	0.83	0.96	1.10	1.26	1.42	1.59	1.77	1.96	2.16	2.37	2.59	2.83
80	0.63	0.77	0.91	1.07	1.24	1.43	1.62	1.83	2.06	2.29	2.54	2.80	3.07	3.36	3.66
90	0.78	0.94	1.12	1.32	1.53	1.75	1.99	2.25	2.52	2.81	3.12	3.44	3.77	4.12	4.49
100	0.92	1.12	1.33	1.56	1.81	2.08	2.36	2.67	2.99	3.33	3.69	4.07	4.47	4.88	5.32
110	1.07	1.29	1.54	1.80	2.09	2.40	2.73	3.09	3.46	3.85	4.27	4.71	5.17	5.65	
120	1.21	1.47	1.75	2.05	2.38	2.73	3.10	3.50	3.93	4.37	4.85	5.34	5.87		
130	1.36	1.64	1.95	2.29	2.66	3.05	3.47	3.92	4.39	4.90	5.42	5.98			
140	1.50	1.82	2.16	2.54	2.94	3.38	3.84	4.34	4.86	5.42	6.00				
150	1.64	1.99	2.37	2.78	3.22	3.70	4.21	4.75	5.33	5.94					
160	1.79	2.16	2.58	3.02	3.51	4.02	4.58	5.17	5.80						
170	1.93	2.34	2.78	3.27	3.79	4.35	4.95	5.59	6.26						
180	2.08	2.51	2.99	3.51	4.07	4.67	5.32	6.00							
190	2.22	2.69	3.20	3.75	4.35	5.00	5.69	6.42							
200	2.37	2.86	3.41	4.00	4.64	5.32	6.06								
210	2.51	3.04	3.61	4.24	4.92	5.65	6.43								

Higher values of the axial load are related to the Wind Loads for which in ETA 19/0181 there are no validated configurations

Table 5 - Axial load in kN resulting on each anchorage as a function of the overhang and the wind load

- Axial load on the anchors in kN: the abacus indicates the values of the resultant force on each anchorage with respect to the overhang and WIND load, assuming 5 fixings per meter (distance between holes i = 200 mm).

- WIND load in kg/m2: the wind load is defined in the Norms according to factors such as: geographical area, altitudine, typical construction exposure and geometry, aerodynamic coefficients.

Key:

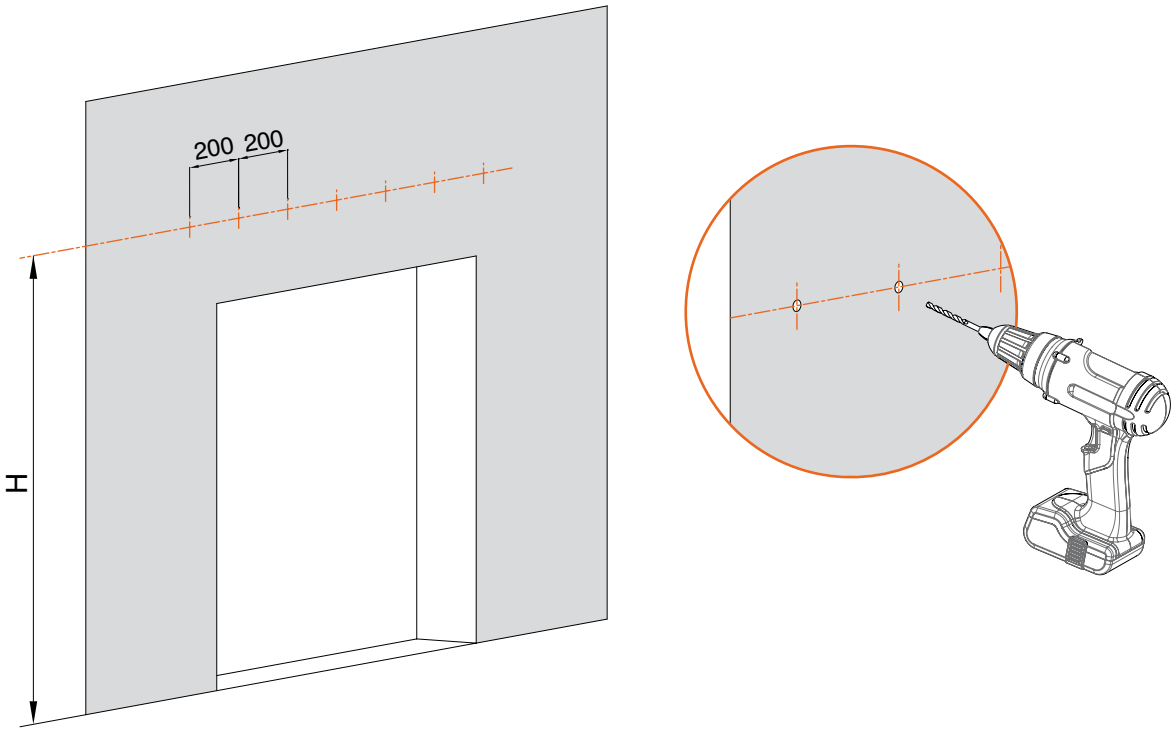
The colours identify the fields of application with different types of anchor depending on the type of support:
"**Green**": chemical anchor on **Alveolater** wall, anchoring depth between 80 and 130 mm (Extraction load max 1.8 kN)
"**Yellow**": chemical anchor on **Doppio UNI** wall, anchoring depth ≥ 130 mm (Extraction load max 2.6 kN)
"**Orange**": chemical anchor on **solid brick** wall, anchoring depth ≥ 100 mm (Extraction load max 3.6 kN)
"**Red**": chemical anchor on **cracked concrete** wall, anchoring depth ≥ 120 mm (Extraction load max 10.4 kN)
Note: these examples are provided considering the use of an M10 threaded bar in class A4

