



Creating healthy spaces

Horizontal Sun Protection Icarus[®] Sunclips[®]

patented technologies



PROJECT USE

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Introduction > RENSON® company profile



6 good reasons to have RENSON® as a partner.

1. Customer satisfaction through personal contact, professional advice, excellent service and reliable, high-performance products are the main aims of our company.

2. RENSON® is a reputable and established multinational company with international expertise and experience thanks to the efforts of our local specialists. They are present in all regions of the world. RENSON® has assisted with projects across the whole world, from Moscow to Tahiti and from Monaco to Shanghai.



3. A complete service from start to finish, effective support and advice during the design phase, site meetings and installation.

4. The production process is fully vertically integrated, enabling manufacturing to the strictest of standards. Investment in injection moulding machinery, anodising facilities and a fully automatic powder coating installation ensure efficiency and accuracy.

5. Continuous research and development translates customer needs into unique solutions and innovative products.



6. RENSON® specialises in all aspects of ventilation and solar shading to achieve the goals of the Healthy Building Concept®.



Introduction



Sun protection is necessary

A building or home with large glazed surfaces facing south offers many advantages. During autumn, winter and spring, you enjoy the benefits of the incoming sunlight. But in the summer this can create an uncomfortable indoor climate and irritating light reflections.

Structural sun protection and screens prevent overheating. They stop the sun's rays before they come into contact with glazed surfaces. Undesired heat and blinding light do not enter the building. This means no blinding or annoying reflections on TV or computer screens. And yet you still retain visual contact with your environment. The view outside is important, and it is respected.

KYOTO protocol

Many countries have now signed the Kyoto protocol. With growing awareness, they are now acknowledging the detrimental but not yet irreversible effect man is having on our planet and on the climate in particular. They want to commit themselves to the cause and take corrective measures. If we want to reduce the greenhouse effect, energy consumption must fall.

One major energy-consuming activity is the cooling of buildings. Efficient sun shading can partly and sometimes even fully resolve this issue. It makes additional cooling unnecessary and saves on energy.

Various governments have already agreed on laws in relation to energy consumption and ventilation.

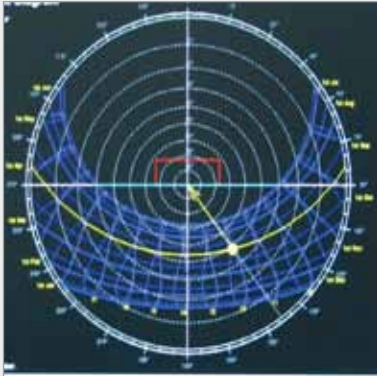
- Belgium: Regelgeving van Energieprestatie & Binnenklimaat (EPB)
- The Netherlands: Energie Prestatie Coëfficiënt (EPC)
- France: Règlement Thermique 2005 (RT2005)
- Germany: Energieeinsparverordnung
- UK:
 - Approved document L1 'Conservation of fuel and power in dwellings'
 - Approved Document L2 'Conservation of fuel and power in buildings other than dwellings'



Icarus® Centre de loisirs, Liffre (FR)
arch.: Cabinet Colhen, Liffre



Sundips® Lou Clapas, Monaco, France



Stereographic diagram

Dimensioning of sunshading

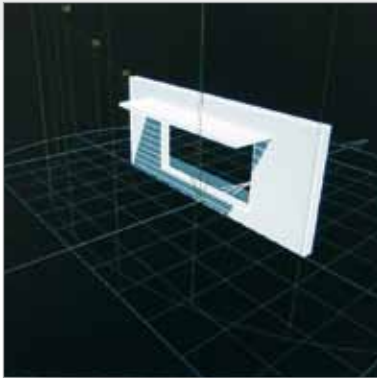
The sun is an important primary source of heat and light. The design, dimensioning and control of sunshading are sometimes quite complex. Sun protection has to be designed to reduce solar heat in summer, but allow in the extra warmth in winter. Natural sunlight must also be kept under control. There must be sufficient natural lighting, but no annoying reflections or glare.

A number of basic principles apply to the data needed to dimension sun protection.

Sun's path

The position of the sun varies from hour to hour and from day to day. The different positions can be shown in a sun path graph. The sun path curves depend on the location on the globe, so the meridians of latitude and longitude must be known. The sun path curves are always based on solar time (highest sun position at 12 noon) but need to be adapted to the local time zone and/or winter or summertime. The above data, plus the orientation of the façade, allow the shading angles to be calculated when designing and dimensioning the sun protection.

RENSON® Sun Protection Projects has the software required to offer you professional advice in this respect.

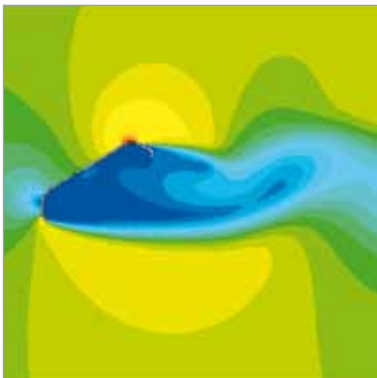


Shadow analysis

Development

New developments are conceived using the latest technology in the area of CFD simulations and collaboration with famous research institutes such as the BBRI, Von-Karman Institute, CSTB, etc.

All products are fully tested for stability and durability.



CFD simulation

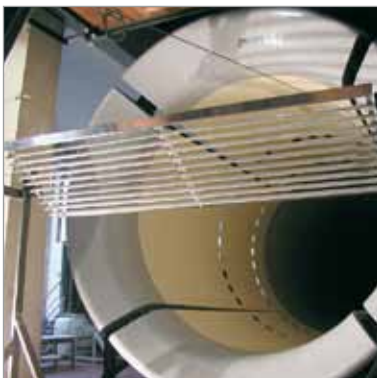
Stability and dimensions

A detailed stability calculation can be made on the basis of the prevailing Eurocodes, to determine the correct wind and snow load on the awning. This load determines the correct spans of blades and mullions, as well as the method of fixation to the supporting structure.

Project solutions

This brochure merely provides an overview of the possibilities. Our years of experience mean we can achieve almost any required design.

Our project team is at your service to find the appropriate solution for your project.



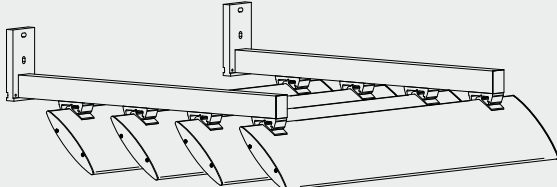
Wind tunnel test

RENSON® Sun Protection Projects offers different options for achieving aesthetic and architectural sun protection in accordance with current regulations.

Systems > Icarus® installation methods

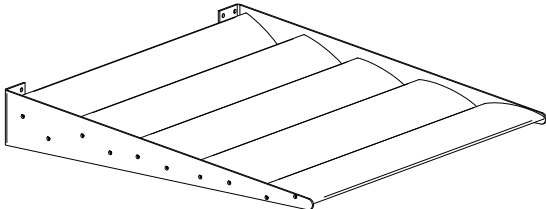
Quickfix® awning with fixed blades

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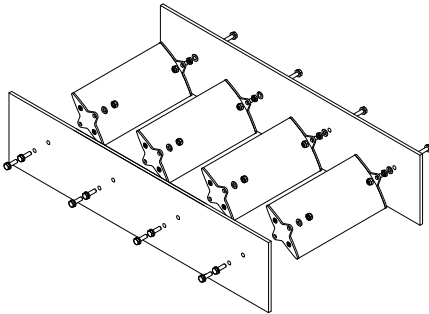
Cassettes, multiple fixed blades

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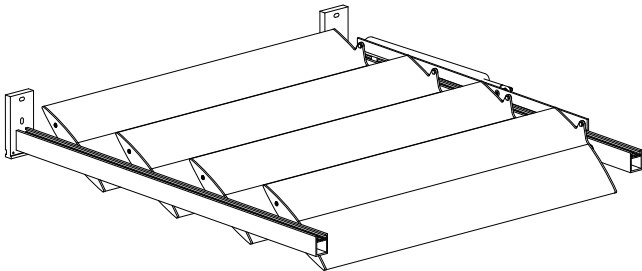
Fixed, single blade

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Movable blades

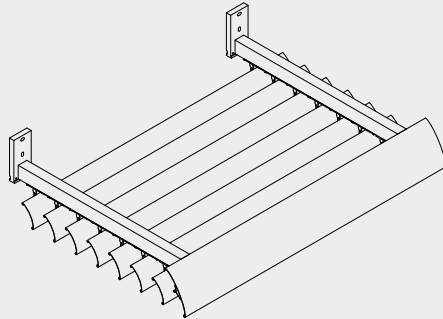
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Systems > Sunclips® installation methods

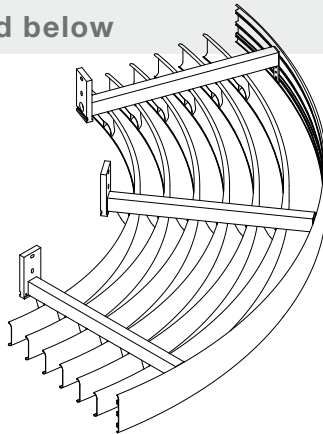
Blades positioned below

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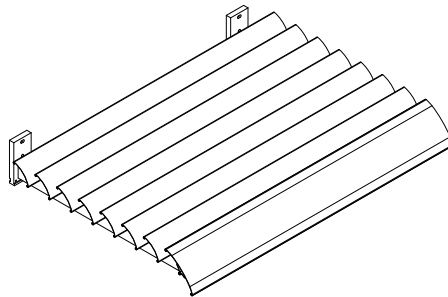
Curved blades positioned below

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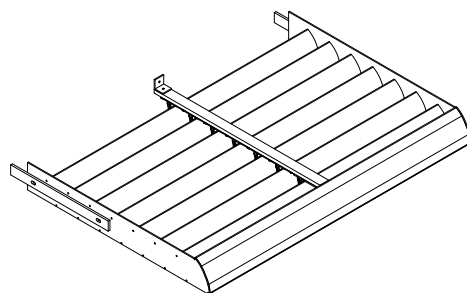
Blades positioned above

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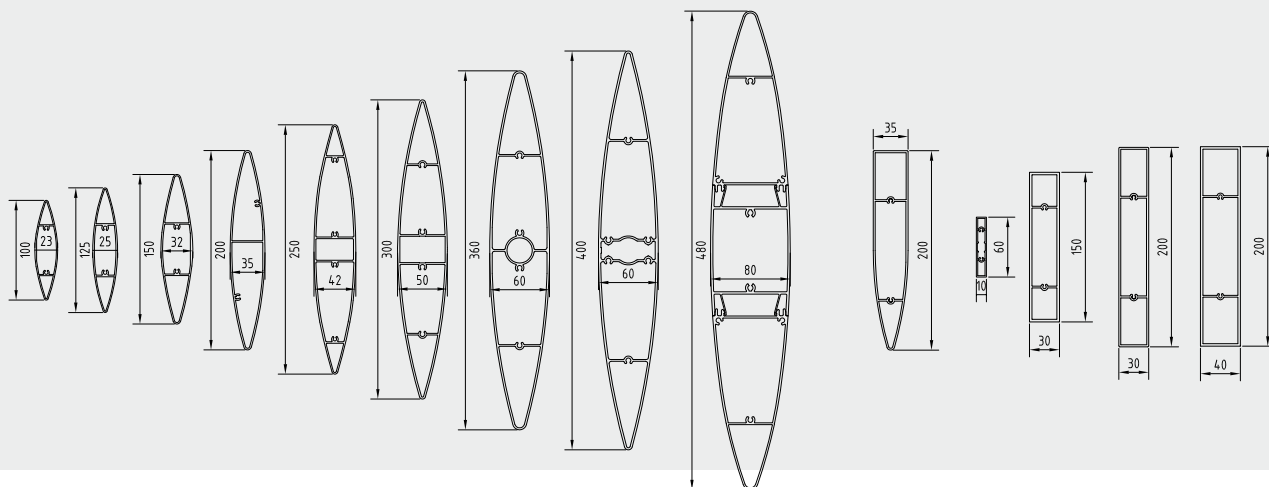


Sunclips® cassettes

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Systems > Icarus® blades



Description

Icarus® blades are extruded aluminium profiles for use as sun protection, wall cladding or visual barriers.

Icarus® Aero are aerofoil blades in widths ranging from 100 to 480 mm.

Icarus® Plano are block blades in widths of 60, 150 and 200 mm.

Other shapes and sizes are possible in consultation with our design division to suit your project requirements.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))



Icarus® Aero 200 sur consoles • Domaine des pins à Montpellier (FR) • Arch: Garcia Diaz à Montpellier

Technical data

Icarus® Aero	Width (mm)	Height (mm)	I_y (mm ⁴)	W_y (mm ³)	I_z (mm ⁴)	W_z (mm ³)	Friction coefficient C_{fy}	Friction coefficient C_{fz}
ICA.100	100	23	256337	5126	16992	1482	1,06	1,38
ICA.125	125	25	484640	7754	29399	2352	1,06	1,38
ICA.150	150	32	950301	12616	64713	3936	1,06	1,38
ICA.200	200	35	2395293	23905	113538	6387	1,06	1,38
ICA.250	250	42	5155315	41231	214720	10264	1,06	1,38
ICA.300	300	50	9699889	64666	402436	16097	1,06	1,38
ICA.360	360	60	17180788	95447	756541	25217	1,06	1,38
ICA.400	400	60	23853116	119266	874358	29079	1,06	1,38
ICA.480	480	80	46149163	192285	2321828	58045	1,06	1,38
Icarus® Plaero	Width (mm)	Height (mm)	I_y (mm ⁴)	W_y (mm ³)	I_z (mm ⁴)	W_z (mm ³)	Friction coefficient C_{fy}	Friction coefficient C_{fz}
ICL.200	200	35	3318686	30087	176148	9937	1,07	1,38
Icarus® Plano	Width (mm)	Height (mm)	I_y (mm ⁴)	W_y (mm ³)	I_z (mm ⁴)	W_z (mm ³)		
ICP.060	60	10	70800	2333	3131	626	1,09	1,36
ICP.150	150	30	2270694	30273	153477	10232	1,07	1,38
ICP.200/30	200	30	4028998	40285	171972	11271	1,07	1,38
ICP.200/40 (*)	200	40	5417853	54177	382888	19143	1,07	1,38

y: axis strength • z: axis weakness

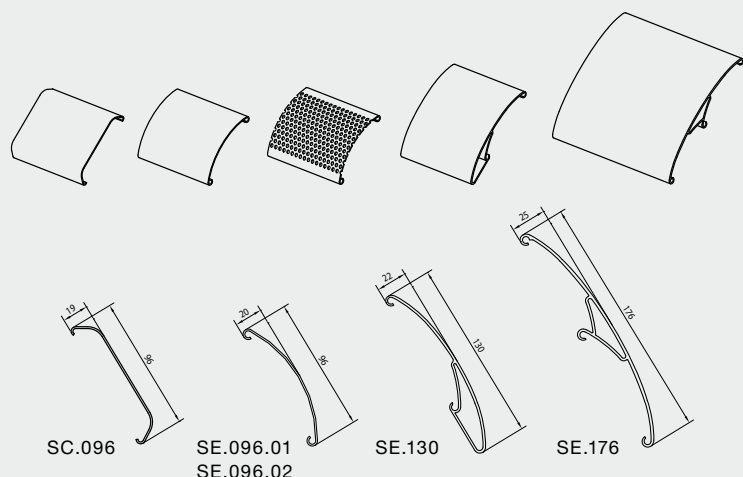
(*) = Project profiles not in stock

The friction coefficient (determined using wind tunnel tests) indicates how the wind affects the blade.

C_{fy} = coefficient used to determine the horizontal load (drag) on a blade with an angle of 45°

C_{fz} = coefficient used to determine the vertical load (lift) on a blade with an angle of 45°

Systems > Sunclips® blades



Description

Sunclips® are C-shaped extruded aluminium blades, mounted on a fixed supporting structure. The Sunclips® system is installed horizontally on the façade to achieve the desired shading effect.

The Sunclips® Classic SC.096 is ideal if you want a slim design. The Sunclips® EVO range is more aerodynamic. Sunclips® EVO comes in 3 sizes: SE.096, SE.130 and SE.176, with 96, 130 and 176 mm oversizing, respectively.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Finish

Sunclips® SC.096 blades can be curved, with a minimum radius of 500 mm.

Sunclips® SC.096.02 blades are punched, with a free area of 30%.

Technical data

Sunclips®	Width (mm)	Height (mm)	I _y (mm ⁴)	I _z (mm ⁴)	W _z (mm ³)	Friction coefficient C _{ty}	Friction coefficient C _{tz}
SC.096	96	19	160082	5080	353	0,7	0,7
SE.096.01 / SE.096.02	96	20	160842	6048	3348	0,7	0,7
SE.130	130	22	556097	19124	7610	0,7	0,7
SE.176	176	25	1250307	24909	14097	0,7	0,7

The friction coefficient (determined using wind tunnel tests) indicates how the wind affects the blade.

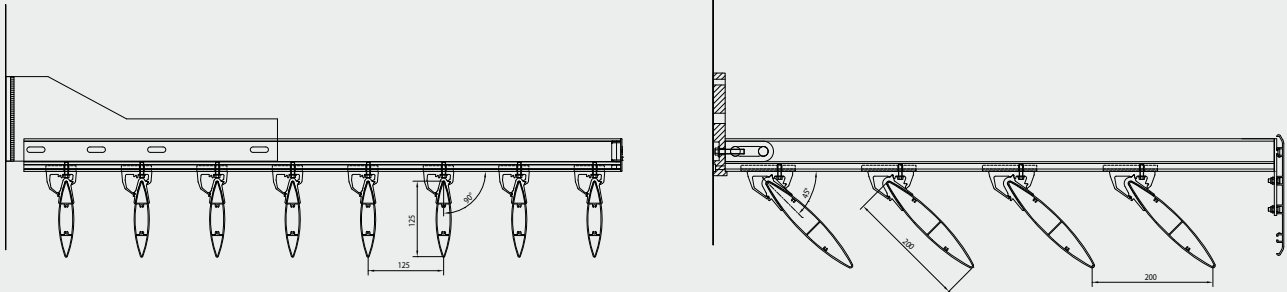
C_{ty} = coefficient used to determine the horizontal load (drag) on a blade with an angle of 45°

C_{tz} = coefficient used to determine the vertical load (lift) on a blade with an angle of 45°



ASIA CENTER • Budapest, HUNGARY • Icarus® 300 QF
Architects: Makat • Photographer: Makat

Systems > Installation method - Icarus Quickfix®



Description

Icarus® Quickfix® is a unique, patented structural sun protection system, held in place simply and discreetly using clips. The Quickfix bracket consists of one clip attached to the supporting structure and one fork profile attached to the blade using stainless steel rivets. This 2-part concept allows the blade to expand slightly when heated but avoids stresses occurring in the supporting structure. This system also allows for the creation of a continuous line of blades.

Materials and construction

Blade: aluminium extrusion profile in EN AW-6063 T66 alloy
 End plates are AlMg3 alloy.
 Stainless steel sheet-metal screws and fasteners.

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Blade type

The following blade types and inclinations are standard:
 ICA.100, 125, 150, 200, 250, 300, 400 and ICL.200 : 45° or 90°
 ICA.100, 125, 150, 200, 250, 300, 400 and ICL.200 : 60° or 75°

For details of Quickfix® brackets and end caps, see pages 26/27 and 36/37.

