



*"Innovative building solutions  
for a sustainable environment"*



# Solar Shading

Designers and Specifier's Technical Manual

**Zefyr Group**

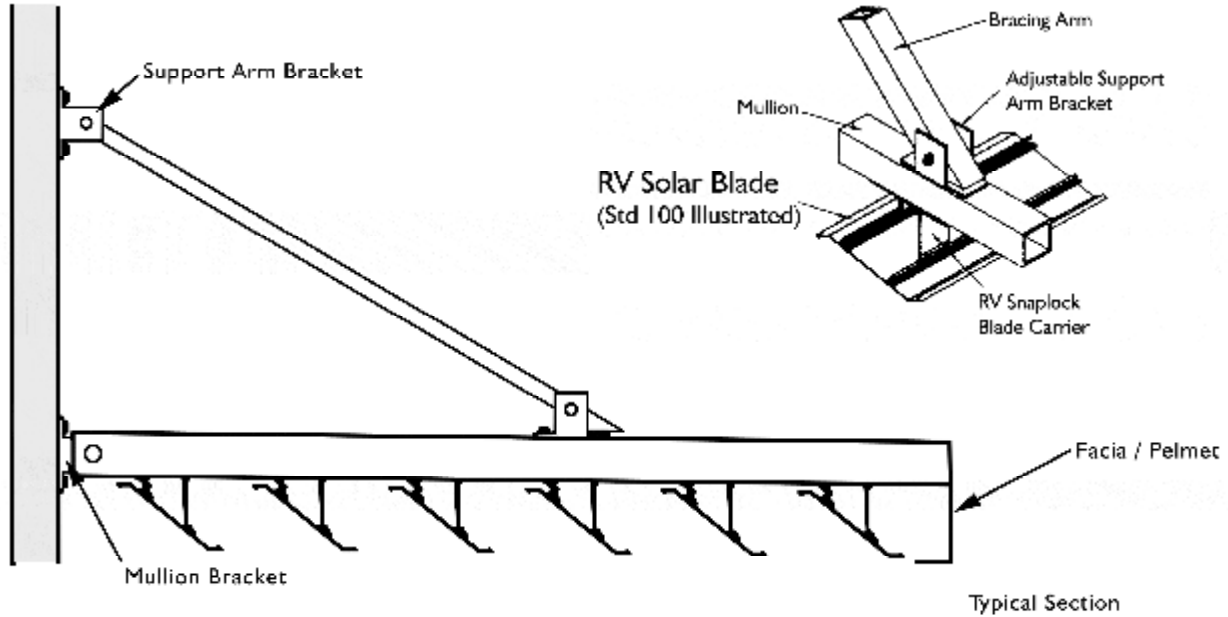
**Home Farm, Stockton Road, Abberley,**

**Worcestershire, United Kingdom,**

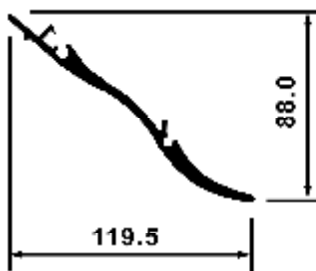
**WR6 6AS**

**Tel (+44) 0870 6001356 Fax (+44) 0870 6001357**  
**[mail@zefyrgroup.com](mailto:mail@zefyrgroup.com) [www.zefyrgroup.com](http://www.zefyrgroup.com)**

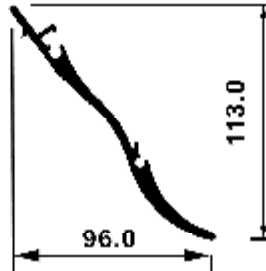
# Standard & Smoothflow Solar Shading



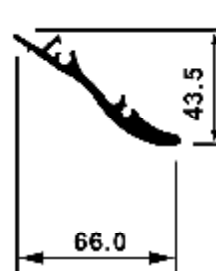
## Profile Options:



**Smoothflow 100**  
Max Span 1800mm



**Smoothflow 80**  
Max Span 1800mm



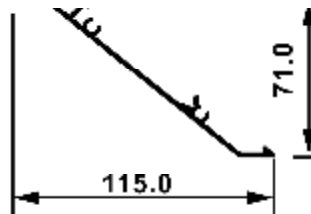
**Smoothflow 50**  
Max Span 1200mm

### Smoothflow Blades

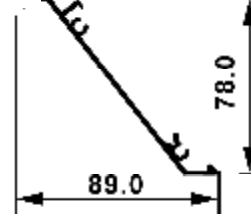
Supplied to site in lengths up to 6m long. Smooth curves offer a highly aesthetic feature to any installation.

### Standard Blades

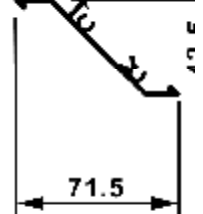
Supplied to site in lengths up to 6m long. Clean straight Z profile.



**Standard 100**  
Max Span 1800mm



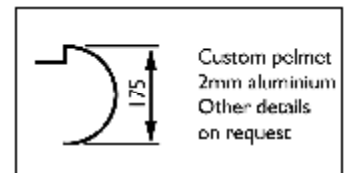
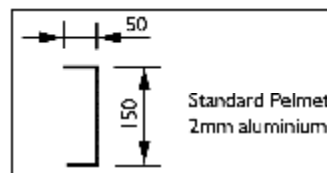
**Standard 80**  
Max Span 1800mm



**Standard 60**  
Max Span 1200

### Facia – Pelmet

An optional feature facia-pelmet fitted to the external edge of the louvred panel. A range of standard pelmets are available. Supplied complete with rivets for site fixing to mullions. Bespoke details available on request.

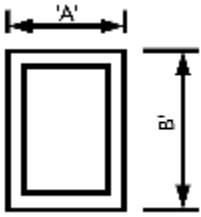


# Standard & Smoothflow Solar Shading



## Mullions

Extruded aluminium to BS1474-6063T6, minimum thickness 2.0 mm.

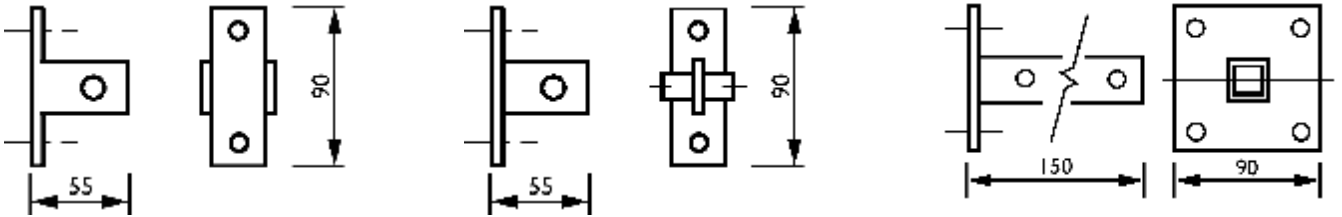


Type	A	B	Max Length
M1	40 mm	40 mm	1000 mm
M2	40 mm	60 mm	1500 mm
M3	40 mm	80 mm	2000 mm

## Mullion Supports / Bracketry

A comprehensive range of mounting brackets to fix back to building structure.

### Options:



**BK1-Wall Bracket** – 3 mm thick aluminium with stainless steel pin to connect to mullion and bracing arms as applicable. Structural fixings to suit application.

**BK2 – Curtain Walling Bracket** – 3mm thick aluminium with stainless steel pin to connect to mullion and bracing arms as applicable. Structural fixings to suit application.

