

mardome

Dome Rooflights

TB200

August 2018

Mardome Trade/Ultra
Data Sheet
Page 1

Product Description

Brett Martin Daylight Systems Mardome Trade and Ultra Rooflights are individual polycarbonate dome rooflights with a PVC-U multi-walled kerb intended for installation on flat roofs of all modern building types to provide natural light (and ventilation where specified).

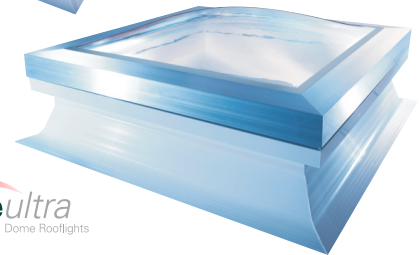
Mardome Rooflights are designed and manufactured under an ISO9001 approved quality system. Product options which will help to satisfy differing requirements for light transmission, thermal performance, ventilation and acoustics are available (summary below / details from page2 onwards).

BBA Approval

Brett Martin Daylight Systems Mardome Trade and Ultra Rooflight Domes have full BBA approval and are certified under 06/4385.



mardome trade
Dome Rooflights



mardome ultra
Dome Rooflights

Appearance

Mardome Trade is the standard specification dome. It's contemporary design gives a clean white internal appearance and unobtrusive exterior.

Mardome Ultra is the architectural specification dome. It combines high security and contemporary design to provide excellent aesthetics inside and out.

The low profile dome improves the aesthetics and also the clarity of light, whilst the PVC-U kerb can conceal actuators and wiring for an obstruction free lightwell. Mardome Rooflights provide a clean interior, and unobtrusive external appearance and therefore complement the surrounding environment.

Design Features

- Contemporary low rise profile (dome and pyramid options).
- U_a-value to as low as 0.95 W/m²K.
- Constant separation of glazing skins across full width of dome including fixing flange. This avoids cold spots and minimises the risk of condensation.
- Components of powered opening domes (230V) are hidden for a unobstructed light well.
- Options to satisfy requirements for light transmission, thermal performance, ventilation and acoustics.
- For ease of installation the tapered standard sloped kerb foot does not require timber fillets and provides a clean external finish for all roofing types.

Product Options Summary (see page 2 onwards for details)

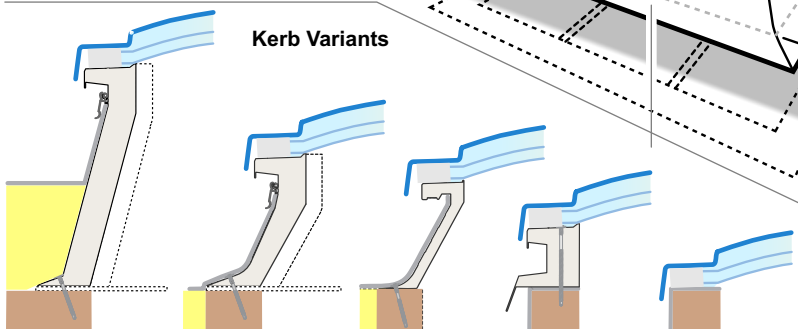
Hinged Opening

- Manual (worm gear)
- Powered (chain actuator)
- Sensor Controlled Powered
- Access Hatch (90° gas struts)
- Solar powered

Ventilation

- Manual Hit-and-Miss
- Automatic Humidity Controlled
- Powered Extraction

Kerb Variants



Tall 300mm

PVCu*

Standard sloped PVCu*

- kerb type varies with specification

Builders upstand - kerb supplied for vented and opening variants

*Acoustic Pack available for noise reduction

Glazing Shape

- Dome
- Pyramid

Glazing Tint

- Clear
- Textured
- Bronze
- Opal

Glazing Type

- Double Skin Polycarbonate
- Triple Skin Polycarbonate
- Quad Skin Polycarbonate
- Polycarbonate Dome over:
 - Structured Polycarbonate
 - Argon Filled Glass

Size (roof opening)

Standard range (mm):
600 750 900 1050 1200 1350
1500 1650 1800 1950 2100
2250 2400

In square and rectangular combinations.

