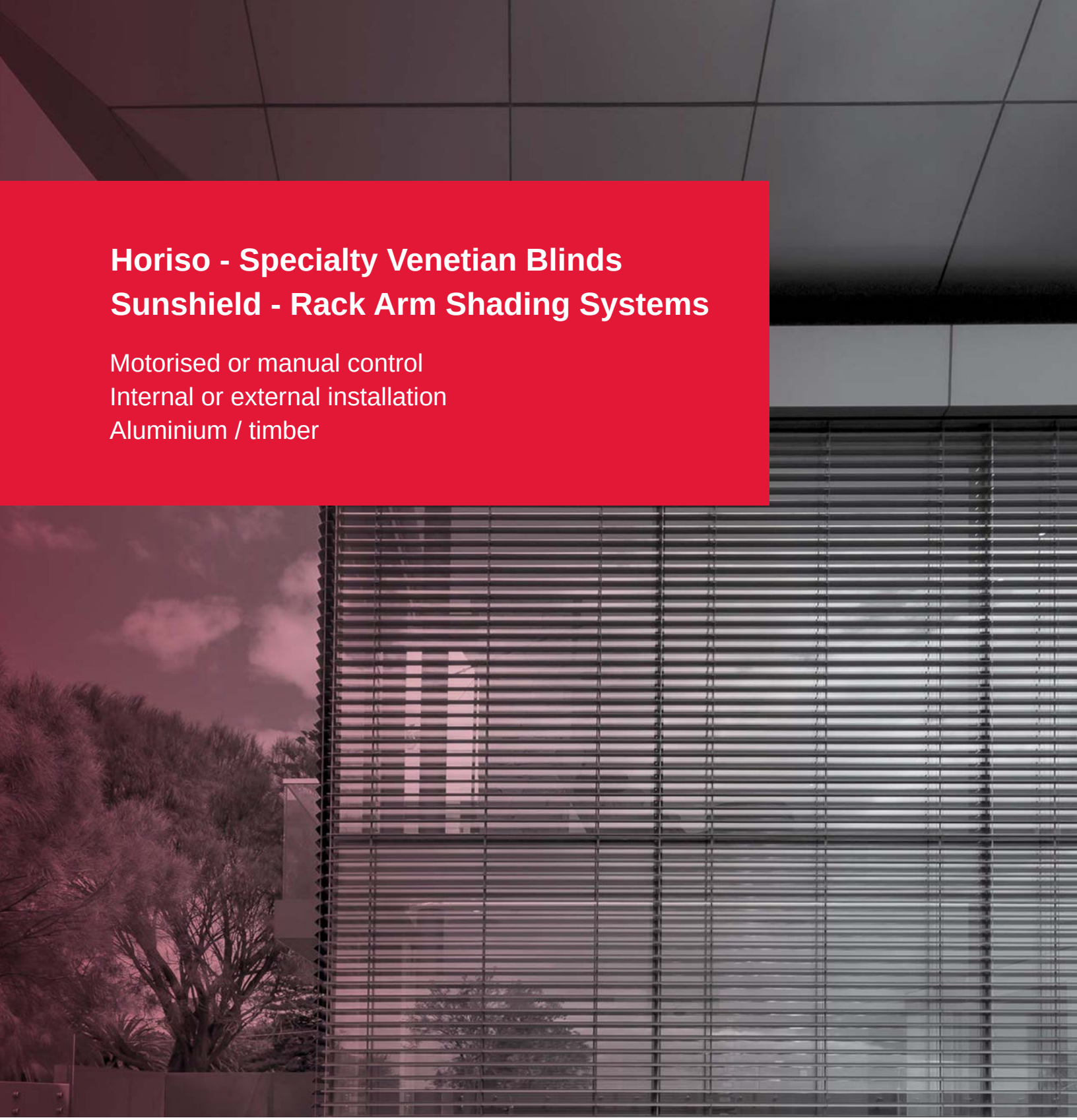
# Horiso - Specialty Venetian Blinds
# Sunshield - Rack Arm Shading Systems

Motorised or manual control
Internal or external installation
Aluminium / timber



horiso®



Private Residence, Melbourne / Cover Page: Private Residence, Victoria - Tim Roberts Design Sydney

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## HORISO



## SPECIALTY VENETIAN BLINDS



## RACK ARM SYSTEMS

# Horiso Innovation

Horiso is a leading manufacturer of solar control shading systems for architects, developers and builders. Our trusted shading systems have been installed across the globe, including Australia, New Zealand, USA, Canada, and throughout Asia.

We are committed to supplying innovative design and sustainable technology through our energy efficient product range. With proven expertise in the commercial, hospitality, government, and residential sectors, our products are versatile and adaptable to any context.

With each new project, Horiso provides complete building assessment, detailed planning and specialised system advice based on geographical position, sun angle and reflected glare from surrounding buildings.

**Our aim with each application is to provide a solution**

Horiso products are able to:

- Control solar heat gain
- Maximise use of daylight
- Reduce air conditioning loads and operating costs
- Improved Internal Environmental Quality (IEQ)

# We are committed to supplying innovative design and sustainable technology

Queensland University General Purpose Building GPN-4

No. 1 Bligh Street, Sydney

# Technically Advanced Design

Horiso shading systems are specially engineered to cater for differing architectural design requirements, including flexibility and efficiency, overall aesthetic, and harsh weather conditions such as wind, snow and extreme heat.

Specifically, our systems:

- Are suitable for external, internal and within double skin facade applications depending on the building's needs and design
- Can be independently controlled or integrated with other building management systems in order to maintain a building's highest performance level
- Offer customisation of system components which can be supplied in a range of colours, finishes, and in varying slat materials including aluminium and timber, enhancing both visual appeal and adaptability
- Provide standard and custom system dimension options allowing design flexibility and encouraging engineering and material advancements

Our rigorous quality control system ensures the ongoing high quality of our products. From processing of materials, to the supply, manufacture and testing of products, right through to installation, Horiso Specialty Venetian Blinds are of utmost reliability, quality and design.

Queensland University General Purpose Building GPN-4

# Automation Control

Control options for Horiso shading systems can be set to suit building or individual user requirements at various levels of sophistication and comfort. Control options can be installed either by hardwired or wireless control, depending on the most suitable option for each project. From basic switch or remote control, to time scheduled automation, through to integration with building management systems, multiple options with scalability are available.

Additional automation features can be included, such as: linked blind control, individual user programming, and weather sensor-based automation for temperature and wind conditions.

Intelligent automation with predictive sun tracking can be achieved using advanced building environmental modelling which assesses and implements programmed automation, based on a building's geographical location, its shadowing by surrounding buildings, and its solar path positioning.

Automation control options include:

- Switch/remote/WIFI tablet and device control
- Time scheduled automation response settings
- Temperature and wind control
- BMS and A/V integration
- Advanced building environmental modelling
- Sun tracking

## Standard Control

### Standard Switch and Remote control

Hardwired or wireless control for up and down plus tilting functionality.

## Standard Automation

### Time scheduled response settings

Responsive base control deploys, tilts and retracts at scheduled times. Flexible scheduling set daily, weekly, monthly or yearly.

### Sensors

Strategically placed sensors allow the system to react to weather conditions by automatically deploying retracting or tilting. Sensors monitor brightness/illuminance, wind, rain and temperature, set to programmed threshold values.

### Group Control

Linked blinds can be controlled in unison for zonal control.

## Common Automation Features

### WIFI operated tablet and device control

Hardwired or wireless control for up and down movement plus tilting functionality.

### Integrated Software

Flexible scheduling, Access Control – User and Group control, history and logging for analytics, system status and overrides, visual interaction with custom floorplans and dashboard views available.

### BMS and A/V Integration

Systems communicate directly with BMS/AV systems. Each device is treated as a separate node in the network and given its own unique address.

- Horiso automation systems are BACnet native devices so they integrate and communicate directly with BMS systems for improved reliability and resiliency

## Advanced Intelligent Automation

Advanced intelligent automation adds an additional level of sophistication to standard automation with predictive automated control. Louvre systems operate pro-actively with advanced building environmental modelling algorithms.

### Advanced Building Environmental Modeling

Detailed modelling on a building's geographical coordinates, solar path trajectory, overshadowing, reflected glare and sun-blocking from surrounding buildings is assessed for sun tracking control and placement of sensors.

- Strategically placed sensors allow the system to determine overcast, bright overcast, and clear sky conditions
- Detailed modelling for complex shadows in unique building layouts

### Sun Tracking

Automated proactive sun tracking tilts slats predictively at various angles throughout the day to control glare and solar heat gain. The sun tracking is programmed to the building's advanced environmental modelling solar path algorithms.

- Sun angle of incidence algorithm takes into account:

  Geographic location
  Fenestration orientations
  Daylight harvesting
  Control of solar heat gain

# Sustainable Commitment

Horiso is committed to providing solar control shading systems designed and engineered to help reduce the environmental impact of a building's energy consumption. By combining sustainable materials, innovative thinking and smart control systems, Horiso creates tangible business benefits to ensure all future residential and commercial building projects will be more energy efficient for a cleaner, more sustainable future.

## Energy Efficient Systems

Horiso solar shading systems:

- Reduce the need for artificial lighting and air-conditioning
- Improve the air quality of an interior environment
- Save money on heating and cooling systems
- Improve productivity and well-being through increased natural light
- Minimise energy consumption through automated operation

Horiso is continually improving the production process for each system, ensuring that energy consumption and wastage are kept to a minimum. We also ensure that our external suppliers have the highest environmental credentials and certifications.

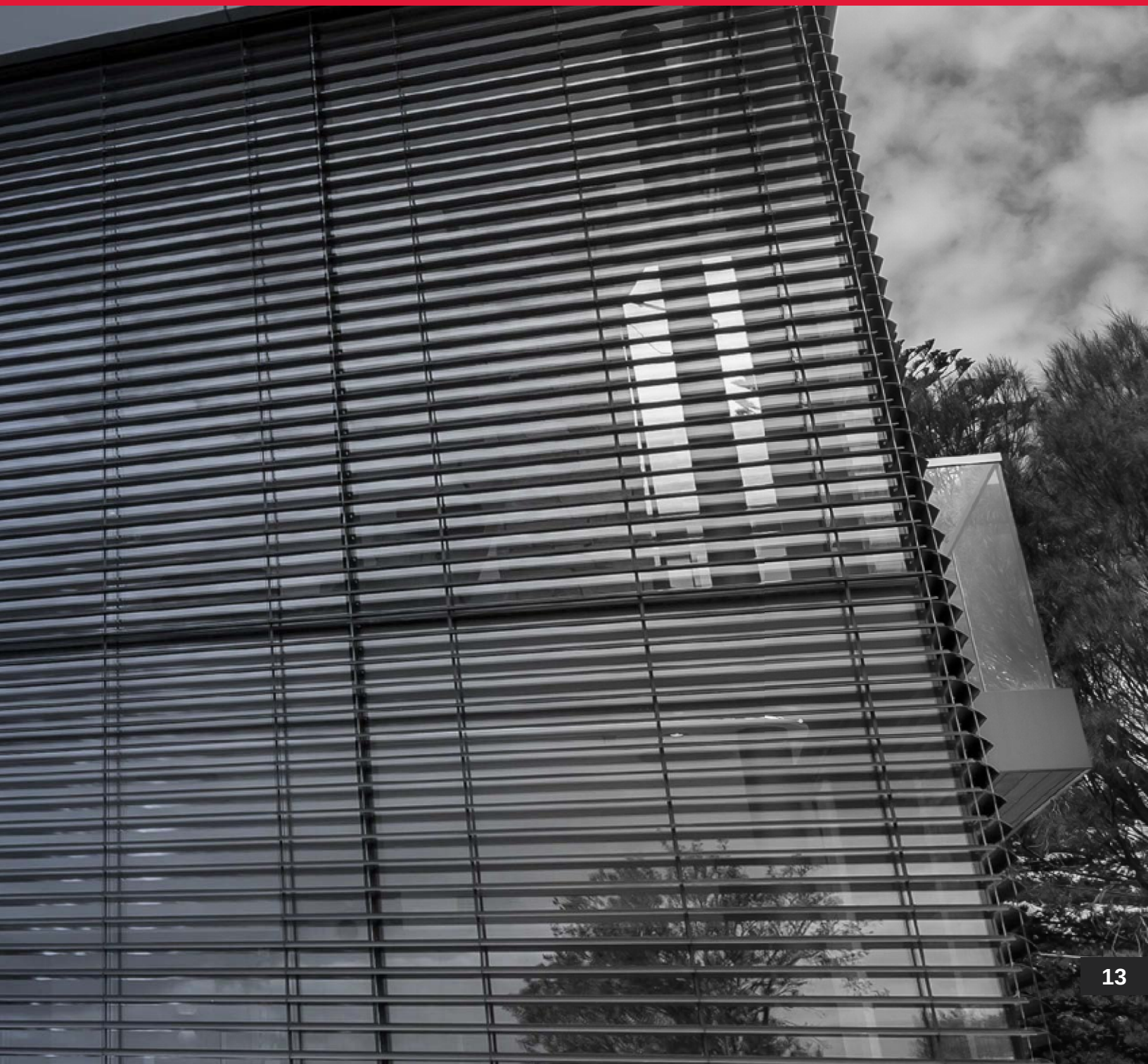
## Manufacturing Commitment

Horiso are committed to:

- Optimising raw material consumption
- Minimising and managing waste during production
- Improving component durability ensuring the longevity of our products
- Using recyclable aluminium
- Sourcing wooden slats from certified suppliers and sustainably managed forests

# Horiso - Specialty Venetian Blinds

Motorised or manual control
Internal or external installation
Aluminium / timber



# Solar Control

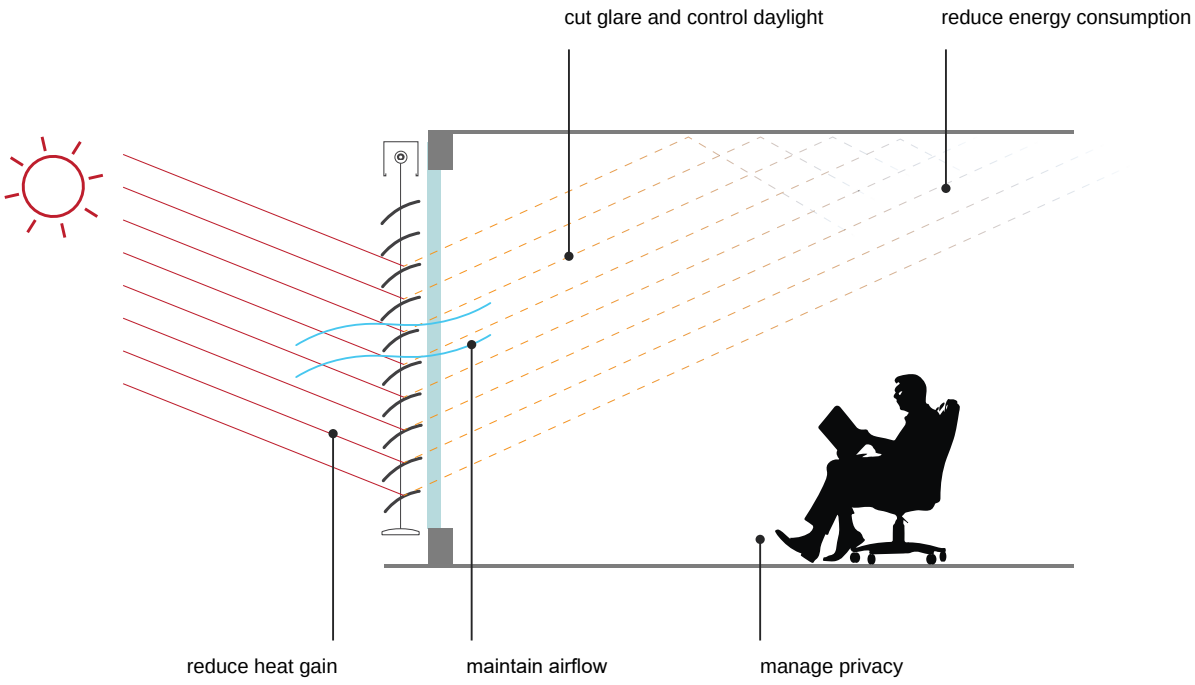
Horiso Specialty Venetian Blinds control, maintain and optimise natural interior conditions, making them an energy-efficient, environmentally-friendly shading option.

The tilting slats are able to provide the optimal amount of daylight, minimising the need for artificial lighting. Simultaneously, slats limit air-conditioner usage by maintaining effective airflow across the space and reducing overall solar heat gain.

By controlling solar glare, our systems are also able to reduce eye irritation and improve computer screen visibility, contributing to higher comfort and productivity levels.

Horiso Specialty Venetian Blinds:

- Reduce thermal heat gain by up to 93%
- Optimise shading at varying sun angles
- Contribute to achieving a high environmental green building rating
- Prevent potential UV damage
- Provide years of reliable operation with minimal maintenance
- Offer various control options (manual, motorised and automated control)



Showroom in Thailand

# External Installation

External Horiso Specialty Venetian Blinds can accommodate large façade openings with widths of up to 6 metres and drops of up to 9 metres. Our systems are engineered to endure all types of extreme weather conditions such as high wind loads, snow and ice. Integration with a wind sensor protects the blinds from damaging winds by automatically tilting the slats at 90º and, in extreme cases, retracting the system entirely.

Our externally installed systems are of the highest durability and longevity due to the exceptional quality of all louvre and component materials, as well as their pretreatment and coating. Double omega punching also stabilises blinds during operation.

External installation not only offers retrofit application which reduces costly construction but can also inspire architectural features, create large outdoor areas, and provide privacy and protection from the sun and other weather conditions.

Externally installed systems provide:

- Optional perforated slats which maintain exterior views even while closed
- Retrofit installation that can be positioned anywhere
- Reduced energy consumption with less artificial lighting
- Reduced heat and cold transfer
- Multiple slat colours and finishes
- Wind sensor integration for high wind and extreme weather protection

Private Residence, Victoria - Tim Roberts Design Sydney

# Internal Installation

The internal installation of Horiso Specialty Venetian Blinds offer the benefit of solar control as well as adding a design element to any interior setting. Various control options also ensure easy and convenient operation.

Our internal systems use wider slats to allow more light to infiltrate a room while also reducing thermal heat and glare caused by light reflectivity from water and neighbouring building façades. In this way, not only do they minimise eye irritation but improve the productivity and general comfort of the space.

Internally installed systems also allow for privacy control while perforated slats are available to maintain exterior views while the slats are closed.

The flexible range of slat width and slat sizes means that a retrofit installation is achievable onto existing glass areas without needing costly structural modification. Slat materials, including various timber and aluminium colour choices, complement and integrate with other interior design finishes.

Walsh Bay Apartments, Sydney

Double Skin Facade Installation at No. 1 Bligh Street, Sydney.
50 Most Influential Tall Buildings of the Last 50 Years - Awarded by the Council for Tall Buildings and Urban Habitat (CTBUH)

# Double Skin Façade Installation

The installation of Horiso Specialty Venetian Blinds in a double skin façade is a key method of controlling the amount of solar energy that passes through the facade of a building. The blind system is installed within the cavity and is ideal for natural or mechanically ventilated façades.

A particular benefit associated with a double skin facade blind system is that they help maintain a constant, comfortable internal building temperature and limit the need for excessive use of high volume air conditioning systems. Another benefit is their enhancement of natural light, making buildings less reliant on artificial lighting.

Single systems or a bank of systems can operate separately depending on their particular position and thus, can provide maximum zonal comfort levels. Full automation and sun-tracking capabilities are available via a large range of control options.

# Aluminium Slats

Crowned aluminium slats are made from a highly elastic alloy, making them flexible, scratch-proof and shock-proof.

The double omega punching, (standard on external and double skin facade installations) combined with ladder braids, ensure smooth closing of the slats. They also retain slat alignment and stability in most weather conditions and minimise excessive movement. No additional plastic components are necessary to stabilise the slats.

### Pre-treatment
AA 5050 marine grade with chromate conversion undercoat

### Standard finish
High UV resistant (RUV3) PE (polyester) coil coating

### Optional finish
Perforated finish and other custom finishes available on request

### Colours
8 standard colours. Custom colours available on request

## Standard slat colours

| White | Silver | Dark Brown | Bronze | Silver Pearl | Storm Pearl | Jet Black | Monument Grey |
|---|---|---|---|---|---|---|---|
| RAL 9016 | RAL 9006 | RAL 8019 | HOR 7140 | RAL 9007 | HOR 7043 | RAL 9005 | RAL 7021 |

## Standard slat widths

80 mm (3”)

100 mm (4”mm)

150 mm (6”)

Private Residence, Sydney

# Timber Slats

Timber slats add a natural warmth and light glow from filtered light reflection to an interior space. Slats are offered in various wood species, sizes and finishes for coordination with other interior finishes.

Horiso selects timber for the manufacturing of slats from sustainably managed forests which is key to the conservation and the long-term sustainable use of each plantation. Air and kiln drying processes reduce and stabilise the timber's moisture content before milling and sanding which improves the sealer coat adhesion and longevity of the finish. The slat finishes are hypo-allergenic and environmentally-friendly with zero volatile emissions.

Horiso timber slats are:

- Available in various timber species and colour finishes
- Dimensionally stable and warp resistant
- Visually appealing in terms of grain structure
- Free of all knots, defects and similar blemishes on all faces and edges
- Selected from certified sources to Australian standard (AS 4707 - products originating from certified forests through all phases of ownership, transportation and manufacturing)

## Slat Colours

A multiple array of slat options are available in timber species, oil colour stains and lacquered finishes. A Horiso representative will be able to offer more accurate colour, sample and availability options at time of contact.

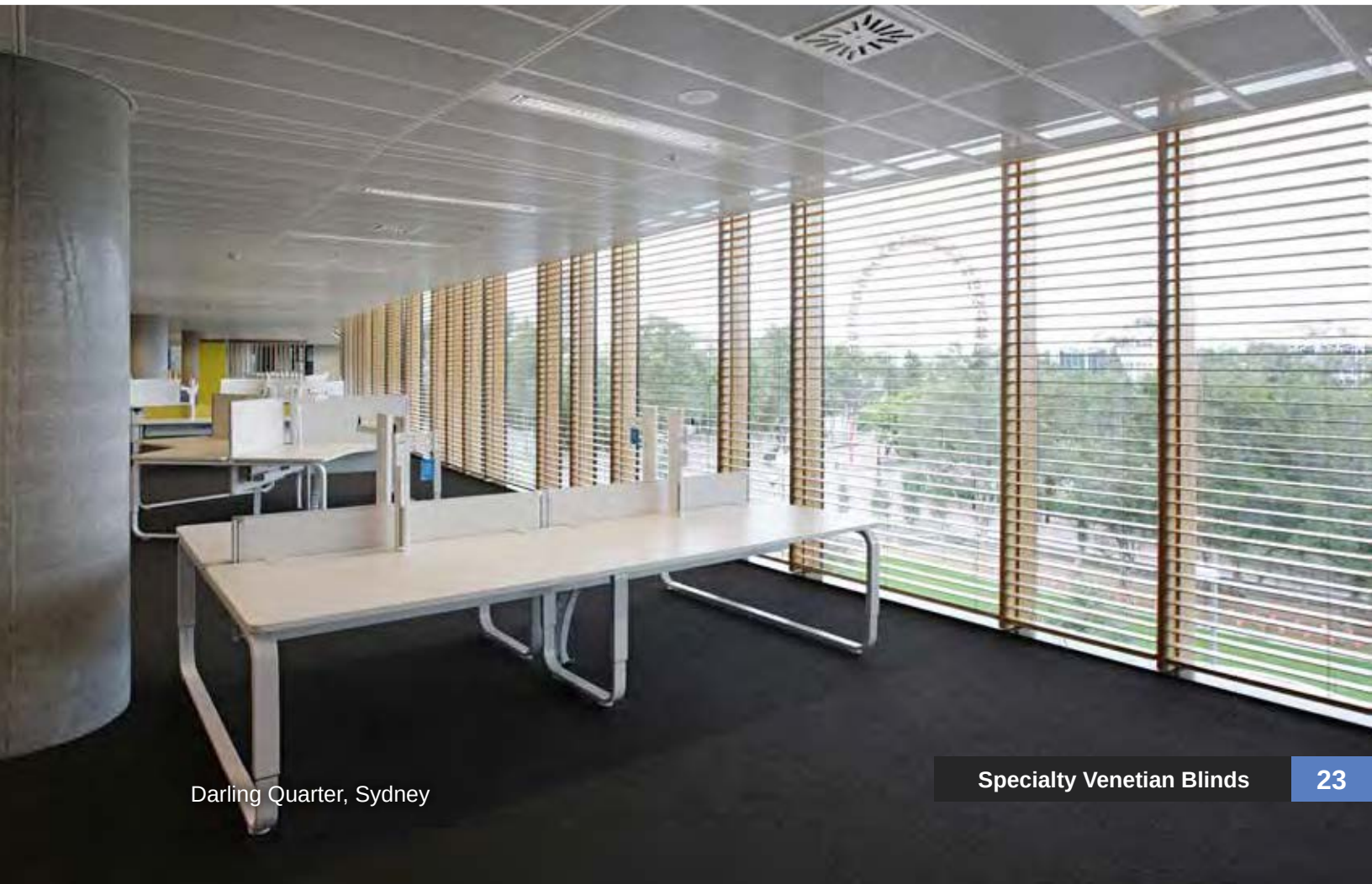
## Slat widths

Slat widths and lengths vary depending on the selection of timber species. A Horiso representative will be able to offer more accurate width and length options at time of contact.