Maximum unsupported span

Maximum recommended blade length for angles below 45° in relation to the horizontal overhang:

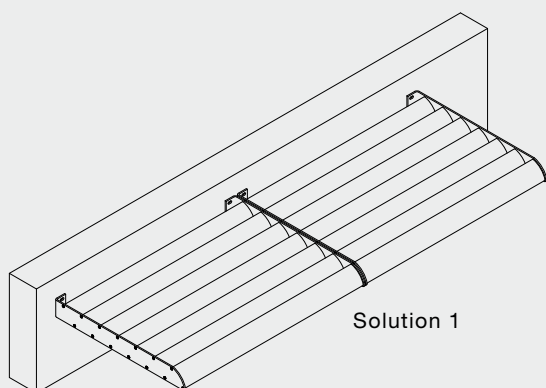
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2220 mm	2060 mm	1780 mm
ICA.125	2540 mm	2360 mm	2020 mm
ICA.150	3110 mm	2900 mm	2480 mm
ICA.200	3400 mm	3150 mm	2700 mm
ICA.250	3760 mm	3580 mm	3050 mm
ICA.300	4200 mm	4100 mm	3500 mm
ICA.400	3600 mm	3600 mm	3120 mm
ICL.200	3530 mm	3270 mm	2800 mm



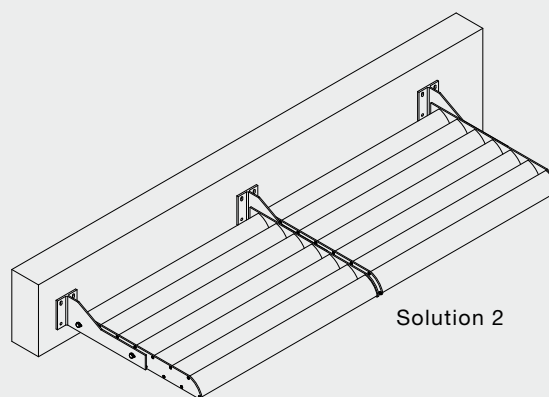
The maximum unsupported spans described here apply only to the blades and depend on the overhang of the sun protection. Maximum unsupported spans for other blade angles are available upon request.



Systems > Installation method - Icarus® cassette



Solution 1



Solution 2

Description

Horizontal, overhanging, permanent awning with multiple blades mounted between end plates to form cassettes. Free choice of blade orientation, overhang and shape.

Attachment of the end plates directly to the façade (solution 1) or on knife brackets (solution 2).

Materials and construction

Blades: aluminium extrusion profile in EN AW-6063 T66 alloy

End plates are aluminium alloy (AlMg3) or steel. The thickness is calculated as a function of the dimensions, weight and local wind load.

Stainless steel sheet-metal screws and fasteners.

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))
- Steel components are galvanised and powder coated

Blade type

Suitable for all Icarus® blades types.

Maximum unsupported span

Maximum recommended blade length for angles below 45° in relation to the horizontal overhang:

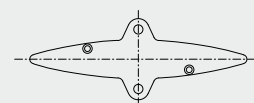
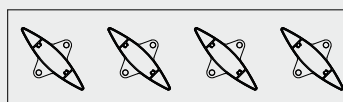
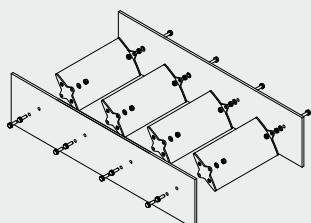
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2450 mm	2270 mm	1960 mm
ICA.125	2800 mm	2600 mm	2225 mm
ICA.150	3430 mm	3185 mm	2735 mm
ICA.200	3740 mm	3460 mm	2970 mm
ICA.250	4140 mm	3940 mm	3350 mm
ICA.300	4610 mm	4520 mm	3850 mm
ICA.360	5280 mm	5260 mm	4470 mm
ICA.400	5330 mm	5330 mm	4580 mm
ICA.480	6000 mm	6000 mm	6000 mm
ICL.200	3825 mm	3685 mm	3440 mm
ICP.060	1610 mm	1490 mm	1270 mm
ICP.150	3850 mm	3850 mm	3540 mm
ICP.200/30	3910 mm	3910 mm	3910 mm
ICP.200/40 (*)	4730 mm	4730 mm	4730 mm



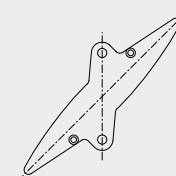
The maximum unsupported spans described here apply only to the blades and depend on the overhang of the sun protection. Maximum unsupported spans for other blade inclinations are available upon request.



Systems > Installation method - Icarus® fixed



Type 14



Type 15

Description

Horizontal, overhanging, permanent awning with single blades mounted between end plates. Free choice of blade orientation, overhang and shape. The end plates are attached directly to a load-bearing substructure. One side is attached tightly and the other loosely to allow for thermal expansion.

Materials and construction

Blades: aluminium extrusion profile in EN AW-6063 T66 alloy
End plates are aluminium alloy (AlMg3). The thickness is calculated as a function of the dimensions, weight and local wind load.
Stainless steel sheet-metal screws and fasteners.

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))
- Steel components are galvanised and powder coated

Blade type

Suitable for all Icarus® blades types.

Maximum unsupported span

Maximum recommended blade length for angles below 45° in relation to the horizontal overhang:

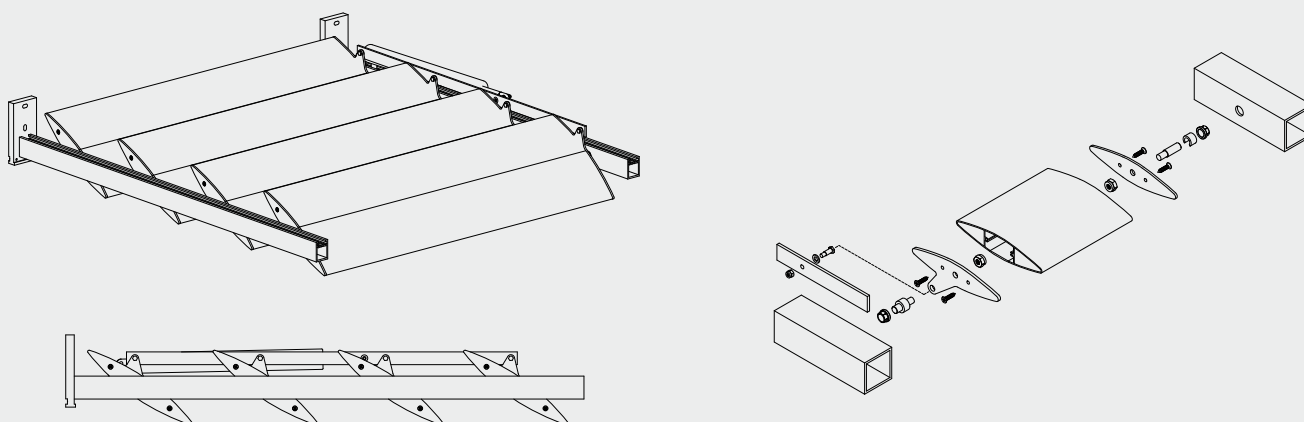
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2450 mm	2270 mm	1960 mm
ICA.125	2800 mm	2600 mm	2225 mm
ICA.150	3430 mm	3185 mm	2735 mm
ICA.200	3740 mm	3460 mm	2970 mm
ICA.250	4140 mm	3940 mm	3350 mm
ICA.300	4610 mm	4520 mm	3850 mm
ICA.360	5280 mm	5260 mm	4470 mm
ICA.400	5330 mm	5330 mm	4580 mm
ICA.480	6000 mm	6000 mm	6000 mm
ICL.200	3825 mm	3685 mm	3440 mm
ICP.060	1610 mm	1490 mm	1270 mm
ICP.150	3850 mm	3850 mm	3540 mm
ICP.200/30	3910 mm	3910 mm	3910 mm
ICP.200/40 (*)	4730 mm	4730 mm	4730 mm



The maximum unsupported spans described here apply only to the blades and depend on the overhang of the sun protection. Maximum unsupported spans for other blade angles are available upon request.



Systems > Installation method - Icarus® movable



Description

Horizontal, overhanging, permanent awning with movable blades. The blades can be tilted a standard 90°. Other angles are possible in consultation with our project division.

Materials and construction

Blades: aluminium extrusion profile in EN AW-6063 T66 alloy

End plates are AlMg3 alloy.

Supporting structures in aluminium or steel, according to overhang, blade weight, and wind and snow load.

Pivot sleeves are made of stainless steel mounted centrally in aluminium end caps.

Bearings and circlips are made of UV-resistant synthetic material.

Stainless steel sheet-metal screws and fasteners.

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))
- Steel components are galvanised and powder coated

Blade type

Suitable for all Icarus® blades types.

Maximum unsupported span

Recommended maximum blade length:

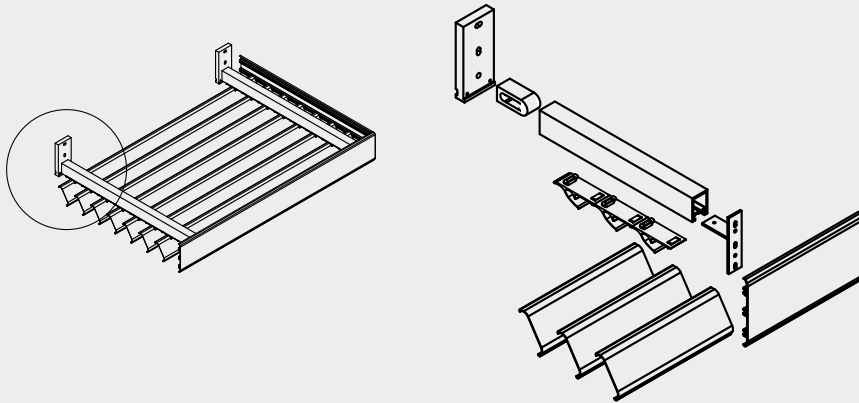
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	1870 mm	1750 mm	1520 mm
ICA.125	2080 mm	1950 mm	1700 mm
ICA.150	2540 mm	2390 mm	2070 mm
ICA.200	2790 mm	2620 mm	2270 mm
ICA.250	3190 mm	2990 mm	2600 mm
ICA.300	3690 mm	3460 mm	3010 mm
ICA.360	4280 mm	4020 mm	3500 mm
ICA.400	4320 mm	4070 mm	3540 mm
ICA.480	5170 mm	5170 mm	4590 mm
ICL.200	2980 mm	2800 mm	2430 mm
ICP.150	3120 mm	2940 mm	2550 mm
ICP.200/30	3170 mm	2980 mm	2595 mm
ICP.200/40 (*)	3830 mm	3830 mm	3370 mm



The maximum unsupported spans described here apply only to the blades and depend on the dimensions of the sun protection. Other spans may be possible after detailed study of the actual project situation.



Systems > Installation method - Sunclips® positioned below



Visserij, Oostende (BE), Sunclips® Evo 96

Description

Permanent awning where the blades are positioned continuously under the mullions. This version can be horizontal or projecting at an angle.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Blade type

Suitable for all Sunclips® blade types

Blade support

Blades are clipped to UV-resistant plastic clips

Blade inclination

The standard blade inclination is 60°.

Blade pitch

The standard blade pitch is 100 mm. A pitch of 133 mm is possible for blade type SE.130. A pitch of 166 mm is recommended for blade type SE.176.

Fascia profile

A fascia profile can be added to complete the awning structure. Several types are available. For details, see p. 32/33.

Wall fixing

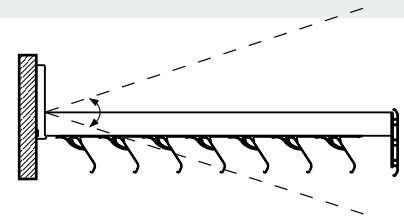
Different solutions are possible for fixing on a wall. For details, see p. 30/31.

Mullions

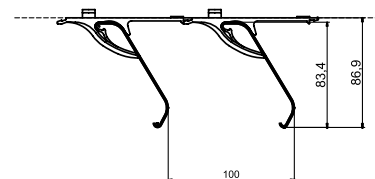
Three types of mullions can be used for horizontal sun awnings with blades positioned below: SD.014, SD.054 and SD.100. For details, see p. 34.

Intermediate mullion

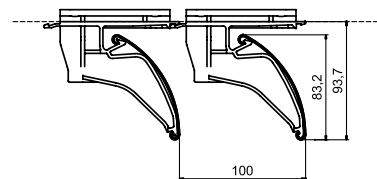
An SD.014 intermediate mullion with standard clips may be needed, depending on the unsupported span of the blades and the local wind load.



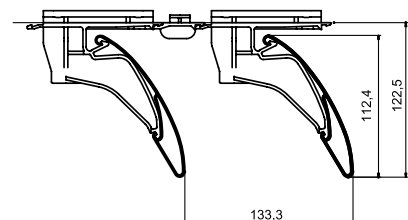
SC.096



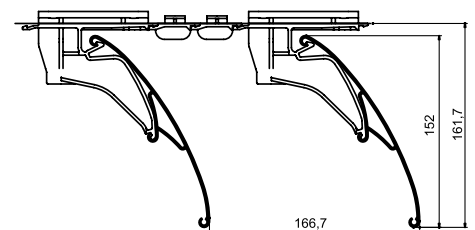
SE.096.01 / SE.096.02



SE.130

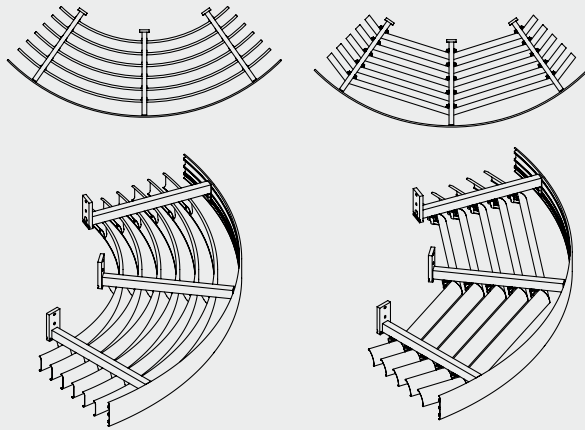


SE.176





Systems > Installation method – curved Sunclips® positioned below



King Edwards Wharf, Birmingham (UK)
arch.: Ian Darby Partnership



Private woning (BE)



Hotel Mercure (PL)



Agnes Heemskerk (NL)

Description

Permanent awning mounted on a curved wall where the blades are positioned continuously under the mullions. The design with curved blades is possible with blade type SC.096 and a minimum radius of 500 mm. Fascia profile SC.155 can also be curved. As an alternative design, the blades can be straight, with or without a curved SC.155 fascia profile. All Sunclips® blade types can be used with this faceted design, which can also be angled.

Material

Aluminium extrusion profiles in EN AW-6063 T66 alloy

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Blade type

- Design with curved blades: SC.096 only
- Faceted design: all Sunclips® blade types

Blade support

- Design with curved blades: aluminium clip type SC.080.11 -.15
- Faceted design:
 - for SC.096 blade: UV-resistant plastic clips type SC.084.11 -.14
 - for SE.096, SE.130 and SE.176 blades:
UV-resistant plastic clips type SE.084.11 - .19

Blade inclination

- Design with curved blades: 90°
- Faceted design: 60°

Blade pitch

The standard blade pitch is 100 mm. Pitches of 133 mm and 166 mm are recommended for blade types SE.130 and SE.176, respectively.

Fascia profile

A fascia profile can be added to complete the awning structure. Only type SC.155 can be curved. For details, see p. 32/33.

Wall fixing

Different solutions are possible: see p. 30/31

Mullions

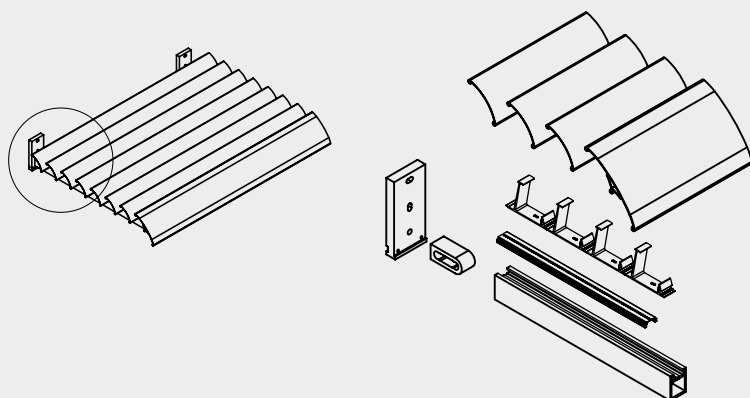
Three standard types of mullions can be used: SD.014, SD.054 and SD.100. For details, see p. 34.

Intermediate mullion

An SD.014 intermediate mullion with standard clips may be needed, depending on the unsupported span of the blades and the local wind load.



Systems > Installation method - Sunclips® positioned above



Description

Permanent sun awning where the blades are positioned continuously above the mullions. This version can be horizontal or projecting at an angle.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Blade type

Suitable for all Sunclips® blade types

Blade support

Blades are clipped to aluminium clips

Blade inclination

The standard blade inclination is 45°.

Blade pitch

The standard blade pitch is 100 mm. Pitches of 133 and 176 mm are recommended for blades type SE.130 and SE.176, respectively.

Fascia profile

A fascia profile can be added to complete the awning: see p. 32/33

- fascia profile type SC.155: flat fascia profile
- fascia profile blade type SE.176: rounded fascia profile

Wall fixing

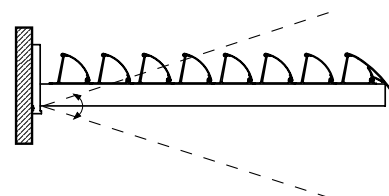
Different solutions are possible for fixing on a wall. For details, see p.30/31.

Mullions

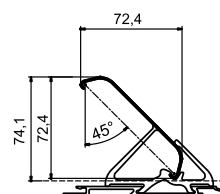
Three types of mullions can be used for horizontal sun awnings with blades positioned above: SD.014, SD.054 and SD.100. Adapter profile LD.0108 is required for Sunclips® Evo, see p. 34.

Intermediate mullion

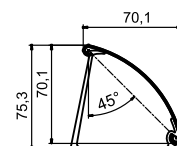
An SD.014 intermediate mullion with standard clips may be needed, depending on the unsupported span of the blades and the local wind load.



