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**csairfoil**<sup>®</sup>  
solar protection systems

■ solar protection systems

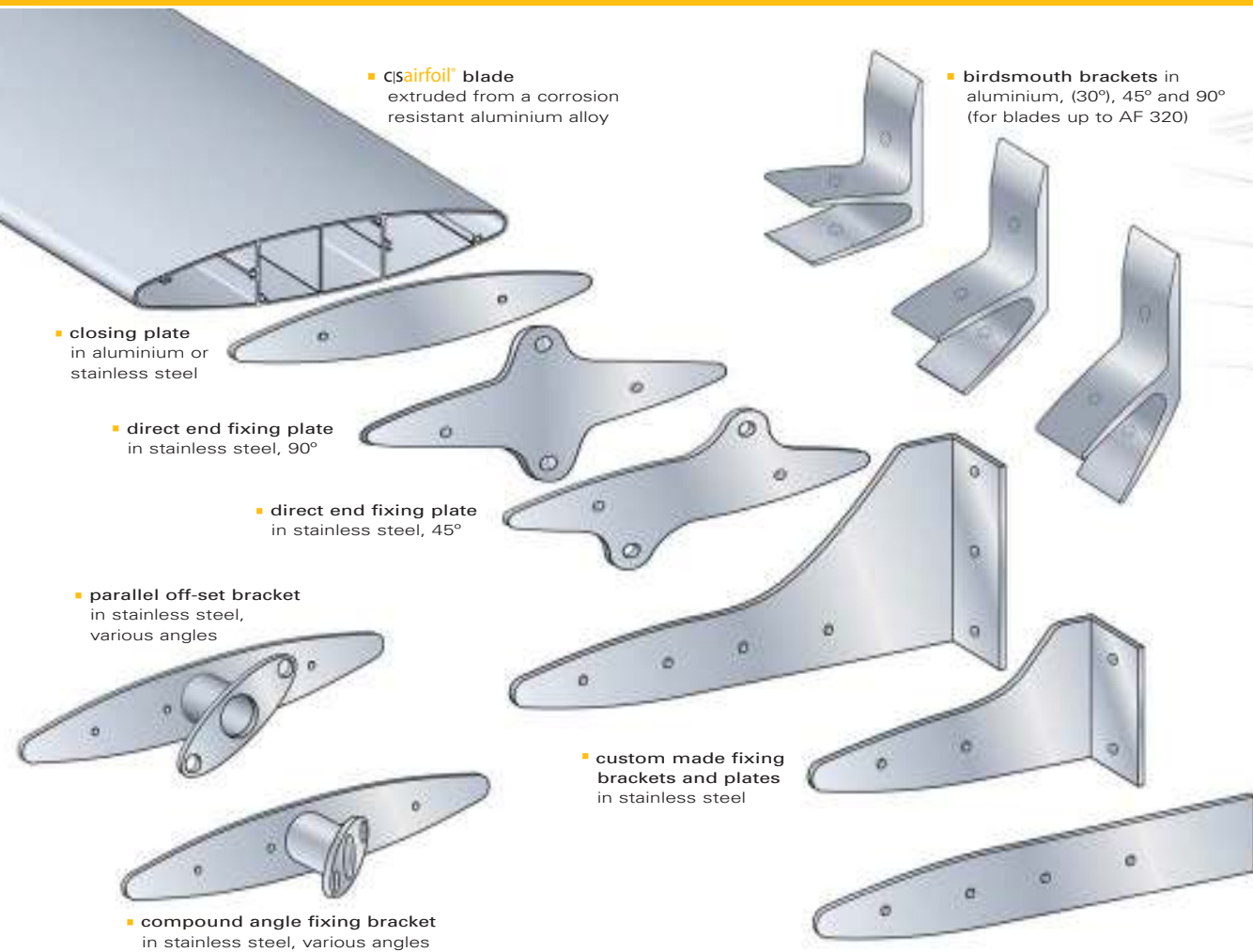
■ noise-absorbing blade systems

■ light-architecture at night

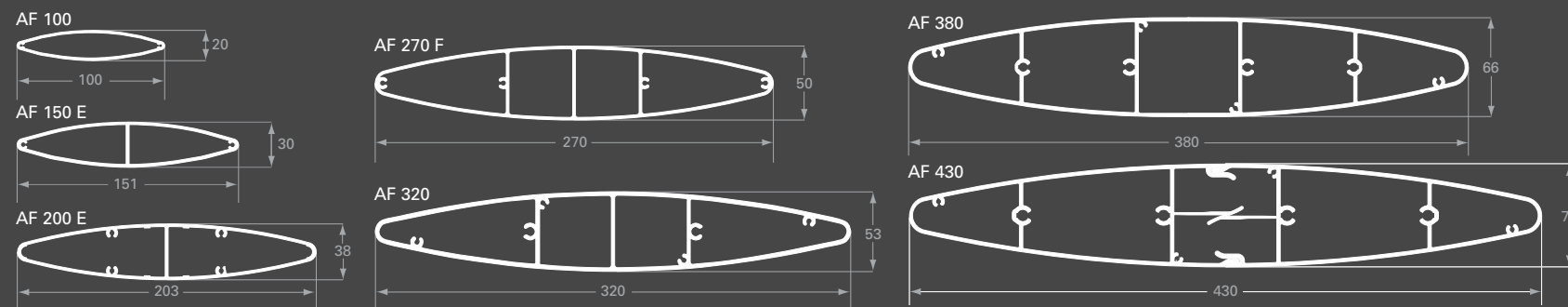


**CS** France

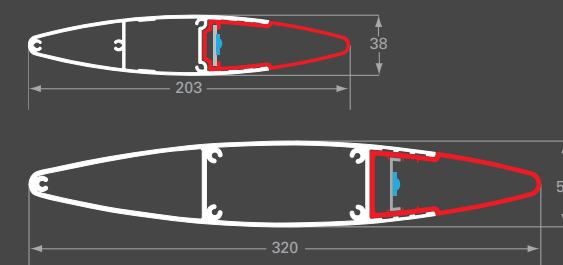




## c|sairfoil® solar protection and shading blades



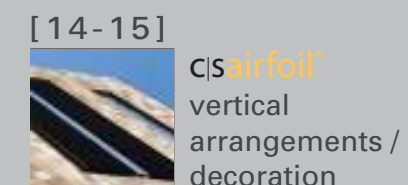
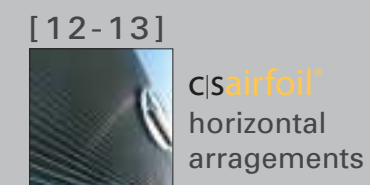
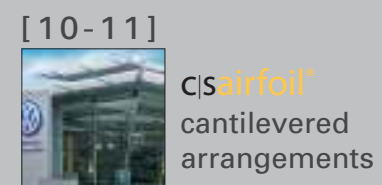
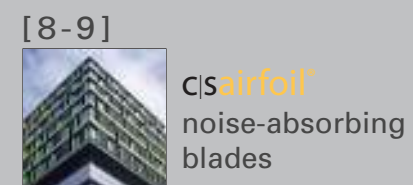
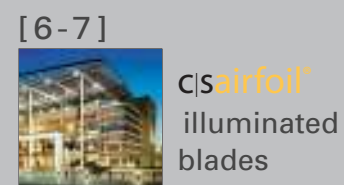
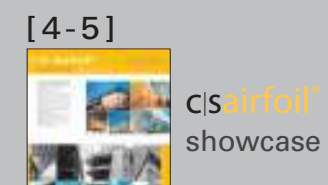
## c|sairfoil® illuminated blades



## c|sairfoil® noise-absorbing blades



## c|sairfoil® Index



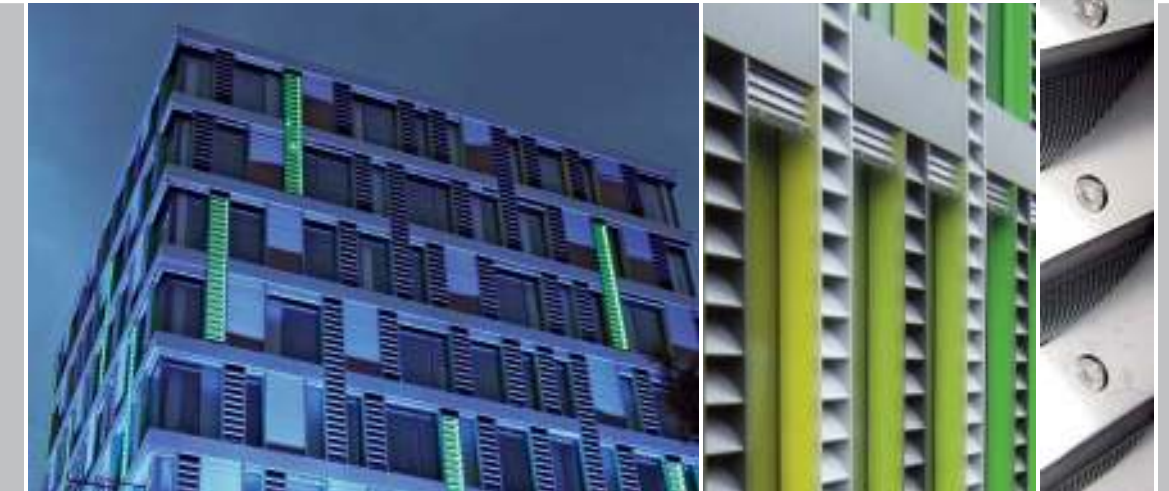


## Eye-catching architecture and efficient solar solar protection.

The **c|sairfoil®** solar shading system is simply the most effective method of reducing heat gain and glare in a building's interior while adding a distinguishing touch to its architectural design.

The sleek lines of **c|sairfoil®** blades enhance a building's appearance of quality and individuality especially when combined with building materials such as glass, metal or stone. In the planning of exterior illumination **c|sairfoil®** blades also prove to be a very attractive and identity-generating design element.

The unsurpassed range of system modules and solar protection, lighting, and noise-absorbing blades integrate seamlessly into even the most challenging and sophisticated façade projects, making **c|sairfoil®** the architect's prime choice.



Project Landratsamt Heilbronn: Colour LEDs integrated into the embrasures of windows illuminate at night horizontally arranged noise-absorbing CS Airfoil AF320 LB solar shading blades to make the illuminated building also at night a focal point of attention.

Administration buildings, **office buildings**, car show rooms, **museums**, shopping malls, **cinema theatres**, renovation of buildings, **schools**, banks, **military installations**, airports, **universities**, motorway service stations, **railway stations**, hospitals, **sport stadiums**, emergency stairways, **ministries**, elderly homes, **high schools**, exhibition and congress centres, **swimming pools**, bus terminals, **covered sport halls**, post offices, **hotels**, large glazed constructions, **motels**, petrol stations, **car parks**, etc.