63 mm (2 1/2")

86 mm (3 3/8")

137 mm (5 3/8")



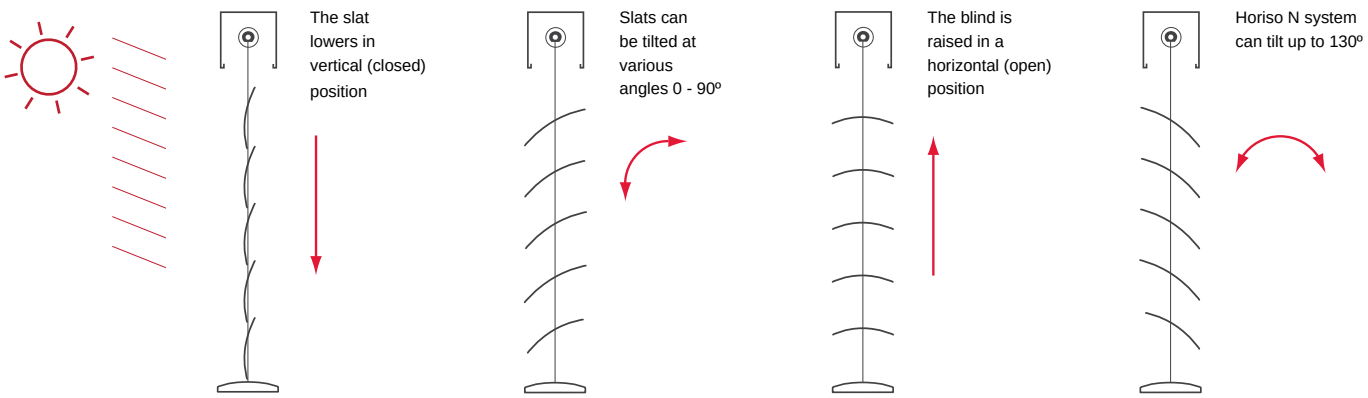
Darling Quarter, Sydney

# Slat Tilting Position

Slats change position and angle to control solar glare and heat gain, and to allow natural light to infiltrate a space.

Louvres can remain open in the horizontal position to allow for either heat gain or airflow. At preset wind speeds the slats can tilt to a horizontal position ready for retraction, allowing stronger airflow to pass between the slats, reducing the impact of wind on the system.

Alternatively, the convex side of the slat can face the sun in order to efficiently reflect solar rays and distribute light further into a room, maintaining comfortable conditions.




Private Residence, Sydney

NZI Building, Auckland

# Quality Components

Horiso Specialty Venetian Blinds offer the most durable and advanced components for each system. All standard components are manufactured and sourced from the highest quality materials and suppliers. Products manufactured by Horiso are rigorously controlled and tested according to internal procedures prior to shipping from our factory.

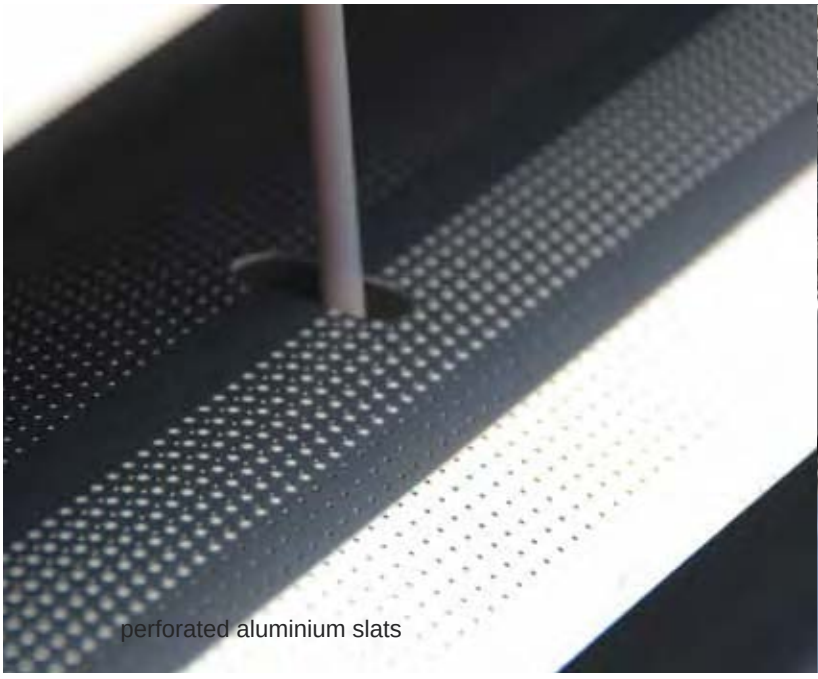
## Quality Finishes

Aluminium extruded components are powder-coated or 25 micron anodized to safeguard against environmental damage. Horiso powder-coating finishing processes and products are approved by Qualicoat® - Class 1.5, an internationally recognised powder-coating licensing authority. Qualicoat® administers a licensing system for powder applicators or coaters. This ensures that our quality specifications and product warranty remain consistent on every project.

## Quality Materials

- Slats: High UV resistant (RUV3) PE (polyester) coil coating
- Aluminium components: 25 micron clear anodized (unless other specification required)
- Heavy duty cables: stainless steel cable with stainless steel mushroom head
- Lifting and tilting device: high-strength, shrink-resistant and reinforced 100% Kevlar
- All steel components are stainless steel 316 marine grade

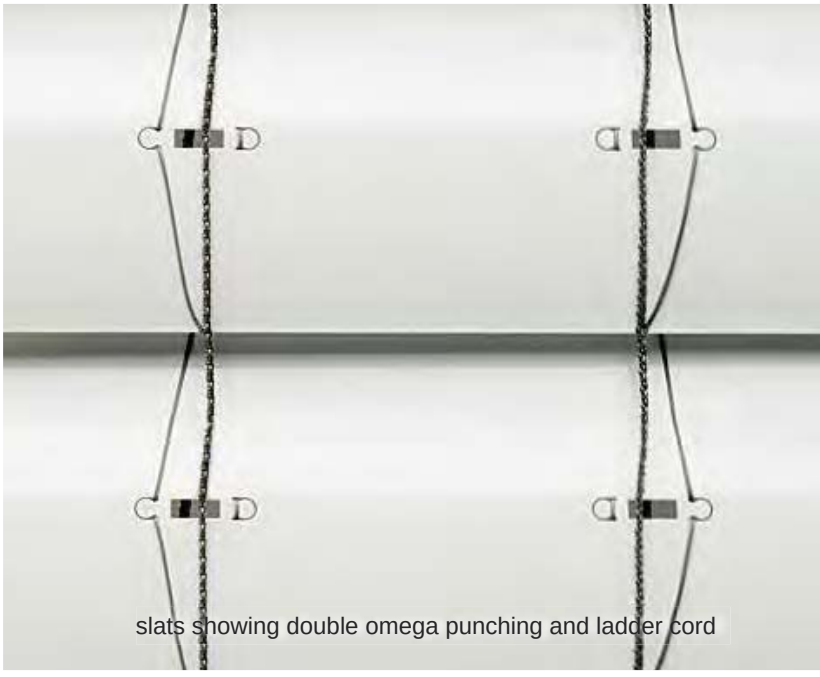

quick release custom termination


perforated aluminium slats

retracted slats within pelmet

L-shaped face fixed termination bracket

base bar and L-shaped termination bracket



slats showing double omega punching and ladder cord

# Motors

Motor type specifications depend on the height, width, weight and location of each individual system.

Horiso motor type specifications include:

- Asynchronous box motors
- Quiet and reliable lift/tilt motor with soft break
- 110 or 240 volts
- UL certified motors
- Compatibility with home automation systems
- Compatibility with building management systems
- Adjustable end limits

## Features - Standard Motor

IP 44 (splash water protected). Suitable for external and internal use.

## Motor Torque

Range 6 - 20 Nm.

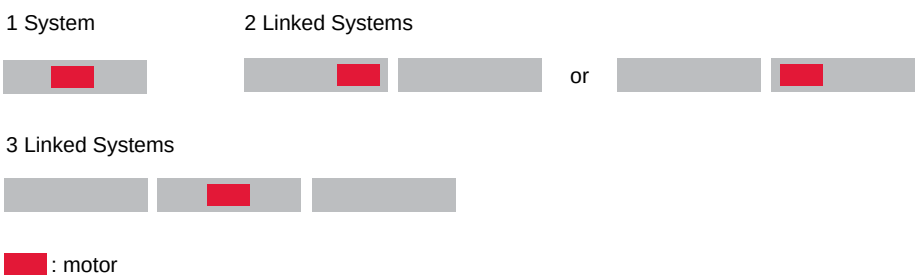
## Speed

Available in different speeds according to requirements.
*Unless otherwise specified.

## Motor Position

Horiso Specialty Venetian Blinds can be motor controlled individually or in mechanically linked systems. The motors are usually positioned at the centre of each system.

- Maximum 3 linked panels*.
- Maximum total area 45 square metres (484 square ft).






* Motor options are dependent on system size and control options. For more information regarding your project requirements, please contact Horiso.

# Control Options

The complete line of Horiso Specialty Venetian Blind systems can be operated at various levels of sophistication. These include:

## Manual crank handle or pull cord operation

Internal and external systems can be manually operated by either a crank handle or pull cord depending on the size and location of each system.

## Motorised control via a switch, remote control or touch phone/hand-held device

Motorisation is the most effective control for Specialty Venetian Blinds. The electric motor is concealed within the head box and incorporates limit switches and internal thermal protection against overheating. Risk of wind damage is minimised when integrated with a wind sensor which automatically tilts and safely retracts the slats when necessary.

## Automation control at varying degrees of customisation

Automation control provides a level of sophistication set to a user's requirements.

The automation function operates at various customisable levels:

- Timer setting - deploys, tilts and retracts at set times
- Sun tracking - louvres tilt at various angles throughout the day based on the sun's position
  Temperature and wind control - louvres react to external weather conditions by retracting or deploying when necessary
- Integration with building management systems (BMS) e.g. BACnet®, Lonworks® and KNX®
  This allows the user to control Horiso shading systems through third party BMS systems

* More information on automation control can be found on pages 8 and 9

# System Installation

Quality installation is a determining factor in achieving optimum performance and longevity of Horiso Specialty Venetian Blinds. It is recommended that shading requirements, building structure assessment, precise measurements and design, are considered.

Horiso provides full technical assistance and engineering support while working closely with project shading specialists and installers globally.

Installation options include:

- Installation into existing building recesses
- Installation using top fix pelmet fitted onto building structure. Pelmet extensions are available.
- Installation using face fix pelmet fitted onto building structure. Pelmet extensions are available.