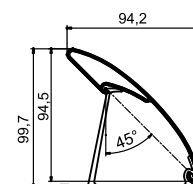
SC.096



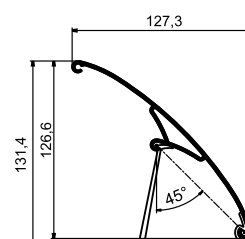
SE.096.01 / SE.096.02



SE.130

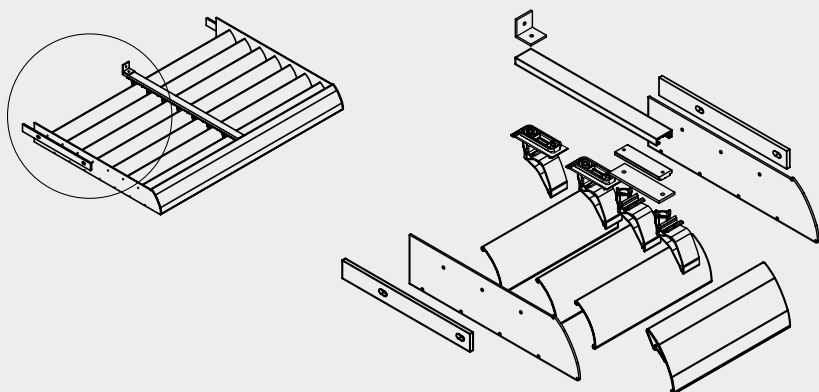


SE.176





Systems > Installation method - Sunclips® cassettes



Description

Overhanging permanent awning where the blades are screwed in place between end plates. This application can be horizontal or projecting at an angle. The cassettes can be delivered to the site fully preassembled.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy.
End plates in aluminium or treated steel

Surface treatment

- Anodised (20 micron) (aluminium parts only)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))
- Steel components are galvanised and powder coated

Blade type

Possible with blades SE.096, SE.130. and SE.176

Blade support

Only applies to versions with an intermediate mullion

Blade inclination

Any blade inclination can be chosen. For cassettes with an intermediate mullion, the inclination is 60°.

Blade pitch

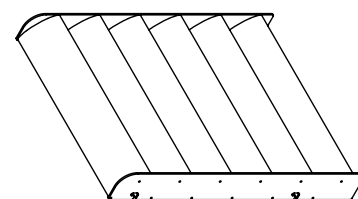
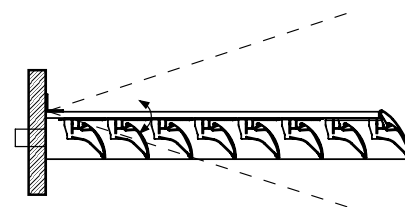
The standard blade pitch is 100 mm. Pitches of 133 mm and 176 mm are recommended for blade types SE.130 and SE.176, respectively, but any pitch can be used.

Wall fixing

Knife bracket directly on the wall, see p. 30/31.

Intermediate mullion

An SD.014 intermediate mullion with standard clips may be needed, depending on the unsupported span of the blades and the local wind load.



Technical details > Attaching Icarus® Quickfix®

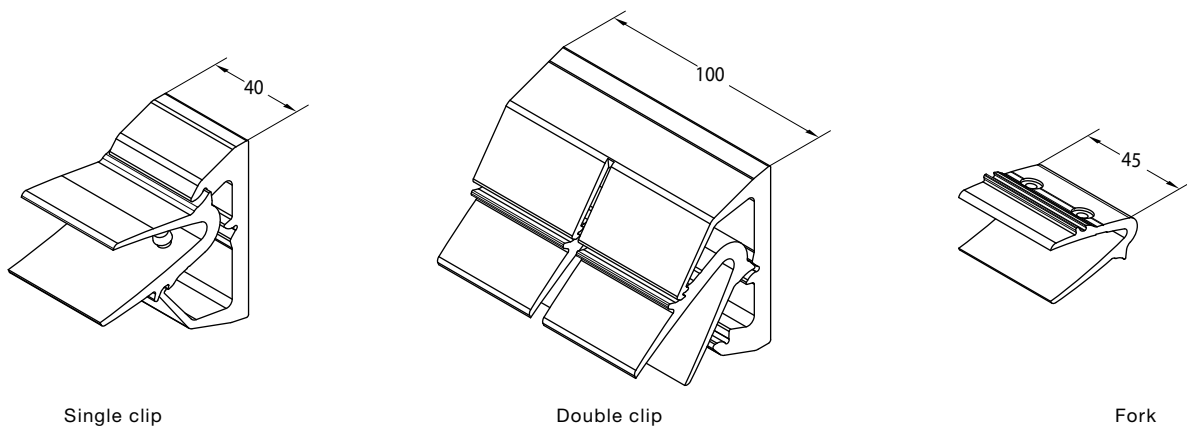
Brackets

There are four types of Quickfix® clips which can be combined with different fork profiles, depending on the blade inclination.

- **Type 1** : for ICA.100 and ICA.125 blades:
- clip and fork for 90° / 45° or 75° / 60° blade inclination
- **Type 2** : for ICA.150, ICA.200 and ICL.200 blades:
- clip and two forks for 90° or 45° / 75° or 60° blade inclination
- **Type 3** : for ICA.250 and ICA.300 blades:
- clip and two forks for 90° or 45° / 75° or 60° blade inclination
- **Type 4** : for ICA.400 blade:
- clip and two forks for 90° or 45° / 75° or 60° blade inclination

Quickfix® brackets are also available in single or double versions.

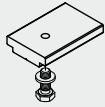
Widths of Icarus® Quickfix® components:



Overview of available Quickfix® brackets:

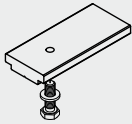
Icarus® Quickfix®		Blade inclination							
		45°		60°		75°		90°	
Bracket type	Blade type	Single bracket	Double bracket	Single bracket	Double bracket	Single bracket	Double bracket	Single bracket	Double bracket
Type 1	ICA.100	IQ.1101	IQ.1201	IQ.1102	IQ.1202	IQ.1102	IQ.1202	IQ.1101	IQ.1201
	ICA.125	IQ.1101	IQ.1201	IQ.1102	IQ.1202	IQ.1102	IQ.1202	IQ.1101	IQ.1201
Type 2	ICA.150	IQ.2101	IQ.2201	IQ.2102	IQ.2202	IQ.2102	IQ.2202	IQ.2101	IQ.2201
	ICA.200	IQ.2101	IQ.2201	IQ.2102	IQ.2202	IQ.2102	IQ.2202	IQ.2101	IQ.2201
	ICL.200	IQ.2101	IQ.2201	IQ.2102	IQ.2202	IQ.2102	IQ.2202	IQ.2101	IQ.2201
Type 3	ICA.250	IQ.3101	IQ.3201	IQ.3102	IQ.3202	IQ.3102	IQ.3202	IQ.3101	IQ.3201
	ICA.300	IQ.3101	IQ.3201	IQ.3102	IQ.3202	IQ.3102	IQ.3202	IQ.3101	IQ.3201
Type 4	ICA.400	IQ.4101	IQ.4201	IQ.4102	IQ.4202	IQ.4102	IQ.4202	IQ.4101	IQ.4201

Fastener sets



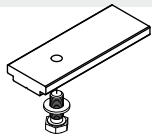
Fastener set IQ.1002

Application: fastener set type 1 for Quickfix® on SD mullions
See p. 34
Suitable for Quickfix® systems ICA.100 and ICA.125



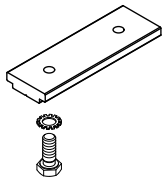
Fastener set IQ.2002

Application: fastener set type 2 for Quickfix® on SD mullions
See p. 34
Suitable for Quickfix® systems ICA.150, ICA.200 and ICL.200



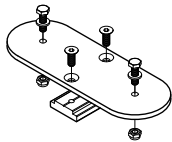
Fastener set IQ.3002

Application: fastener set type 3 for Quickfix® on SD mullions
See p. 34
Suitable for Quickfix® systems ICA.250 and ICA.300



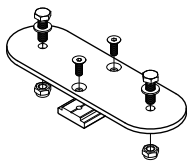
Fastener set IQ.4002

Application: fastener set type 4 for Quickfix® on SD mullions
See p. 34
Suitable for Quickfix® system ICA.400



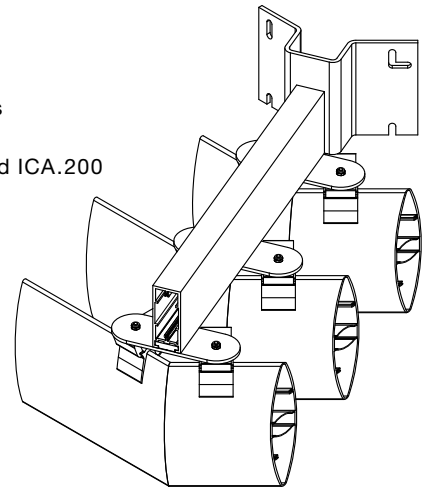
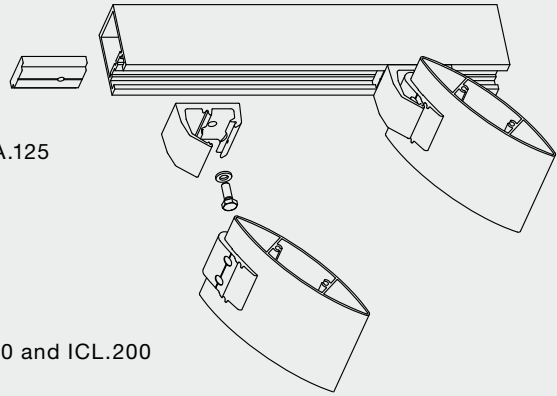
Fastener set IQ.9001 for corner solutions

Application: fastener set type 1 for Quickfix® on SD mullions
See p. 34
Suitable for Quickfix® systems ICA.100, ICA.125, ICA.150 and ICA.200



Fastener set IQ.9002 for corner solutions

Application: fastener set type 2 for Quickfix® on SD mullions
See p. 34
Suitable for Quickfix® systems ICA.250 and ICA.300



Safety bracket

Each blade must have a safety bracket at one location.
The type depends on the kind of blade.



Safety bracket
Type 1 – IQ.1001
(ICA.100 and ICA.125)



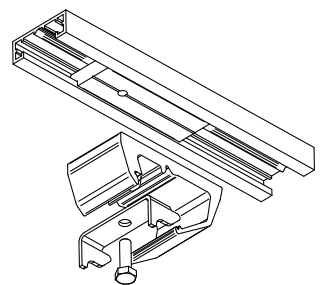
Safety bracket
Type 2 – IQ.2001
(ICA.150, ICA.200
and ICL.200)



Safety bracket
Type 3 – IQ.3001
(ICA.250 and ICA.300)



Safety bracket
Type 4 – IQ.4001
(ICA.400)

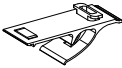

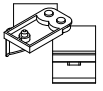
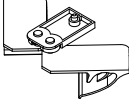
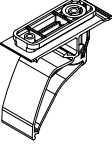
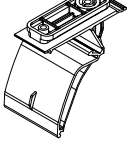
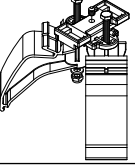
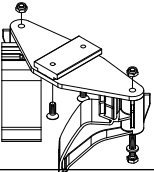



Technical details > Attaching Sunclips®

Sunclips® blade supports for blades positioned below

The blade supports for Sunclips® with blades positioned below are made of black or grey UV-resistant POM plastic and have a fixed blade installation angle of 60° to the horizontal.

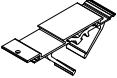

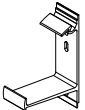
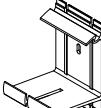
The blade supports are available in single and double versions for joints and angle clips for inner and outer corners.

	<p>Standard blade support SC.084.11 Application: for attaching continuous type SC.096.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Blade support SC.084.12 Application: for attaching two type SC.096.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Blade support SC.084.13 Application: for outer corner solution using two type SC.096.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Blade support SC.084.14 Application: for inner corner solution using two type SC.096.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Standard blade support SE.084.11 Application: for attaching continuous type SE.096.01, SE.096.02, SE.130.01 and SE.176.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Blade support SE.084.12 Application: for attaching two type SE.096.01, SE.096.02, SE.130.01 and SE.176.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Blade support SE.084.13 Application: for outer corner solution using two type SE.096.01, SE.096.02, SE.130.01 and SE.176.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Blade support SC.084.14 Application: for inner corner solution using two type SE.096.01, SE.096.02, SE.130.01 and SE.176.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Connector for 33 mm clip SE.084.10 Application: as a connecting piece for widely separated type SE.130.01 and SE.176.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>

Sunclips® blade supports for blades positioned above

The blade supports for Sunclips® with blades positioned above are made of aluminium and have a fixed blade installation angle of 45° to the horizontal.

The blade supports are available in single and double versions for joints.

	<p>Blade support SC.082.11 Application: for attaching continuous type SC.096.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Blade support SC.082.12 Application: for attaching two type SC.096.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions. See p. 34</p>
	<p>Blade support SE.082.11 Application: for attaching continuous type SE.096.01, SE.096.02, SE.130.01 and SE.176.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions, provided adapter profile LD.0108 is used. See p. 34</p>
	<p>Blade support SE.082.12 Application: for attaching two type SE.096.01, SE.096.02, SE.130.01 and SE.176.01 blades. Suitable for SD.014, SD.054 and SD.100 mullions, provided adapter profile LD.0108 is used. See p. 34</p>

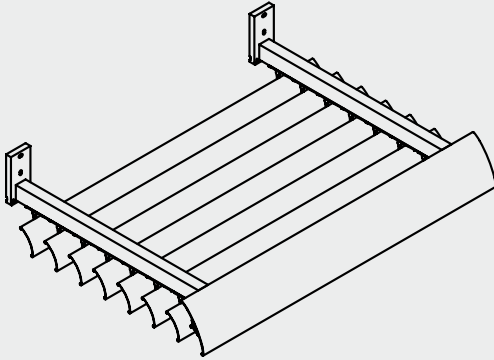
Other types of Sunclips® blade supports

Other blade supports are available for different applications in addition to the standard blade supports for Sunclips®.

- SC.080.11** Aluminium clip for Sunclips® Classic, for three blades positioned below or curved blades, with a fixed installation angle of 90° to the horizontal.
- SC.080.12** Aluminium joint clip for Sunclips® Classic, for blades positioned below or curved blades, with a fixed installation angle of 90° to the horizontal.
- SC.080.13** Aluminium clip for Sunclips® Classic, for blades positioned below or curved blades, with a fixed installation angle of 90° to the horizontal.
- SC.080.15** Aluminium external corner clip for Sunclips® Classic, for blades positioned below or curved blades, with a fixed installation angle of 90° to the horizontal.
- SC.081.11** Aluminium clip for Sunclips® Classic, for continuous blades positioned below, with a fixed installation angle of 60° to the horizontal.
- SC.081.12** Aluminium joint clip for Sunclips® Classic, for fastening two blades positioned below, with a fixed installation angle of 60° to the horizontal.
- SE.084.15** Plastic clip (black or grey POM) for Sunclips® EVO, same design as type SE.084.11, with M6 x 8 set screw to stop the blade coming away as a result of thermal expansion.
- SE.084.16** Plastic clip (black or grey POM) for Sunclips® EVO, same design as type SE.084.11, with M8 x 40 set screw to attach the clip to the mullion.
- SE.084.17** Plastic clip (black or grey POM) for Sunclips® EVO, same design as type SE.084.11, with M6 x 8 set screws to stop the blade coming away as a result of thermal expansion, and an M8 x 40 set screw to attach the clip to the mullion.
- SE.084.18** Plastic joint clip (black or grey POM) for Sunclips® EVO, same design as type SE.084.12, with M8 x 40 set screw to attach the clip to the mullion.
- SE.084.19** Plastic corner clip (black or grey POM) for Sunclips® EVO, same design as type SE.084.11, with M6 x 8 set screw to stop the blade coming away as a result of thermal expansion.
- SE.084.23** Plastic corner clip (black or grey POM) for Sunclips® EVO with blades positioned below and a fixed installed angle of 60° to the horizontal, suitable for outer corner on knife bracket SD.110.11 or SD.110.12.
- SE.084.24** Plastic corner clip (black or grey POM) for Sunclips® EVO with blades positioned below and a fixed installed angle of 60° to the horizontal, suitable for inner corner on knife bracket SD.110.11 or SD.110.12.

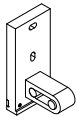
Technical details > Wall fixing with brackets

The method of fixing is determined by the dimensions of the awning, the wind load and the type of wall structure on which the awning is installed. We can offer various standard solutions.



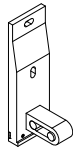
Type: RENSON® bracket

RENSON® has a number of standard brackets that can be assembled beforehand on type SD mullions. They are mainly used for direct attachment to steel, concrete or 50/60 mm curtain walls.



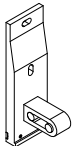
Standard bracket SD.088.11

Application: for attachment to solid background such as concrete.
Suitable for SD.054 mullions.



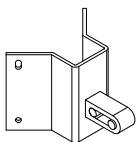
Bracket SD.088.41

Application: for attachment to weak background such as facing brick.
Suitable for SD.054 mullions.



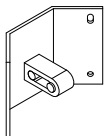
Standard bracket SD.088.71

Application: for attachment to solid background such as concrete and large overhangs.
Suitable for SD.100 mullions.



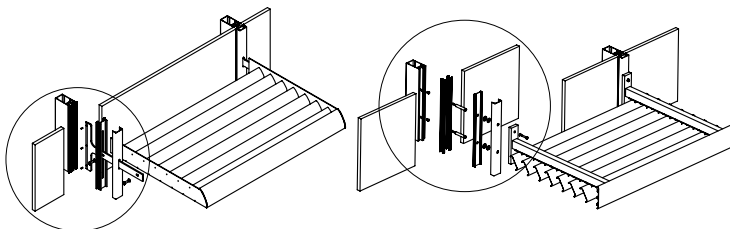
Steel bracket SD.088.23

Application: bearer for outer corners.
Suitable for SD.054 and SD.100 mullions.



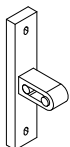
Steel bracket SD.088.24

Application: bearer for inner corners.
Suitable for SD.054 and SD.100 mullions.



Type: curtain wall attachment

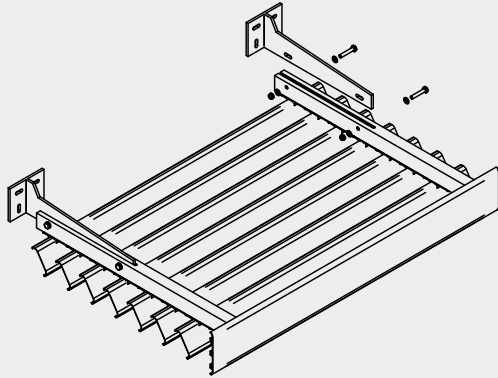
Specific project solutions can be developed, depending on the type of curtain profile. Similar to fixing to a knife bracket.



Brackets SD.088.51/SD.088.61

Application: for attachment to curtain walls (SD.088.51 = 50 mm / SD.088.61 = 60 mm).
Suitable for SD.054 mullions.

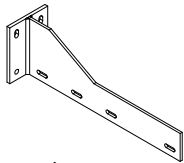
Technical details > Wall fixing on knife bracket



Type: attachment to knife bracket

The knife brackets are installed beforehand. The awning structure can be fitted afterwards. Mainly used with system construction.

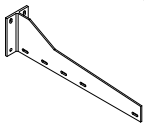
Optional: knife brackets with thermal break



Steel knife bracket SD.089.01 - type 1, 450 mm long

Application: • normal overhangs and wind loads
• wall thicknesses up to 100 mm

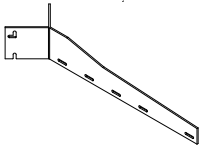
Suitable for SD.054 and SD.100 mullions



Steel knife bracket SD.089.02 - type 2, 650 mm long

Application: • large overhangs and wind loads
• wall thicknesses up to 200 mm

Suitable for SD.054 and SD.100 mullions



Steel knife bracket SD.089.03 – for outer corners

Application: bearer for outer corners.

