



Creating healthy spaces



Vertical Sun Protection

Icarus® | Sunclips®

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SYSTEMEN

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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



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



Sunclips® Evo 96, Porte Océane II, Auray (FR)

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 2012 (RT2012)
- 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'

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.

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.

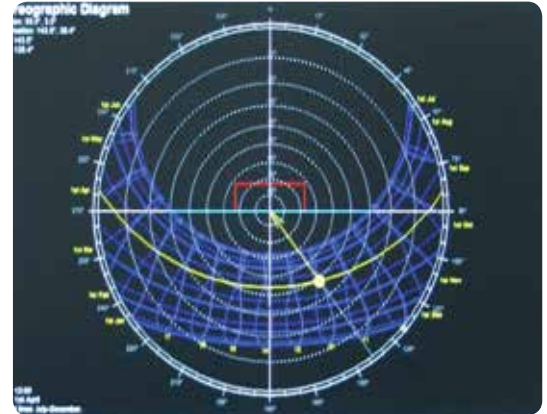
Stability and dimensions

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.

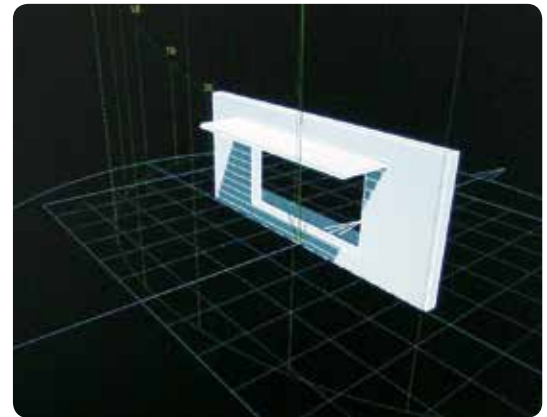
Project solutions

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.

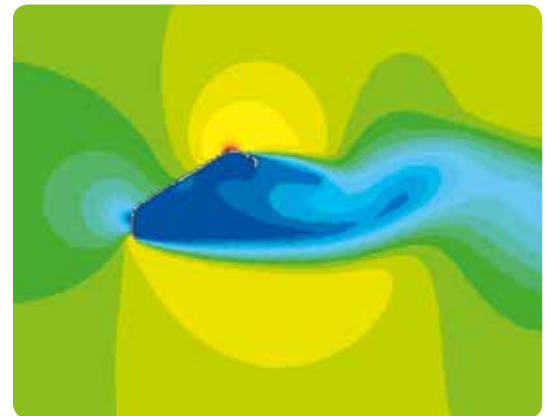
RENSON® Sun Protection Projects offers different options for achieving aesthetic and architectural sun protection in accordance with current regulations.



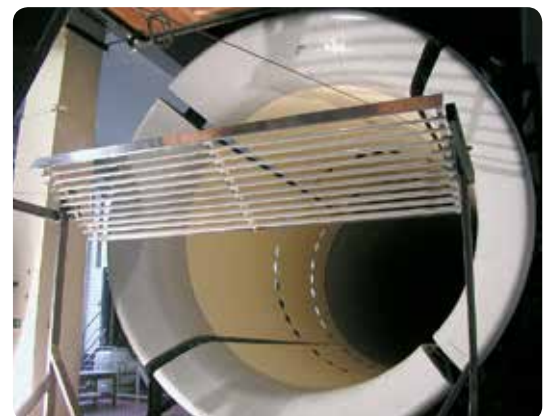
Stereographic diagram



Shadow analysis



CFD simulation

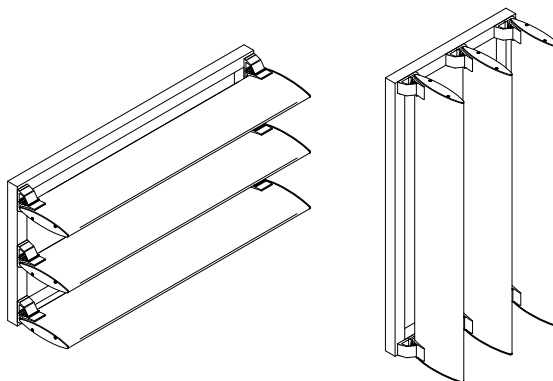


Wind tunnel test

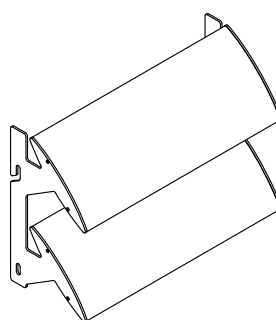
Icarus® installation methods < Systems



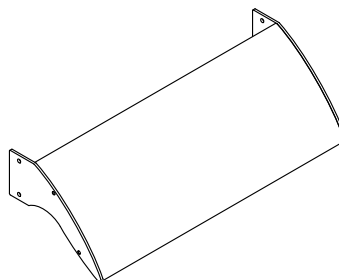
Icarus® Quickfix® - horizontal or vertical blades - (page 10/11)



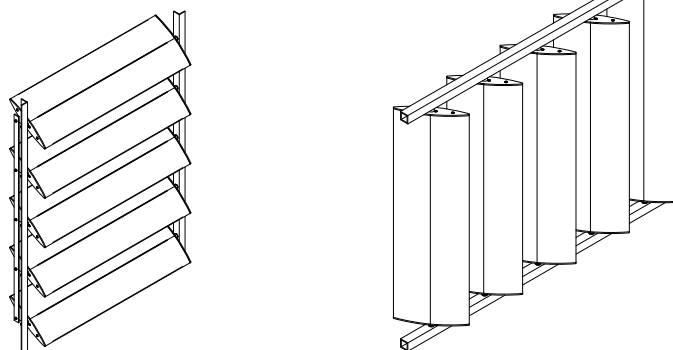
Icarus® fixed - multiple blades - (page 12/13)



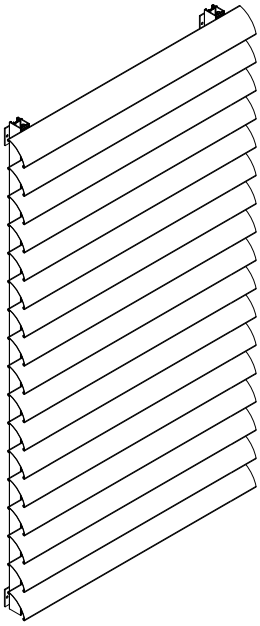
Icarus® fixed - single blades - (page 14/15)