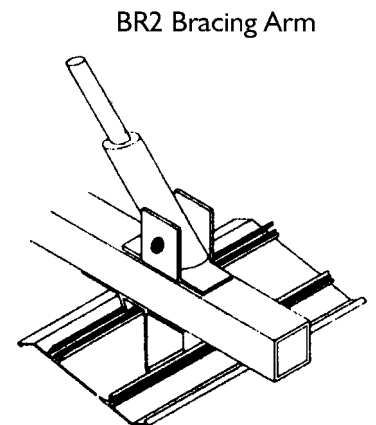
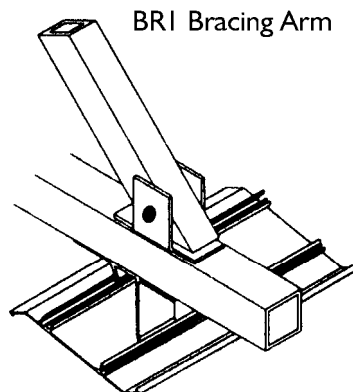
**BK3 – Cantilever Bracket** – 2mm thick galvanised steel with stainless steel pin to connect to mullion and bracing arms as applicable. Structural fixings to suit application.

## Bracing Arms

**BR1** – Extruded aluminium 25mm square extrusion to BS1474 – 6063T6.

**BR2** – M10 Coated galvanised aluminium thread or 10-12mm extruded aluminium bar.

Note – not required for cantilever system



## Finish

A comprehensive range of finishes including:

- Ø Anodising AA25
- Ø Polyester Powder Coating
- Ø PVF2 Finish

Comprehensive range of colours and finishes – refer to Zefyr approved manufacturers standard colour chart.

## Accessories

1. **Walkways** – Lightweight fixed or removable open grid aluminium walkways with safety grips.
2. **Hinged Panels** – Hinged or removable panels to allow access to areas above shades for maintenance, window cleaning etc.

## Technical Support

Zefyr provide a comprehensive service including:

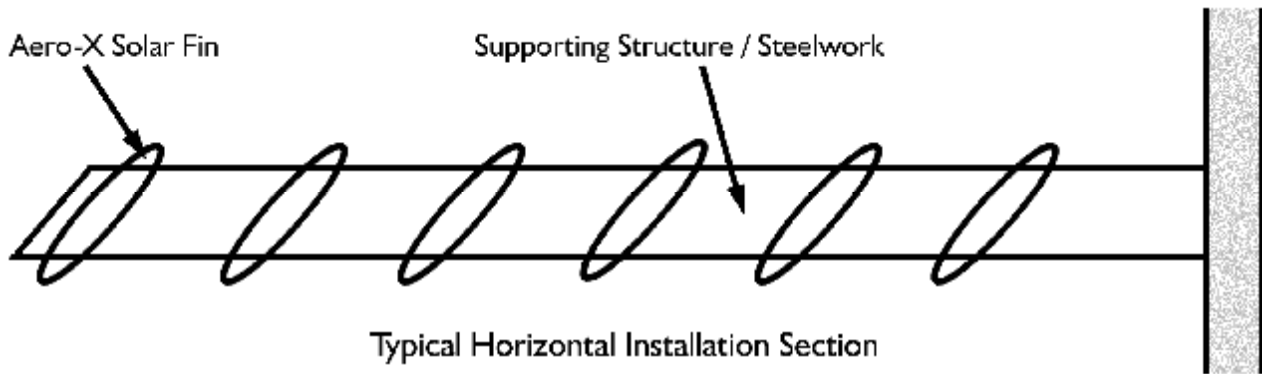
**Scheme Design** – provide designs optimised for technical, aesthetic and financial considerations.

**Manufacture** - all systems are manufactured by Zefyr approved manufacturers using state of the art systems and machinery.

**Installation** – a trained and skilled installation service throughout the world by Zefyr approved installers

Zefyr Group

# Aero-X Small Profile Aerofoil Solar Shading



## General

Zefyr offer a range of fixed or operable solar shading systems utilising aerofoil blades manufactured from extruded aluminium. Systems are supplied to site in sub-assembled format for fixing directly to the supporting structure. The supporting structure is normally part of the building structure.