Suitable for SD.054 and SD.100 mullions



Steel knife bracket SD.089.04 – type 1, for inner corners

Application: bearer for inner corners, normal overhangs and wind loads

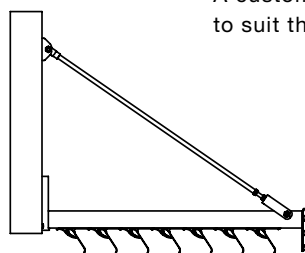
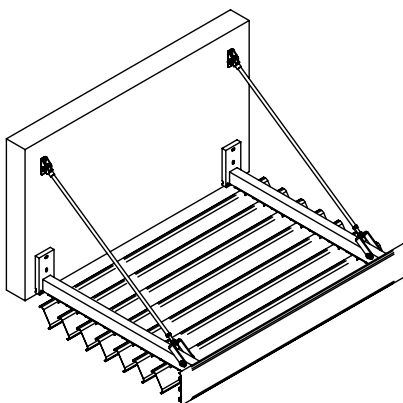
Suitable for SD.054 and SD.100 mullions



Steel knife bracket SD.089.05 – type 2, for inner corners

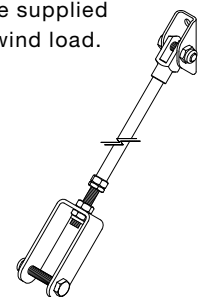
Application: bearer on inner corners, large overhangs and wind loads

Suitable for SD.054 and SD.100 mullions



A custom-made adjustable tie rod can be supplied to suit the overhang, fixing method and wind load.

Tie rod

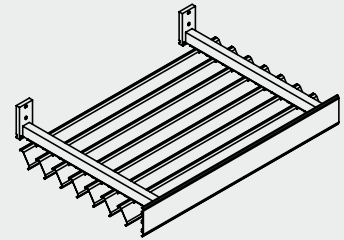
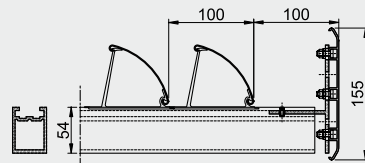
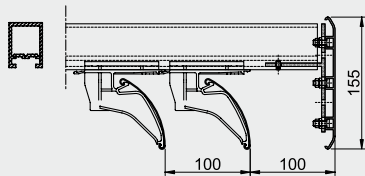


Technical details > Sunclips® fascia profiles

Different fascia profiles can be added to complete the awning structure, depending on the fixing method.

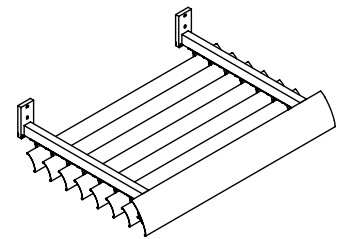
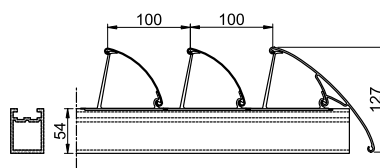
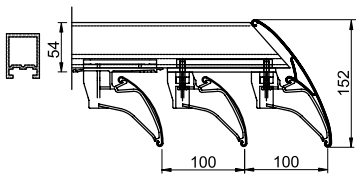
Fascia profile SC.155

- Installation method: awning with blades positioned above or below
- Application: recommended for combination with blade types Sunclips® Classic SC.096 or Evo SE.096 and mullion SD.054



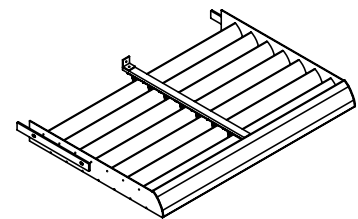
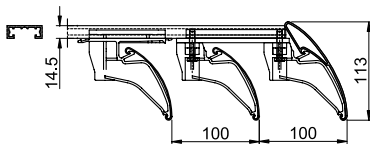
Fascia profile Sunclips® Evo-blade SE.176

- Installation method: awning with blades positioned above or below
- Application: recommended for combination with blade types Sunclips® Classic SC.096 or Evo SE.096 and mullion SD.054



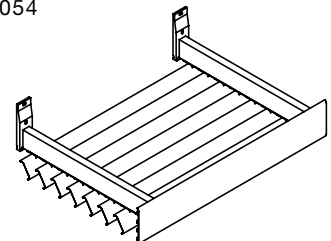
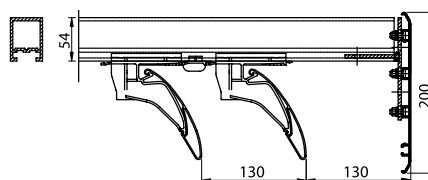
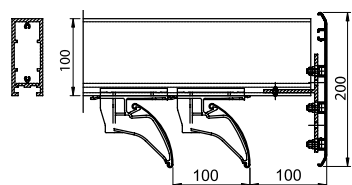
Fascia profile Sunclips® Evo-blade SE.130

- Installation method: cassette
- Application: recommended for mullion SD.014



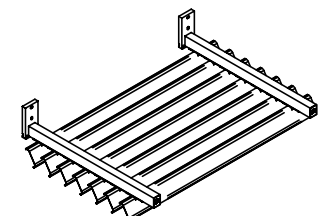
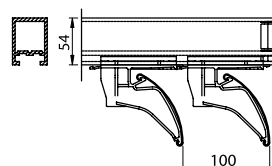
Fascia profile SC.200

- Installation method: awning with blades positioned above or below
- Application: in combination with
 - blade types Sunclips® Classic SC.096 or Evo SE.096 and mullion SD.100
 - blade types Sunclips® Evo SE.130 and mullion SD.054

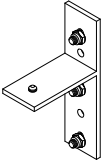
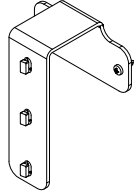
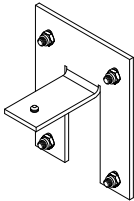
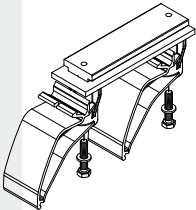
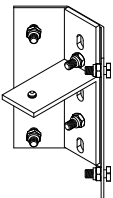
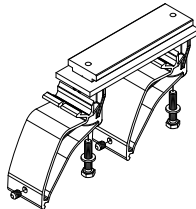
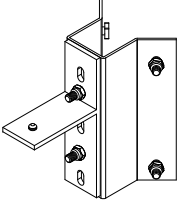
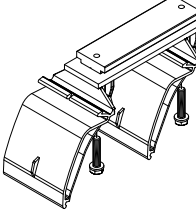

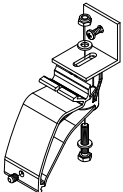


Without fascia profile - End cap SD.054.98

- Application: in combination with mullion SD.054



Technical details > Attaching Sunclips® fascia profiles

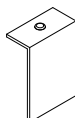
	<p>Standard fascia profile attachment SC.087.11 Application: for attaching a continuous fascia profile type SC.155 or SC.200. Suitable for SD.014, SD.054 and SD.100 mullions.</p>		<p>Fascia profile side attachment SC.091 Application: for side attachment of a fascia profile type SC.155 or SC.200 to the mullion. Suitable for SD.054 and SD.100 mullions.</p>
	<p>Fascia profile joint attachment SC.087.12 Application: for attaching two fascia profiles type SC.155 or SC.200. Suitable for SD.014, SD.054 and SD.100 mullions.</p>		<p>Fascia profile attachment SE.095.01 Application: plastic clip (black or grey POM) for attaching a continuous fascia profile type SE.176. Suitable for SD.014, SD.054 and SD.100 mullions.</p>
	<p>Fascia profile outer corner attachment SC.087.13 Application: for attaching two fascia profiles type SC.155 or SC.200 to outer corners. Suitable for SD.014, SD.054 and SD.100 mullions.</p>		<p>Fascia profile attachment SE.095.02 Application: Plastic clip (black or grey POM) with M6 x 8 set screw to stop fascia profile SE.176 coming away as a result of thermal expansion. Suitable for SD.014, SD.054 and SD.100 mullions.</p>
	<p>Fascia profile inner corner attachment SC.087.14 Application: for attaching two fascia profiles type SC.155 or SC.200 to inner corners. Suitable for SD.014, SD.054 and SD.100 mullions.</p>		<p>Fascia profile joint attachment SE.095.12 Application: plastic clip (black or grey POM) for attaching two fascia profiles type SE.176. Suitable for SD.014, SD.054 and SD.100 mullions.</p>
	<p>Fascia profile end corner attachment SC.090 Application: for attaching two fascia profiles type SC.155 or SC.200 to outer ends of the corners. Suitable for SD.014, SD.054 and SD.100 mullions.</p>		<p>Fascia profile side attachment SE.091 Application: for side attachment of a fascia profile type SC.176 to the mullion. Suitable for SD.054 and SD.100 mullions.</p>

Sunclips® end cap

If required, Sunclips® can also be supplied without a fascia profile. Here, the ground edges of the mullions are sealed with end caps.



SD.054.98
POM plastic end cap
for SD.054 mullion



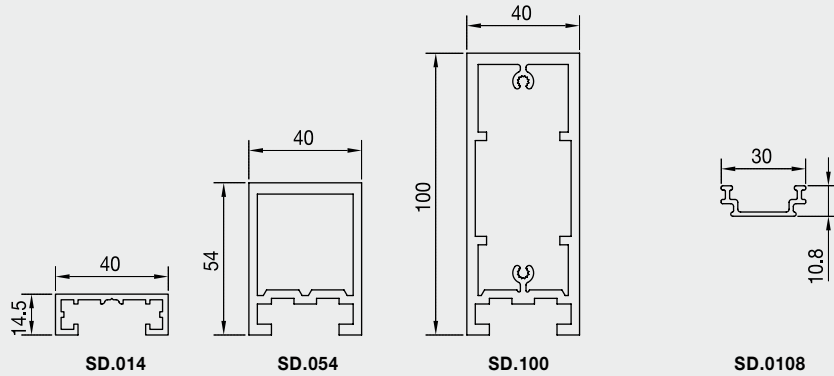
SD.054.99
Aluminium end cap
for SD.054 mullion



SD.100.99
Aluminium end cap
for SD.100 mullion

Technical details > Mullions

SD type mullions from the Sunclips® range



Description

Extruded aluminium profiles used as mullions for permanent horizontal sun shades.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy

Surface treatment

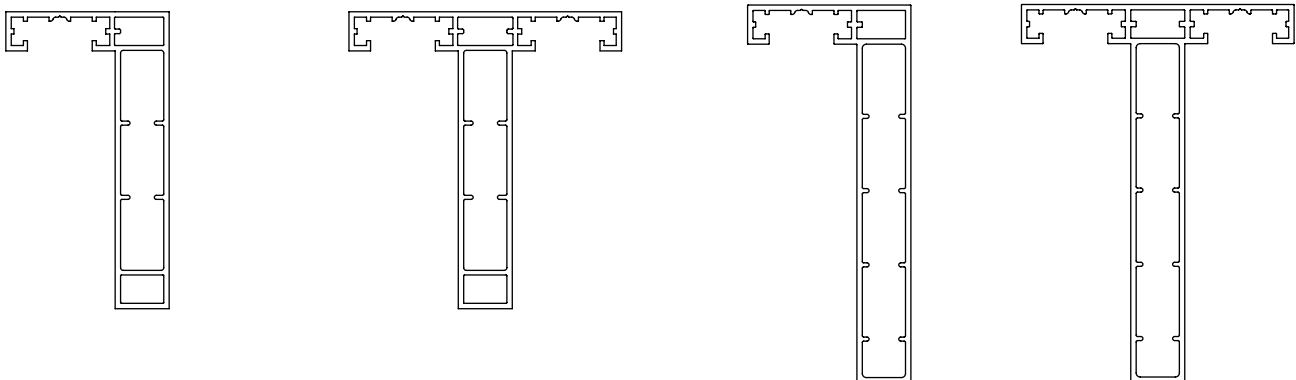
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Technical data

	LD.0108 *	SD.014	SD.054	SD.100
Profile depth (mm)	10,8	14,5	54	100
Profile width (mm)	30	40	40	40
Moment of inertia (mm ⁴)	987	4510	208672	1248414
Flexural modulus (mm ³)	147	497	7360	24405

(*) Adapter profile for combination with SD.014, SD.054 or SD.100 mullions

Mullions for clip system with intermediate blades



SD.110.11

Single knife bracket
Profile height = 110 mm

SD.110.12

Double knife bracket
Profile height = 110 mm

SD.140.11

Single knife bracket
Profile height = 140 mm

SD.140.12

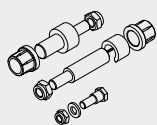
Double knife bracket
Profile height = 140 mm

(Mullions for clip system with intermediate blades are project-specific = not in stock.)

Technical details > Attaching movable Icarus®

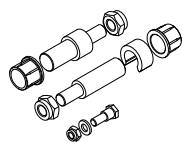
Rotation sets

Three types of rotation sets are available, depending on the blade system used. A rotation set consists of two stainless steel pivot sleeves (1x long; 1x short), two plastic bearing bushes, one plastic circlip for attaching the blade, two lock nuts to secure the pivot sleeves to the end caps and one set for connecting the rod, consisting of one Ø8-M6 shaft with one plastic washer for M8 and one M6 lock nut.



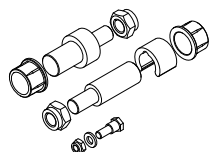
Rotation set IM.9001

Application: fastener set for movable system type 1.
Suitable for type ICA.100, ICA.125, ICA.150, ICA.200, ICL.200 and ICP.150, ICP.200/30, ICP.200/40 (*) blades



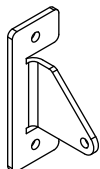
Rotation set IM.9002

Application: fastener set for movable system type 2.
Suitable for type ICA.250, ICA.300 and ICA.360 blades



Rotation set IM.9003

Application: fastener set for movable system type 3.
Suitable for type ICA.400 and ICA.480 blades.



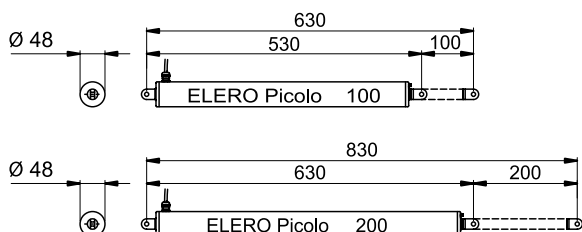
Stainless steel motor support IM.9201

Application: Stainless steel support for attaching motors to substructures.
Suitable for several types of motors.

Icarus® movable: control options

Automatic

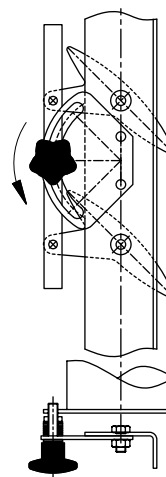
Examples of suitable motors



The type of motor is a function of the length of travel needed.

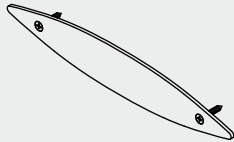
Manual

Direct manual control



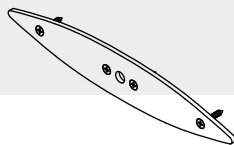
Technical details > Icarus® end caps

The ground edges of Icarus® blades are sealed with end caps, depending on the application. The end caps are attached by screws in the threaded channels in the blades.



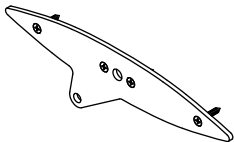
End cap fixed - type 1

Application: fitted to the ends of the Icarus® blades in Icarus® Quickfix® systems



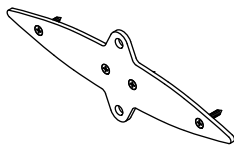
End cap movable without command – type 2

Application: fitted to the ends of the Icarus® blades in movable Icarus® systems
– on a side without command



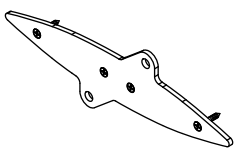
End cap movable with command – type 3

Application: fitted to the ends of the Icarus® blades in movable Icarus® systems
– on a side with command



End cap fixed for 90° attachment - type 4

Application: fitted to the ends of Icarus® blades with 90° inclination



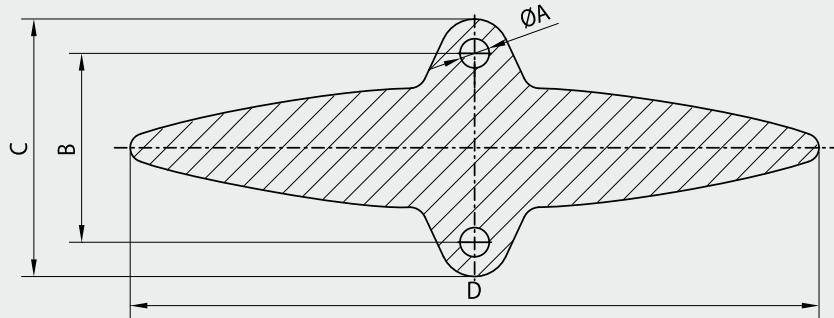
End cap fixed for 45° attachment - type 5

Application: fitted to the ends of Icarus® blades with 45° inclination

Summary table – end cap types

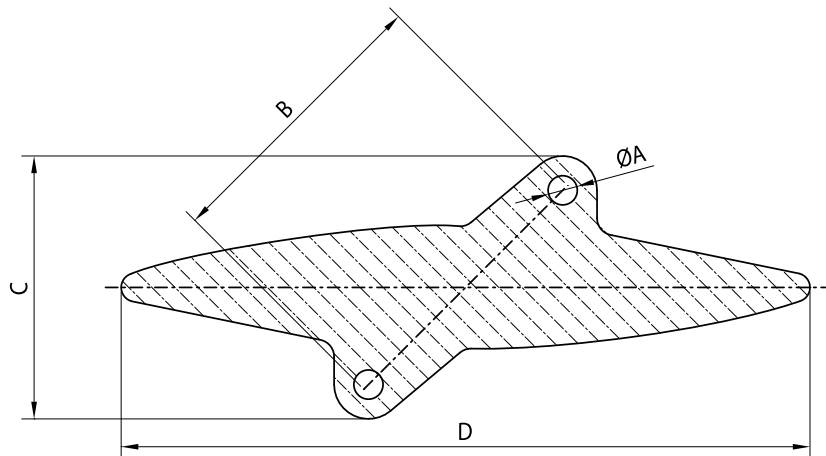
	End cap type				
	type 1	type 2	type 3	type 4	type 5
ICA.100	ICA.100.11	ICA.100.12	ICA.100.13	ICA.100.14	ICA.100.15
ICA.125	ICA.125.11	ICA.125.12	ICA.125.13	ICA.125.14	ICA.125.15
ICA.150	ICA.150.11	ICA.150.12	ICA.150.13	ICA.150.14	ICA.150.15
ICA.200	ICA.200.11	ICA.200.12	ICA.200.13	ICA.200.14	ICA.200.15
ICA.250	ICA.250.11	ICA.250.12	ICA.250.13	ICA.250.14	ICA.250.15
ICA.300	ICA.300.11	ICA.300.12	ICA.300.13	ICA.300.14	ICA.300.15
ICA.360	ICA.360.11	ICA.360.12	ICA.360.13	ICA.360.14	ICA.360.15
ICA.400	ICA.400.11	ICA.400.12	ICA.400.13	ICA.400.14	ICA.400.15
ICA.480	ICA.480.11	ICA.480.12	ICA.480.13	ICA.480.14	ICA.480.15
ICL.200	ICL.200.11	ICL.200.12	ICL.200.13	ICL.200.14	ICL.200.15
ICP.150	ICP.150.11	ICP.150.12	ICP.150.13	ICP.150.14	ICP.150.15
ICP.200/30	ICP.200.31	ICP.200.32	ICP.200.33	ICP.200.34	ICP.200.35
ICP.200/40 (*)	ICP.200.11	ICP.200.12	ICP.200.13	ICP.200.14	ICP.200.15