# c|sairfoil LUX® illuminated blades



▲ **Concert hall.** Horizontally arranged c|sairfoil blades have been combined with c|sairfoil LUX® illuminated blades to enhance furthermore the building's impressive illumination at night

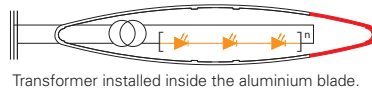


▲ **Power supply.** c|sairfoil LUX® illuminated blades are supplied with 12V low voltage. The transformers can be either stored within the cavities of the aluminium blade or be accommodated inside the building.

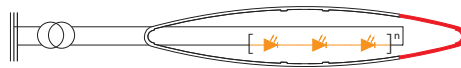
## • Straightforward installation

All blades are shipped from factory completely equipped with all electrical components. On site they merely need to be fixed and connected.

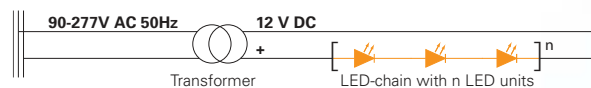
The transformers can be installed optionally either inside the blade (EE) or in the building (NEE).



Transformer installed inside the aluminium blade.



Transformer located inside the building.



## • Fixing brackets and plates

c|sairfoil illuminated blades are mounted with the same parallel off-set fixing brackets and direct end fixing plates as all other horizontal arrangements with conventional blades. This advantage allows for the design and construction of attractive and efficient combinations of illuminated blades and conventional sun control blades without any additional effort.



c|sairfoil®, the market leading solar protection and shading system expands its range of architectural solutions with an absolute world novelty: the illuminated blade c|sairfoil LUX®.

No matter where this extraordinary lighting system is installed, it enhances any architecture with its exclusivity and appealing elegance and turns the illuminated building into an eye-catching attraction.

Smart combinations of illuminated blades with conventional c|sairfoil solar protection blades and a refined choice of colours can achieve exciting facade designs and highly efficient solar protection with minimal installation efforts.

Patent registration number: 765334-0001



Chained LED units are fixed on an aluminium support rail.

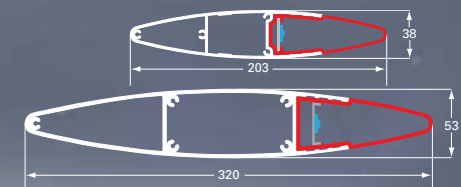
## • LED Tridonic

Chained up LED units with three LEDs each are mounted on an aluminium support rail which is then inserted into PMMA nose profile of the blade. LEDs are available in five standard colours (white, red, blue, green and yellow). Power consumption: 9,6 W for 20 LED units (2,7 m) (30 units = 4 m)



LED unit with 3 LEDs, 12 V DC, 10x 100mm.

• **Blade profiles:** c|sairfoil LUX® illuminated blades are manufactured from extruded aluminium profiles in widths of 200 mm and 320 mm and can be shipped powder-coated in all available RAL-colours.



• **PMMA light profile** is available in five standard colours (white, red, blue, green, yellow) or upon request in all Pantone® colours.

## • LED lighting

The PMMA profile is illuminated from within by a low voltage LED chain. LEDs are available in five standard colours (white, red, blue, green, yellow).



# c|sairfoil® noise-reducing sun control blade

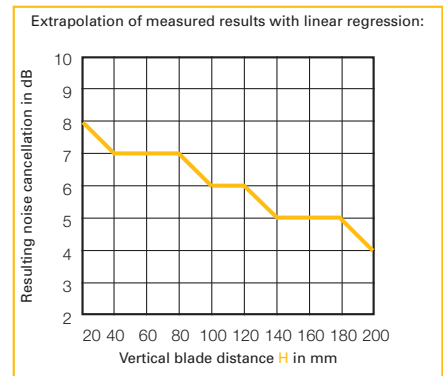
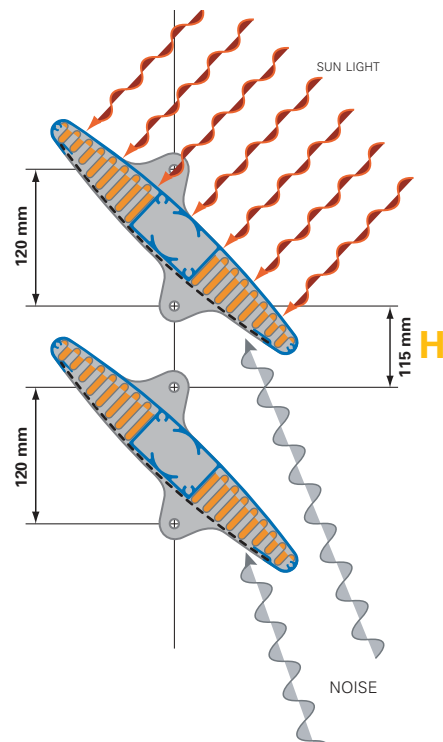


▲ **Office building.** The horizontally mounted c|sairfoil® noise-absorbing blades AF320 LB offer efficient solar protection and reduce external noise contamination getting into the inside of the building.

## Effective sun control and efficient sound insulation

The AF 320 LB blade offers an all-in-one protection against heat, sun, glare and noise contamination getting into the inside of a building. Without obstructing the outside view the AF 320 LB is capable of reducing noise by 5 to 8 dB.

The noise reducing effectiveness depends on the blade distance H (see table below).



Thanks to its **noise absorbing structure and filling** the blade AF 320 LB reduces dramatically the penetration of noise contamination from busy city centres into the interior of any building.

Additionally, the AF 320 LB minimises efficiently the heating up of interiors through direct sunlight. The need for air conditioning is therefore greatly reduced, improving the interior climate and saving energy at the same time. Thanks to reducing heat and glare, valuable office space near windows can be used more efficiently, without the need for covering up window space with other conventional solutions and making compromises on an unobstructed view to the outside.