Example:
Installation area: **n.d.** - Snow load **100 kg/m²** – Wind load **87 kg/m²** – Project overhang: **100 cm**
Procedure:
1. See Table 1 for the type of glass that can be used for snow and wind loads, using the most conservative value.
In this case, the only possible configuration is the one with H-H-SG glass, for a maximum overhang of 120 cm.
2. In Tables 2 and 3, check if there are other possible configurations for the project overhang. In this case the snow load is almost always verified, the wind load excludes for each value of the overhang only the configuration F-F PVB. We can see that for an overhang of 100 cm, you can choose 4 of the 5 possible configurations.
3. Use Tables 4 and 5 for the values of the resulting axial force on the anchors. By matching the values of the snow/wind load and the project overhang find the axial load on each anchor. In this case the most conservative value between the two is corresponding to the wind load F_e = 3.12 kN.
The installer will install La Pensilina using anchors with a resistance to extraction higher than the resulting Project axial load value F_e.

WARNING! The resistance of the anchorage is influenced by:
- The type of support (eg masonry, block wall, concrete beam, etc.)
- The type and dimensions of the anchorage (eg mechanical, chemical, etc.)
- The depth of anchorage
- A correct installation
In case the required resistance conditions for the system can not be satisfied on the available support with the anchor types available, it will be necessary to reduce the overhang of the project to find the appropriate resistance value in the abacus.

LA PENSILINA - INSTALLATION INSTRUCTIONS

1



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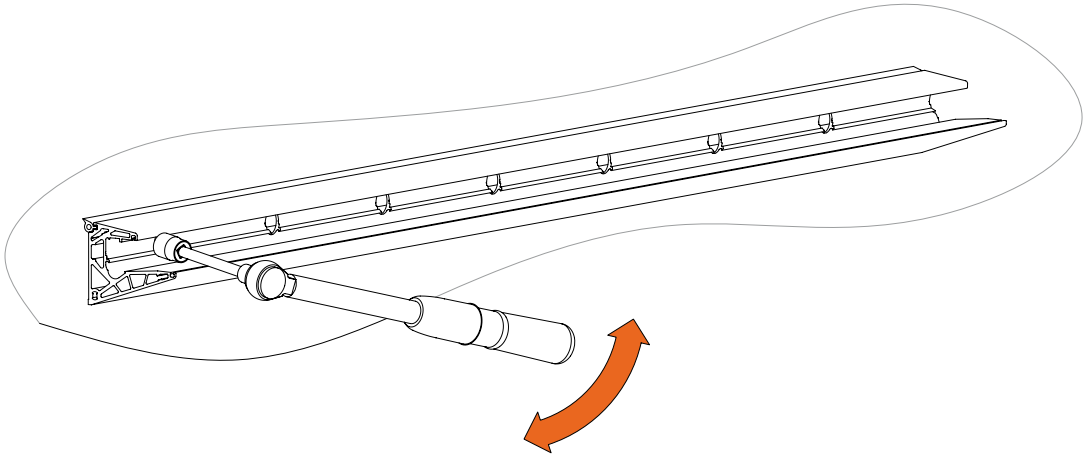