End cap type 4 dimensions
for fixed installation - 90° inclination:



End cap type	Dimensions as per sketch (mm)			
	Size D	Size \varnothing A	Size B	Size C
ICA.100.14	100	6,5	45	57
ICA.125.14	125	8,5	45	65
ICA.150.14	150	8,5	50	70
ICA.200.14	200	8,5	55	75
ICA.250.14	250	8,5	65	85
ICA.300.14	300	8,5	70	90
ICA.360.14	360	10,5	85	110
ICA.400.14	400	10,5	85	110
ICA.480.14	480	10,5	120	150
ICL.200.14	200	8,5	60	80
ICP.150.14	150	8,5	50	70
ICP.200.34	200	8,5	50	70
ICP.200.14	200	8,5	60	80

End cap type 5 dimensions
for fixed installation - 45° inclination:



End cap type	Dimensions as per sketch (mm)			
	Size D	Size \varnothing A	Size B	Size C
ICA.100.15	100	6,5	60	55
ICA.125.15	125	8,5	65	66
ICA.150.15	150	8,5	70	70
ICA.200.15	200	8,5	80	77
ICA.250.15	250	8,5	90	84
ICA.300.15	300	8,5	100	94
ICA.360.15	360	10,5	120	110
ICA.400.15	400	10,5	120	110
ICA.480.15	480	10,5	160	144
ICL.200.15	200	8,5	85	80
ICP.150.15	150	8,5	75	73
ICP.200.35	200	8,5	75	73
ICP.200.15	200	8,5	90	84

Technical details > Sunclips® corner solutions



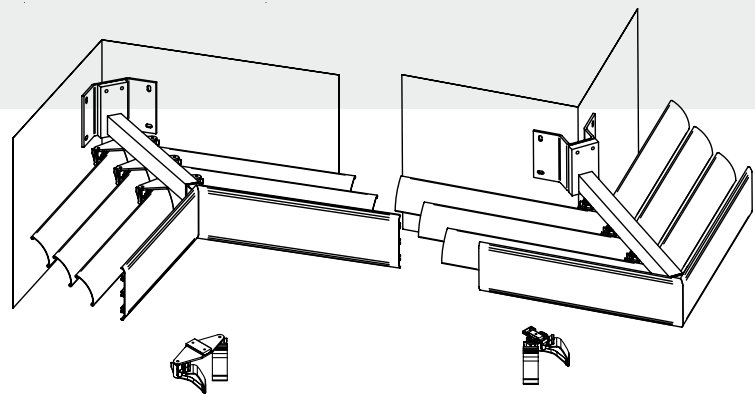
Apothek De Pauw, Sunclips® Classic, Varsenare (BE), arch.: Van De Coster

RENSON® has a unique corner solution for awnings with blades positioned below, offering these significant advantages:

- only 1 mullion is required
- all angles are possible
- inner and outer corners are possible
- blades are continuous with perfect connections
- suitable for all types of Sunclips® blades



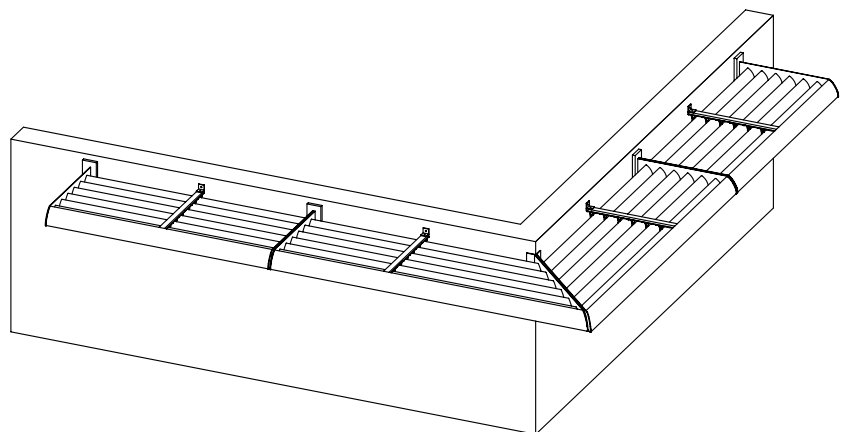
Ipsa (FR)



Sports en Leisure Centre Budapest

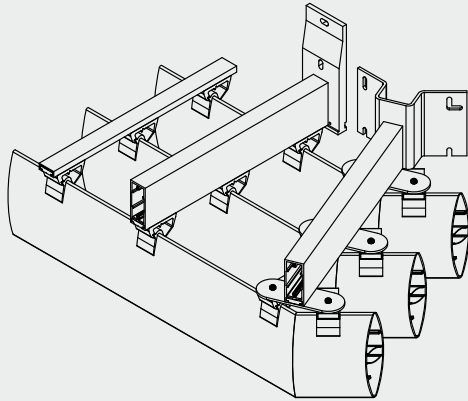
Blade supports and attachment components for fascia profiles: see pages 26/27 and 30/31.

Corner solutions are also possible for framed sun awnings (with Sunclips® EVO blade). To be dimensioned per project.

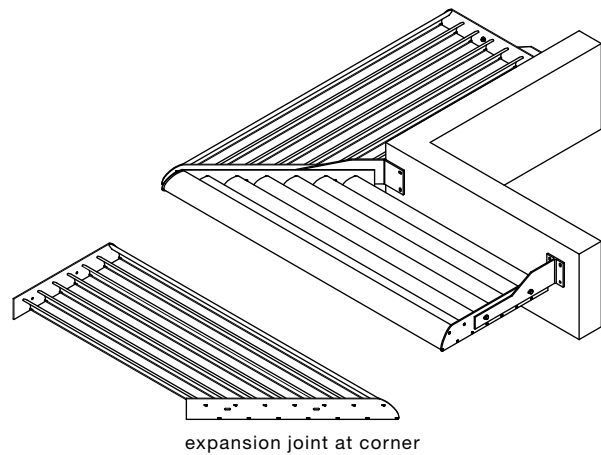
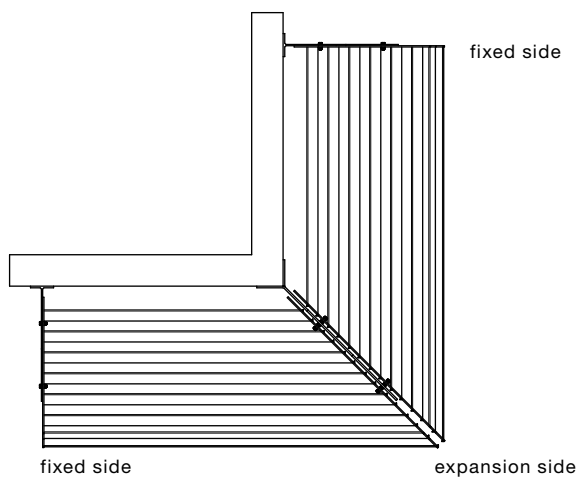


Technical details > Icarus® corner solutions

Icarus® Quickfix® corner solutions



Icarus® / Sunclips® cassette corner solutions



Transat, Lorient (FR), Conception: Atelier Roland Castro -
Sophie Denisot, Réalisation: Louis Mollo arch.

Project solutions

This brochure merely gives you an overview of our standard solutions. Our project leaders can advise you and work with you to detail and develop any desired system on a project basis.

RENSON® - YOUR PARTNER FOR VENTILATION AND SUNPROTECTION

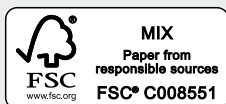


Since 1909 RENSON® has had an abundant history in innovation and experience therefore is profiling itself as the undisputed European market leader in natural ventilation and sun protection. Our Headquarters are located in a remarkable building in Waregem (Belgium). The building itself is a working example of our Healthy Building Concept® and functions as a prototype, exhibiting our technological expertise. In 2003 the building was nominated for the Belgian Building Award, crowned with the “Aluminium Environment Award”, and in 2009 the building was crowned again with the “Green Good Design Award”.

RENSON®’s mission is to continually develop, produce and sell unique and innovating products for natural ventilation and sun protection. Our main objective is to improve living or working conditions for those using the buildings and to reduce their energy consumption. RENSON® combines comfort and energy efficiency with architecture in order to improve the health of the users.

RENSON® HAS IT ALL :

- Our multidisciplinary R&D department co-operates with leading European research organisations for a complete range of innovative concepts and products.
- Our automatic powder coating installation, anodisation unit, moulding centre, plastic injection moulding facilities, assembly department and warehouse are all positioned within an area of 75,000 m². This type of vertical integration allows RENSON® to ensure the consistent quality of all its products
- RENSON®’s headquarters, sales and marketing department and its production plant are located in Belgium, but we also have plants and offices in France and in the UK . RENSON® has sales representatives active all over Europe and has set up a network of distributors throughout the world. More than 65 employees are available to support and advise you on the spot; that is why we can offer you a more reliable back-up and in-depth follow-through than our competitors.
- The diversity and capability of our staff can guarantee the correct solution for each individual building project. The creation of valuable long-term relationships with construction specialists is our priority. We devote all of our creative resources into cost-efficient solutions, tailor-made for each ventilation and sun protection project.



RENSON® reserves the right to make technical changes to the products shown.
The latest brochures may be downloaded from uk.renson.eu

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Creating healthy spaces

Vertical Sun Protection Icarus[®] Sunclips[®]

patented technologies



PROJECT USE

Introduction > Overview



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Introduction > RENSON® company profile



6 good reasons to have RENSON® as a partner.

1. Customer satisfaction through personal contact, professional advice, excellent service and reliable, high-performance products are the main aims of our company.

2. RENSON® is a reputable and established multinational company with international expertise and experience thanks to the efforts of our local specialists. They are present in all regions of the world. RENSON® has assisted with projects across the whole world, from Moscow to Tahiti and from Monaco to Shanghai.



3. A complete service from start to finish, effective support and advice during the design phase, site meetings and installation.

4. The production process is fully vertically integrated, enabling manufacturing to the strictest of standards. Investment in injection moulding machinery, anodising facilities and a fully automatic powder coating installation ensure efficiency and accuracy.

5. Continuous research and development translates customer needs into unique solutions and innovative products.



6. RENSON® specialises in all aspects of ventilation and solar shading to achieve the goals of the Healthy Building Concept®.



Introduction



Sun protection is necessary

A building or home with large glazed surfaces facing south offers many advantages. During autumn, winter and spring, you enjoy the benefits of the incoming sunlight. But in the summer this can create an uncomfortable indoor climate and irritating light reflections.

Structural sun protection and screens prevent overheating. They stop the sun's rays before they come into contact with glazed surfaces. Undesired heat and blinding light do not enter the building. This means no blinding or annoying reflections on TV or computer screens. And yet you still retain visual contact with your environment. The view outside is important, and it is respected.

KYOTO protocol

Many countries have now signed the Kyoto protocol. With growing awareness, they are now acknowledging the detrimental but not yet irreversible effect man is having on our planet and on the climate in particular. They want to commit themselves to the cause and take corrective measures. If we want to reduce the greenhouse effect, energy consumption must fall.

One major energy-consuming activity is the cooling of buildings. Efficient sun shading can partly and sometimes even fully resolve this issue. It makes additional cooling unnecessary and saves on energy.

Various governments have already agreed on laws in relation to energy consumption and ventilation.

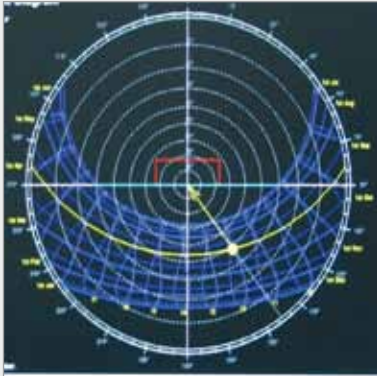
- Belgium: Regelgeving van Energieprestatie & Binnenklimaat (EPB)
- The Netherlands: Energie Prestatie Coëfficiënt (EPC)
- France: Règlement Thermique 2005 (RT2005)
- Germany: Energieeinsparverordnung
- UK:
 - Approved document L1 'Conservation of fuel and power in dwellings'
 - Approved Document L2 'Conservation of fuel and power in buildings other than dwellings'



Icarus® Centre de loisirs, Liffre (FR)
arch.: Cabinet Colhen, Liffre



Sundips® Lou Clapas, Monaco, France



Stereographic diagram

Dimensioning of sunshading

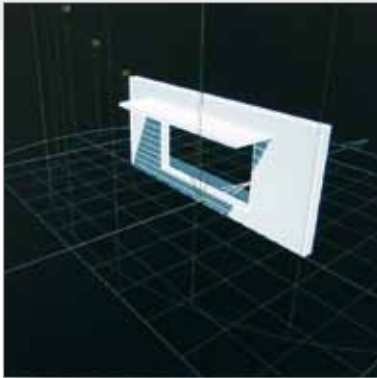
The sun is an important primary source of heat and light. The design, dimensioning and control of sunshading are sometimes quite complex. Sun protection has to be designed to reduce solar heat in summer, but allow in the extra warmth in winter. Natural sunlight must also be kept under control. There must be sufficient natural lighting, but no annoying reflections or glare.

A number of basic principles apply to the data needed to dimension sun protection.

Sun's path

The position of the sun varies from hour to hour and from day to day. The different positions can be shown in a sun path graph. The sun path curves depend on the location on the globe, so the meridians of latitude and longitude must be known. The sun path curves are always based on solar time (highest sun position at 12 noon) but need to be adapted to the local time zone and/or winter or summertime. The above data, plus the orientation of the façade, allow the shading angles to be calculated when designing and dimensioning the sun protection.

RENSON® Sun Protection Projects has the software required to offer you professional advice in this respect.

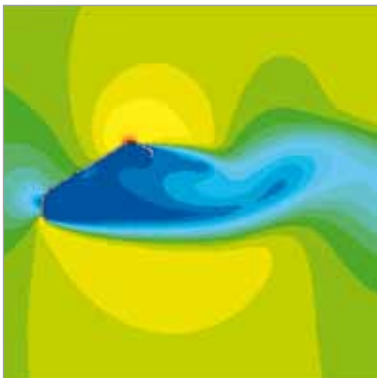


Shadow analysis

Development

New developments are conceived using the latest technology in the area of CFD simulations and collaboration with famous research institutes such as the BBRI, Von-Karman Institute, CSTB, etc.

All products are fully tested for stability and durability.



CFD simulation

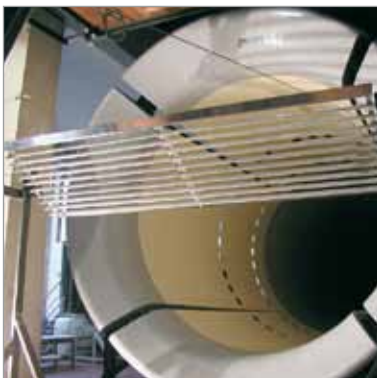
Stability and dimensions

A detailed stability calculation can be made on the basis of the prevailing Eurocodes, to determine the correct wind and snow load on the awning. This load determines the correct spans of blades and mullions, as well as the method of fixation to the supporting structure.

Project solutions

This brochure merely provides an overview of the possibilities. Our years of experience mean we can achieve almost any required design.

Our project team is at your service to find the appropriate solution for your project.



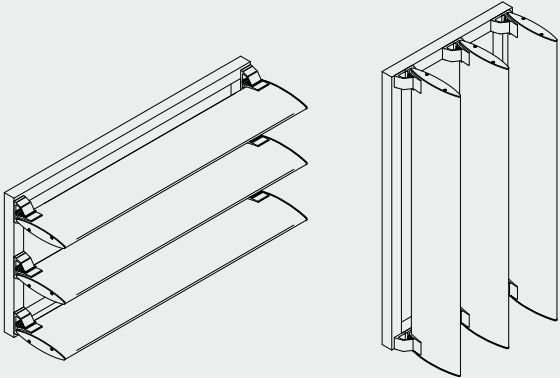
Wind tunnel test

RENSON® Sun Protection Projects offers different options for achieving aesthetic and architectural sun protection in accordance with current regulations.

Systems > Icarus® installation methods

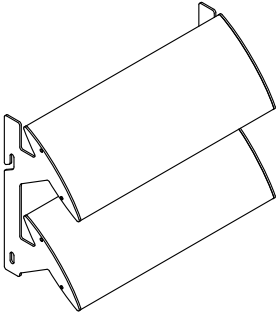
Icarus® Quickfix® - horizontal or vertical blades

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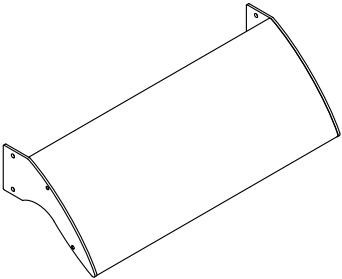
Icarus® fixed - multiple blades

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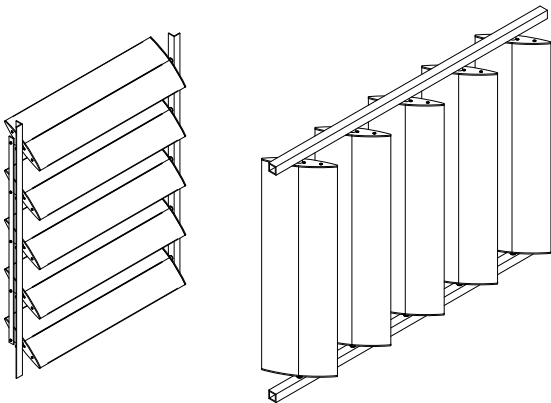
Icarus® fixed - single blades

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Icarus® movable - horizontal or vertical blades

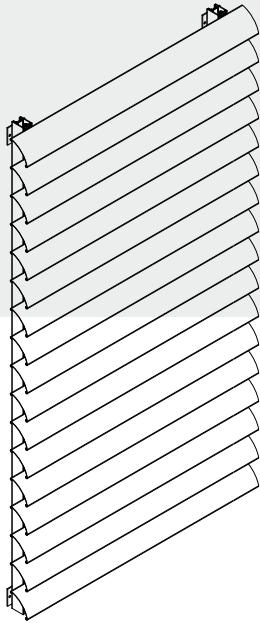
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Systems > Sunclips® installation methods

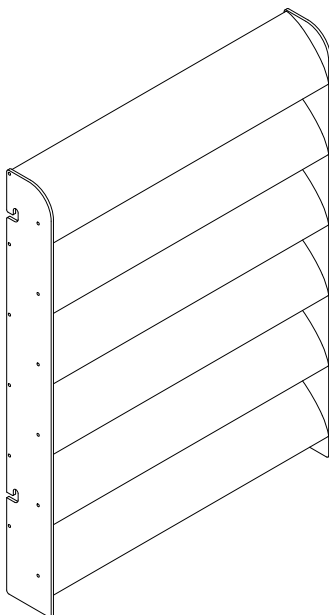
Sunclips® vertical – on mullions

page 18/19

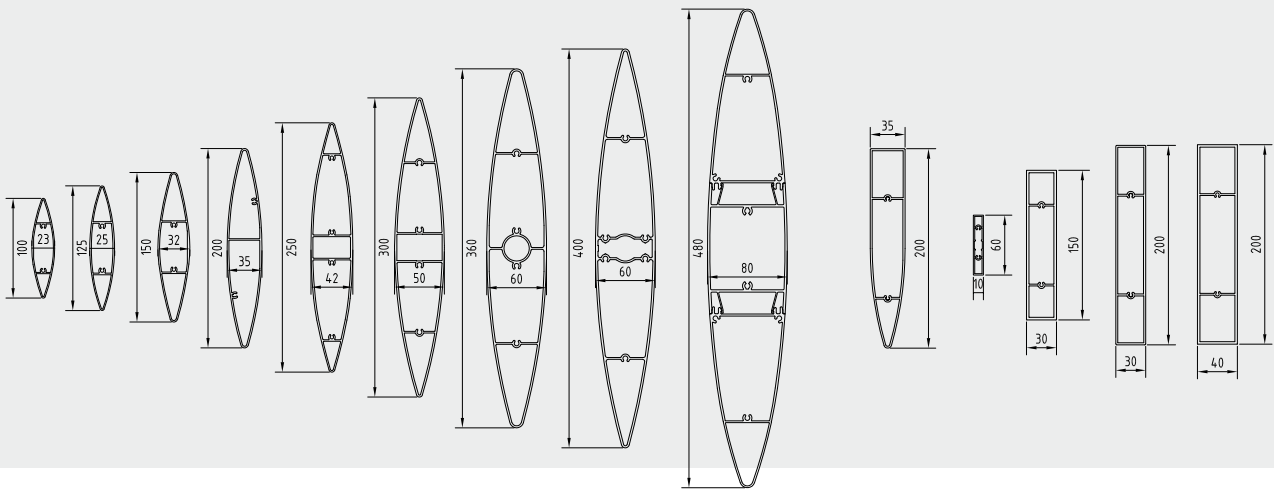


Sunclips® vertical – cassette system

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Systems > Icarus® blades



Description

Icarus® blades are extruded aluminium profiles for use as sun protection, wall cladding or visual barriers.