## **A**: Recess requirements to accommodate head box

| Slat width | Minimum recess widths |
|---|---|
| 80 mm / 3 1/7” | 120 mm / 4 5/7” |
| 100 mm / 4” | 140 mm / 5 1/2” |
| 150 mm / 6” | 190 mm / 7 1/2” |

## **B**: Packing / Stacking Heights (80 & 100 Slat widths)

N

| DROP (total height of blind) | | STACKING HEIGHT | | | |
|---|---|---|---|---|---|
| | | 80 slat | | 100 slat | |
| 900 mm | (35 3/7) | 156 mm | (6 1/7) | 150 mm | (6) |
| 1000 mm | (39 3/8) | 160 mm | (6 2/7) | 153 mm | (6 ) |
| 1200 mm | (47 1/4) | 168 mm | (6 3/5) | 160 mm | (6 2/7) |
| 1400 mm | (55 1/8) | 176 mm | (7) | 167 mm | (6 4/7) |
| 1600 mm | (63) | 184 mm | (7 1/4) | 173 mm | (6 4/5) |
| 1800 mm | (70 6/7) | 192 mm | (7 5/9) | 180 mm | (7) |
| 2000 mm | (78 3/4) | 200 mm | (7 7/8) | 187 mm | (7 1/3) |
| 2200 mm | (86 3/5) | 208 mm | (8 1/5) | 193 mm | (7 3/5) |
| 2400 mm | (94 1/2) | 216 mm | (8 1/2) | 200 mm | (7 7/8) |
| 2600 mm | (102 1/3) | 224 mm | (8 5/6) | 207 mm | (8 1/7) |
| 2800 mm | (110 1/4) | 232 mm | (9 1/7) | 213 mm | (8 2/5) |
| 3000 mm | (118 1/9) | 240 mm | (9 4/9) | 220 mm | (8 2/3) |
| 3200 mm | (126) | 248 mm | (9 3/4) | 227 mm | (9) |
| 3400 mm | (133 6/7) | 256 mm | (10) | 233 mm | (9 1/6) |
| 3600 mm | (141 3/4) | 264 mm | (10 2/5) | 240 mm | (9 4/9) |
| 3800 mm | (149 3/5) | 272 mm | (10 5/7) | 247 mm | (9 5/7) |
| 4000 mm | (157 1/2) | 280 mm | (11) | 253 mm | (10) |
| 4200 mm | (165 1/3) | 288 mm | (11 1/3) | 260 mm | (10 (1/4) |
| 4400 mm | (173 2/9) | 296 mm | (11 2/3) | 267 mm | (10 1/2) |
| 4600 mm | (181 1/9) | 304 mm | (12) | 273 mm | (10 3/4) |
| 4800 mm | (189) | 312 mm | (12 2/7) | 280 mm | (11) |
| 5000 mm | (196 6/7) | 320 mm | (12 3/5) | 287 mm | (11 2/7) |
| 5200 mm | (204 5/7) | 328 mm | (13) | 293 mm | (11 1/2) |
| 5400 mm | (212 3/5) | 336 mm | (13 2/9) | 300 mm | (11 4/5) |
| 5600 mm | (220 1/2) | 344 mm | (13 1/2) | 307 mm | (12) |
| 5800 mm | (228 1/3) | 352 mm | (13 6/7) | 313 mm | (12 1/3) |
| 6000 mm | (236 2/9) | 360 mm | (14 1/6) | 320 mm | (12 3/5) |
| 6200 mm | (244) | 368 mm | (14 1/2) | 227 mm | (9) |
| 6400 mm | (252) | 376 mm | (14 4/5) | 333 mm | (13 1/9) |
| 6600 mm | (259 5/6) | 384 mm | (15 1/8) | 340 mm | (13 2/5) |
| 6800 mm | (267 5/7) | 392 mm | (15 3/7) | 347 mm | (13 2/3) |
| 7000 mm | (275 3/5) | 400 mm | (15 3/4) | 353 mm | (13 8/9) |

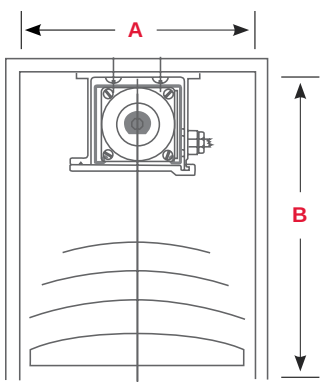
XL

| DROP (total height of blind) | | STACKING HEIGHT | | | |
|---|---|---|---|---|---|
| | | 80 slat | | 100 slat | |
| 7200 mm | (283 1/2) | 413 mm | (16 1/4) | 365 mm | (14 3/8) |
| 7400 mm | (291 1/3) | 421 mm | (16 4/7) | 372 mm | (14 2/3) |
| 7600 mm | (299 1/5) | 429 mm | (16 8/9) | 378 mm | (14 7/8) |
| 7800 mm | (307) | 437 mm | (17 1/5) | 385 mm | (15 1/6) |
| 8000 mm | (315) | 445 mm | (17 1/2) | 392 mm | (15 3/7) |
| 8200 mm | (322 5/6) | 453 mm | (17 5/6) | 398 mm | (15 2/3) |
| 8400 mm | (330 5/7) | 461 mm | (18 1/7) | 405 mm | (16) |
| 8600 mm | (338 4/7) | 469 mm | (18 1/2) | 412 mm | (16 2/9) |
| 9000 mm | (354 1/3) | 485 mm | (19) | 425 mm | (16 3/4) |

**Pelmet Extension Key**

- : No Extension
- : 1 Extension
- : 2 Extensions
- : 3 Extensions
- : Custom Solution

Packing heights may vary significantly depending on the behavior of the lifting tape and ladder braid. The packing heights + tolerances in this table are recommended in order to make sure that the slats are completely retracted in the pelmet.



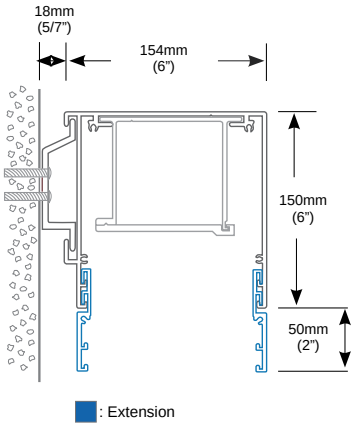
# Pelmets

The aluminium extruded pelmet accommodates the head box, slats and base rail. Pelmets are top-fixed or face-fixed and supplied with end plates.

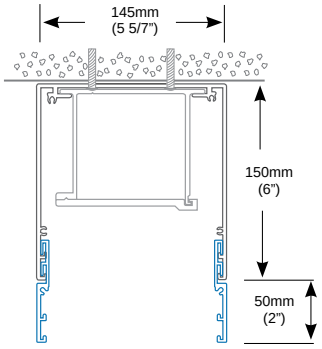
Horiso pelmets:

- Come in extruded aluminium 3 mm (1/8”) 25 micron clear anodised
- Are powder-coated in standard or custom colours
- Offer pelmet/fascia extensions in 50 mm (2”) increments
- Have fixing spacing that is subject to site structure and cannot exceed 600 mm (23 5/8”)
- Offer custom pelmet/fascia solutions

## Face fix pelmet / fascia




## Top fix pelmet / fascia



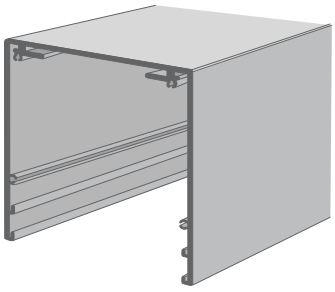

## Pelmet / fascia weight in Kgs

| Extension Qty | Weight / metre |
|---|---|
| 0 | 4.5 Kgs |
| 1 | 6.1 Kgs |
| 2 | 7.7 Kgs |
| 3 | 9.3 Kgs |

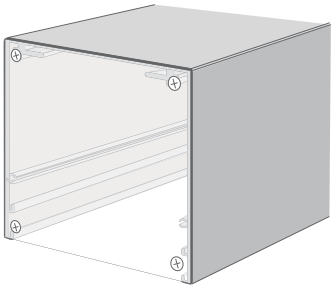
## Pelmet / fascia weight in Lbs

| Extension Qty | Weight / feet |
|---|---|
| 0 | 3.02 Lbs |
| 1 | 4.10 Lbs |
| 2 | 5.18 Lbs |
| 3 | 6.23 Lbs |

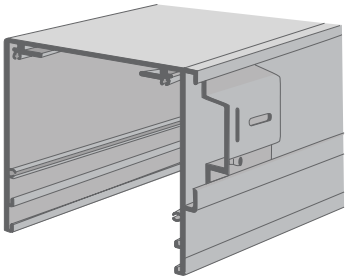
## Pelmet Variations



Top fix pelmet/fascia



Top fix pelmet/fascia with end plate



Face fix pelmet/fascia

# Components

## Head box and Brackets

The extruded aluminium U-shaped head box accommodates the lifting/tilting devices and motors.
The head box can be fitted directly onto the building with gate brackets if pelmets are not required.
In situations where pelmets are used, the head boxes are fitted via gate brackets into the pelmets. U-shaped head boxes can be attached with the opening at the bottom or top.

## Lifting and Tilting Devices

Lifting and tilting devices assembled within the aluminium extruded head box enable the slats to change angle direction smoothly. These devices also control the lowering and raising of the system.
The anti-friction texband PES filament lifting tape raises and lowers the slats, operating with minimal wear and tear thanks to maximum UV protection. The ladder braid is attached to the omega punching which ensures correct spacing between the slats, facilitates tilt action, and stabilises the system in high wind areas.

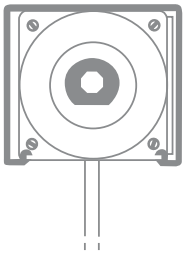
## Cable Guides and Termination Brackets

Cable guides run through punched holes at both ends of the slat length, guiding the position of the slats during operation. In addition, the cable guides limit the movement of the blinds in windy weather conditions, without causing excessive noise.

The cable guide, made from 316 marine grade stainless steel, is fastened to the top head box by a double spring tension device and is bottom-fixed using a termination bracket via an M8 swage.
Additional supporting cable guides are recommended for high wind areas and when blinds are wider than 3 m (118 1/9”).

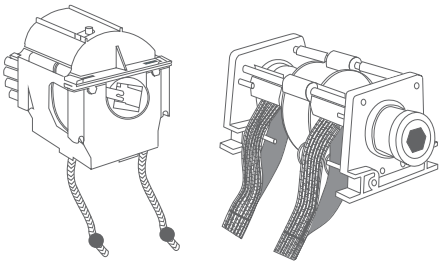
## Horiso cable guides can be:

- Fixed into standard aluminium termination bracket, finish 25 micron anodized size 100 mm (4”) or 150 mm (6”) using a M8 swage for bottom termination
- Fixed into wood using threaded swage
- Fixed into concrete or similar material using swage with a M8 bolt 50 mm (2”) or 100 mm (4”) long
- Customised using other available fixings



## Head box

60 mm wide x 57 mm high (2 1/3” x 2 1/4”)
Open bottom and open top fixing. Standard 25 micron clear anodised. Powder coated in a large range of colours.

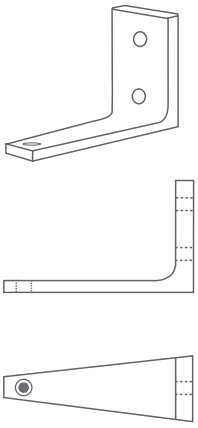


## Tilting and Lifting Device

Standard (N) and Heavy Duty (XL) sizes

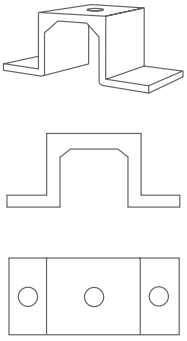
## Stainless steel cable and flat top head.