Kerb adapters available for fitting to non- standard sized upstands.

-Burglar Bars
-Blinds

Composition

The outer dome of Mardome Trade and Ultra is manufactured from 3mm impact resistant Marlon FSX Longlife polycarbonate sheet which is co-extruded with a UV protective coating to both sides. The inner domes are manufactured from 2mm impact resistant Marlon FSX Longlife polycarbonate sheeting for double, triple and quad skin options.

The kerb and hinge frames are manufactured from Lead & Cadmium free un-plasticised PVC rigid multi-wall extruded profile with internal gloss white finish. The Mardome Ultra cowl is from extruded aluminium alloy, and silver anodised as standard. Alternatively, the cowl can be supplied in polyester powder coated on request.

The polycarbonate, PVC-U and aluminium which comprise the product can be recycled at the end of useful product life.

Durability

Mardome Trade and Ultra Rooflights are guaranteed to remain fit for purpose in normal industrial conditions for a period of 10 years i.e. they will not become perforated, lose significant structural integrity, or distort to the extent of losing weather-tightness. In addition, the polycarbonate used in Mardome Rooflights is guaranteed against loss of light transmission, discolouration or loss of impact strength for the first 10 years.

Electrical actuators (where present), are guaranteed for a period of 1 year unless otherwise agreed. Actuators have a design life of at least 10,000 cycles.

Safety Requirements/CDM Regulations

Mardome Trade and Ultra Rooflights achieve Class B non-fragility to ACR[M]001 when new and fully installed in accordance with Brett Martin Daylight System's installation guides (See TB's 186-193).

Foot traffic on rooflights should always be avoided; impacts such as foot traffic or a falling person may cause damage which could necessitate rooflight replacement.

Security

Please refer to BBA Certificate 06/4385, Section 14.

Mardome Trade:

The design of the Mardome Trade rooflight is such that individual fixings are concealed inside security caps. Removal of these caps to gain access to the fixings is extremely difficult. In addition, polycarbonate rooflights have good resistance to impact, making breakage very difficult.

Mardome Ultra:

Mardome Ultra Rooflight is supplied with 'security latches'. This security lock mechanism can only be opened with the use of a security opening device. Manipulation of the 'security latches' by an opportunist intruder without the opening device is virtually impossible.

Mardome Rooflights resist the likely methods of intrusion by an opportunist using basic hand tools when tested to PAS 24:2012, Annex C.4.3.

Fire Rating

Building Regulations Approved Document B (2006 edition, amended 2007) sets out the rules for fire safety of buildings, which can be met by achieving specific fire ratings to either British (BS476) or European (BS EN 13501) test standards.

Brett Martin Daylight Systems Mardome Trade and Ultra Rooflights achieve Class B-s1,d0 to BS EN 13501: Part 1. Building Regulations state they can therefore be regarded as B_{ROOF}(t4).

Available Options

Mardome Trade and Ultra Rooflights are available in a curved dome or a pyramid profile and in a range of sizes listed in Table 1. Other sizes within this range can also be fabricated on request and are covered by the BBA Certificate.