## Blade Profile Options

Blades are manufactured to BS1471-6063T6 with a minimum thickness of 2mm. They have an externally smooth elliptical profile with internal features for the location of end plates.

## Load / Span Table – Horizontal / Vertical Blades

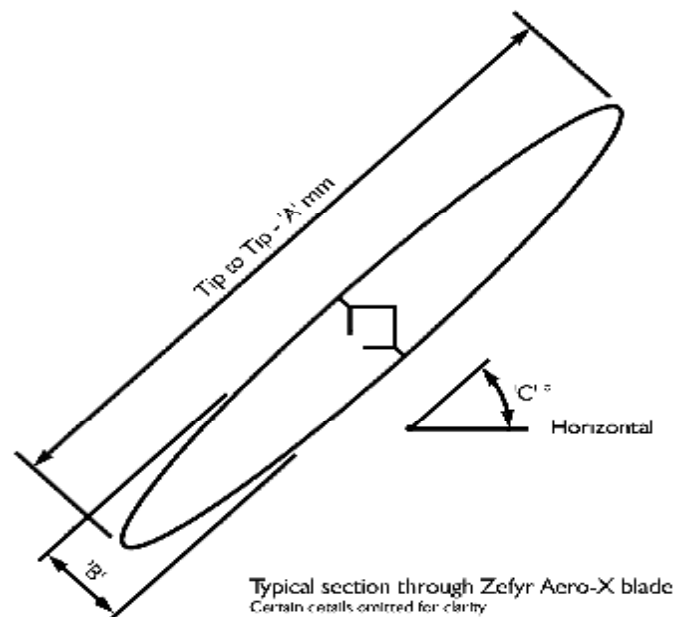
A mm	B mm	Horizontal Span mm	Vertical Span mm	Blade Wt Kg/m
100	24	2250	3000	2.0
150	30	3000	4000	2.4
165	30	3000	4500	2.5
200	40	4000	5000	4.5
300		5500		

Spans may be increased by adjusting angle / end plate.  
Refer to Zefyr for details.

## Finishes

Options available include:

- Ø Mill finish aluminium
- Ø Polyester powder coating Interpon D / Syntha Pulvin+
- Ø PVF2 – High performance coating system
- Ø Anodising – AA25 – Natural / Bronze / Black / Coloured



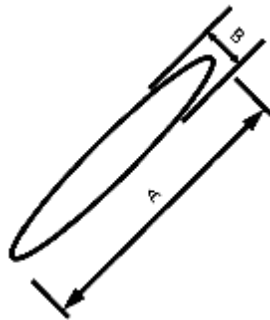
A comprehensive range of colours and specials are available to order.

# Aero-X Small Profile Aerofoil Solar Shading

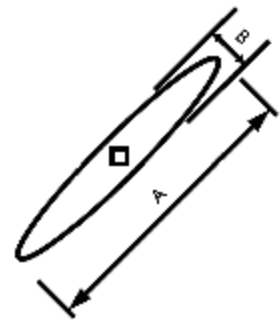


## Blade Supports / Bracketry

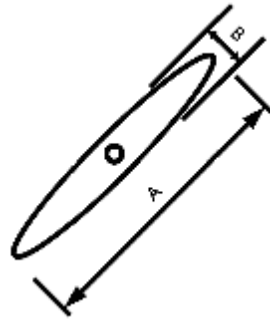
**Type 1 - Standard End Plate.** Profiled to the shape of the blade profile. 3mm thick aluminium fitted to the blade end using stainless steel fixings.



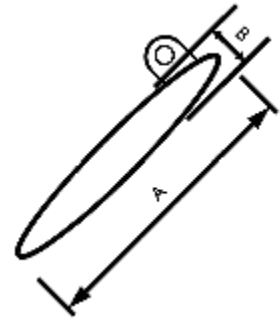
**Type 2 - Square Boss End Plate.** Profiled to the shape of the blade profile. 3mm thick aluminium fitted to the blade end using stainless steel fixings. A square section fixing boss projects from the middle of the plate.