316 marine grade



## L-shaped termination bracket

110 mm long (4 1/3”)
163 mm long (6 3/7”)



## Top hat - bottom termination bracket

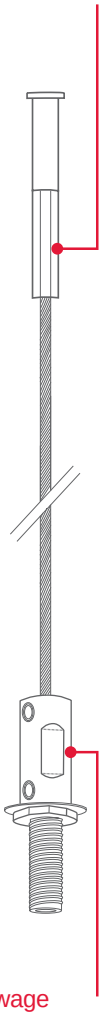
3mm (1/8”)
wall thickness

## S/S rampa screws

bottom fix termination
for timber 18 & 30 mm
(5/7” &1 1/16”)

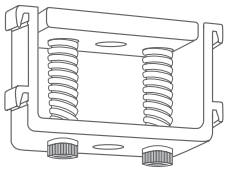
## M8 drop in anchor

bottom fix termination
for concrete - 30 mm
(1 1/8”)

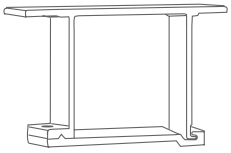


## M8 swage

bottom termination
50 & 100mm
(2” & 4” )



## Double spring bracket

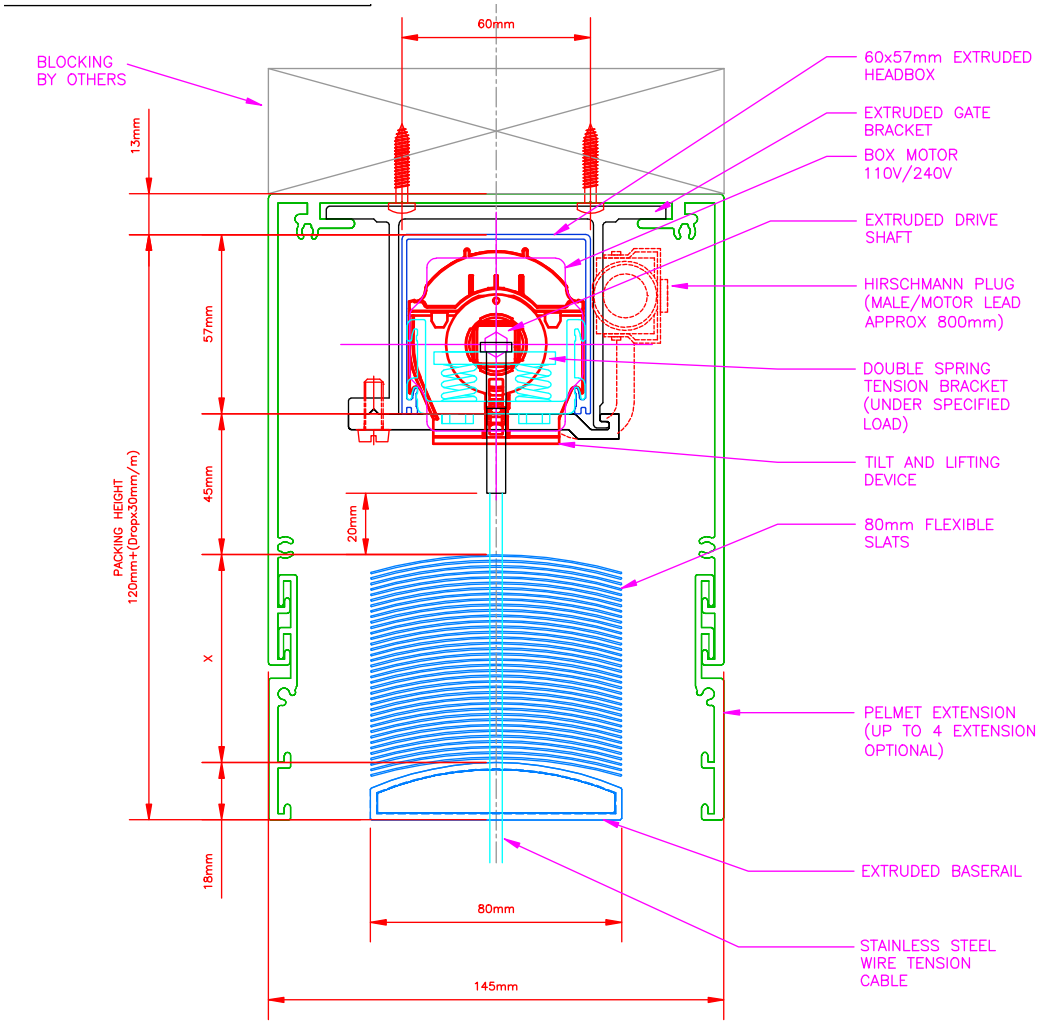


## Gate bracket

## Base rail

Horiso 80 system &
100 system

# Design Specifications




Technical diagrams are available at **horiso.com.au**

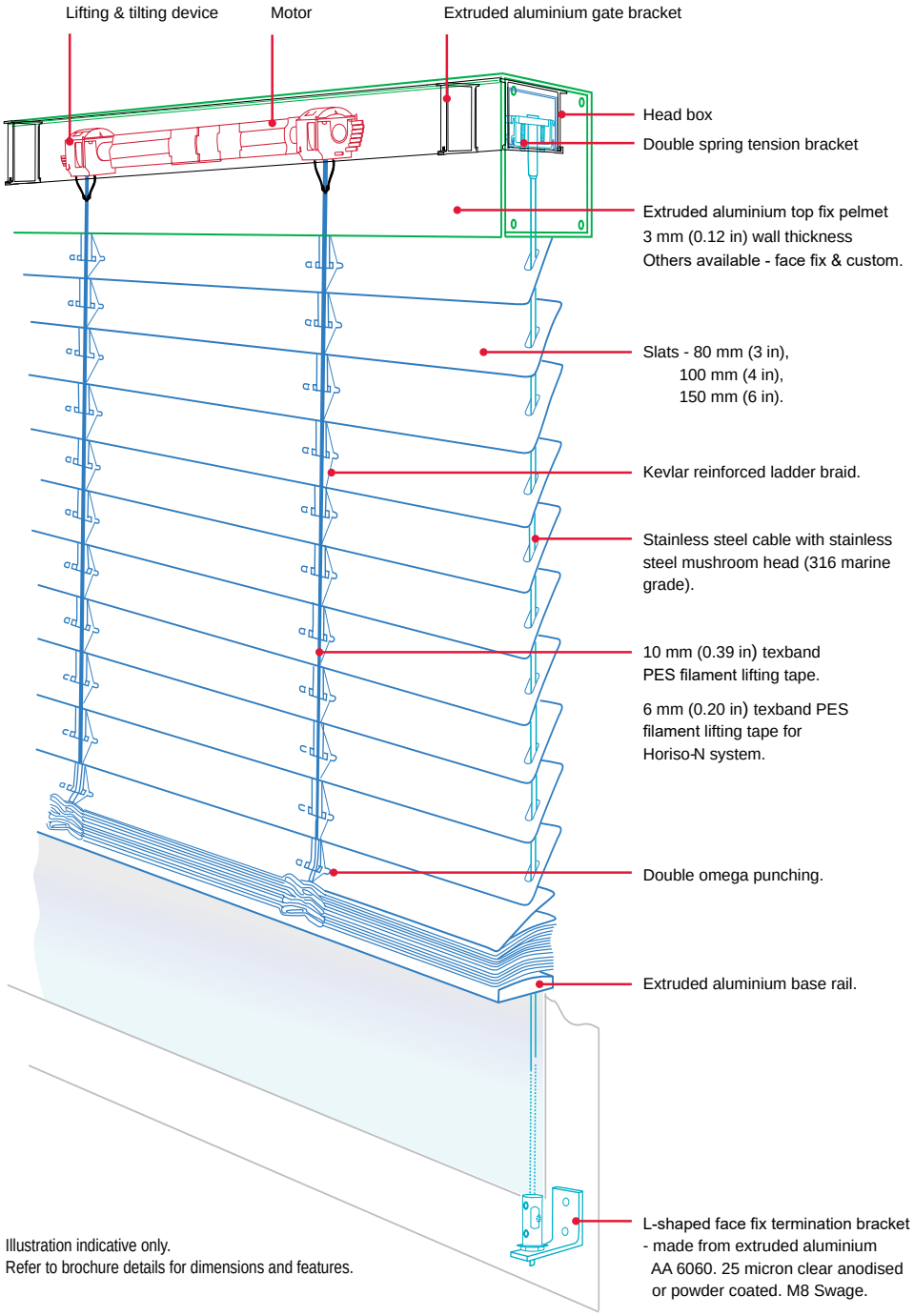



Illustration indicative only.
Refer to brochure details for dimensions and features.

# Sunshield - Rack Arm Systems

Motorised or manual control
Internal or external installation
Aluminium / timber



RA 155E system, private residence

# Solar Control

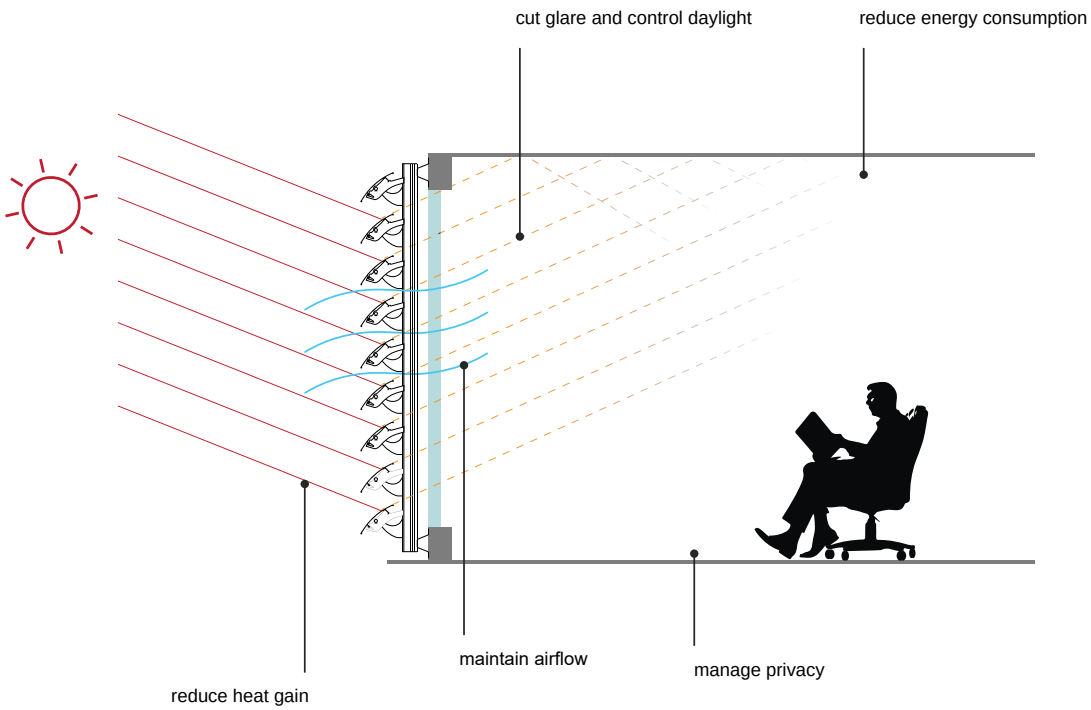
Horiso Rack Arm Systems control, maintain and optimize natural interior conditions, making them an energy-efficient, environmentally-friendly shading solution.

The tilting slats provide the optimal amount of daylight, minimising the need for artificial lighting. Simultaneously, air-conditioner usage is limited by maintaining effective airflow and reducing overall solar heat gain.

By controlling solar glare, our louvres help to reduce eye irritation and improve computer screen visibility, contributing to higher comfort and productivity levels.

Horiso Rack arm Systems:

- Reduce thermal heat gain by up to 93%
- Optimise shading at varying sun angles
- Contribute to achieving a high environmental green building rating
- Prevent potential UV damage
- Provide years of reliable operation with minimal maintenance
- Offer various control options (manual, motorised and automated control)



RA 88E system, private residence

# External Installation

Rack Arm Systems' implementation can reduce solar heat gain and manage the use of daylight, contributing to higher human comfort levels and productivity levels. Energy consumption is reduced with less artificial light required and less air conditioning usage.