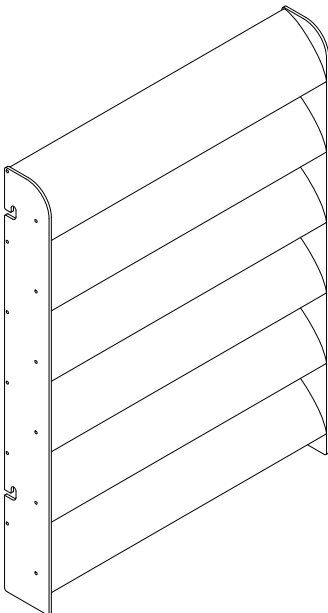
Icarus® movable - horizontal or vertical blades - (page 16/17)

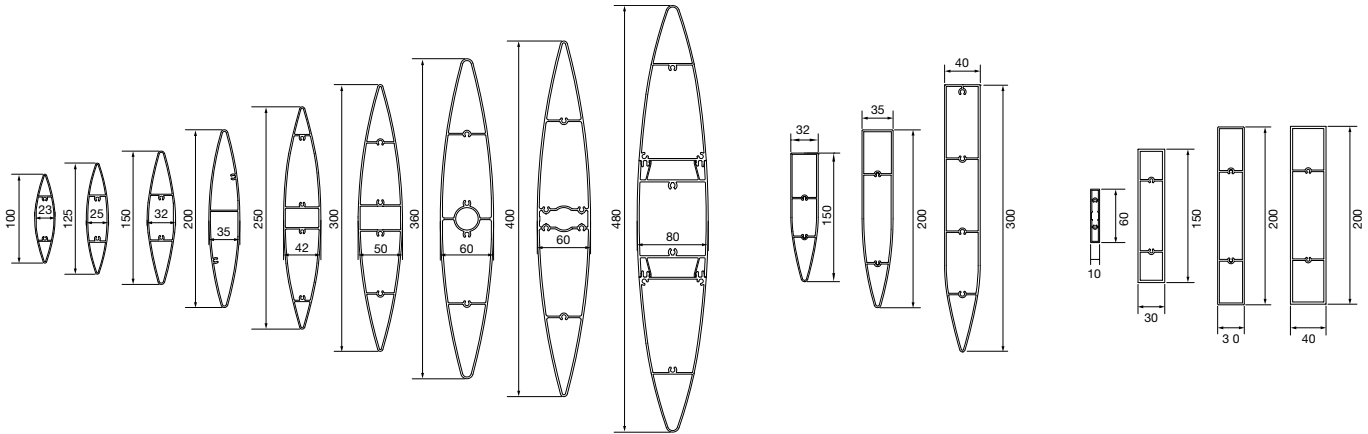


Sunclips® vertical – on mullions - (page 18/19)



Sunclips® vertical – cassette system - (page 20/21)





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® Plaero* is the combination of a block blade and an aerofoil blade in widths of 150, 200 and 300 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.150	150	32	1201029	14735	96620	5426	1,07	1,38
ICL.200	200	35	3318686	30087	176148	9937	1,07	1,38
ICL.300	300	40	11843210	73712	400594	19031	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)	Friction coefficient C_{fy}	Friction coefficient C_{fz}
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

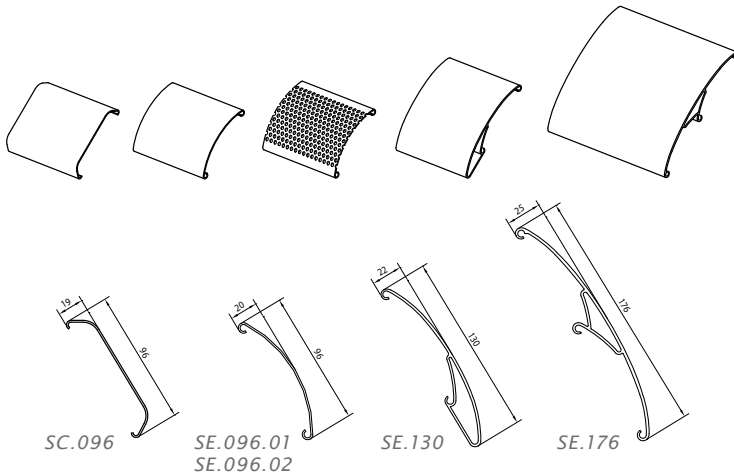
y: axis strength · z: axis weakness

(*) = 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°



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

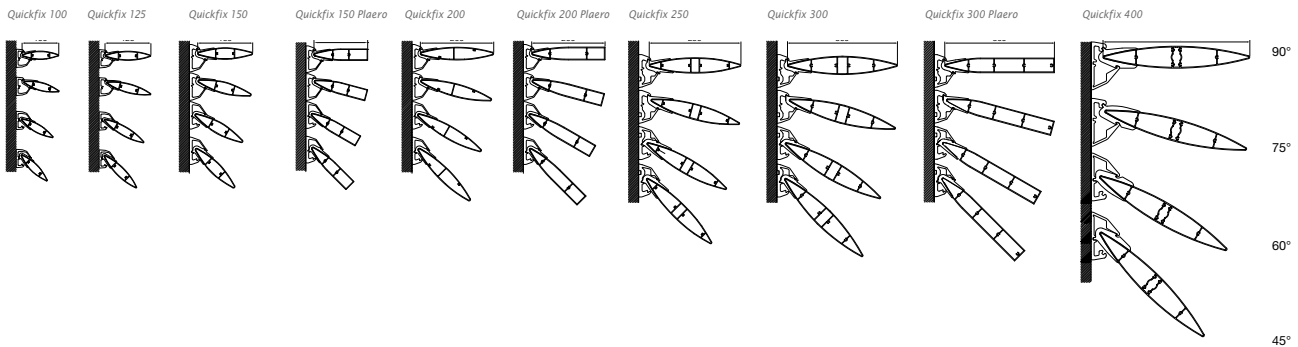
The standard blade pitch for SC.096, SE.096.01 and SE.096.02 blades is 100 mm. The standard pitch for the SE.130 blade is 133.3 mm and 176 mm for the SE.176 blade. Other pitches are possible, depending on the application and type of blade.