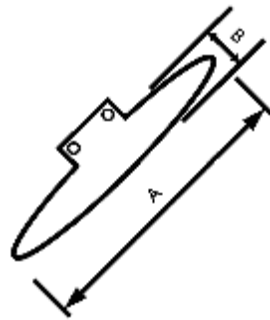
**Type 3 - Pivot Boss End Plate.** Profiled to the shape of the blade profile. 3mm thick aluminium fitted to the blade end using stainless steel fixings. A circular section fixing boss projects from the middle of the plate.



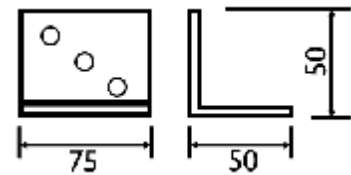
**Type 4 - Operating Link End Plate.** Profiled to the shape of the blade profile. 3mm thick aluminium fitted to the blade end using stainless steel fixings. There is a pre-punched plate extension to one end for linking to the operating mechanism.



**Type 5 - Tangential Fixing End Plate.** Profiled to the shape of the blade profile. 3mm thick aluminium fitted to the blade end using stainless steel fixings. A pre-punched plate extension to one side allows lateral fixing of the blades to the structure.



**Type 6 - Lateral Fixing Cleat.** Extruded aluminium angle cleat pre-punched to fit to the standard blade end plate on site. The cleat is fixed to the building structure using suitable fixings as required.



## Operable Aerofoil Systems

Operable solar shade systems are supplied with tailor made bracketry to suit individual installations. Driving mechanism options include 240 V ac or 24 V dc electrical actuators or mechanical winders. Control systems options include automatic electric control panels with solar tracking and thermal sensors with fully automated PLC control mechanisms as required.

## Accessories

**Walkways** - Lightweight, fixed or removable, open grid aluminium walkways with safety grips.

**Hinged Panels** - Hinged or removable panels to allow access to areas above shades for maintenance, window cleaning etc.

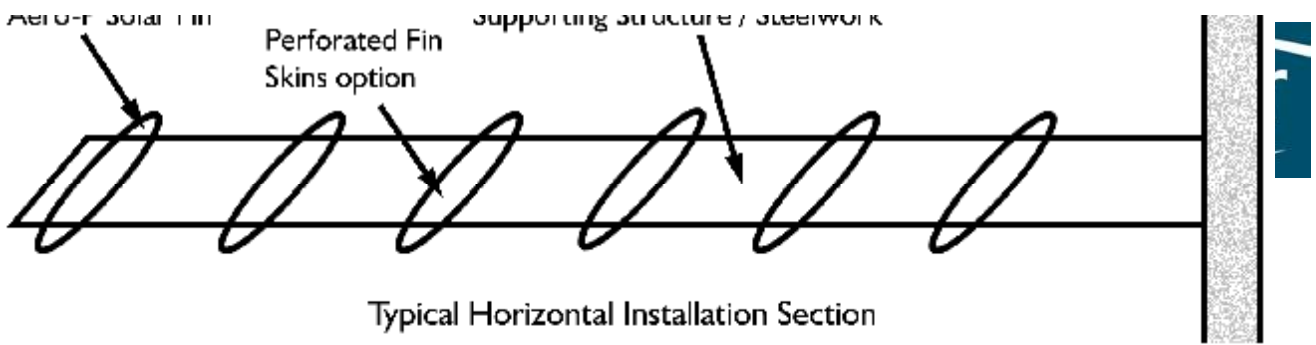
## Technical Support

Zefyr provide a comprehensive service including:

**Scheme Design** – provide designs optimised for technical, aesthetic and financial considerations.

**Manufacture** - all systems are manufactured by Zefyr approved manufacturers using state of the art systems and machinery.