Table 1
Sizes of Rooflights

| Dome or Pyramid Rectangular Base and Daylight Area (mm) | | | | | |
|---|-------------|-------------|------------|-------------|-------------|
| Square | | Rectangular | | | |
| 600 x 600 | 450 x 450 | 600 x 750 | 450 x 600 | 1050 x 2250 | 900 x 2100 |
| 750 x 750 | 600 x 600 | 600 x 900 | 450 x 750 | 1200 x 1350 | 1050 x 1200 |
| 900 x 900 | 750 x 750 | 600 x 1050 | 450 x 900 | 1200 x 1500 | 1050 x 1350 |
| 1050 x 1050 | 900 x 900 | 600 x 1200 | 450 x 1050 | 1200 x 1650 | 1050 x 1500 |
| 1200 x 1200 | 1050 x 1050 | 600 x 1350 | 450 x 1200 | 1200 x 1800 | 1050 x 1650 |
| 1350 x 1350 | 1200 x 1200 | 600 x 1500 | 450 x 1350 | 1200 x 1950 | 1050 x 1800 |
| 1500 x 1500 | 1350 x 1350 | 600 x 1650 | 450 x 1500 | 1200 x 2100 | 1050 x 1950 |
| 1650 x 1650 | 1500 x 1500 | 600 x 1800 | 450 x 1650 | 1200 x 2250 | 1050 x 2100 |
| 1800 x 1800 | 1650 x 1650 | 750 x 900 | 600 x 750 | 1200 x 2400 | 1050 x 2250 |
| | | 750 x 1050 | 600 x 900 | 1350 x 1500 | 1200 x 1350 |
| | | 750 x 1200 | 600 x 1050 | 1350 x 1650 | 1200 x 1500 |
| | | 750 x 1350 | 600 x 1200 | 1350 x 1800 | 1200 x 1650 |
| | | 750 x 1500 | 600 x 1350 | 1350 x 1950 | 1200 x 1800 |
| | | 750 x 1650 | 600 x 1500 | 1350 x 2100 | 1200 x 1950 |
| | | 750 x 1800 | 600 x 1650 | 1350 x 2250 | 1200 x 2100 |
| | | 750 x 1950 | 600 x 1800 | 1350 x 2400 | 1200 x 2250 |
| | | 900 x 1050 | 750 x 900 | 1500 x 1650 | 1350 x 1500 |
| | | 900 x 1200 | 750 x 1050 | 1500 x 1800 | 1350 x 1650 |
| | | 900 x 1350 | 750 x 1200 | 1500 x 1950 | 1350 x 1800 |
| | | 900 x 1500 | 750 x 1350 | 1500 x 2100 | 1350 x 1950 |
| | | 900 x 1650 | 750 x 1500 | 1500 x 2250 | 1350 x 2100 |
| | | 900 x 1800 | 750 x 1650 | 1500 x 2400 | 1350 x 2250 |
| | | 900 x 1950 | 750 x 1800 | 1650 x 1800 | 1500 x 1650 |
| | | 900 x 2100 | 750 x 1950 | 1650 x 1950 | 1500 x 1800 |
| | | 1050 x 1200 | 900 x 1050 | 1650 x 2100 | 1500 x 1950 |
| | | 1050 x 1350 | 900 x 1200 | 1650 x 2250 | 1500 x 2100 |
| | | 1050 x 1500 | 900 x 1350 | 1650 x 2400 | 1500 x 2250 |
| | | 1050 x 1650 | 900 x 1500 | 1800 x 1950 | 1650 x 1800 |
| | | 1050 x 1800 | 900 x 1650 | 1800 x 2100 | 1650 x 1950 |
| | | 1050 x 1950 | 900 x 1800 | 1800 x 2250 | 1650 x 2100 |
| | | 1050 x 2100 | 900 x 1950 | 1800 x 2400 | 1650 x 2250 |

- Kerb adapters available for fitting to non-standard sized upstands.

Available Options Continued

Ventilation:

Ventilation can help reduce humidity, and reduce risk of condensation and should be considered in any areas of high humidity. Mardome Rooflight kerbs may be unvented or can incorporate vents. These can either be hit-and-miss manually controlled trickle vents, automatic humidity controlled vents or powered extraction ventilation (Details listed in Table 2.)