The AF 320 LB in an horizontal arrangement constitutes also an excellent protection against intrusion and vandalism, especially for low level storeys.

## Colour combinations

The blade's surface can be either RAL powder coated or silver anodised. The colours of the perforated aluminium sheet can be chosen independently from the profile's colour, allowing for a virtually unlimited range of colour combinations and providing the architect with an additional design feature.



The noise absorbing AF 320 LB is constructed from a 3 mm thick, extruded, high quality aluminium profile and a perforated aluminium sheet.



The blade is filled in its inside with a noise absorbing padding of category A2. The padding is additionally covered with a black fibre glass tissue.

## Fixing brackets and plates

The noise absorbing AF 320 LB blade is mounted with the same parallel off-set fixing brackets and direct end fixing plates as all other horizontal arrangements with conventional blades. This advantage allows for the design and construction of attractive and efficient combinations of AF 320 LB blades and conventional sun control blades without any additional effort.





# c|sairfoil® cantilevered sun shades

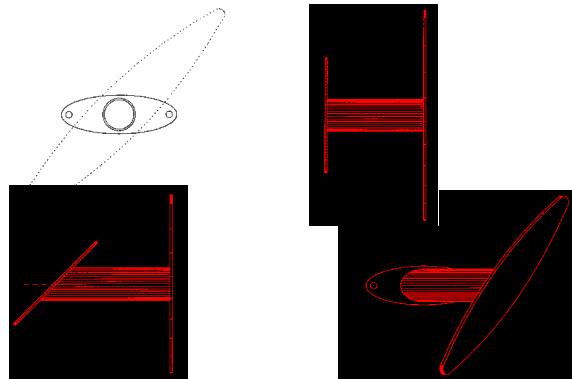


▲ VW show room. c|sairfoil® blades in a cantilevered solar protection system in front of the glass facade of a VW car show room.

## Minimum wind noise

The edges of c|sairfoil® blades have been tested in wind tunnels and aerodynamically optimised to keep wind noise and associated siren effects to a minimum even under the most adverse wind conditions.

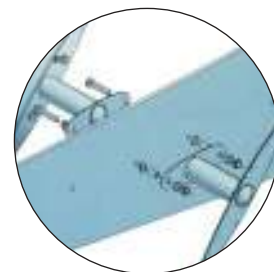
## Parallel off-set fixing brackets and compound angle fixing brackets



Standard stainless steel fixing brackets with 45° blade inclination are available for straight runs and with 45° corner angles. Other inclinations and/or corner angles upon request.

## Expansion system

CS FRANCE expansion system compensates for the expansion or contraction the blades may suffer due to temperature changes. The shear and tear of their fixtures and support structure is therefore avoided, contributing to a maintenance free lifetime cycle.



Cantilevered support

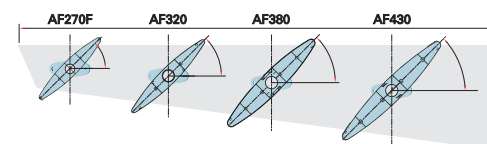
Metal sleeves allow for movement of fixing bracket.

Mobile fixing bracket compensates for blade expansion or contraction.

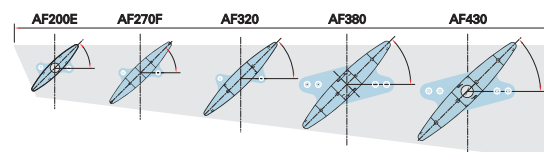
Parallel off-set fixing bracket firmly fixed to the cantilevered support structure

## Examples of cantilevered projections

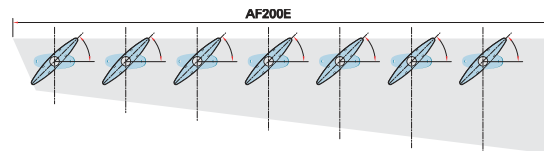
Depending on building or architectural design specifications, cantilevered systems can be designed with uniform or different sized blade arrangements to cater for virtually all building peculiarities and special sun protection needs.



Parallel off-set fixing brackets with 45° inclination hold an arrangement of four differently sized blades.

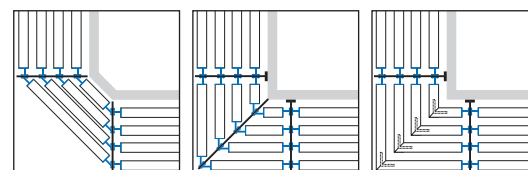


Direct end fixing plates with 45° inclination hold an arrangement of five differently sized blades.

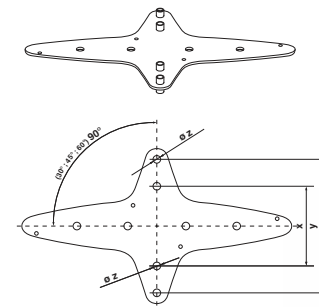


Parallel off-set fixing brackets with 45° inclination hold a uniform arrangement of seven blades.