Icarus® Aero are aerofoil blades in widths ranging from 100 to 480 mm.

Icarus® Plano are block blades in widths of 60, 150 and 200 mm.

Other shapes and sizes are possible in consultation with our design division to suit your project requirements.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))



Technical data

Icarus® Aero	Width (mm)	Height (mm)	I_y (mm ⁴)	W_y (mm ³)	I_z (mm ⁴)	W_z (mm ³)	Friction coefficient C_{fy}	Friction coefficient C_{fz}
ICA.100	100	23	256337	5126	16992	1482	1,06	1,38
ICA.125	125	25	484640	7754	29399	2352	1,06	1,38
ICA.150	150	32	950301	12616	64713	3936	1,06	1,38
ICA.200	200	35	2395293	23905	113538	6387	1,06	1,38
ICA.250	250	42	5155315	41231	214720	10264	1,06	1,38
ICA.300	300	50	9699889	64666	402436	16097	1,06	1,38
ICA.360	360	60	17180788	95447	756541	25217	1,06	1,38
ICA.400	400	60	23853116	119266	874358	29079	1,06	1,38
ICA.480	480	80	46149163	192285	2321828	58045	1,06	1,38
Icarus® Plaero	Width (mm)	Height (mm)	I_y (mm ⁴)	W_y (mm ³)	I_z (mm ⁴)	W_z (mm ³)	Friction coefficient C_{fy}	Friction coefficient C_{fz}
ICL.200	200	35	3318686	30087	176148	9937	1,07	1,38
Icarus® Plano	Width (mm)	Height (mm)	I_y (mm ⁴)	W_y (mm ³)	I_z (mm ⁴)	W_z (mm ³)		
ICP.060	60	10	70800	2333	3131	626	1,09	1,36
ICP.150	150	30	2270694	30273	153477	10232	1,07	1,38
ICP.200/30	200	30	4028998	40285	171972	11271	1,07	1,38
ICP.200/40 (*)	200	40	5417853	54177	382888	19143	1,07	1,38

y: axis strength • z: axis weakness

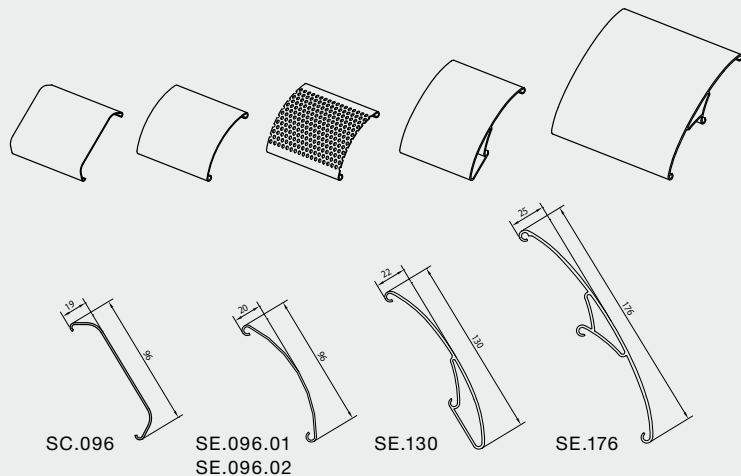
(*) = Project profiles not in stock

The friction coefficient (determined using wind tunnel tests) indicates how the wind affects the blade.

C_{fy} = coefficient used to determine the horizontal load (drag) on a blade with an angle of 45°

C_{fz} = coefficient used to determine the vertical load (lift) on a blade with an angle of 45°

Systems > Sunclips® blades



Description

Sunclips® are C-shaped extruded aluminium blades, mounted on a fixed supporting structure. The Sunclips® system is installed vertically in front of the façade to achieve the desired shading effect. The Sunclips® Classic SC.096 is ideal if you want a slim design. The Sunclips®^{EVO} range is more aerodynamic. Sunclips®^{EVO} comes in 3 sizes: SE.096, SE.130 and SE.176, with 96, 130 and 176 mm oversizing, respectively.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Finish

Sunclips® SC.E96.02 blades are punched, with a free area of 30%.

Fixing / blade support

- aluminium clips
- screwed in place between end plates

Blade inclination

With vertical applications clipped to standard blade supports, the blade inclination is 45°. Other inclinations are possible for applications such as cassette systems, where the blades are screwed in place between end plates.

Blade pitch

The standard blade pitch for SC.096, SE.096.01 and SE.096.02 blades is 100 mm. The standard pitch for the SE.130 blade is 133.3 mm and 176 mm for the SE.176 blade. Other pitches are possible, depending on the application and type of blade.

Technical data

Sunclips®	Width (mm)	Height (mm)	I _y (mm ⁴)	I _z (mm ⁴)	W _z (mm ³)	Friction coefficient C _{fy}	Friction coefficient C _{fz}
SC.096	96	19	160082	5080	353	0,7	0,7
SE.096.01 / SE.096.02	96	20	160842	6048	3348	0,7	0,7
SE.130	130	22	556097	19124	7610	0,7	0,7
SE.176	176	25	1250307	24909	14097	0,7	0,7

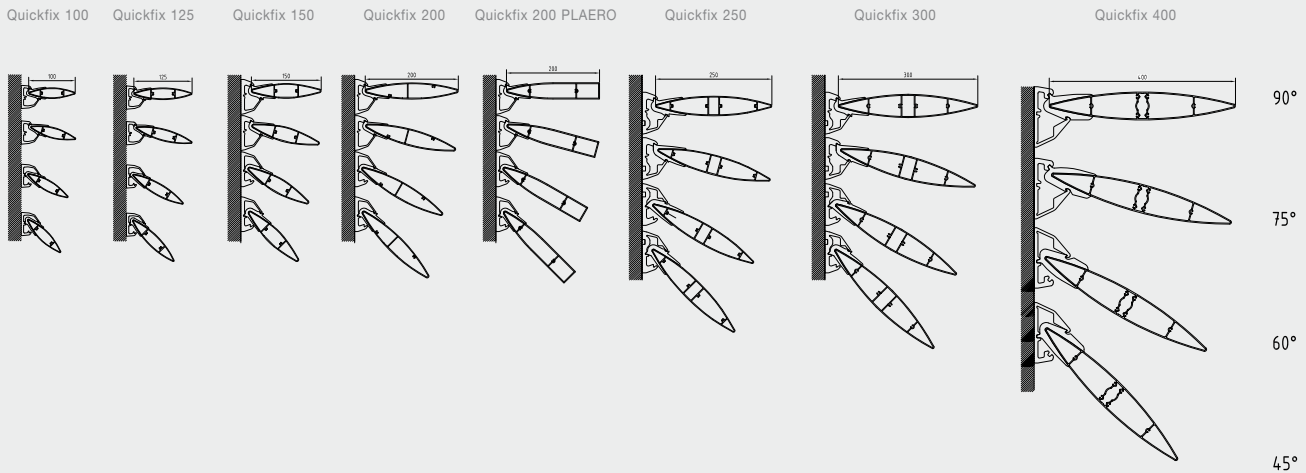
The friction coefficient (determined using wind tunnel tests) indicates how the wind affects the blade.

C_{fy} = coefficient used to determine the horizontal load (drag) on a blade with an angle of 45°

C_{fz} = coefficient used to determine the vertical load (lift) on a blade with an angle of 45°



Systems > installation method - Icarus® Quickfix®



Description

Icarus® Quickfix® is a unique, patented structural sun-protection system, held in place simply and discreetly using clips. The Quickfix bracket consists of one clip attached to the supporting structure and one fork profile attached to the blade using stainless steel rivets. This 2-part concept allows the blade to expand slightly when heated but avoids stresses occurring in the supporting structure. This system also allows for the creation of a continuous line of blades.

Application

The blades can be installed in a horizontal or vertical line in front of the building façade.

Materials and construction

Blade: aluminium extrusion profile in EN AW-6063 T66 alloy
 End plates are AlMg3 alloy.
 Stainless steel sheet-metal screws and fasteners.

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Blade type

The following blade types and inclinations are standard:
 ICA.100, 125, 150, 200, 250, 300, 400 and ICL.200 : 45° or 90°
 ICA.100, 125, 150, 200, 250, 300, 400 and ICL.200 : 60° or 75°

For details of Quickfix® brackets and end caps, see pages 22/23 and 28/29.

Maximum unsupported span

Maximum recommended blade length for angles below 90°:

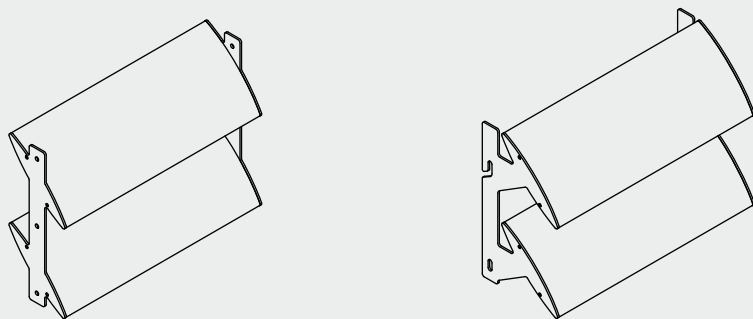
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2000 mm	1860 mm	1590 mm
ICA.125	2150 mm	2000 mm	1706 mm
ICA.150	2775 mm	2580 mm	2200 mm
ICA.200	2820 mm	2620 mm	2240 mm
ICA.250	3320 mm	3085 mm	2635 mm
ICA.300	3735 mm	3735 mm	3415 mm
ICA.400	3235 mm	3235 mm	2865 mm
ICL.200	2940 mm	2735 mm	2340 mm



The maximum unsupported spans described here apply only to the blades and depend on the dimensions of the sun protection. Other spans may be possible after detailed study of the actual project situation.



Systems > installation method - Icarus® cassette



Description

Vertical, permanent sun protection with multiple blades mounted between end plates to form cassettes. Any blade pitch and inclination can be chosen. Any version of the end plates is also possible.

Attachment of the cassettes directly to the load-bearing substructure using standard brackets or attachment to knife brackets.

Materials and construction

Blades: aluminium extrusion profile in EN AW-6063 T66 alloy

End plates are aluminium alloy (AlMg3) or steel. The thickness is calculated as a function of the dimensions, weight and local wind load.

Stainless steel sheet-metal screws and fasteners.

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))
- Steel components are galvanised and powder coated

Maximum unsupported span

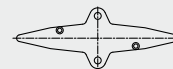
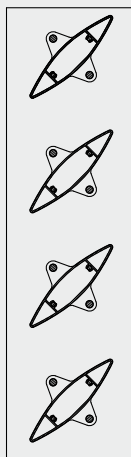
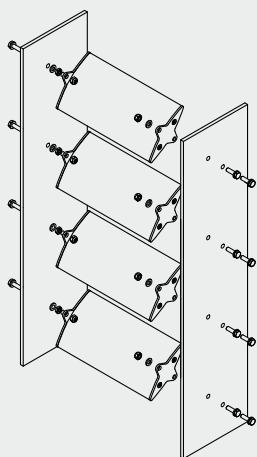
Maximum recommended blade length for angles below 45° in relation to the vertical overhang:

Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2280 mm	2105 mm	1785 mm
ICA.125	2470 mm	2290 mm	1965 mm
ICA.150	3145 mm	2890 mm	2440 mm
ICA.200	3590 mm	3285 mm	2755 mm
ICA.250	4110 mm	3745 mm	3125 mm
ICA.300	4615 mm	4515 mm	3730 mm
ICA.360	5280 mm	5250 mm	4340 mm
ICA.400	5325 mm	5325 mm	4475 mm
ICA.480	6000 mm	6000 mm	5880 mm
ICL.200	3750 mm	3450 mm	2900 mm
ICP.060	1435 mm	1335 mm	1150 mm
ICP.150	3700 mm	3415 mm	2910 mm
ICP.200/30	3910 mm	3615 mm	3050 mm
ICP.200/40 (*)	4735 mm	4675 mm	3935 mm

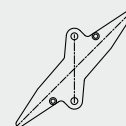
The maximum unsupported spans described here apply only to the blades and depend on the dimensions of the sun protection. Other spans may be possible after detailed study of the actual project situation.



Systems > installation method - Icarus® fixed



Type 14



Type 15

Description

Vertical, permanent sun protection with blades mounted between end caps. Any blade pitch and inclination can be chosen. Any version of the end caps is also possible.

Attachment of the end caps directly to the load-bearing substructure.

Materials and construction

Blades: aluminium extrusion profile in EN AW-6063 T66 alloy

End plates are aluminium alloy (AlMg3). The thickness is calculated as a function of the dimensions, weight and local wind load.

Stainless steel sheet-metal screws and fasteners.

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))
- Steel components are galvanised and powder coated

Blade type

Suitable for all Icarus® blades types.

Maximum unsupported span

Maximum recommended blade length for angles below 45° in relation to the vertical overhang:

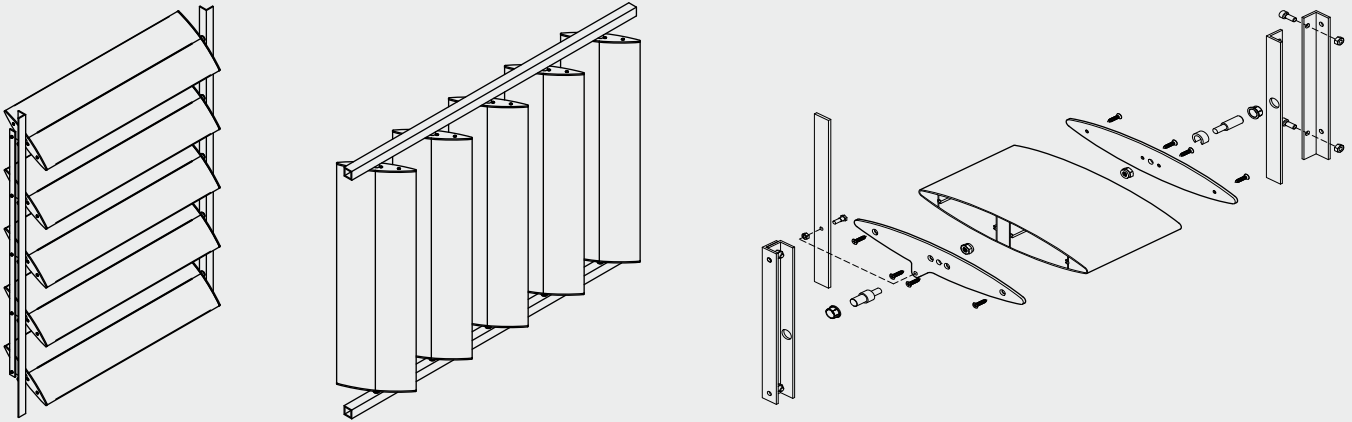
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2280 mm	2105 mm	1785 mm
ICA.125	2470 mm	2290 mm	1965 mm
ICA.150	3145 mm	2890 mm	2440 mm
ICA.200	3590 mm	3285 mm	2755 mm
ICA.250	4110 mm	3745 mm	3125 mm
ICA.300	4615 mm	4515 mm	3730 mm
ICA.360	5280 mm	5250 mm	4340 mm
ICA.400	5325 mm	5325 mm	4475 mm
ICA.480	6000 mm	6000 mm	5880 mm
ICL.200	3750 mm	3450 mm	2900 mm
ICP.060	1435 mm	1335 mm	1150 mm
ICP.150	3700 mm	3415 mm	2910 mm
ICP.200/30	3910 mm	3615 mm	3050 mm
ICP.200/40 (*)	4735 mm	4675 mm	3935 mm



The maximum unsupported spans described here apply only to the blades and depend on the dimensions of the sun protection. Other spans may be possible after detailed study of the actual project situation.



Systems > installation method - Icarus® movable



Description

Vertical sun protection with movable blades. The blades can be tilted a standard 90°. Other angles are possible in consultation with our project division.

Materials and construction

Blades: aluminium extrusion alloy EN AW-6063 T66

End plates in aluminium AlMg3.

Support structures in aluminium or steel, according to protrusion, blade weight, and wind and snow load.

Axles made of stainless steel mounted centrally in aluminium end caps.

Bearings and locking rings made of UV-resistant synthetic material.

Stainless steel tapping screws and fasteners.

Finish

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))
- Steel components are galvanised and powder coated

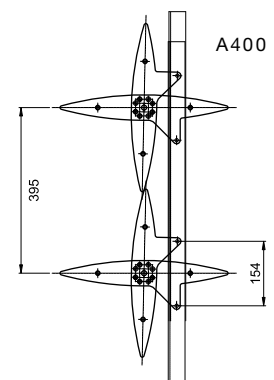
Blade type

Suitable for all Icarus® blades types.