Technical data							
Sunclips®	Width (mm)	Height (mm)	I_y (mm ⁴)	W_z (mm ⁴)	I_z (mm ⁴)	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°*

Installation method - Icarus® Quickfix® < Systems





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, ICL.200 and 300 : 45° or 90°
 ICA.100, 125, 150, 200, 250, 300, 400, ICL.200 and 300 : 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°:

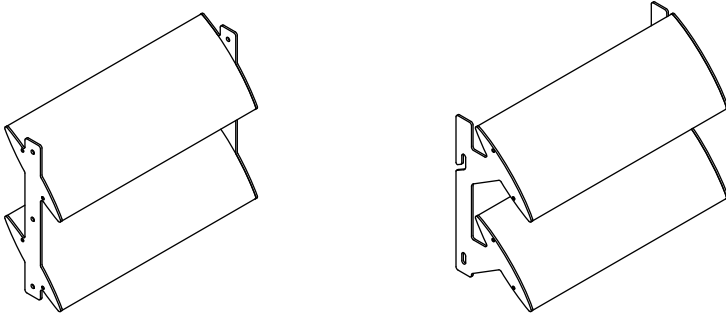
slat type	wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2000 mm	1860 mm	1590 mm
ICA.125	2150 mm	2000 mm	1706 mm
ICA.150	2775 mm	2580 mm	2200 mm
ICA.200	2820 mm	2620 mm	2240 mm
ICA.250	3320 mm	3085 mm	2635 mm
ICA.300	3735 mm	3735 mm	3415 mm
ICA.400	3235 mm	3235 mm	2865 mm
ICL.150	2860 mm	2660 mm	2270 mm
ICL.200	3210 mm	2980 mm	2545 mm
ICL.300	3700 mm	3455 mm	2950 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.



Installation method - Icarus® cassette < Systems





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

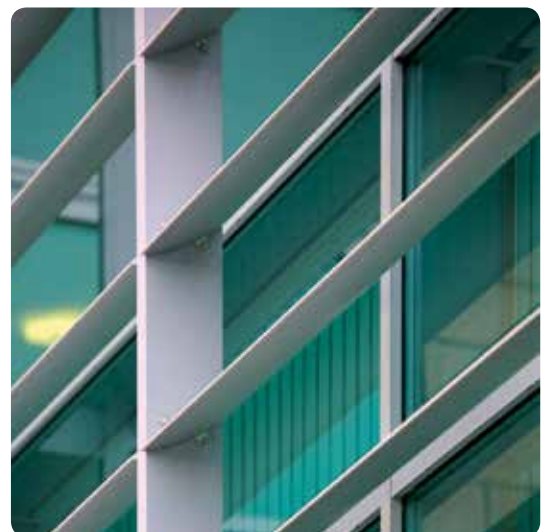
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colors (60-80 µ/40 µ (UK))
- Steel components are galvanised and powder coated

Maximum unsupported span

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

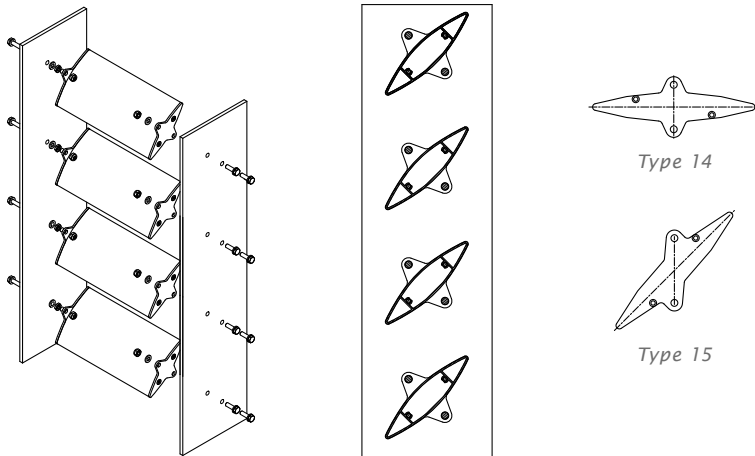
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2280 mm	2105 mm	1785 mm
ICA.125	2470 mm	2290 mm	1965 mm
ICA.150	3145 mm	2890 mm	2440 mm
ICA.200	3590 mm	3285 mm	2755 mm
ICA.250	4110 mm	3745 mm	3125 mm
ICA.300	4615 mm	4515 mm	3730 mm
ICA.360	5280 mm	5250 mm	4340 mm
ICA.400	5325 mm	5325 mm	4475 mm
ICA.480	6000 mm	6000 mm	5880 mm
ICL.150	3420 mm	3150 mm	2675 mm
ICL.200	3750 mm	3450 mm	2900 mm
ICL.300	4615 mm	4515 mm	3730 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.



Installation method - Icarus® fixed < Systems





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:

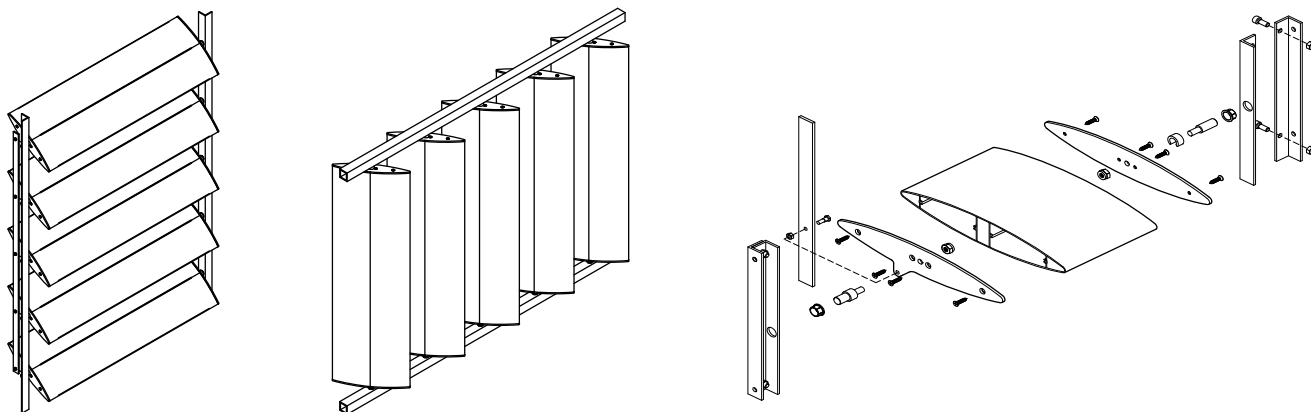
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
ICA.100	2280 mm	2105 mm	1785 mm
ICA.125	2470 mm	2290 mm	1965 mm
ICA.150	3145 mm	2890 mm	2440 mm
ICA.200	3590 mm	3285 mm	2755 mm
ICA.250	4110 mm	3745 mm	3125 mm
ICA.300	4615 mm	4515 mm	3730 mm
ICA.360	5280 mm	5250 mm	4340 mm
ICA.400	5325 mm	5325 mm	4475 mm
ICA.480	6000 mm	6000 mm	5880 mm
ICL.150	3420 mm	3150 mm	2675 mm
ICL.200	3750 mm	3450 mm	2900 mm
ICL.300	4615 mm	4515 mm	3730 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.