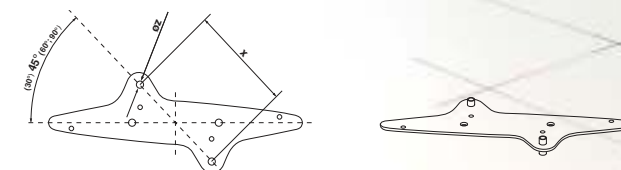
## Corner solutions



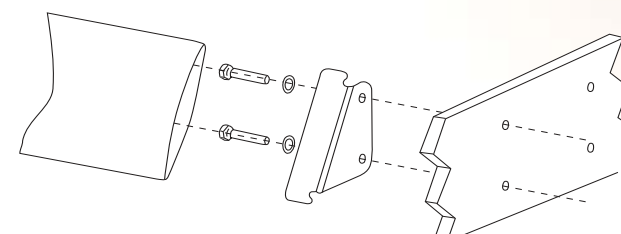
## Direct end fixing plates in stainless steel



Direct end fixing plate 90° made of stainless steel for 90° blade inclination.



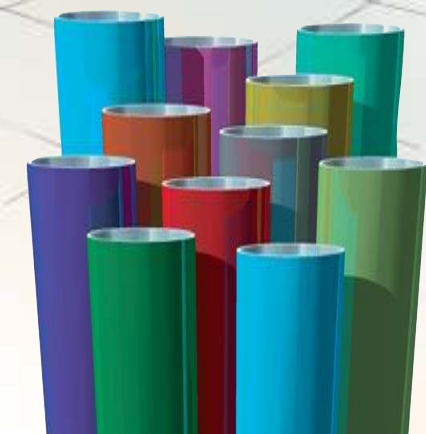
Direct end fixing plate 45° made of stainless steel for 45° blade inclination.



Insertion fixing plate (only AF 100) made of stainless steel is simply inserted into the blade and fixed with screws onto the structural support. Available in any desired angle.

## Finishing options

c|sairfoil® blades are RAL powder coated or silver anodised. The blades must be systematically surface protected through anodisation or powder coating to prevent from corrosion.





# c|sairfoil® horizontal solar protection systems



▲ **Cinema.** Horizontally mounted c|sairfoil® blades AF270-F cover the facade of the building.

**Designing with solar protection.** Also in horizontal arrangements c|sairfoil® blades are the prime choice for its unsurpassed combination of functionality, appearance and quality.

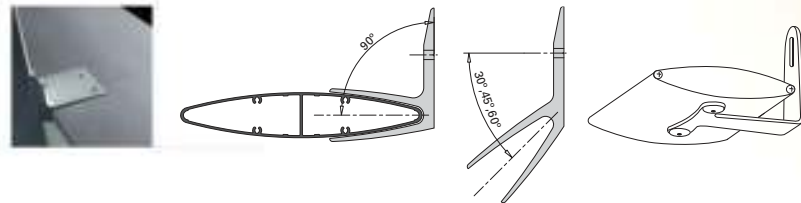
The sleek and elegant horizontal lines of c|sairfoil® blades integrate harmoniously into the architecture of any building and put a stamp of individuality on the visual appearance of its facade.

The horizontal arrangement also minimises efficiently the heating up of interiors through direct sunlight, reducing greatly the need for air conditioning while improving the interior climate.

Horizontal c|sairfoil® blades are also an excellent protection against intrusion and vandalism, especially for low level storeys and reduce noise contamination of busy city centres penetrating into interiors.

## ■ Birdsmouth Brackets

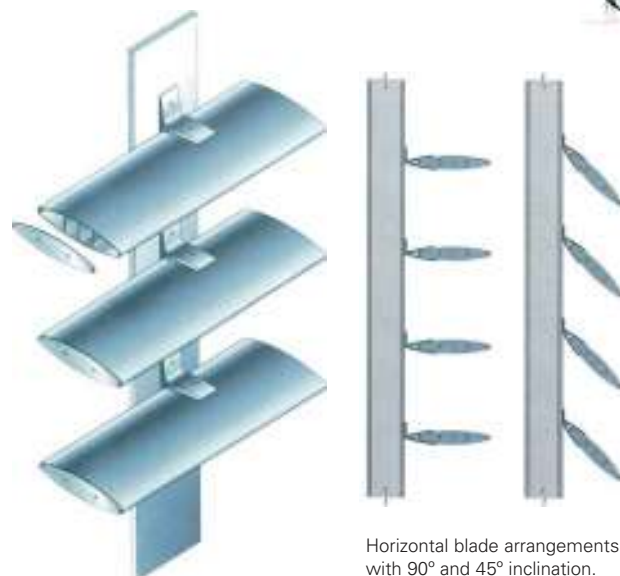
The brackets are screwed directly onto the facade of the building or onto the support structure and fixed with rivets onto the blades. Standard angles are available in 30° (only AF150 E), 45° and 90°.



■ **Closing plate** in stainless steel or Aluminium is screwed onto the end of the profile.

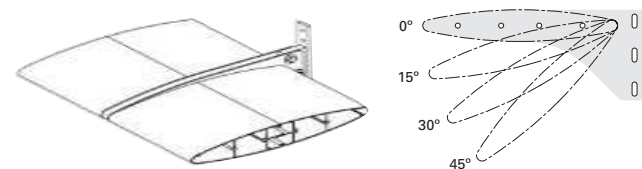
## ■ Mounting of horizontal arrangements

Birdsmouth brackets with the desired angle are screwed directly onto the facade of the building or onto a support structure. Blade are then simply fixed with rivets.



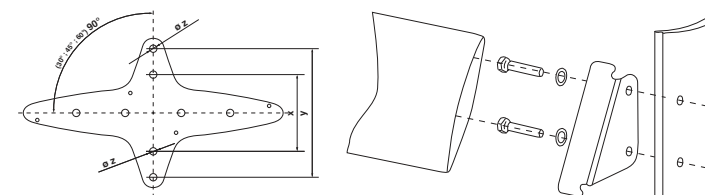
Horizontal blade arrangements with 90° and 45° inclination.