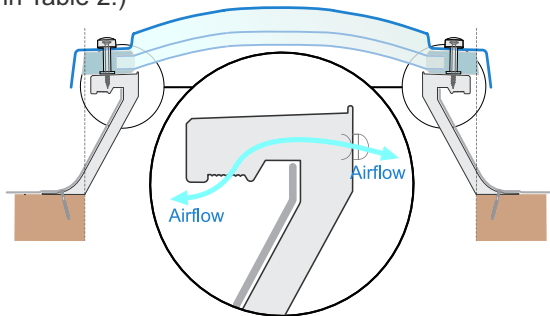


Table 2
Ventilation Options

| Ventilation Type | Description | Rating |
|---|---|--|
| Trickle Ventilation (Hit-and-Miss) | Manually operated trickle ventilation provides background ventilation to the interior | Provides 8400mm ² Equivalent Area Ventilation |
| Automatic Humidity Controlled Trickle Ventilation | Humidity controlled trickle ventilation is sensor controlled to open and close in response to room humidity levels | Provides 7822mm ² * Equivalent Area Ventilation and provides superior protection against condensation |
| Powered Extraction Ventilation | Mains powered extraction ventilation with optional sensor control to turn on or off in response to room humidity levels | Provides 55 – 880 m ³ /hr @ 0pa of extraction ventilation depending on quantity of fans** |

* Trickle ventilation may be restricted on some Access Hatch options.

**1-4 extraction fans available - maximum quantity dependent on rooflight size.

Mardome Rooflights can also be opened on concealed hinges using actuators (manual or powered) to create a large ventilation area, or with gas struts to provide an access hatch. Opening rooflights can contribute to room ventilation as required by Part F of the Building Regulations.

Table 3a
Opening Options

| Opening Type | Description | Geometric Ventilation Area | |
|---|--|----------------------------|----------------------|
| | | Min | Max |
| Manual Opening (MLD) | Hinged opening dome which is operated manually via a worm gear drive with an extension pole | 0.300 m ² | 1.093 m ² |
| Powered Opening (PCD/PCR) | Powered hinged opening dome with completely concealed operating mechanism. Opened and closed using a control switch or remote control | 0.210 m ² | 1.132 m ² |
| Sensor Controlled Powered Opening (PCS) | Powered hinged opening dome which includes rain sensors for automatic operation | 0.210 m ² | 1.132 m ² |
| Solar Powered | Wireless, solar powered, hinged opening dome. Opened and closed with remote control or optional wireless wall switch, with optional rain sensor and thermostat control for automatic operation | 0.210 m ² | 0.933 m ² |
| Access Hatch | To gain entry to a roof for maintenance or as an emergency exit. Unit held open by two gas struts | 90° opening | |

Size Restrictions for Opening Options:

Please note that restrictions apply due to size, wind loadings and weight; For **Manual, Powered, Access Hatches and Solar Powered** opening domes see table 3b below :

Table 3b - Mardome Trade and Ultra Opening Options

| Nominal Dome Size mm | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 |
|----------------------|---------|---------|---------|-------------|-------------|-------------|-------------|-------------|-------------|
| 600 | 600x600 | 600x750 | 600x900 | 600x1050 | 600x1200 | 600x1350 | 600x1500 | 600x1650 | 600x1800 |
| 750 | - | 750x750 | 750x900 | 750x1050 | 750x1200 | 750x1350 | 750x1500 | 750x1650 | 750x1800 |
| 900 | - | - | 900x900 | 900x1050 | 900x1200 | 900x1350 | 900x1500 | 900x1650 | 900x1800 |
| 1050 | - | - | - | 1050 x 1050 | 1050 x 1200 | 1050 x 1350 | 1050 x 1500 | 1050 x 1650 | 1050 x 1800 |
| 1200 | - | - | - | - | 1200 x 1200 | 1200 x 1350 | 1200 x 1500 | 1200 x 1650 | 1200 x 1800 |
| 1350 | - | - | - | - | - | 1350 x 1350 | 1350 x 1500 | 1350 x 1650 | 1350 x 1800 |
| 1500 | - | - | - | - | - | - | 1500 x 1500 | 1500 x 1650 | 1500 x 1800 |
| 1650 | - | - | - | - | - | - | - | 1650 x 1650 | 1650 x 1800 |
| 1800 | - | - | - | - | - | - | - | - | 1800 x 1800 |

| KEY | Mains Powered Opening (PCD,PCR & PCS)* | Manual Opening* | Solar Powered Opening** | Access hatch** | Additional size restrictions if ordered with double glazed glass inner |
|-----|--|-----------------|-------------------------|----------------|--|
| | ✓ | ✓ | ✓ | ✓ | |
| | ✓ | ✓ | ✓ | - | **Not available with double glazed glass inner |
| | ✓ | - | - | - | |