Installation method - Icarus® movable < Systems





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

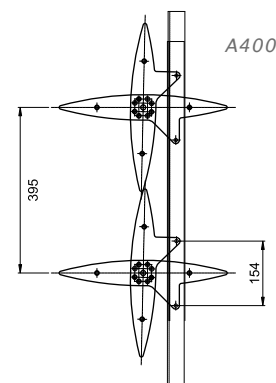
Suitable for all Icarus® blades types.

Maximum unsupported span

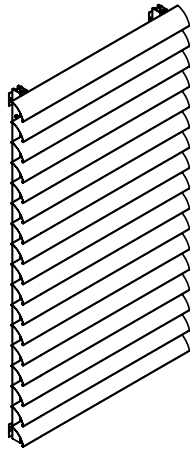
Recommended maximum blade length:

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.150	2950 mm	2825 mm	2410 mm
ICL.200	2985 mm	2765 mm	2365 mm
ICL.300	3735 mm	3735 mm	3415 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.







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.

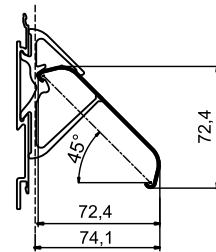
Optional: extension panels

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

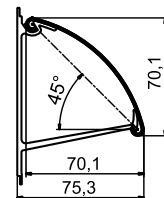
Maximum unsupported span

Recommended maximum blade length:

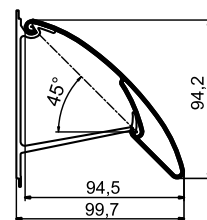
Blade type	Wind load		
	650 Pa	800 Pa	1250 Pa
SC.096	800 mm	750 mm	600 mm
SE.096	1350 mm	1220 mm	1000 mm
SE.130	2000 mm	1800 mm	1440 mm
SE.176	2000 mm	1800 mm	1440 mm



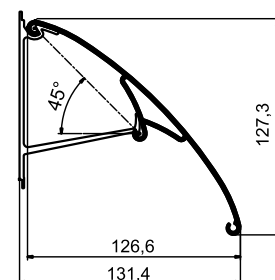
SC.096



SE.096.01 / SE.096.02



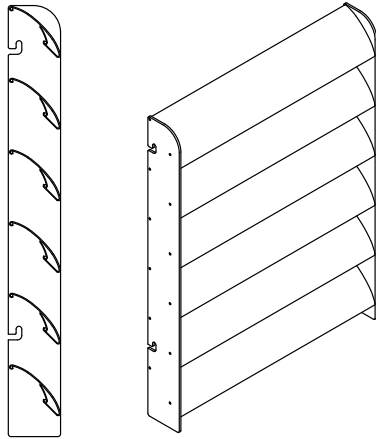
SE.130



SE.176

Installation method - Sunclips® cassettes < Systems





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.

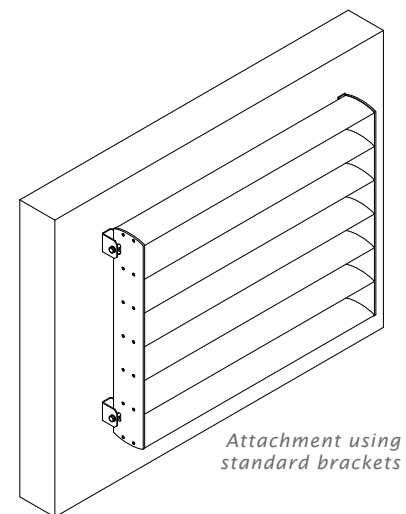
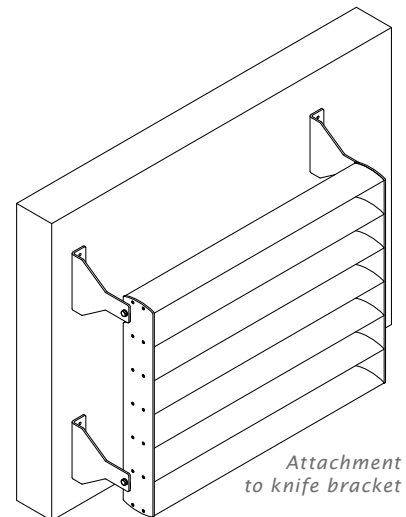
Blade pitch

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



Attaching Icarus® Quickfix® < Technical details

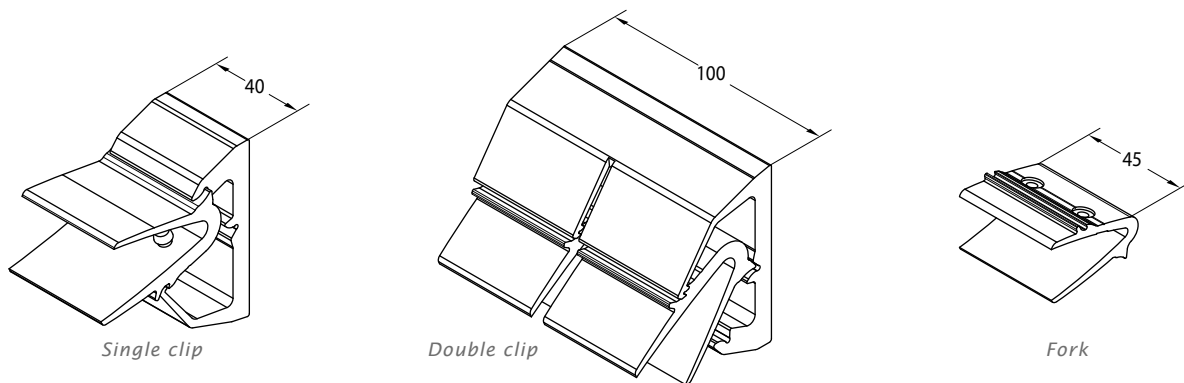
Brackets

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, ICL.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, ICA.300 and ICL.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:

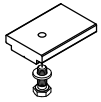


Overview of available Quickfix® brackets:

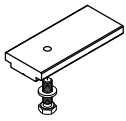
Icarus® Quickfix®		Blade inclination							
		45°		60°		75°		90°	
Bracket type	Blade type	Single bracket	Double bracket	Single bracket	Double bracket	Single bracket	Double bracket	Single bracket	Double bracket
Type 1	ICA.100	IQ.1101	IQ.1201	IQ.1102	IQ.1202	IQ.1102	IQ.1202	IQ.1101	IQ.1201
	ICA.125	IQ.1101	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
	ICL.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
	ICL.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



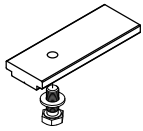
Fastener sets



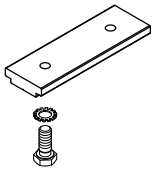
Fastener set IQ.1002
 Application: fastener set type 1 for Quickfix® on SD mullions See p. 26/27
 Suitable for Quickfix® systems ICA.100 and ICA.125



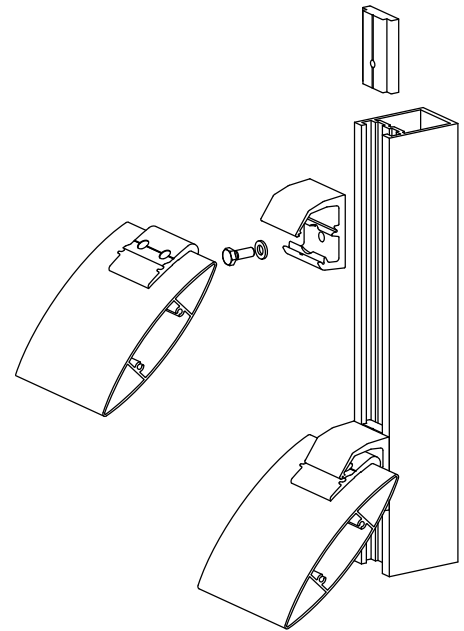
Fastener set IQ.2002
 Application: fastener set type 2 for Quickfix® on SD mullions See p. 26/27
 Suitable for Quickfix® systems ICA.150, ICL.150, ICA.200 and ICL.200



Fastener set IQ.3002
 Application: fastener set type 3 for Quickfix® on SD mullions See p. 26/27
 Suitable for Quickfix® systems ICA.250, ICA.300 and ICL.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)*



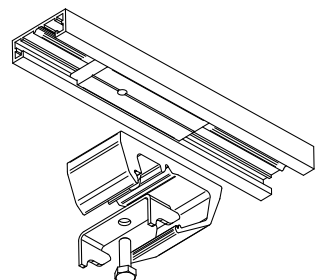
*Safety bracket
 Type 2 - IQ.2001
 (ICA.150, ICL.150,
 ICA.200 and ICL.200)*



*Safety bracket
 Type 3 - IQ.3001
 (ICA.250, ICA.300
 and ICL.300)*

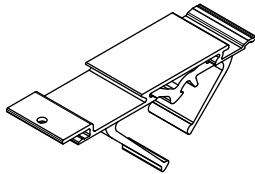


*Safety bracket
 Type 4 - IQ.4001
 (ICA.400)*



Blade supports

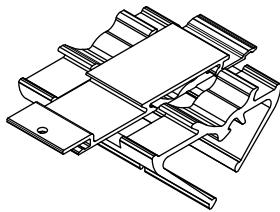
The blade supports for Sunclips® vertical on mullions are made of aluminium and have a fixed blade installation angle of 45° to the vertical. The blade supports are available in single and double versions for joints.



SC.082.11

Blade support SC.082.11

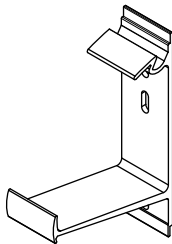
Application: for attaching continuous type SC.096.01 blades.
Suitable for SD.014, SD.054 and SD.100 mullions.



SC.082.12

Blade support SC.082.12

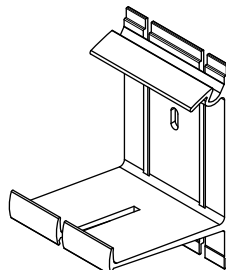
Application: for attaching two type SC.096.01 blades.
Suitable for SD.014, SD.054 and SD.100 mullions.



SE.082.11

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.



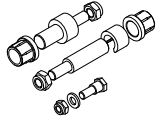
SE.082.12

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.

Rotation sets

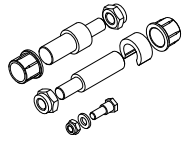
Three types of rotation sets are available, depending on the blade system used. A rotation set consists of two stainless steel pivot sleeves (1x long; 1x short), two plastic bearing bushes, one plastic circlip for attaching the blade, two lock nuts to secure the pivot sleeves to the end caps and one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

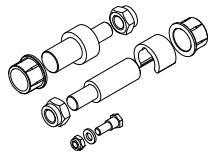
Suitable for type ICA.100, ICA.125, ICA.150, ICL.150, ICA.200, ICL.200 and ICP.500, ICP.200/30, ICP.200/40 (*) blades



Rotation set IM.9002

Application: fastener set for movable system type 2.

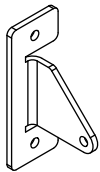
Suitable for type ICA.250, ICA.300, ICA.360 and ICL.300 blades



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

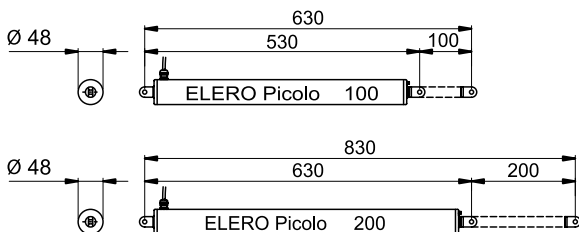
Application: Stainless steel support for attaching motors to substructures.