## ■ Custom made fixing brackets

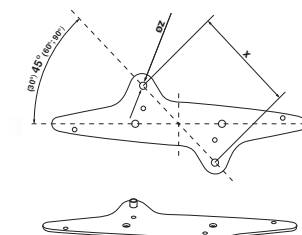


Console fixing brackets are available for 0°, 15°, 30° and 45° blade inclinations. Customised angles available upon request.

## ■ Direct end fixing plates in stainless steel

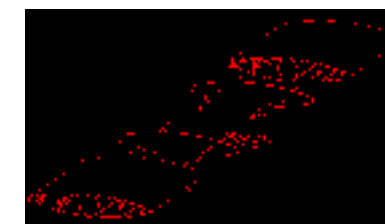


**Direct end fixing plate 90°** in stainless steel for 90° blade inclination.



**Direct end fixing plate 45°** in stainless steel for 45° blade inclination.

**Insertion fixing plate** (only AF 100) made of stainless steel is simply inserted into the blade and fixed with screws onto the structural support. Available in any desired angle.



**Console fixing brackets** in stainless steel for adjustable inclination angles of blades.

## ■ Parallel off-set fixing brackets and compound angle fixing brackets

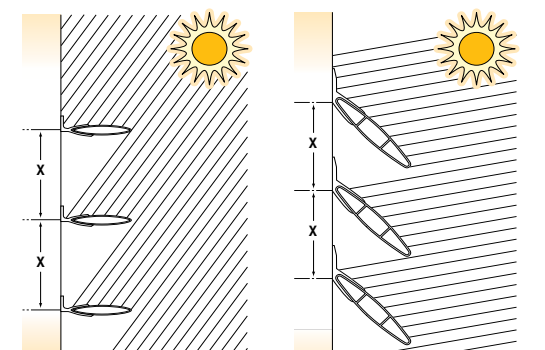


## ■ Corner joint solutions



## ■ Shadow projection of horizontal arrangements.

The distance X between blades varies depending on the type of blade, its inclination angle and the altitude. Please consult the maximum span admission table published on page 15 or contact our technical office to obtain additional product information and/or project related assistance.





# c|sairfoil® vertical solar protection systems and decorative elements



▲ Office building. Vertically mounted c|sairfoil® AF200 E blades cover the emergency staircase.



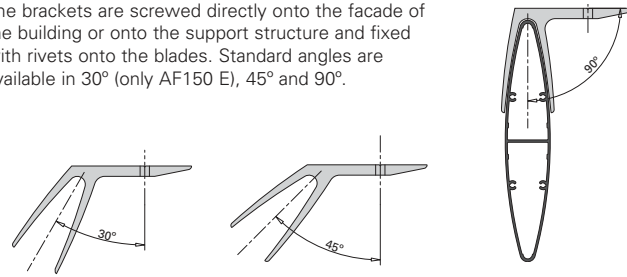
▲ Hotel bar. Vertically mounted c|sairfoil® AF 380 blades are used in this hotel bar as a decorative element for separating the bar from the table section.



**Decorating with functionality in mind.** If you are thinking in a superb sun control system for buildings with east or west orientation, simply using the sleek design of the blades to enhance a building's appearance, elegantly covering facades or unsightly building elements or using them to provide a solid barrier against intrusion and vandalism, there are simply no limits to what you can do with c|sairfoil® blades.

## ■ Birdsmouth Brackets

The brackets are screwed directly onto the facade of the building or onto the support structure and fixed with rivets onto the blades. Standard angles are available in 30° (only AF150 E), 45° and 90°.

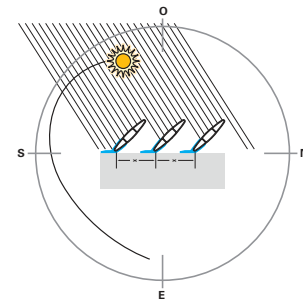


## ■ Closing plate

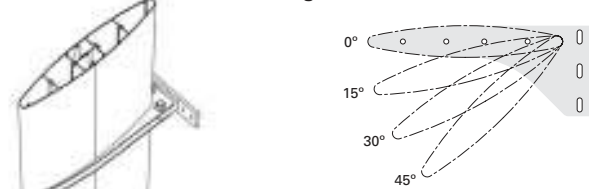
Closing plate in stainless steel or Aluminium is screwed onto the end of the blade profile.

## ■ Shadow projection of vertical systems

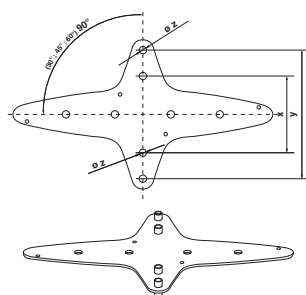
The distance X between blades varies depending on the type of blade, its inclination angle and the altitude. Please contact our technical office to obtain project related assistance.