Acoustic Performance:

For applications where acoustic performance is particularly important the Mardome **acoustic pack** is an option. The acoustic pack is not available with opening or vented products, but is suitable for use with all other variants and has a positive contribution on acoustic attenuation levels and rain penetration noise and can assist in achieving BREEAM credits. For a triple skin polycarbonate glazed Mardome Trade rain noise penetration tests give a reading of LiA = 62dB; when the acoustic pack is added this reduces transmission of rain noise by approximately two-thirds to 47dB (a reduction of 15dB, when every 10dB represents a halving of noise levels).

Note: An **alternative to the acoustic pack** is to specify a dome with the argon filled double glazed glass inner option. This gives acoustic performance of LiA=54dB – so 8dB better than a triple skin polycarbonate dome. Whilst not as effective as the Acoustic Pack, this option is available in conjunction with ventilation, and in some opening options, if required. Mardome Rooflights are independently tested to BS EN 140-18: 2006. Results are shown in Table 4:

Table 4

Rain Noise Penetration Test (LiA)

| Description | Sound Transmission |
|---|--------------------|
| Standard Triple Skin Polycarbonate Dome | 61.8 dB |
| Single Skin Polycarbonate Dome over double glazed glass inner panel | 53.9 dB |
| Standard Triple Skin Polycarbonate Dome WITH Acoustic Pack (comprising absorbing lining and acoustic insulating material) ^[1] | 46.7dB |

^[1] 10dB reduction equates to a drop of 50% in the sound level.

^[2] To maximise the acoustic pack performance, it is only available with fixed, unventilated products.

Glazing Options & Transmission Values

Mardome Trade and Ultra Rooflights are available with a selection of glazing tint options depending on the required level of light transmission.

| Tint | Lighting Effect | Light Transmission (%) DIN 5036 | | |
|----------|--------------------------------|------------------------------------|-------------|-----------|
| | | Double Skin | Triple Skin | Quad Skin |
| Clear | High Visibility | 85% | 78% | 72% |
| Textured | Privacy | 78% | 72% | 66% |
| Bronze | Solar Control | 39% | 36% | 33% |
| Opal | Diffused Light & Solar Control | 35% | 32% | 30% |

| Tint | Double Skin | Triple Skin | Quad Skin |
|-------|-------------|-------------|-----------|
| Clear | 0.73 | 0.66 | 0.61 |
| Opal | 0.33 | 0.30 | 0.28 |

| Tint | Double Skin | Triple Skin | Quad Skin |
|-------|-------------|-------------|-----------|
| Clear | 0.84 | 0.76 | 0.70 |
| Opal | 0.38 | 0.34 | 0.32 |

Thermal Performance

The thermal transmittance of Mardome Rooflights is measured by the Guarded Hot Box method according to BS EN ISO 12567-2: 2005.

Part L Building Regulations require a U-value of at least 2.2W/m²K: Brett Martin Daylight Systems recommend the use of at least triple skin rooflights in all applications.

Mardome Trade (triple skin and better insulated variants) and Mardome Ultra (all variants) are designed for optimal thermal performance and resistance to condensation. This provides full insulation across the whole width of the rooflight (including the fixing flange), eliminating any cold spots associated with traditional methods of dome rooflight construction and giving a much higher f-factor. The elimination of cold spots and the highly insulated frame means that these areas are even more resistant to condensation than the main areas of glazing, where performance is governed by U-value

See BBA certificate 06/4385 section 8 "Condensation risk" for further details.

Options with enhanced thermal performance such as quad-skins, outer dome over multi-wall structured polycarbonate or outer dome over argon filled glass units, are also available from Brett Martin Daylight Systems, which offer lower U-value and U_g values.

The performance is declared as the U_g-value (defined in accordance with NARM NTD2). This performance, and the centre pane U-value of the glazing system, is shown in Table 6.