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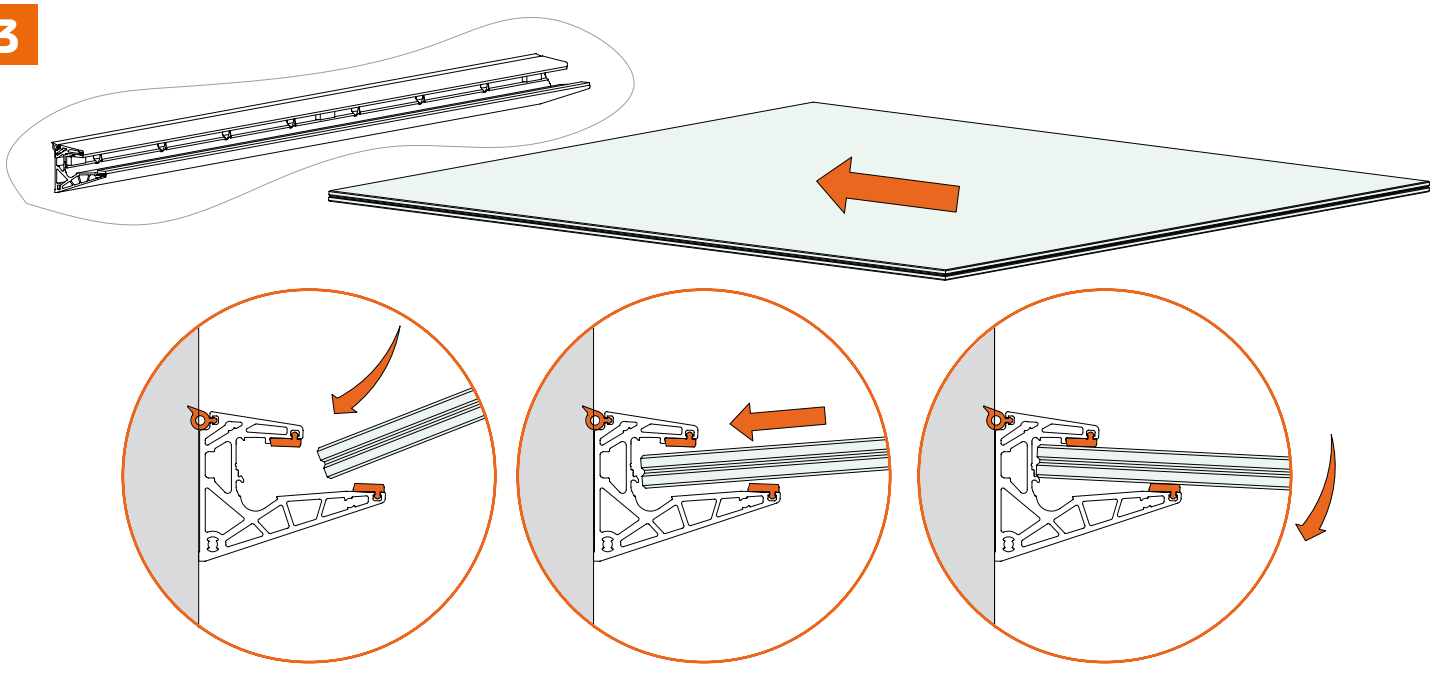

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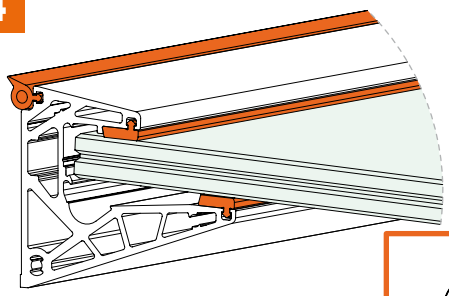
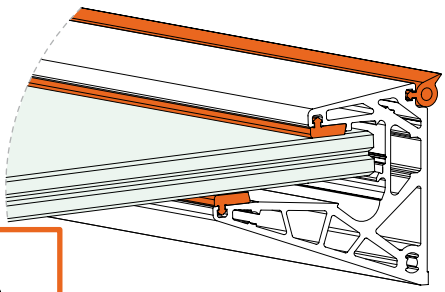
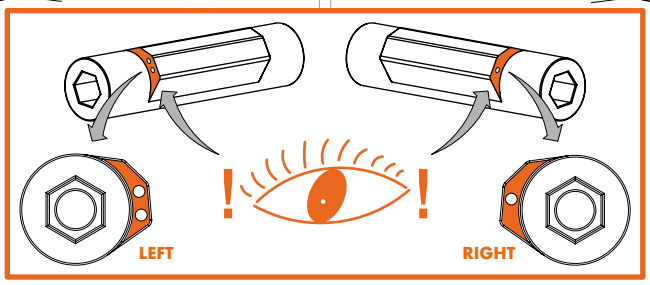
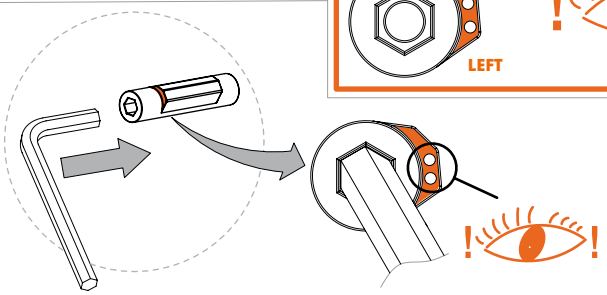