## ■ Console fixing brackets



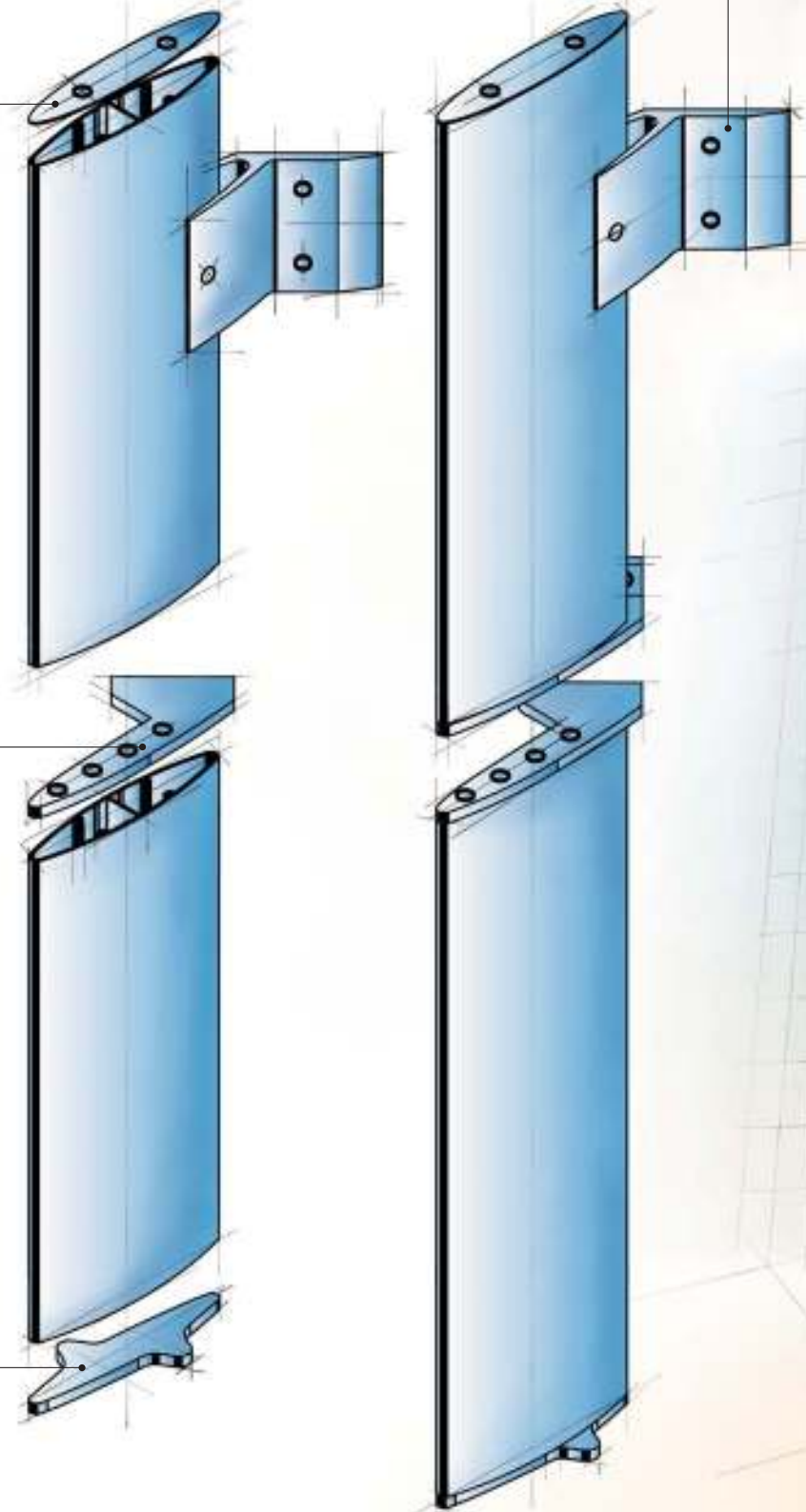
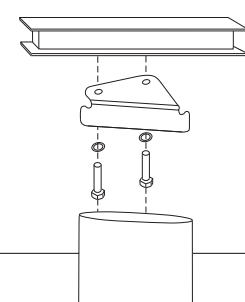
Console fixing brackets are available for 0°, 15°, 30° and 45° blade inclinations. Customised angles available upon request.



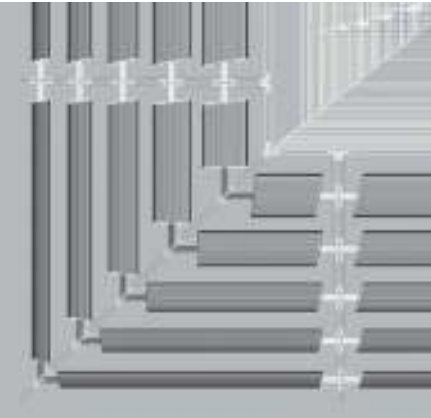
## ■ Direct end fixing plates in stainless steel

Direct end fixing plate 90° in stainless steel are screwed first onto the end of the blade and are then fixed on the support structure. Available in the most commonly used angles.

Insertion fixing plate (only AF 100) made of stainless steel is simply inserted into the blade and fixed with screws onto the structural support. Available in any desired angle.







Office building. 3D view of a cantilevered arrangement of 5 differently sized csairfoil blades using compound angle fixing brackets as corner solution.



Screw channels. This side view of a csairfoil AF380 blade shows clearly the screw channels which are incorporated in the extrusion of the blade. This has the advantage that the blade can be cut onsite to any custom size and be fixed immediately onto the chosen fixing plate or bracket, thus saving time and effort during the installation process.



Birdsmouth brackets. Horizontally mounted csairfoil AF270 blades are shown from behind the facade of a building. Birdsmouth brackets had been fixed onto vertical support segments at specified distances and csairfoil blades were simply slotted into the brackets and fixed with screws or rivets. Birdsmouth brackets allow for speedy onsite installations and have the additional advantage of being virtually invisible when seen from the front.

Blades

csairfoil blades are extruded in grade 6063-T6 aluminium alloy in seven standard widths. Blades can be extruded in lengths of 4.0 and 6.0 metres.

However, subject to minimum quantities, we are able to extrude any blade profile to one or more specific lengths to suit project requirements, thus minimising unnecessary waste.