**Installation** – a trained and skilled installation service throughout the world by Zefyr approved installers.



Typical Horizontal Installation Section

### General

Zefyr offer a range of fixed or operable solar shading systems utilising aerofoil blades manufactured from aluminium or steel. Systems are supplied to site in sub-assembled format for fixing directly to the supporting structure. The supporting structure is normally part of the building structure

### Blade Profile Options

The blades are manufactured from aluminium with a minimum thickness of 1.5mm and steel with a minimum thickness of 0.7mm. The '585' profile blade is fitted with an internal extruded aluminium former framework to ensure complete structural rigidity. The blade has an externally smooth elliptical profile, and has internal features for the location of end plates or operating plates. Blades over 3m long will be fitted with two sheet metal skins, neatly joined. The skins are precision formed and then mechanically riveted together and to the skeleton frame to form the blade.

### Blade Tip Options

300 and 450 – 'sharp' leading edges.  
585 – 20mm radius leading edges.

### Load / Span Table – Horizontal / Vertical Blades

A mm	B mm	Horizontal Span mm	Vertical Span mm	Blade Wt Kg/m
300	45	3000	3000	7
450	70	5000	6000	11
585	120	6000	6000	15

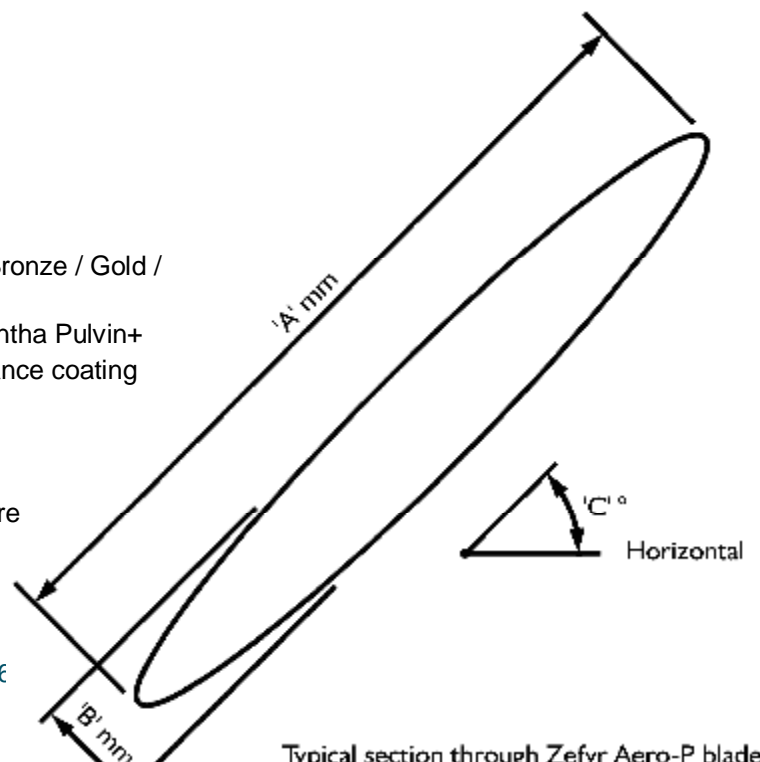
Spans may be increased by adjusting angle / end plate.  
Refer to Zefyr for details.

### Finishes

Options available include:

- Ø Anodised aluminium – AA25 – Natural / Bronze / Gold / Coloured
- Ø Polyester powder coating Interpon D / Syntha Pulvin+
- Ø Pre or post coated PVF2 – High performance coating
- Ø Platisol / HP200 pre-coated steel
- Ø Mill finish aluminium

A comprehensive range of colours and specials are available to order.