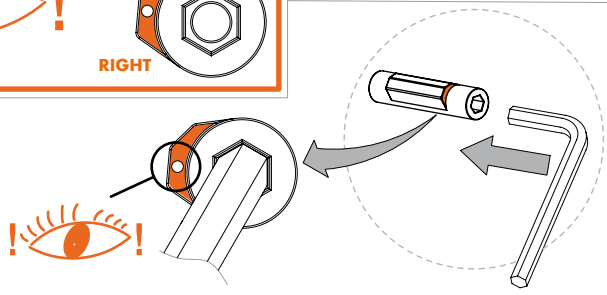


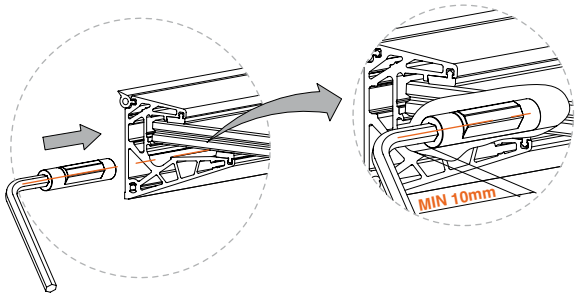
LEFT

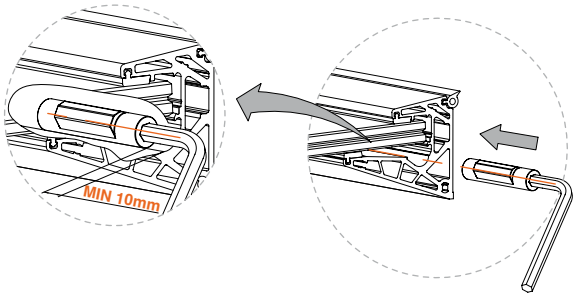
RIGHT

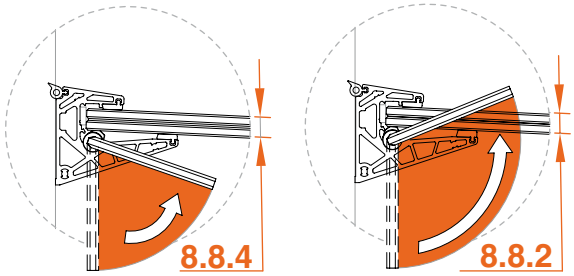


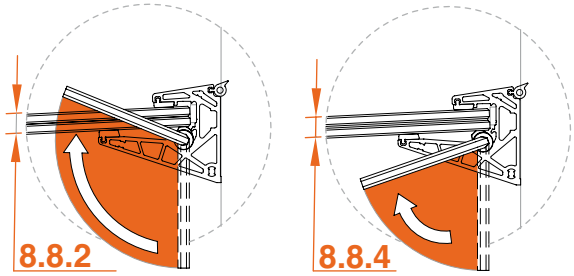


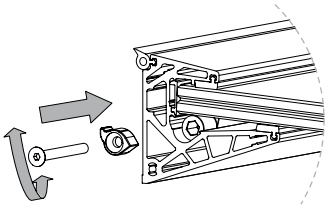


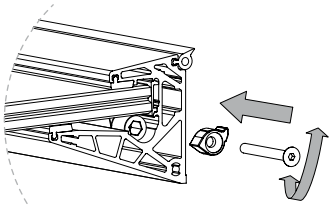












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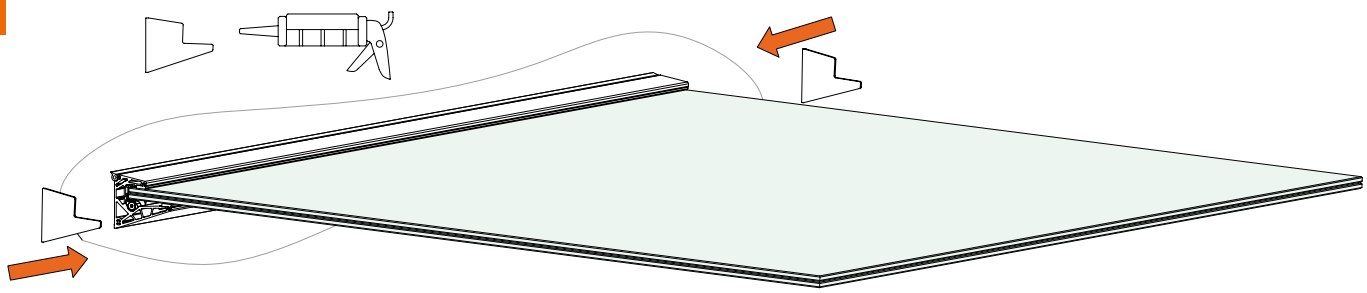

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