Suitable for several types of motors.

Icarus® movable: control options

Automatic

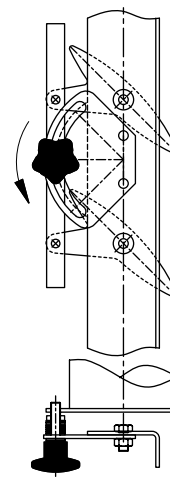
Examples of suitable motors



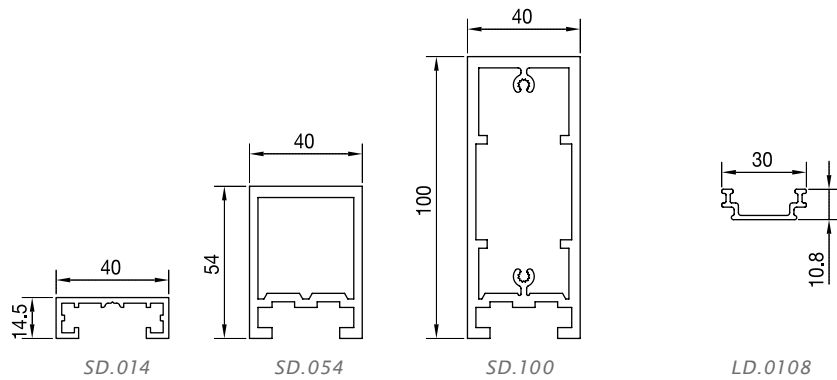
The type of motor is a function of the length of travel needed.

Manual

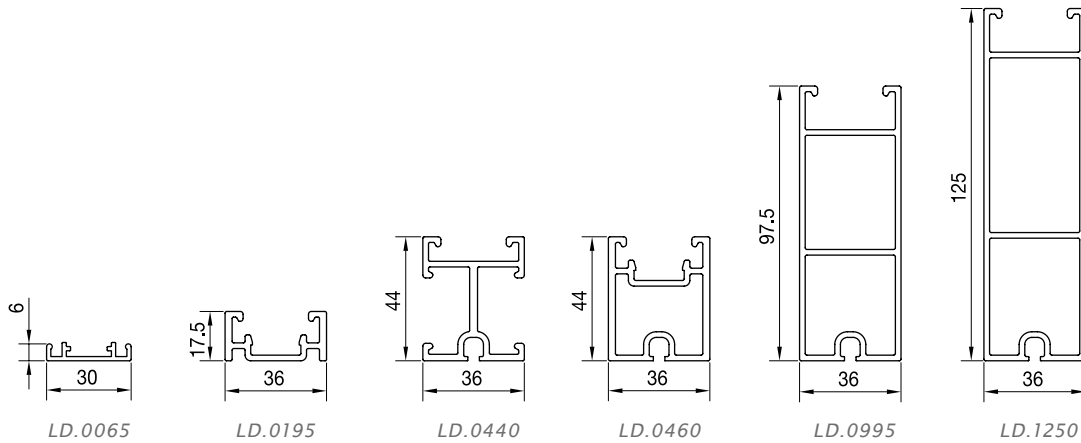
Direct manual control



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

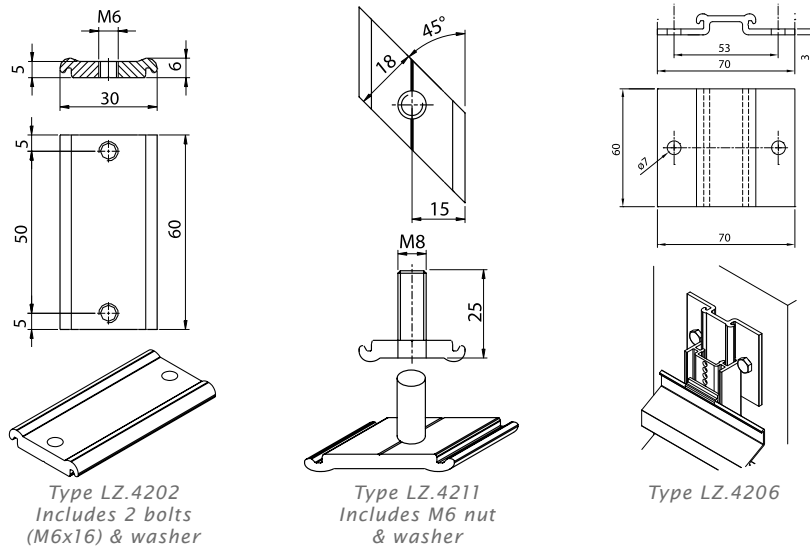
- Anodised (20 micron) F1
- Polyester powder coating (60-80 micron) in RAL colours

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

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



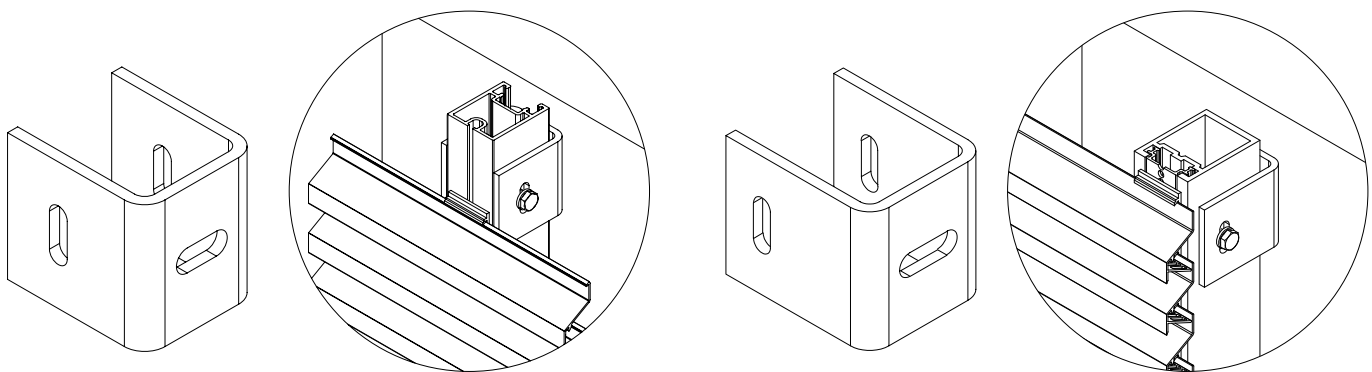
Type LZ.4202
Includes 2 bolts
(M6x16) & washer