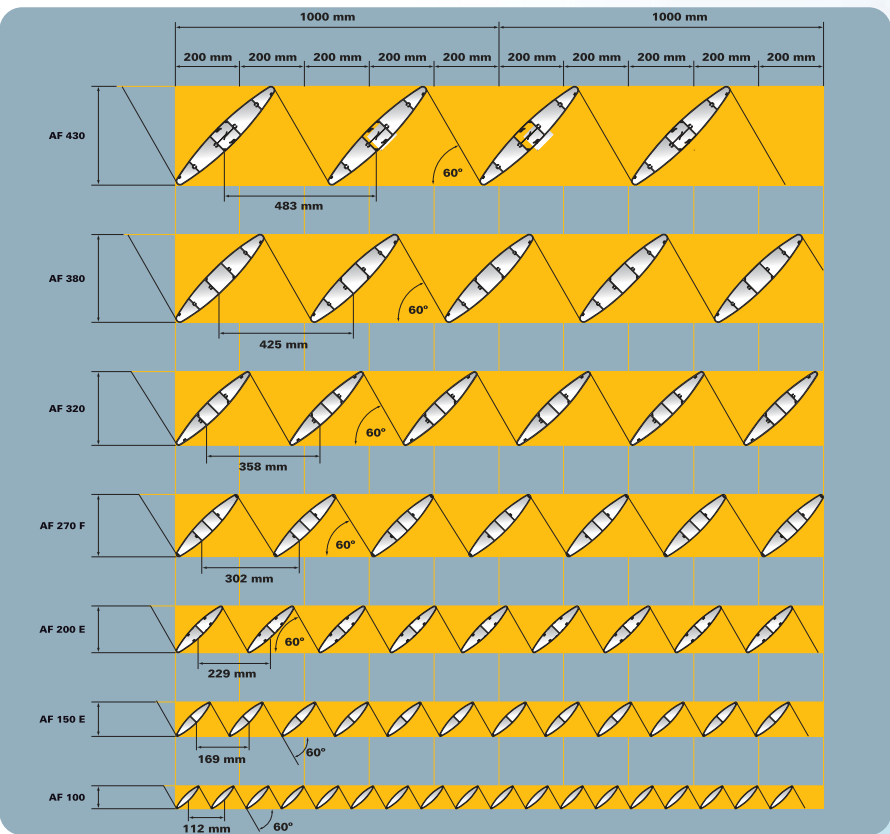
Mounting Options

There are various methods for fastening csairfoil blades to the supporting structure, although usually blades would be 'end fixed' between the depth of the supporting frames. An alternative fixing method is the use of birdsmouth brackets which have the additional advantage of being virtually invisible after installation.

Bracket and Blade size compatibility

	Material	Angle	AF-100	AF-150	AF-200	AF-270	AF-320	AF-380	AF-430
Birdsmouth bracket	Aluminium	30°	-	•	-	-	-	-	-
	Aluminium	45°	-	•	•	•	•	-	-
	Aluminium	60°	-	-	-	-	•	-	-
	Aluminium	90°	-	•	•	•	•	-	-
Closing Plate for use with birdsmouth bracket	Aluminium		-	•	•	•	•	-	-
Stainless Steel									
Direct ends fixing plate	Stainless Steel	various	•	•	•	•	•	•	•
Parallel Off-set fixing bracket	Stainless Steel	various	-	•	•	•	•	•	•
Compound angle fixing bracket	Stainless Steel	various	-	•	•	•	•	•	•
Custom made fixing bracket	Aluminium	various	•	•	•	•	•	•	•
Stainless Steel									

Blade inclination of 45° and shadow projection of 60°



End Fixings

All csairfoil blades incorporate screw channels within the extrusion, allowing self-tapping screws/ or bolts to be passed through supporting end plates and into the end of the blades.

This method of fixing is strong enough to support the blade even at its maximum span.

Birdsmouth Brackets

Extruded aluminium brackets for AF-150, AF-200, AF-270 and AF-320 blade profiles are available in 45° and 90° angle options and can be cut to custom width to adapt to the metallic structure.

Blade Span Capacity

Blade span with inclination angles of 45° and 90°				
Blade	Snow load	Height		
		0 - 8 m	8 - 20 m	20 - 100 m
AF 100	I	2340	2145	2000
	II	2170	2020	1905
AF 150 E	I	3105	2850	2660
	II	2885	2650	2525
AF 200 E	I	3980	3660	3420
	II	3705	3455	3265
AF 270 F	I	4405	4055	3795
	II	4105	3830	3620
AF 320	I	4835	4465	4185
	II	4515	4225	3995
AF 380	I	5915	5475	5140
	II	5540	5150	4920
AF 430	I	6070	5620	5280
	II	5685	5330	5050



Custom blade supports. The custom blade supports shown have been specifically designed for cantilevered projections of Audi showrooms. csairfoil AF270 blades are fixed onto vertical custom-made supports, attached to horizontal support segments. The lightweight but extremely robust structure of csairfoil blades allow for the design of any imaginable support, fixture, suspension or attachment, proving to be an extremely versatile, architectural design element and sun control system at the same time.



Parallel offset fixing bracket. Shown is a detailed view of an 90° parallel off-set fixing bracket attaching a csairfoil AF 270F blade onto a vertical support segment. The brackets are screwed directly onto the end of the blade thanks to the special screw channels incorporated into the extrusion. The bracket-blade unit is then fixed with bolts onto the support segment. The availability of parallel off-set fixing brackets and compound angle fixing brackets in a wide variety of angles cater for an unlimited range of design possibilities and adapt to virtually any project specifications.





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Sun controls