The innate aluminium properties of the slats will reduce glazing specifications, avoid tinting, and lower construction costs while the high quality slat, component material and coating provide durability.

Retrofitting on existing window mullions reduce costly construction alterations. External applications can be extended to create large outdoor areas, providing privacy and protection from sun and other weather conditions.

Externally installed louvres provide:

- Versatile external systems fit a range of glazing inclinations, shapes and sizes.
- Choice of slat colours and finishes increase scope for architectural design choices.
- Glare from the sun is controlled, reducing eye irritation and improving computer screen visibility.
- Increases comfort levels for building occupants.
- Decrease in air conditioning usage and overall energy consumption and costs.
- Larger slat sizes allow more natural light to infiltrate through the glazing.
- Integration with various control options - see page 57.

RA 88E system, private residence



RA 75E automated system

# Internal Installation

Internal installation of Horiso Rack Arm Systems control natural light, heat gain and glare.
This application is particularly beneficial in galleries, museums and libraries where natural light is preferable. The control of heat gain aids in the protection of artworks, artefacts and books whilst soft light produced in some situations can create a calming atmosphere.

An internal application can also act as a ceiling, functioning design feature or wall.
Glare is minimised for visitors viewing exhibitions and if required the addition of brushes will achieve light blackout when fully closed.

The flexible range of rack arm width and slat sizes means a retrofit internal installation is achievable onto glazed structures without costly modification. The choice of custom colours provides design flexibility and various control methods ensure easy and convenient operation.

Other interior applications include conservatories, sun rooms and glazed ceiling verandahs.

RA 75E system with light blockout brush components - state library, Sydney

# Applications

## Façades

The wide range of aluminium and wooden louvres allow you to create the style and look you want. Triangles, trapezoids, arches and even circles are possible. Systems are customised to the shape and size of each façade. Bedrooms can be specified with slats specific for light blockout.

## Louvre Roofs

Rack Arm systems are particularly suitable for pergolas, awnings and veranda roofs for solar protection, maximising daylight and light filtration. Systems can be installed in a flat roof or angular roof position. Special shapes, slat finishes, edge box finishes and rain sensors for automatic closure are all possible.

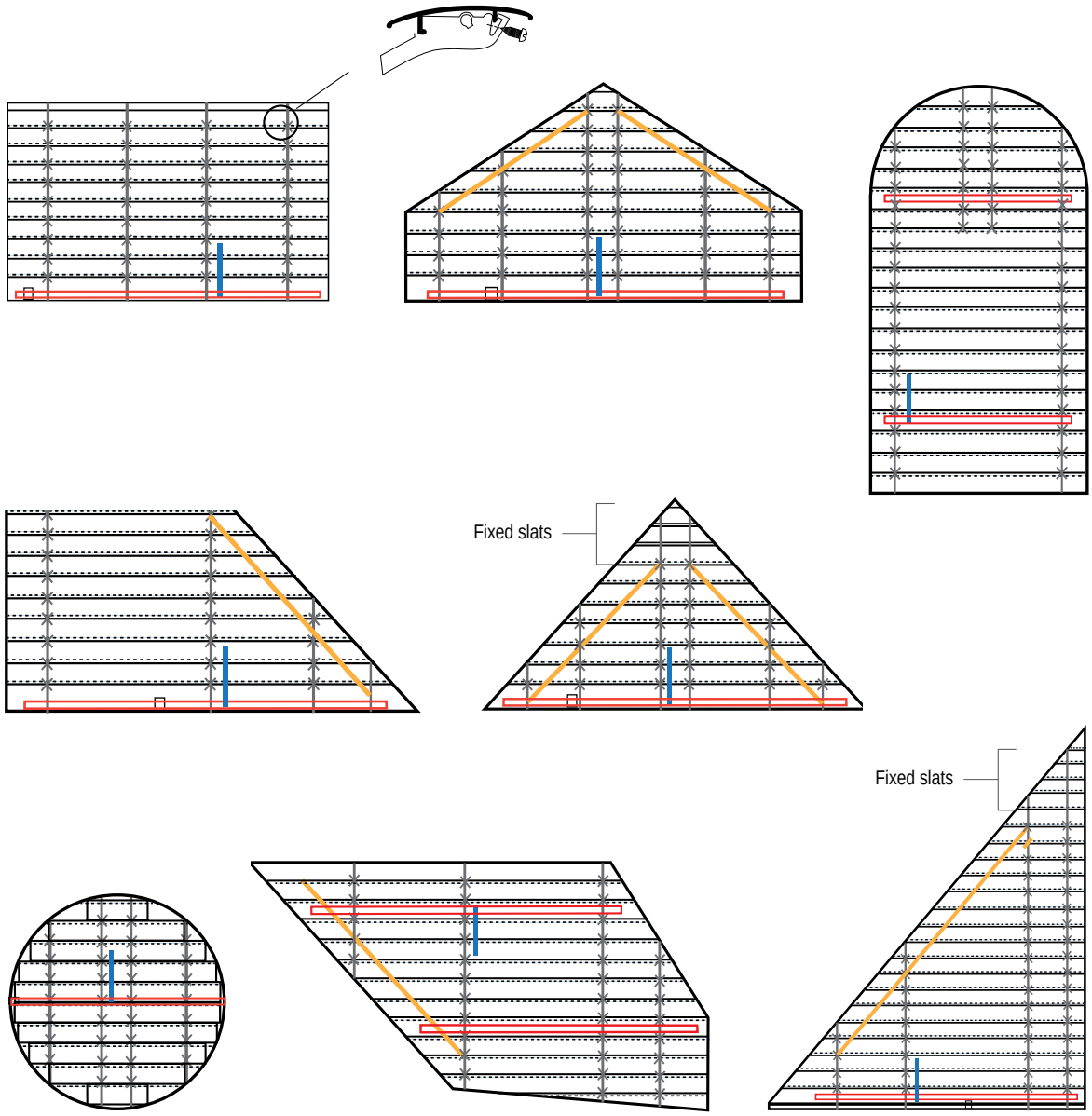
## Rooflights & Glass Roofs

Conservatories, atrium's or glass roofs with clear glazing in combination with a Horiso Rack Arm System is the best guarantee of optimising natural light with the added benefits air flow, control of the indoor environment, glazing protection and privacy.

## Interior Skylights

Horiso Rack Arm Systems can also be installed internally, providing additional benefits to an interior space. Heat gain, glare and air flow can be controlled throughout the day and soft, warm and natural light filtration can be achieved using timber slats. Interior Rack Arm Systems are perfect interior shading options for sloped glazing, skylights, angular, shaped and high glass windows.

# System Configurations




Drive shaft

Side rack arm support with edge pivots

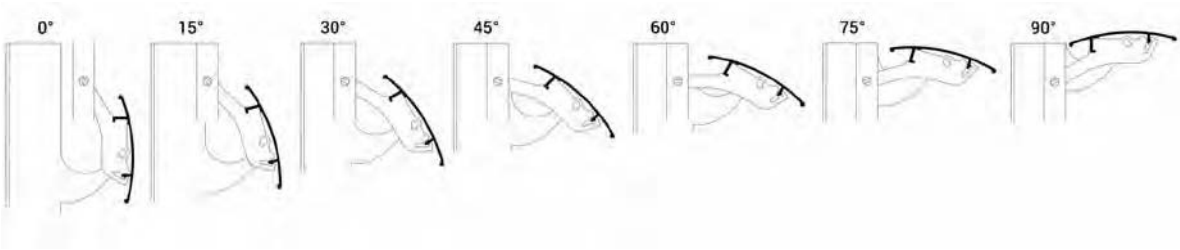
Motor

# Slat Profiles

Aluminium slat systems come in a curved or flat finish which overlaps or interlocks providing the best solar control and light filtration. RA88E and RA155E flat finished slats interlock when closed ensuring maximum light block-out, security and privacy.

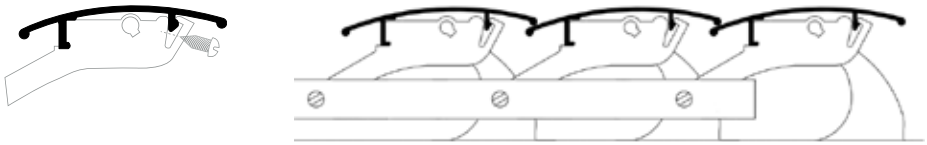
Aluminium slat systems come in various colours and customisable options with colour coordinating components. Timber slats are offered as customisable option in various timber species slat shapes angles, treatments, stains and finishes.

## Louvre Positions



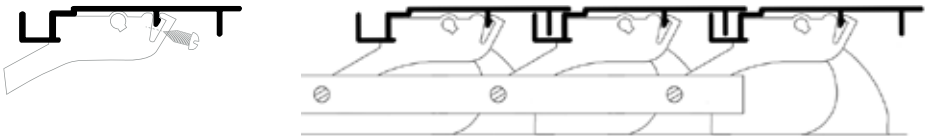

### RA 75E

75 mm extruded aluminium
- external / internal



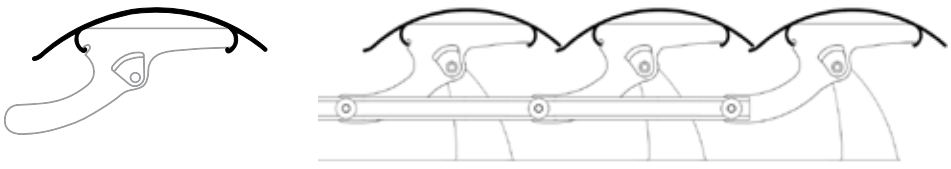
### RA 88E

88 mm extruded aluminium
- external / internal



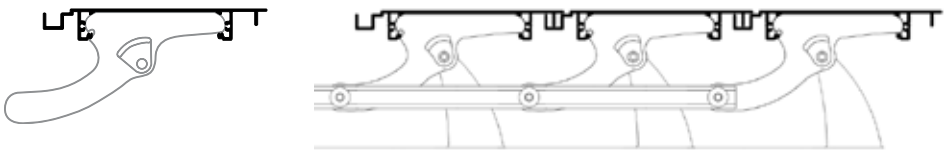
### RA 145E

145 mm extruded aluminium
- external / internal



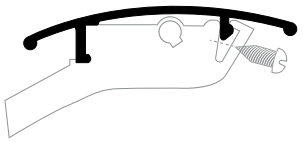
### RA 155E

155 mm extruded aluminium
- external / internal



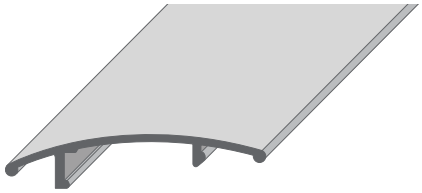
More information on slat colours can be found on page 54 and 55.

# RA 75E
## Slat Profile



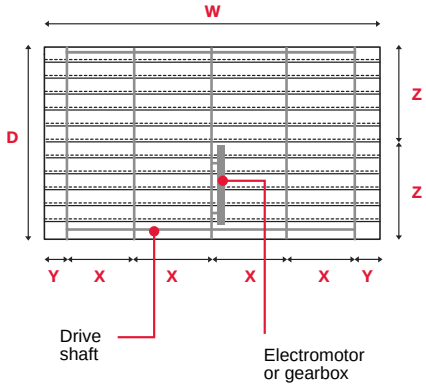
The 75E curved Louvers are highly versatile and lightweight. The possibilities in width, height, special shapes and operation are almost unlimited.