Type LZ.4211
Includes M6 nut
& washer

Type LZ.4206

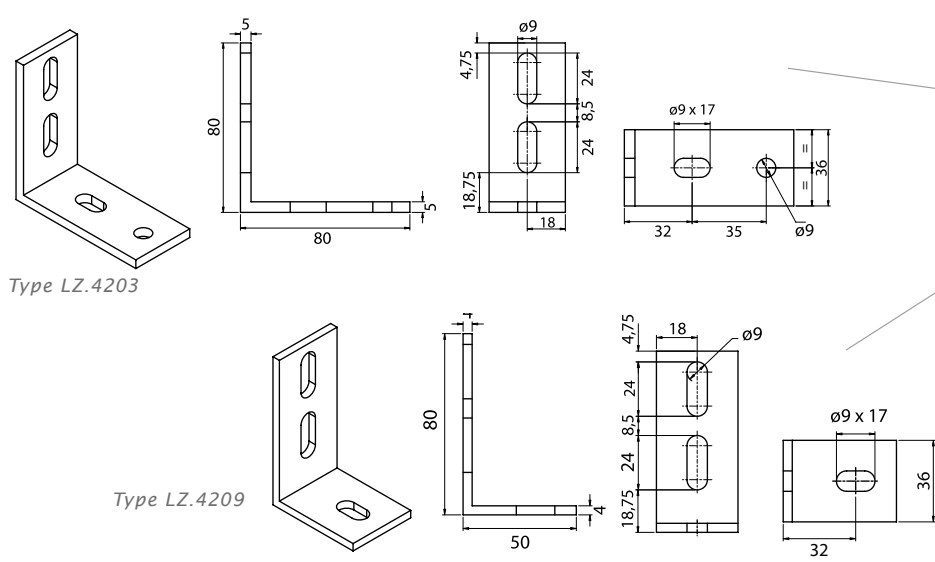
U-shape mounting bracket LZ.4210 for supporting structure Linius

U-shape mounting bracket SD.086.11 for supporting structure Sunclips



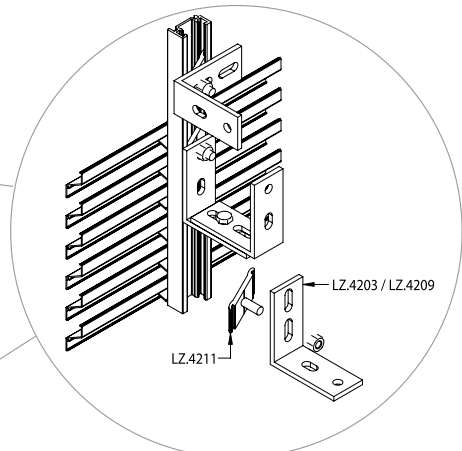
Includes bolt (M6 x16), nut & washer

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



Type LZ.4203

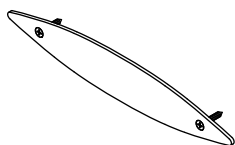
Type LZ.4209



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

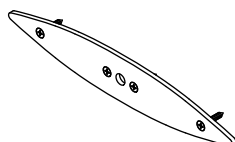
Icarus® end caps < Technical details

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.



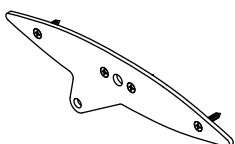
End cap fixed - type 1

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



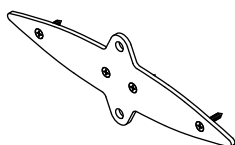
End cap movable without command - type 2

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



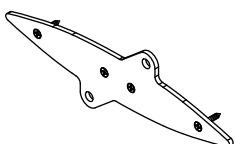
End cap movable with command - type 3

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



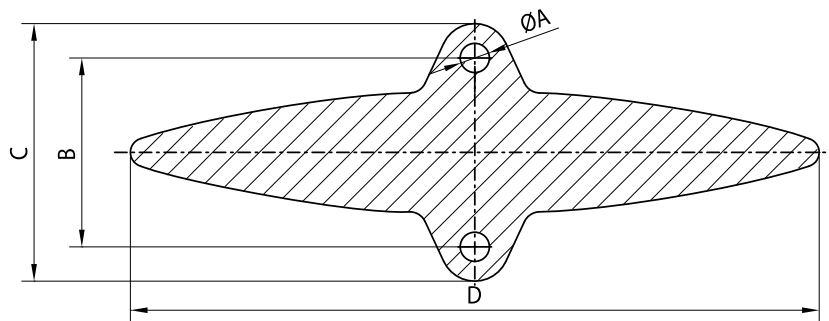
End cap fixed for 45° attachment - type 5

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

Summary table - end cap types

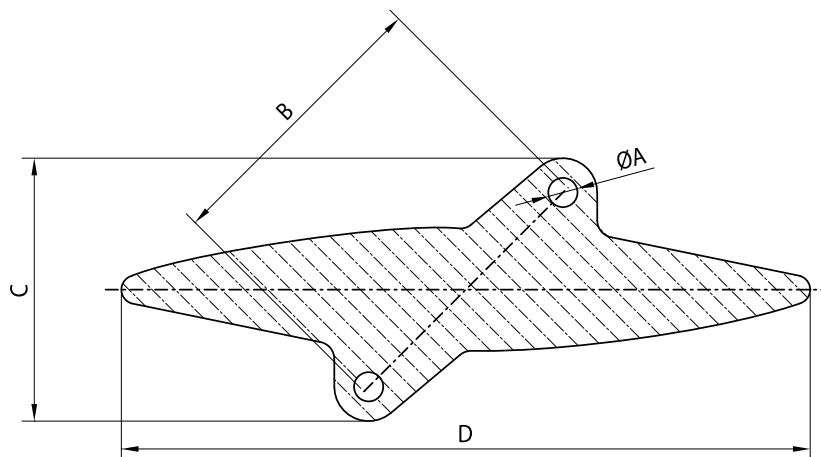
	End cap type				
	type 1	type 2	type 3	type 4	type 5
ICA.100	ICA.100.11	ICA.100.12	ICA.100.13	ICA.100.14	ICA.100.15
ICA.125	ICA.125.11	ICA.125.12	ICA.125.13	ICA.125.14	ICA.125.15
ICA.150	ICA.150.11	ICA.150.12	ICA.150.13	ICA.150.14	ICA.150.15
ICA.200	ICA.200.11	ICA.200.12	ICA.200.13	ICA.200.14	ICA.200.15
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.150	ICL.150.11	ICL.150.12	ICL.150.13	ICL.150.14	ICL.150.15
ICL.200	ICL.200.11	ICL.200.12	ICL.200.13	ICL.200.14	ICL.200.15
ICL.300	ICL.300.11	ICL.300.12	ICL.300.13	ICL.300.14	ICL.300.15
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:

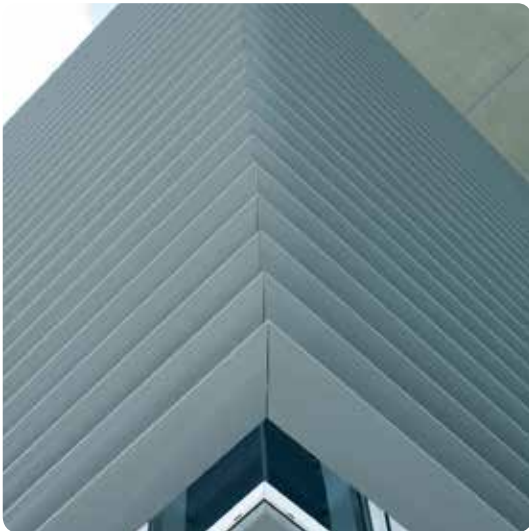


End cap type	Dimensions as per sketch (mm)			
	Size D	Size Ø A	Size B	Size C
ICA.100.14	100	6,5	45	57
ICA.125.14	125	8,5	45	65
ICA.150.14	150	8,5	50	70
ICA.200.14	200	8,5	55	75
ICA.250.14	250	8,5	65	85
ICA.300.14	300	8,5	70	90
ICA.360.14	360	10,5	85	110
ICA.400.14	400	10,5	85	110
ICA.480.14	480	10,5	120	150
ICL.150.14	150	8,5	50	70
ICL.200.14	200	8,5	60	80
ICL.300.14	300	8,5	70	90
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 Ø 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.150.15	150	8,5	75	73
ICL.200.15	200	8,5	85	80
ICL.300.15	300	8,5	100	94
ICP.150.15	150	8,5	75	73
ICP.200.35	200	8,5	75	73
ICP.200.15	200	8,5	90	84

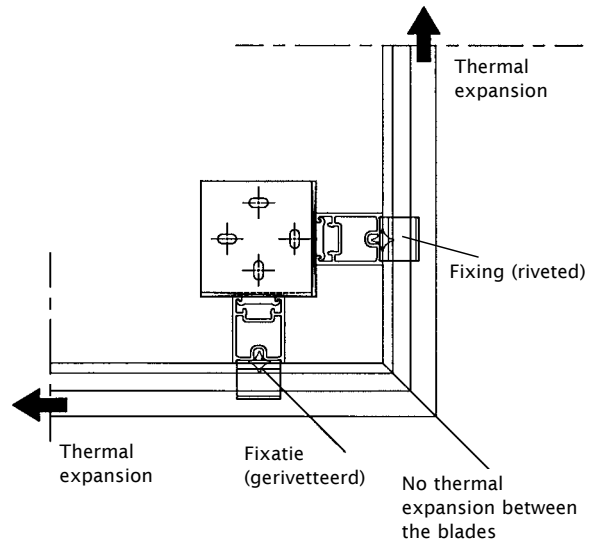


Mitred corners

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

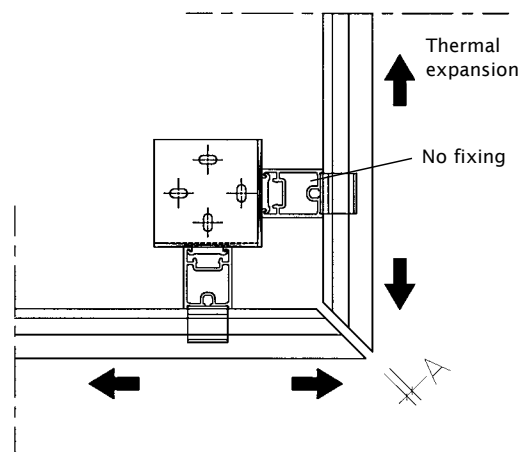
1.



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



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.



Creating healthy spaces

RENSON®: your partner in ventilation and sun protection

RENSON®, headquartered in Waregem (Belgium), is a trendsetter in Europe in natural ventilation and sun protection.

- **Creating healthy spaces**

From 1909, we've been developing energy efficient solutions assuring a healthy and comfortable indoor climate.

Our remarkable headquarters - built according to the 'Healthy Building Concept' - is a beautiful example portraying our corporate mission.

- **No speed limit on innovation**

A multidisciplinary team of more than 50 R&D employees continually optimize our products and develop new and innovative concepts.

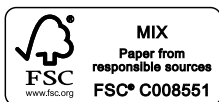
- **Strong in communication**

Contact with the customer is of the utmost importance. A group of 70 in-the-field employees worldwide and a powerful international distribution network are ready to advise you on site. EXIT 5 at Waregem gives you the possibility to experience our products on your own and provides necessary training for installers.

- **A reliable partner in business**

We can guarantee our customers optimal quality and service thanks to our environmentally friendly and modern production sites (with automated powder coating line, anodisation line, uPVC injection molding machinery and mold making shop) covering an area of 75.000 m².

Dealer



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RENSON® Fabrications LTD • Fairfax Unit 1-5 • Bircholt Road • Parkwood Industrial Estate • Maidstone • Kent ME15 9SF • Tel. 01622/754123 • Fax 01622/689478 • info@rensonuk.net • www.renson.eu

RENSON® Contact - Export Dept.: Tel. +32 56 62 71 04 • export@renson.net

RENSON® Ventilation • IZ 2 Vijverdam • Maalbeekstraat 10 • 8790 Waregem • Belgium • Tel. +32 (0)56 62 71 11 • Fax +32 (0)56 60 28 51 • info@renson.be • www.renson.eu