Maximum unsupported span

Recommended maximum blade length:

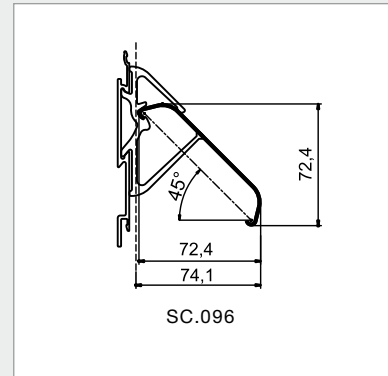
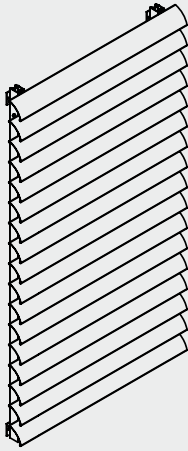
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2000 mm	1860 mm	1590 mm
ICA.125	2145 mm	1990 mm	1700 mm
ICA.150	2775 mm	2580 mm	2200 mm
ICA.200	2820 mm	2615 mm	2240 mm
ICA.250	3325 mm	3085 mm	2630 mm
ICA.300	3735 mm	3735 mm	3415 mm
ICA.360	4280 mm	4280 mm	3870 mm
ICA.400	4315 mm	4315 mm	3820 mm
ICA.480	5170 mm	5170 mm	4975 mm
ICL.200	2985 mm	2765 mm	2365 mm
ICP.150	3130 mm	3075 mm	2620 mm
ICP.200/30	3150 mm	2920 mm	2495 mm
ICP.200/40 (*)	3835 mm	3775 mm	3220 mm



The maximum unsupported spans described here apply only to the blades and depend on the dimensions of the sun protection. Other spans may be possible after detailed study of the actual project situation.



Systems > installation method - Sunclips® on mullions



Description

Vertical, permanent visual barrier or sun shading. Ideal for use as sun shading on east- or west-facing walls.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy

Surface treatment

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Blade type

Possible with all Sunclips® blades

Blade support

Blades are clipped to aluminium clips

Blade inclination

The standard blade inclination is 45°.

Blade pitch

The standard blade pitch is 100 mm. Pitches of 133 mm and 176 mm are recommended for blade types SE.130 and SE.176, respectively.

Mullions

Sunclips® Classic 96 is only possible on SD.014, SD.054 and SD.100 mullions. Sunclips® Evo range is possible on all SD and LD mullion types. For details, see p. 26/27.

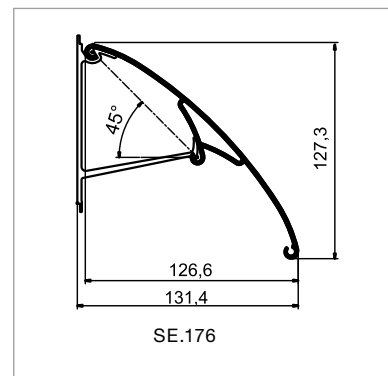
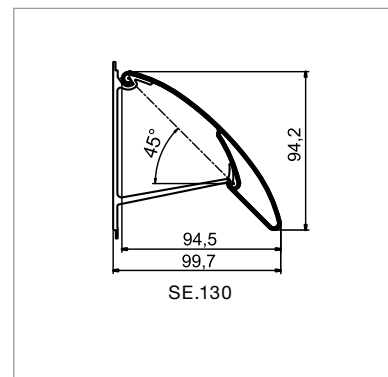
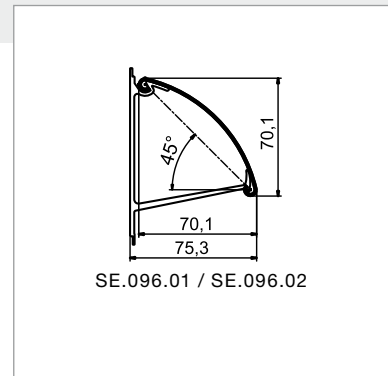
Optional: extension panels

Prefabricated extension panels can be provided for vertical sun shading, e.g. to allow window cleaning.

Maximum unsupported span

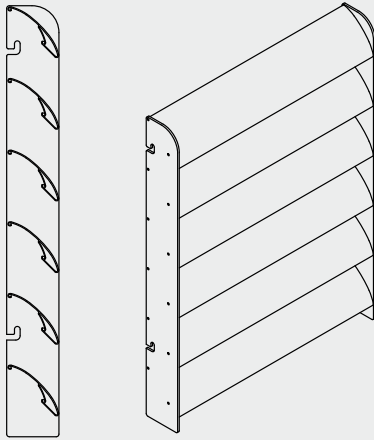
Recommended maximum blade length:

Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
SC.096	800 mm	750 mm	600 mm
SE.096	1350 mm	1220 mm	1000 mm
SE.130	2000 mm	1800 mm	1440 mm
SE.176	2000 mm	1800 mm	1440 mm





Systems > installation method - Sunclips® cassettes



Description

Vertical, permanent sun protection with multiple blades mounted between end plates to form cassettes. Any blade pitch and inclination can be chosen. Any version of the end plates is also possible. The cassettes can be delivered to the site fully preassembled. Attachment of the cassettes directly to the load-bearing substructure using standard brackets or attachment to knife brackets.

Materials and construction

Blades: aluminium extrusion profile in EN AW-6063 T66 alloy

End plates are aluminium alloy (AlMg3) or steel.

The thickness is calculated as a function of the dimensions, weight and local wind load.

Stainless steel sheet-metal screws and fasteners.

Surface treatment

- Anodised (20 micron) (only aluminium parts)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))

Blade type

Possible with blades SE.096, SE.130. and SE.176

Blade support

Not applicable

Blade inclination

The standard blade inclination is 45°. Any blade inclination can be chosen.

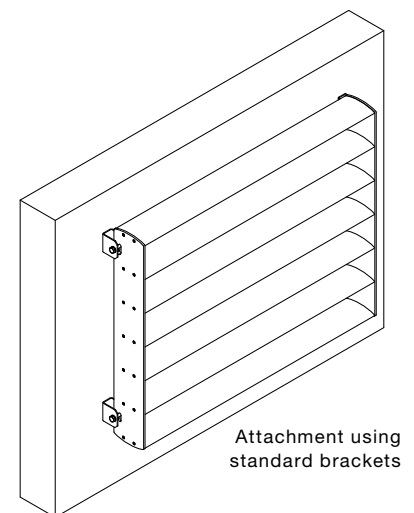
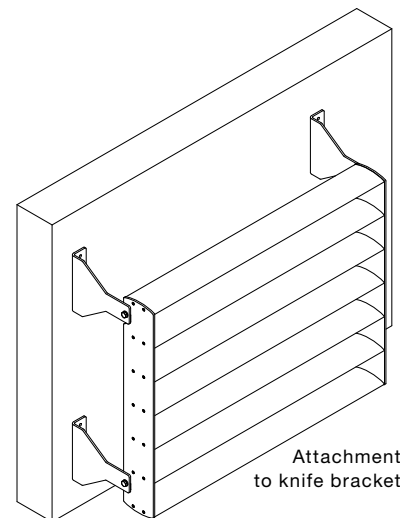
Blade pitch

The standard blade pitch of SE.096 blades is 100 mm. Pitches of 133 mm and 176 mm are recommended for blade types SE.130 and SE.176, respectively. Any blade pitch can be chosen.

Maximum unsupported span

Recommended maximum blade length:

Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
SE.096	1350 mm	1220 mm	1000 mm
SE.130	2000 mm	1800 mm	1440 mm
SE.176	2000 mm	1800 mm	1440 mm



Technical details > attaching Icarus® Quickfix®

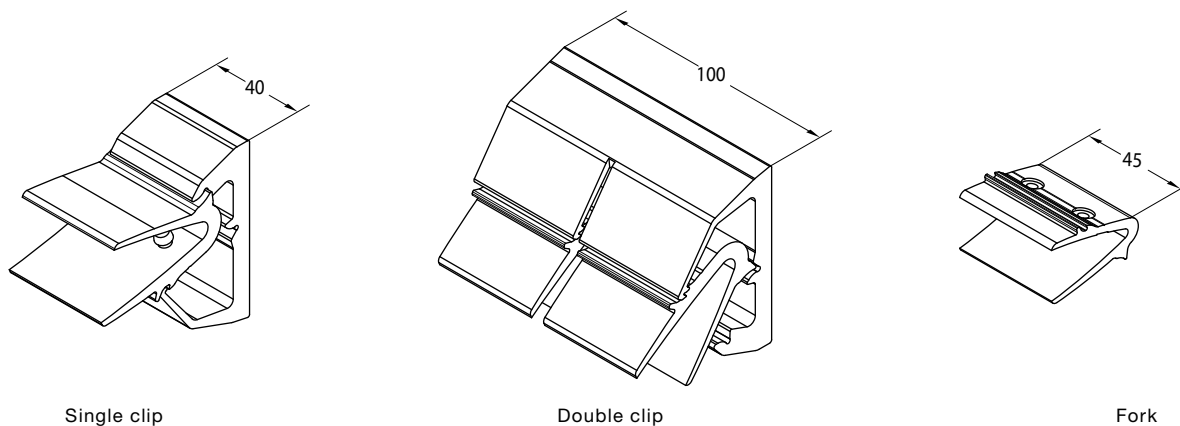
Brackets

There are four types of Quickfix® clips which can be combined with different fork profiles, depending on the blade inclination.

- **Type 1** : for ICA.100 and ICA.125 blades:
- clip and fork for 90° / 45° or 75° / 60° blade inclination
- **Type 2** : for ICA.150, ICA.200 and ICL.200 blades:
- clip and two forks for 90° or 45° / 75° or 60° blade inclination
- **Type 3** : for ICA.250 and ICA.300 blades:
- clip and two forks for 90° or 45° / 75° or 60° blade inclination
- **Type 4** : for ICA.400 blade:
- clip and two forks for 90° or 45° / 75° or 60° blade inclination

Quickfix® brackets are also available in single or double versions.

Widths of Icarus® Quickfix® components:



Overview of available Quickfix® brackets:

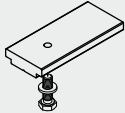
Icarus® Quickfix®		Blade inclination							
		45°		60°		75°		90°	
Bracket type	Blade type	Single bracket	Double bracket	Single bracket	Double bracket	Single bracket	Double bracket	Single bracket	Double bracket
Type 1	ICA.100	IQ.1101	IQ.1201	IQ.1102	IQ.1202	IQ.1102	IQ.1202	IQ.1101	IQ.1201
	ICA.125	IQ.1101	IQ.1201	IQ.1102	IQ.1202	IQ.1102	IQ.1202	IQ.1101	IQ.1201
Type 2	ICA.150	IQ.2101	IQ.2201	IQ.2102	IQ.2202	IQ.2102	IQ.2202	IQ.2101	IQ.2201
	ICA.200	IQ.2101	IQ.2201	IQ.2102	IQ.2202	IQ.2102	IQ.2202	IQ.2101	IQ.2201
	ICL.200	IQ.2101	IQ.2201	IQ.2102	IQ.2202	IQ.2102	IQ.2202	IQ.2101	IQ.2201
Type 3	ICA.250	IQ.3101	IQ.3201	IQ.3102	IQ.3202	IQ.3102	IQ.3202	IQ.3101	IQ.3201
	ICA.300	IQ.3101	IQ.3201	IQ.3102	IQ.3202	IQ.3102	IQ.3202	IQ.3101	IQ.3201
Type 4	ICA.400	IQ.4101	IQ.4201	IQ.4102	IQ.4202	IQ.4102	IQ.4202	IQ.4101	IQ.4201

Fastener sets



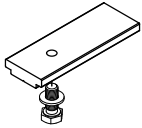
Fastener set IQ.1002

Application: fastener set type 1 for Quickfix® on SD mullions
See p. 26/27
Suitable for Quickfix® systems ICA.100 and ICA.125



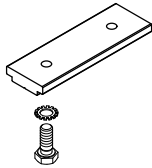
Fastener set IQ.2002

Application: fastener set type 2 for Quickfix® on SD mullions
See p. 26/27
Suitable for Quickfix® systems ICA.150, ICA.200 and ICL.200



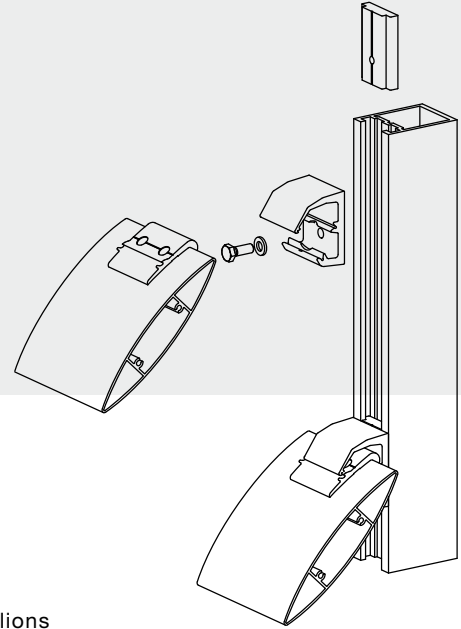
Fastener set IQ.3002

Application: fastener set type 3 for Quickfix® on SD mullions
See p. 26/27
Suitable for Quickfix® systems ICA.250 and ICA.300



Fastener set IQ.4002

Application: fastener set type 4 for Quickfix® on SD mullions
See p. 26/27
Suitable for Quickfix® system ICA.400



Safety bracket

Each blade must have a safety bracket at one location.
The type depends on the kind of blade.



Safety bracket
Type 1 – IQ.1001
(ICA.100 and ICA.125)



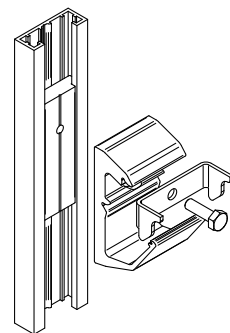
Safety bracket
Type 2 – IQ.2001
(ICA.150, ICA.200
and ICL.200)



Safety bracket
Type 3 – IQ.3001
(ICA.250 and ICA.300)



Safety bracket
Type 4 – IQ.4001
(ICA.400)

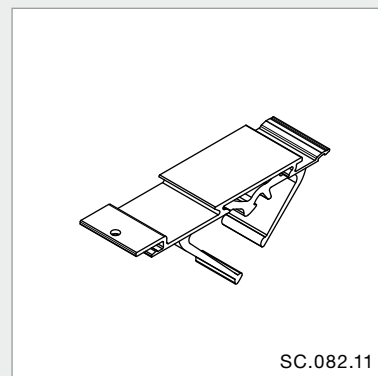


Technical details > attaching Sunclips®

Blade supports

The blade supports for Sunclips® vertical on mullions are made of aluminium and have a fixed blade installation angle of 45° to the vertical.

The blade supports are available in single and double versions for joints.



SC.082.11

Blade support SC.082.11

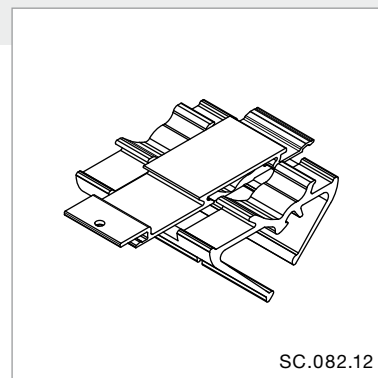
Application: for attaching continuous type SC.096.01 blades.

Suitable for SD.014, SD.054 and SD.100 mullions.

Blade support SC.082.12

Application: for attaching two type SC.096.01 blades.

Suitable for SD.014, SD.054 and SD.100 mullions.



SC.082.12

Blade support SE.082.11

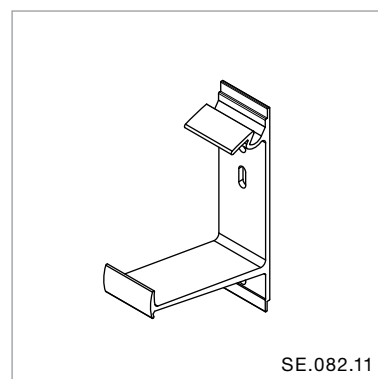
Application: for attaching continuous type SE.096.01, SE.96.02, SE.130.01 and SE.176.01 blades.

Suitable for Linius type LD.0065, LD.0195, LD.0440, LD.0460, LD.0995 and LD.1250 mullions and Sunclips type SD.014, SD.054 and SD.100 mullions in combination with adapter profile LD.0108.

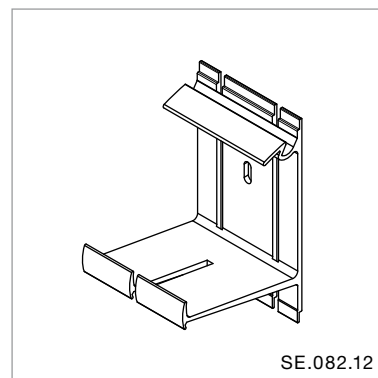
Blade support SE.082.12

Application: for attaching two type SE.096.01, SE.96.02, SE.130.01 and SE.176.01 blades.

Suitable for Linius type LD.0065, LD.0195, LD.0440, LD.0460, LD.0995 and LD.1250 mullions and Sunclips type SD.014, SD.054 and SD.100 mullions in combination with adapter profile LD.0108.



SE.082.11

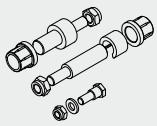


SE.082.12

Technical details > attaching movable Icarus®

Rotation sets

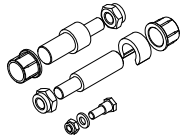
Three types of rotation sets are available, depending on the blade system used. A rotation set consists of two stainless steel pivot sleeves (1x long; 1x short), two plastic bearing bushes, one plastic circlip for attaching the blade, two lock nuts to secure the pivot sleeves to the end caps and one set for connecting the rod, consisting of one Ø8-M6 shaft with one plastic washer for M8 and one M6 lock nut.



Rotation set IM.9001

Application: fastener set for movable system type 1.

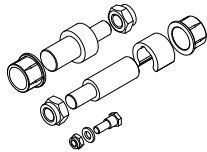
Suitable for type ICA.100, ICA.125, ICA.150, ICA.200, ICL.200 and ICP.500, ICP.200/30, ICP.200/40 (*) blades



Rotation set IM.9002

Application: fastener set for movable system type 2.

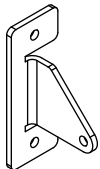
Suitable for type ICA.250, ICA.300 and ICA.360 blades



Rotation set IM.9003

Application: fastener set for movable system type 3.

Suitable for type ICA.400 and ICA.480 blades.



Stainless steel motor support IM.9201

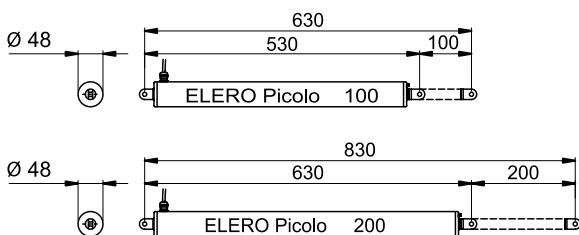
Application: Stainless steel support for attaching motors to substructures.

Suitable for several types of motors.

Icarus® movable: control options

Automatic

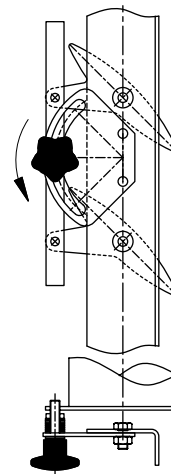
Examples of suitable motors



The type of motor is a function of the length of travel needed.