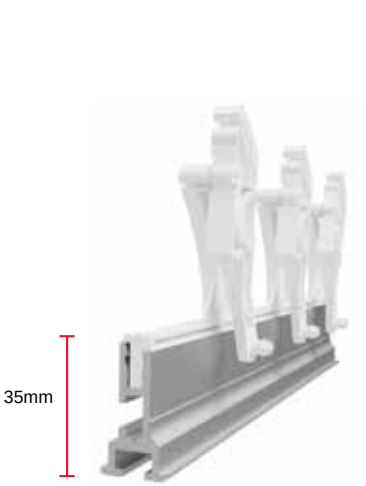
**Material:** high grade extruded aluminium
**Width:** 75 mm width
**Thickness:** 1.5 mm
**Application:** internal or external installation
**Configuration:** all types of shaped windows for horizontal, vertical, and sloping façades



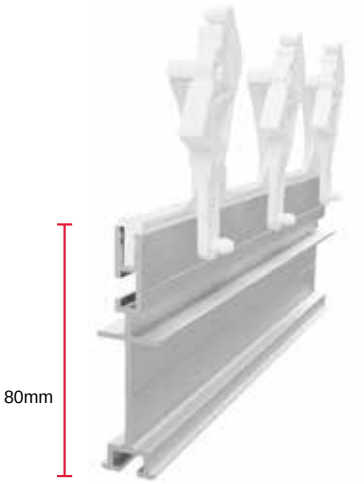
**Technical Information**

| | Internal | External |
|---|---|---|
| **Maximum width (W)** | Maximum 6000 mm | Maximum 6000 mm |
| **Maximum drop (D)** | Maximum 6000 mm | Maximum 6000 mm |
| **Maximum area gearbox (rod & crank)** | Maximum 16 m2 | Maximum 12 m2 |
| **230 V tubular + gear 7:1** | Maximum 20 m2 | Maximum 18 m2 |
| **Minimum no. of rack arms** | 2200 mm = 2 pcs | 1900 mm = 2 pcs |
| | 2210 - 3600 mm = 3 pcs | 1910 - 3200 mm = 3 pcs |
| | 3610 - 5000 mm = 4 pcs | 3210 - 4500 mm = 4 pcs |
| | 5010 - 6000 mm = 5 pcs | 4510 - 5800 mm = 5 pcs |
| | | 5810 - 6000 mm = 6 pcs |
| **Rack arm distance (X)** | 1400 mm | 1300 mm |
| **Maximum slat side overhang (Y)** | 400 mm | 300 mm |
| **Support distance: (Z)** | | |
| **ST. Rack Arm 35 mm** | 1800 mm | 1500 mm |
| **HD. Rack Arm 80 mm** | 3000 mm | 2800 mm |



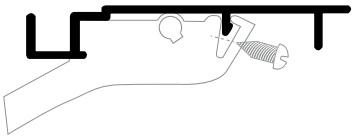




Standard rack arm extrusion on 75E



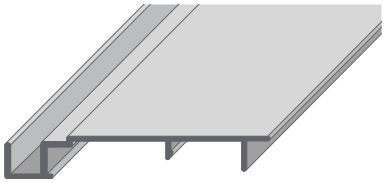

Heavy Duty rack arm extrusion on 75E

# RA 88E
## Slat Profile



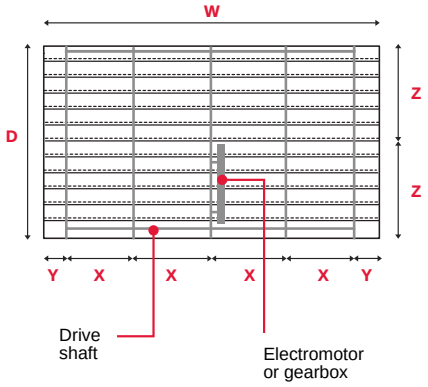
The interlocking design of the 88E louver offers a light black-out system option with the addition of facia baffles and brushes. The flat finish of the louvres in the closed position also provides a suitable design option when matching with other building finishes.

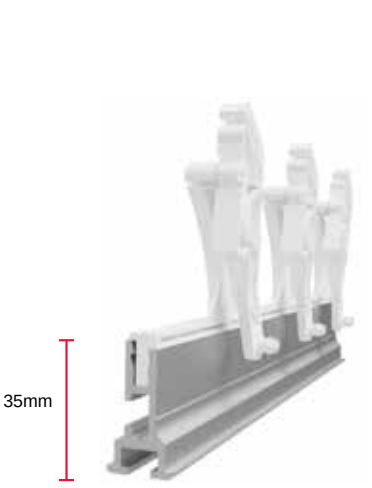
**Material:** high grade extruded aluminium
**Width:** 88 mm width
**Thickness:** 1.5 mm
**Application:** internal or external installation
**Configuration:** all types of shaped windows for horizontal, vertical, and sloping facades



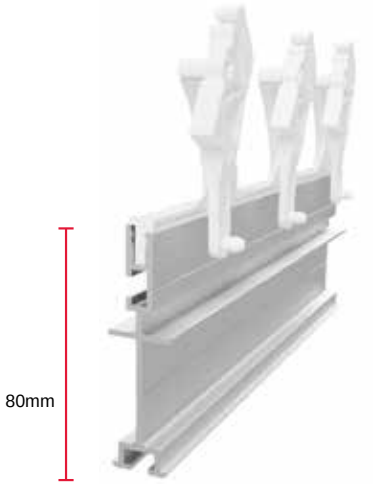
**Technical Information**

| | Internal | External |
|---|---|---|
| **Maximum width (W)** | Maximum 6000 mm | Maximum 6000 mm |
| **Maximum drop (D)** | Maximum 6000 mm | Maximum 6000 mm |
| **Maximum area gearbox (rod & crank)** | Maximum 16 m2 | Maximum 12 m2 |
| **230 V tubular + gear 7:1** | Maximum 20 m2 | Maximum 18 m2 |
| **Minimum no. of rack arms** | 2200 mm = 2 pcs | 1900 mm = 2 pcs |
| | 2210 - 3600 mm = 3 pcs | 1910 - 3200 mm = 3 pcs |
| | 3610 - 5000 mm = 4 pcs | 3210 - 4500 mm = 4 pcs |
| | 5010 - 6000 mm = 5 pcs | 4510 - 5800 mm = 5 pcs |
| | | 5810 - 6000 mm = 6 pcs |
| **Rack arm distance (X)** | 1400 mm | 1300 mm |
| **Maximum slat side overhang (Y)** | 400 mm | 300 mm |
| **Support distance: (Z)** | | |
| **ST. Rack Arm 35 mm** | 1800 mm | 1500 mm |
| **HD. Rack Arm 80 mm** | 3000 mm | 2800 mm |



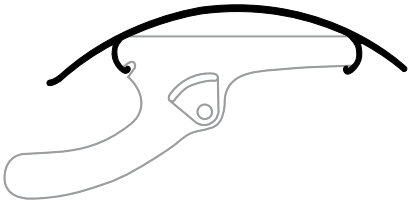




Standard rack arm extrusion on 88E



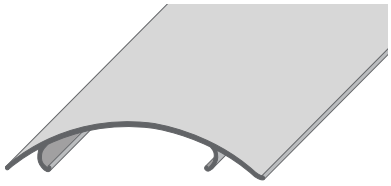

Heavy Duty rack arm extrusion on 88E

# RA 145E
## Slat Profile



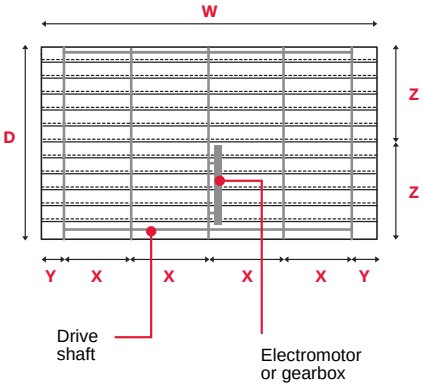
The 145E dome shaped louvers are more suitable for external applications and are the preferred choice for pergolas and façades.

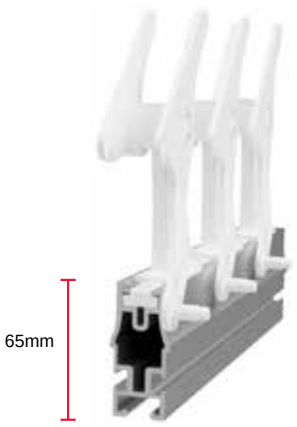
**Material:** high grade extruded aluminium
**Width:** 145 mm width
**Thickness:** 2 mm
**Application:** internal or external installation
**Configuration:** all types of shaped windows for horizontal, vertical, and sloping façades



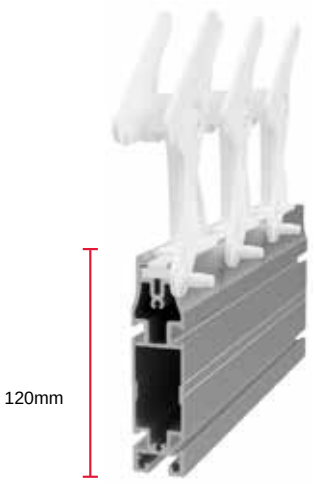
**Technical Information**

| | External |
|---|---|
| **Maximum width (W)** | Maximum 6000 mm |
| **Maximum drop (D)** | Maximum 6000 mm |
| **Maximum area gearbox (rod & crank)** | Maximum 18 m2 |
| **Linear motor** | Maximum 30 m2 |
| **Minimum no. of rack arms** | 2000 mm = 2 pcs |
| | 2010 - 3600 mm = 3 pcs |
| | 3610 - 5400 mm = 4 pcs |
| | 4510 - 6900 mm = 5 pcs |
| **Rack arm distance 65 / 120 (X)** | 1800 mm / 1800 mm |
| **Maximum slat side overhang 65 / 120 (Y)** | 400 mm / 400 mm |
| **Support distance: (Z)** **Rack Arm 65 / 120** | 2250 mm / 4000 mm |



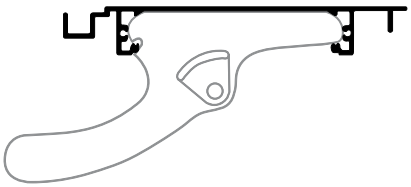




Standard rack arm extrusion on 145E



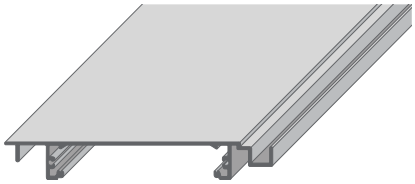

Heavy Duty rack arm extrusion on 145E

# RA 155E
## Slat Profile



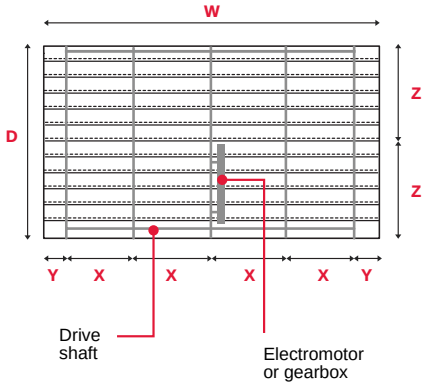
The 155E is the widest extruded aluminium slat in the Horiso range. The slat is designed to interlock in the closed position to block out light. With the addition of fascia baffles and brushes

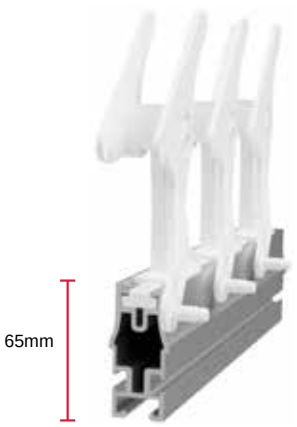
**Material:** high grade extruded aluminium
**Width:** 155 mm width
**Thickness:** 1.5 mm
**Application:** internal or external installation
**Configuration:** all types of shaped windows for horizontal, vertical, and sloping façades



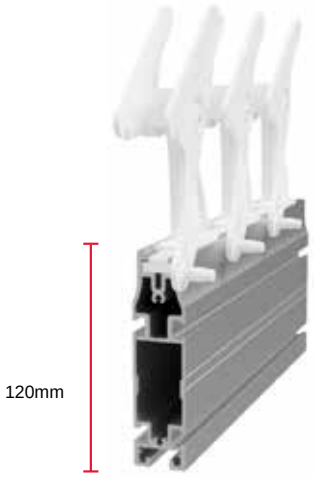
**Technical Information**

| | Internal | External |
|---|---|---|
| **Maximum width (W)** | Maximum 6000 mm | Maximum 6000 mm |
| **Maximum drop (D)** | Maximum 6000 mm | Maximum 6000 mm |
| **Maximum area gearbox (rod & crank)** | Maximum 16 m2 | Maximum 12 m2 |
| **230 V tubular + gear 7:1** | Maximum 18 m2 | Maximum 18 m2 |
| **Minimum no. of rack arms** | 2200 mm = 2 pcs | 1900 mm = 2 pcs |
| | 2210 - 3600 mm = 3 pcs | 1910 - 3200 mm = 3 pcs |
| | 3610 - 5000 mm = 4 pcs | 3210 - 4500 mm = 4 pcs |
| | 5010 - 6000 mm = 5 pcs | 4510 - 5800 mm = 5 pcs |
| | | 5810 - 6000 mm = 6 pcs |
| **Rack arm distance (X)** | 1800 mm | 1800 mm |
| **Maximum slat side overhang (Y)** | 400 mm | 400 mm |
| **Support distance: (Z)** | | |
| **ST. Rack Arm 35 mm** | 1500 mm | 1500 mm |
| **HD. Rack Arm 65 mm** | 2250 mm | 2250 mm |




Standard rack arm extrusion on 155E




Heavy Duty rack arm extrusion on 155E

# Rack Arm Components

Rack Arm systems comprise of a series of support arms (rack arms) onto which slats are mounted. The rack arm design incorporates a tilt shaft to enable rotation 0˚- 95˚, from fully open to fully closed.