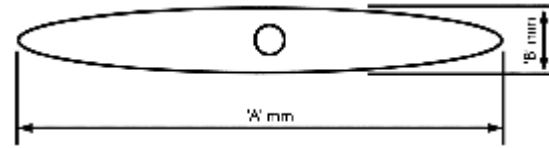
Typical section through Zefyr Aero-P blade

# Aero-P Large Profile Aerofoil Solar Shading

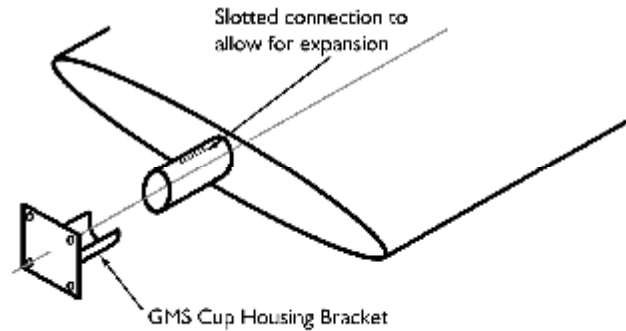


## Blade Supports / Bracketry

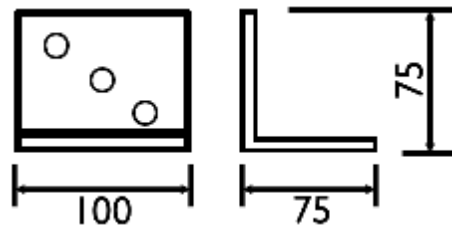
**Type 1** - Standard End Plate. Profiled from 8mm thick aluminium plate or made from precision formed cast aluminium.



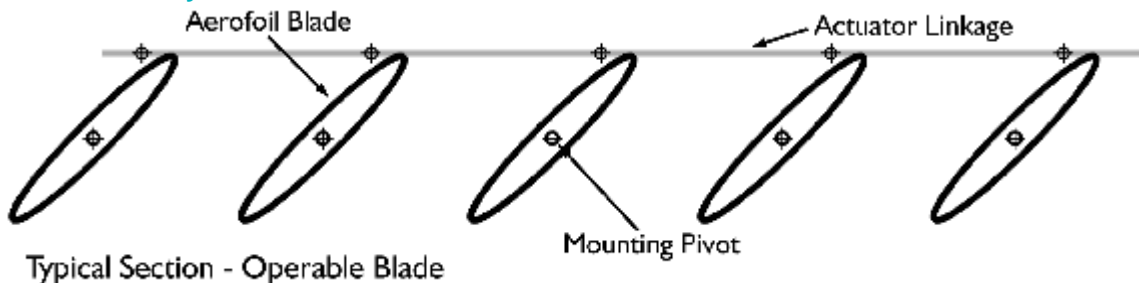
**Type 2** - Special Mount. Example: Cup Housing Bracket comprising a cylindrical boss welded to the cheek of the Standard End Plate and a 'cup' housing bracket which is bolted to the building structure.



**Type 3** - Lateral Fixing Cleat. Galvanised R. S. angle cleat pre-punched to fit to the standard blade end plate on site. The cleat is fixed to the building structure using suitable fixings as required.



## Operable Aerofoil Systems



Operable solar shade systems are supplied with tailor made bracketry to suit individual installations. Driving mechanism options include 240 V ac or 24 V dc electrical actuators or mechanical winders. Control systems options include automatic electric control panels with solar tracking and thermal sensors with fully automated PLC control mechanisms as required.

## Accessories

**Walkways** - Lightweight, fixed or removable, open grid aluminium walkways with safety grips.

**Hinged Panels** - Hinged or removable panels to allow access to areas above shades for maintenance, window cleaning etc.

## Technical Support

Zefyr provide a comprehensive service including:

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**Manufacture** - all systems are manufactured by Zefyr approved manufacturers using state of the art systems and machinery.

Zefyr Group

# Aero-P Large Profile Aerofoil Solar Shading



**Installation** – a trained and skilled installation service throughout the world by Zefyr approved installers.