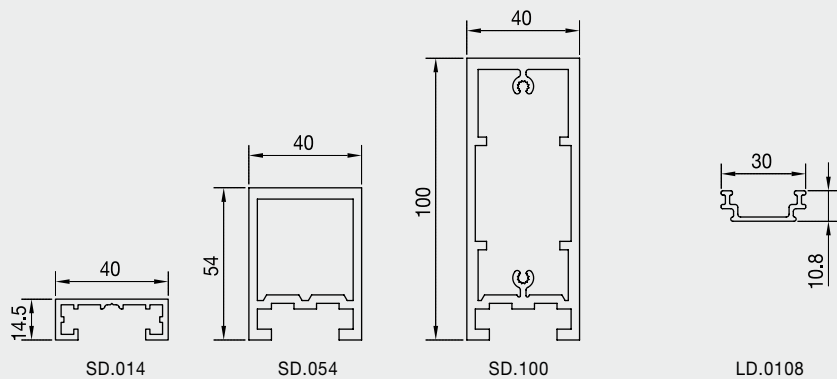
Manual

Direct manual control

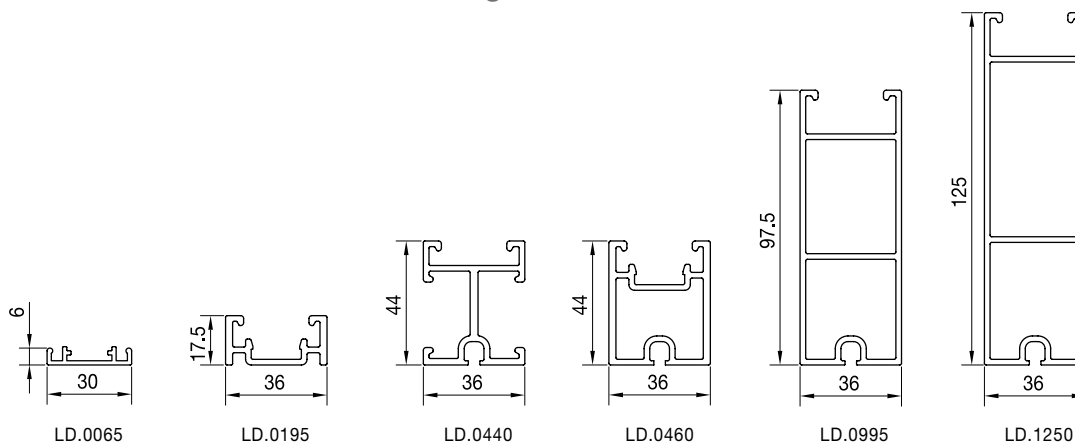


Technical details > mullions

SD type mullions from the Sunclips® range



LD type mullions from the Linius® range



Description

Extruded aluminium profiles used as mullions for permanent vertical sun shades.

Material

Aluminium extrusion profile in EN AW-6063 T66 alloy

Surface treatment

- Anodised (20 micron) F1
- Polyester powder coating (60-80 micron) in RAL colours

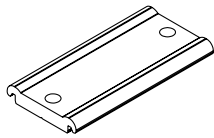
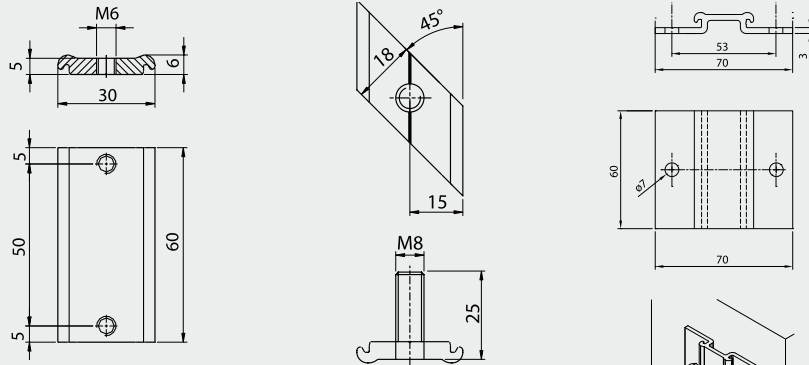
Technical data

	LD.0065	LD.0108 *	LD.0195	LD.0440	LD.0460	LD.0995	LD.1250	SD.014	SD.054	SD.100
Profile depth (mm)	6,5	10,8	17,5	44	44	97,5	125	14,5	54	100
Profile width (mm)	30	30	36	36	36	36	36	40	40	40
Moment of inertia (mm ⁴)	261	987	5931	83228	83348	625740	1219444	4510	208672	1248414
Flexural modulus (mm ³)	60	147	570	3622	3560	12097	18531	497	7360	24405

(*) Adapter profile for combination with SD.014, SD.054 or SD.100 mullions

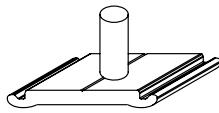
Technical details > attachments for mullions

Fixing brackets LZ.4202, LZ.4211 and LZ.4206



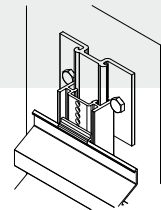
Type LZ.4202

Includes 2 bolts (M6x16)
& washer



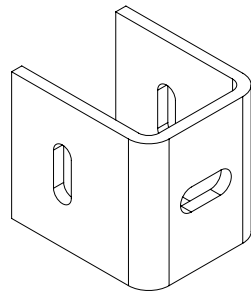
Type LZ.4211

Includes M6 nut
& washer

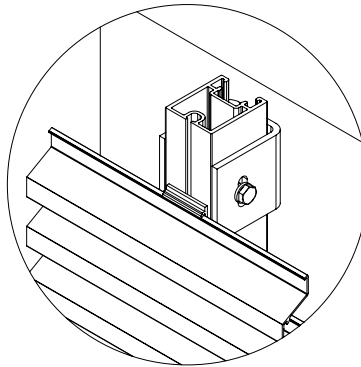


Type LZ.4206

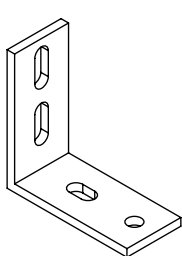
U-shape mounting bracket LZ.4210



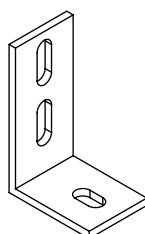
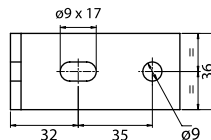
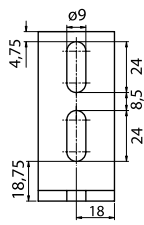
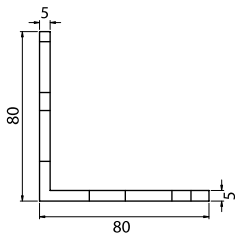
Includes bolt (M6 x16), nut & washer



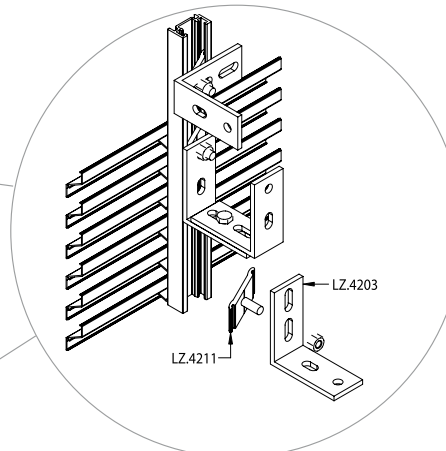
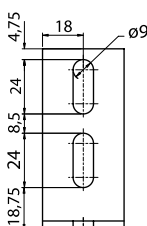
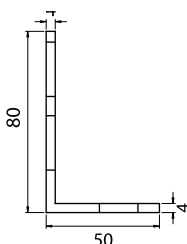
L-shaped bracket types LZ.4203 and LZ.4209



Type LZ.4203



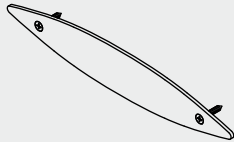
Type LZ.4209



Where necessary, project specific brackets can be designed and provided by a RENSON® approved manufacturer/installer.

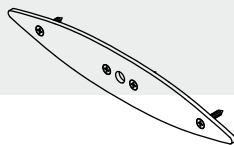
Technical details > Icarus® end caps

The ground edges of Icarus® blades are sealed with end caps, depending on the application. The end caps are attached by screws in the threaded channels in the blades.



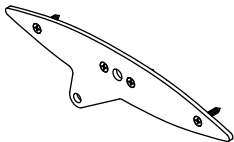
End cap fixed - type 1

Application: fitted to the ends of the Icarus® blades in Icarus® Quickfix® systems



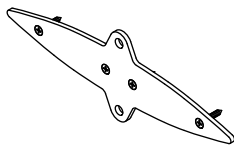
End cap movable without command - type 2

Application: fitted to the ends of the Icarus® blades in movable Icarus® systems
- on a side without command



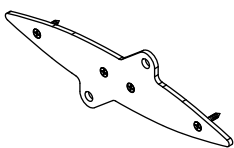
End cap movable with command - type 3

Application: fitted to the ends of the Icarus® blades in movable Icarus® systems
- on a side with command



End cap fixed for 90° attachment - type 4

Application: fitted to the ends of Icarus® blades with 90° inclination



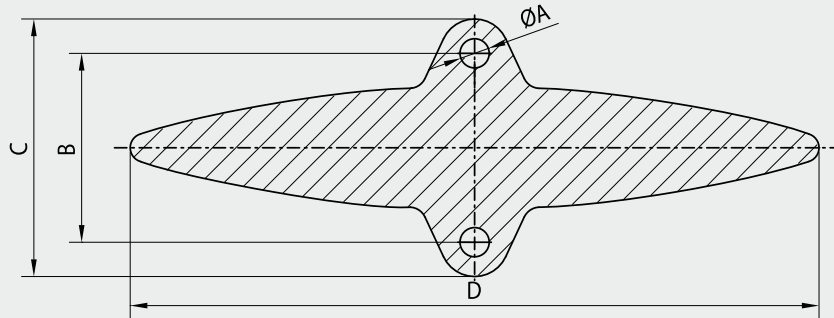
End cap fixed for 45° attachment - type 5

Application: fitted to the ends of Icarus® blades with 45° inclination

Summary table – end cap types

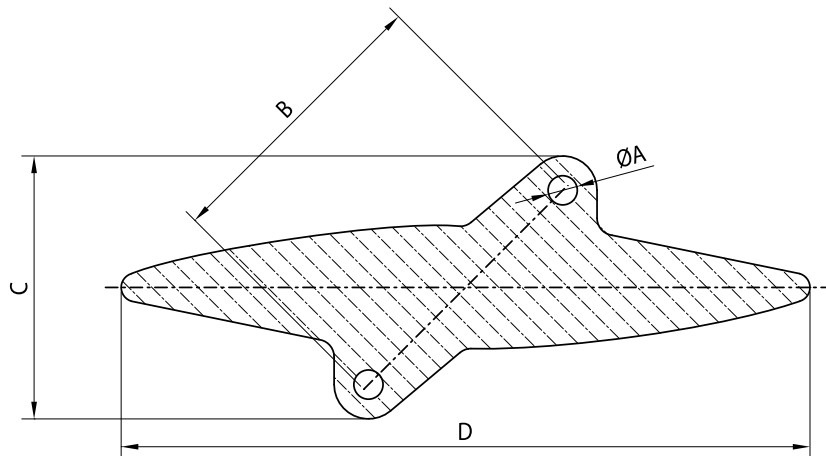
	End cap type				
	type 1	type 2	type 3	type 4	type 5
ICA.100	ICA.100.11	ICA.100.12	ICA.100.13	ICA.100.14	ICA.100.15
ICA.125	ICA.125.11	ICA.125.12	ICA.125.13	ICA.125.14	ICA.125.15
ICA.150	ICA.150.11	ICA.150.12	ICA.150.13	ICA.150.14	ICA.150.15
ICA.200	ICA.200.11	ICA.200.12	ICA.200.13	ICA.200.14	ICA.200.15
ICA.250	ICA.250.11	ICA.250.12	ICA.250.13	ICA.250.14	ICA.250.15
ICA.300	ICA.300.11	ICA.300.12	ICA.300.13	ICA.300.14	ICA.300.15
ICA.360	ICA.360.11	ICA.360.12	ICA.360.13	ICA.360.14	ICA.360.15
ICA.400	ICA.400.11	ICA.400.12	ICA.400.13	ICA.400.14	ICA.400.15
ICA.480	ICA.480.11	ICA.480.12	ICA.480.13	ICA.480.14	ICA.480.15
ICL.200	ICL.200.11	ICL.200.12	ICL.200.13	ICL.200.14	ICL.200.15
ICP.150	ICP.150.11	ICP.150.12	ICP.150.13	ICP.150.14	ICP.150.15
ICP.200/30	ICP.200.31	ICP.200.32	ICP.200.33	ICP.200.34	ICP.200.35
ICP.200/40 (*)	ICP.200.11	ICP.200.12	ICP.200.13	ICP.200.14	ICP.200.15

End cap type 4 dimensions
for fixed installation - 90° inclination:



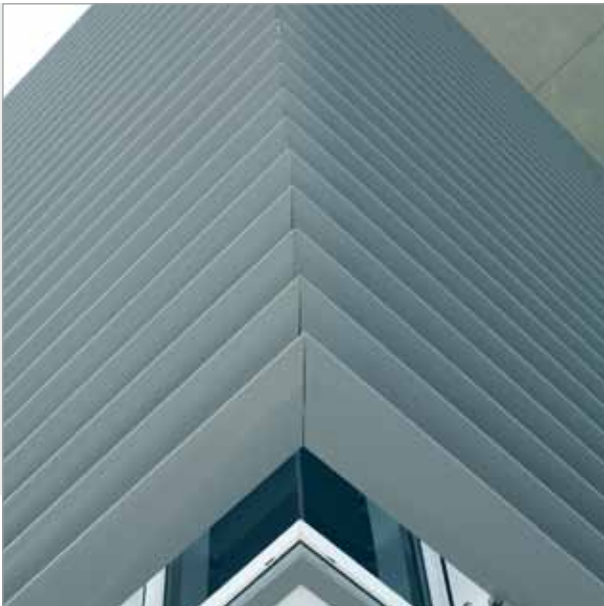
End cap type	Dimensions as per sketch (mm)			
	Size D	Size \varnothing A	Size B	Size C
ICA.100.14	100	6,5	45	57
ICA.125.14	125	8,5	45	65
ICA.150.14	150	8,5	50	70
ICA.200.14	200	8,5	55	75
ICA.250.14	250	8,5	65	85
ICA.300.14	300	8,5	70	90
ICA.360.14	360	10,5	85	110
ICA.400.14	400	10,5	85	110
ICA.480.14	480	10,5	120	150
ICL.200.14	200	8,5	60	80
ICP.150.14	150	8,5	50	70
ICP.200.34	200	8,5	50	70
ICP.200.14	200	8,5	60	80

End cap type 5 dimensions
for fixed installation - 45° inclination:



End cap type	Dimensions as per sketch (mm)			
	Size D	Size \varnothing A	Size B	Size C
ICA.100.15	100	6,5	60	55
ICA.125.15	125	8,5	65	66
ICA.150.15	150	8,5	70	70
ICA.200.15	200	8,5	80	77
ICA.250.15	250	8,5	90	84
ICA.300.15	300	8,5	100	94
ICA.360.15	360	10,5	120	110
ICA.400.15	400	10,5	120	110
ICA.480.15	480	10,5	160	144
ICL.200.15	200	8,5	85	80
ICP.150.15	150	8,5	75	73
ICP.200.35	200	8,5	75	73
ICP.200.15	200	8,5	90	84

Technical details > corner solutions

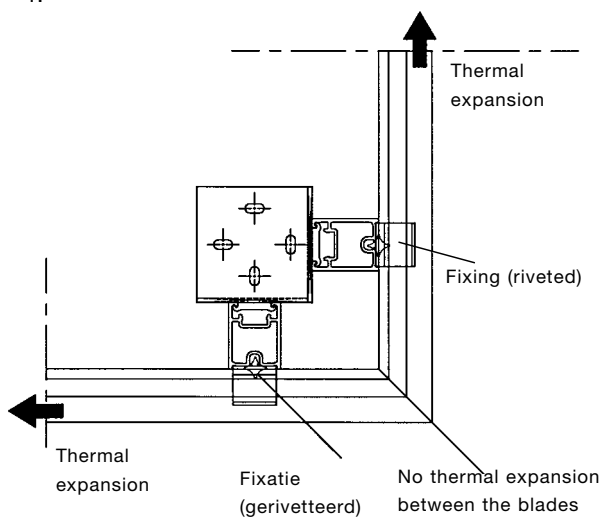


Mitred corners

Where a corner is formed, the blades are sawed to the correct angle so they fit perfectly and ensure an attractive, aesthetic finish.

Possible solutions for installing corners

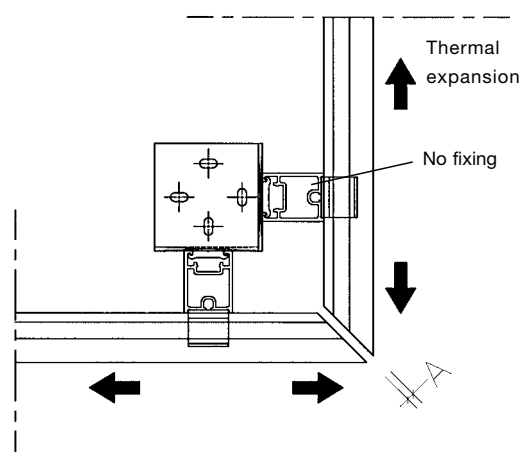
1.



Expansion

The mullions are fitted as close as possible to the corner

2.



Expansion joint included in mitre

The mullions are fitted as close as possible to the corner

Technical details > project solutions



This brochure merely gives you an overview of our standard solutions. Our project leaders can advise you and work with you to detail and develop any desired system on a project basis.

RENSON® - YOUR PARTNER FOR VENTILATION AND SUNPROTECTION



Since 1909 RENSON® has had an abundant history in innovation and experience therefore is profiling itself as the undisputed European market leader in natural ventilation and sun protection. Our Headquarters are located in a remarkable building in Waregem (Belgium). The building itself is a working example of our Healthy Building Concept® and functions as a prototype, exhibiting our technological expertise. In 2003 the building was nominated for the Belgian Building Award, crowned with the “Aluminium Environment Award”, and in 2009 the building was crowned again with the “Green Good Design Award”.

RENSON®’s mission is to continually develop, produce and sell unique and innovating products for natural ventilation and sun protection. Our main objective is to improve living or working conditions for those using the buildings and to reduce their energy consumption. RENSON® combines comfort and energy efficiency with architecture in order to improve the health of the users.

RENSON® HAS IT ALL :

- Our multidisciplinary R&D department co-operates with leading European research organisations for a complete range of innovative concepts and products.
- Our automatic powder coating installation, anodisation unit, moulding centre, plastic injection moulding facilities, assembly department and warehouse are all positioned within an area of 75,000 m². This type of vertical integration allows RENSON® to ensure the consistent quality of all its products
- RENSON®’s headquarters, sales and marketing department and its production plant are located in Belgium, but we also have plants and offices in France and in the UK . RENSON® has sales representatives active all over Europe and has set up a network of distributors throughout the world. More than 65 employees are available to support and advise you on the spot; that is why we can offer you a more reliable back-up and in-depth follow-through than our competitors.
- The diversity and capability of our staff can guarantee the correct solution for each individual building project. The creation of valuable long-term relationships with construction specialists is our priority. We devote all of our creative resources into cost-efficient solutions, tailor-made for each ventilation and sun protection project.



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