Aluminium extruded 75E, 88E, 145E and 155E slats are suitable for both interior and exterior use. Systems 88E and 155E also provide total light exclusion with the addition of brushes installed at both sides of the system.

## Extruded Aluminium Components

Manufactured from 3 mm AA 6060 T6 aluminium with clear anodised finish including:

- 75E, 88E, 145E and 155E slats
- Operating strip, rack arm extrusion and link arm

## Rack Arm Extrusion

The rack arm extrusion is a “T” profile and incorporates a groove to hold the pivots with two nut slots for fixings.

## Operating Strip

The operating strip is attached to the rack arms ensuring alignment for the smooth operation of the system.

## Polycarbonate components

These weather resistant and long wearing components are manufactured from UV stabilised nylon 6 (polycarbonate) and include:

- Pivots
- Rack arm
- Slat clip
- Bearing bracket & tilt arm- standard system

Standard colours: Silver Grey. Black (Additional lead time required).

## Pivot Arms

The pivots are inserted into the notches of the rack arm extrusions and are not removable.

## Bearing brackets, tilt shafts and link arms

The rotating arm is attached to the operating strip via the link arm. The rotation of the bearing converts into a linear motion of the link arm. The operating strip converts into the rotational movement of the rack arms around the pivots allowing the tilt shaft to operate the system from open to fully closed.

## Brushes

Brushes are an optional component that slot into an angle bracket fixed onto the building structure or window mullion to achieve blackout when the system is fully closed. 5/6” (21 mm) wide up to 118 1/9” (3000 mm) long.

## Side Support with Edge Pivots

These additional supports are incorporated into irregular shaped rack arm installations to ensure the smooth operation of the systems.

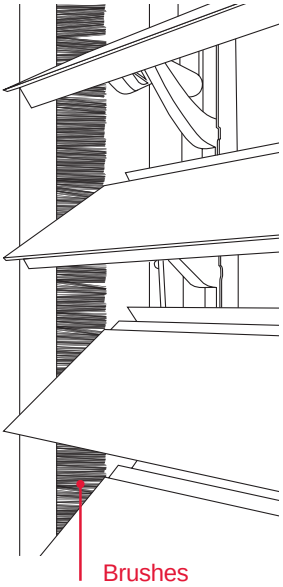
Rack Arm Extrusion

Standard

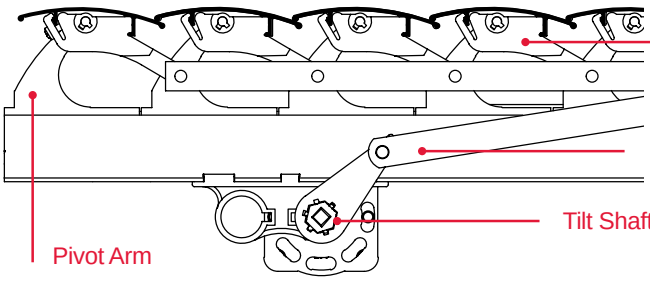
Rack Arm Extrusion

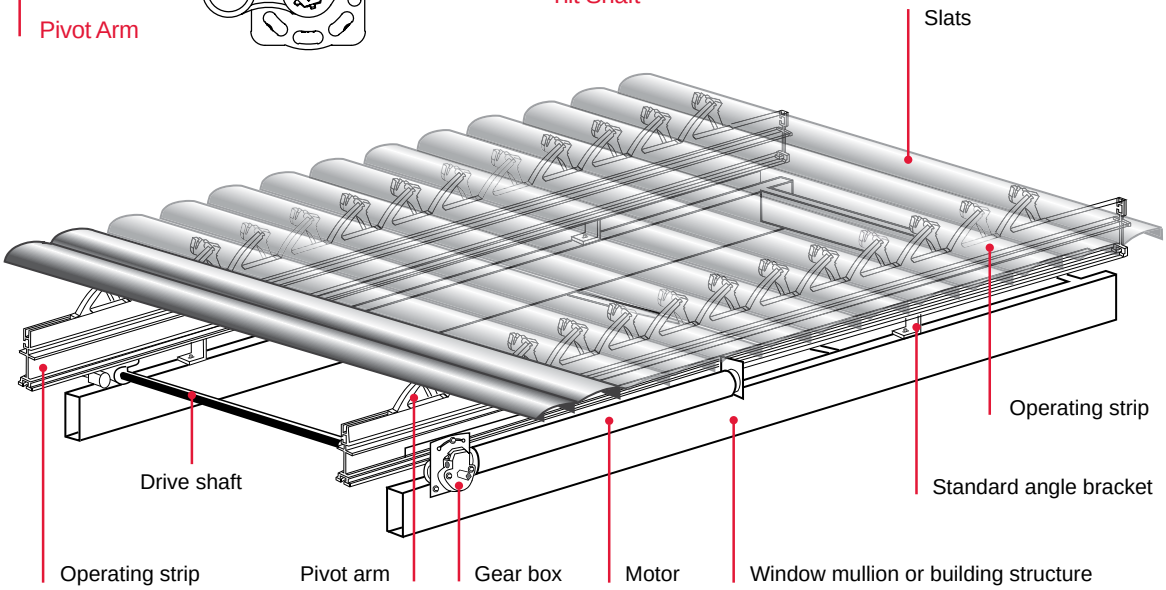
Heavy Duty

Pivot Arms



Brushes




## Heavy Duty Components

Heavy duty components are available for all rack arm systems and are recommended for installations with non standard configurations and unsupported span widths. Heavy duty components include rack arm extrusions, bearing brackets, tilt shafts, and pivot arms.

# Aluminium Slats

Horiso Rack Arm aluminium slats are made from durable light weight aluminium alloy extrusions. The high quality slats are finished with a polyester and polyurethane coating and are offered in eight standard colour options.

Custom colours are available on request*

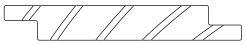
## Standard slat colours

White | Clear Anodised | Dark Brown | Bronze | Silver Pearl | Storm Pearl | Jet Black | Monument Grey

* Custom colours may incur a surcharge. Please contact Horiso for further information.

# Timber Slats

RA87 

RA74 

Timber Rack Arm systems integrate seamlessly with timber building facades, can provide a natural timber element to a building exterior and introduce a warm filtered light to an interior.

Horiso selects timber for the manufacturing of timber louvre slats from sustainably managed forests in both western red cedar and Accoya® varieties.

### Western Red Cedar

A dimensionally stable timber under most weather conditions and is not prone to shrinkage or swelling. Due to its versatility, it can be used for both internal and external applications.

### Accoya®

Accoya® is modified timber in which a process called acetylation, a cutting-edge patented technology, enables it to resist rot, defy the elements and stay strong for decades. Accoya® wood is sourced from sustainable sources, including FSC® and Cradle to Cradle™ Gold environmental certification.

## Examples of various timber colour stains

# Motors

## Motor Types

Motor type specification depends on the height, width, weight and location of the rack arms.
Motors available:

- Tubular or linear box motors
- Quiet motor option
- 120 or 230 volts (Aus) / 100 or 230 volts (US)
- Compatible with home automation systems
- Compatible with building management systems.

## Optional Motor Features

- IP 44 - aluminium (Splash water protected).
- Aluminium designed hood fitting for motors used on external applications.

## Motor Torque

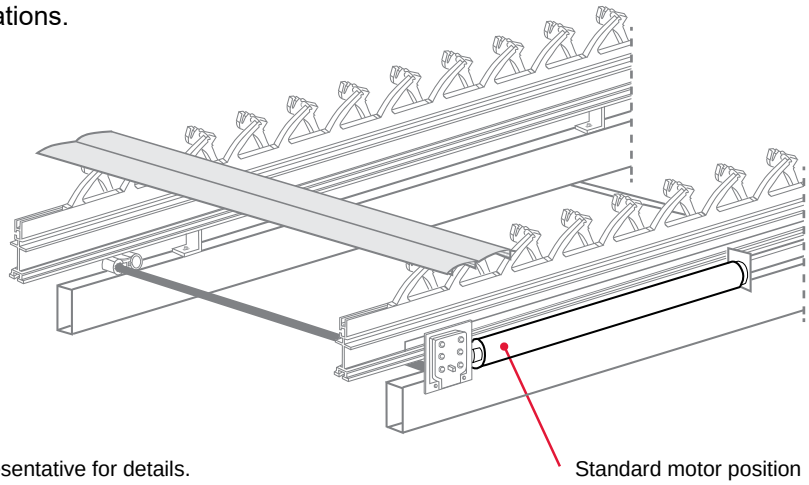
- 10 Nm operates 15 sq. metre external rack arm.
- 13 Nm operates 20 sq. metre external rack arm.
- Higher torque range achievable with linear motor.

## Motor Position

Horiso® Rack Arm Systems can be motor operated individually or in mechanically linked systems. The motors can only be positioned opposite the operation strip which is dictated by the pivot arm.

Depending on the shape of the glazed area and available space, there may be further motor position limitations*.

See page 14 for standard configurations.




* Conditions apply. See your technical representative for details.

# Control Options

The complete line of Horiso Rack Arm systems can be operated at various levels of sophistication. These include:

## Manual crank handle operation

System using any slat size can be manually operated using a gear box that is connected to the tilt shaft and turned by the detachable crank handle. Handle lengths can be specified to project requirements.

## Motorised control via a switch, remote control or touch phone/hand-held device

Motorisation is the most efficient and effective way to control Rack Arm Systems. Systems can be opened and tilted at various degrees for light filtration or completely open at 90 degrees for maximum daylight by a press of a button. Various control options and levels of sophistication are available.

## Automation control at varying degrees of customization

Automation control provides hands free operation at various levels of sophistication set to a user's requirements.

The automation function operates at various customisable levels:

- Timer setting - opens at various angles at set times
- Sun tracking - louvres open at various angles throughout the day based on the sun's position
- Integration with building management systems (BMS) e.g. BACnet®, Lonworks® and KNX®
  This allows the user to control Horiso shading systems through third party BMS systems

* More information on automation control can be found on pages 8 and 9

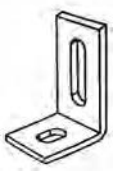
# System Installation

Quality installation is a determining factor in achieving optimum performance and longevity of Horiso Rack Arm Systems. It is recommended that shading requirements, building structure assessment, precise measurements and design are considered.

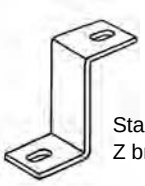
Horiso provides technical assistance and specialist engineering support to architects, engineers, builders and construction experts.

Application flexibility provides various installation methods, including:

- External installation directly onto window mullions using standard Z brackets.
- External installation directly onto the building structure using standard Z or custom made brackets.
- Internal installation within window framework using standard angle brackets or custom made brackets.



Standard angle bracket



Standard Z bracket

* Please consult your technical representative for details. Custom bracket fixings can be manufactured to suit a particular architectural design or construction material.

RA 75E system - private residence, Sydney

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