Table 6 Mardome Thermal Efficiency

| | Centre Pane U-Value (W/m ² K) | U _g -Value (W/m ² K) | |
|--|--|--|-------------|
| | | 600x600mm | 1800x2400mm |
| Double Skin Polycarbonate | 2.7 | 1.54 | 2.11 |
| Triple Skin Polycarbonate | 1.8 | 1.25 | 1.52 |
| Quad Skin Polycarbonate | 1.4 | 1.12 | 1.26 |
| Structured Polycarbonate Inner Glazing | 1.2 | 1.06 | 1.13 |
| Argon Filled Glass Inner Glazing | 0.9 | 0.96 | |

Product Accessories

Kerb Adapter:

See *Technical Bulletin 191* for more information.

The Mardome Kerb Adapter allows standard domes from the Mardome range to fit on non-standard builders kerb sizes.

Burglar Bar:

The Mardome Burglar Bar is designed to fit beneath the foot of the kerb to provide additional security where required. It is powder coated in a white finish, and available in all sizes.

Blinds:

Mardome blinds are powered or manually operated pleated blackout blinds, available in all sizes. They are white as standard but other colours are available.

Please contact Brett Martin Daylight Systems to discuss options.

General Product Dimensions

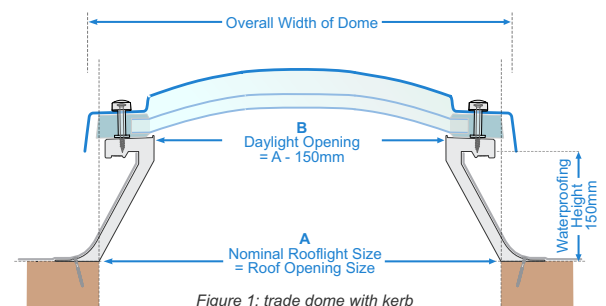


Figure 1: trade dome with kerb

Mardome offer differing kerb options depending on project specification. The Mardome Sloped or 300mm Kerb is offered for use when there is no pre-existing upstand, or when over-sailing the current upstand is preferred.

When the rooflight is to be fitted to an existing upstand, the unventilated Trade rooflights are to be fitted directly. Whilst an Ultra, or ventilated or opening Trade rooflight is supplied complete with a direct fix kerb.

General Product Dimensions Continued

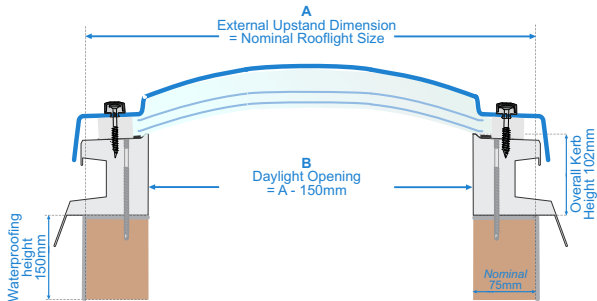


Figure 2: opening / ventilated dome without sloped or 300mm kerb

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*Kerb profile varies with specification

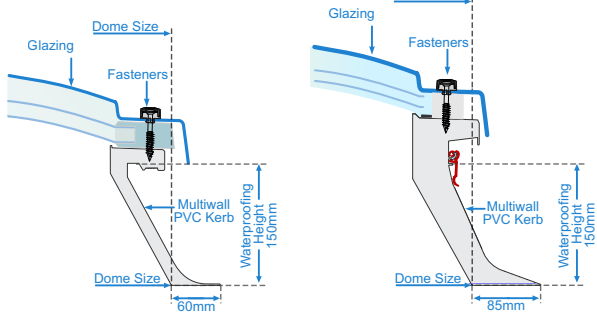


Figure 3: Trade dome with kerb detail

mardomeultra
Dome Rooflights

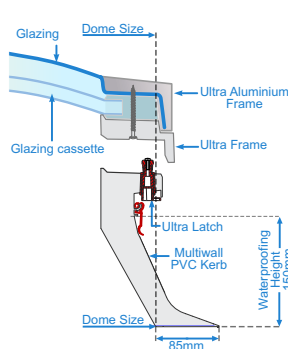


Figure 4: Ultra dome with kerb detail

Table 7
Product Overall Height & Weight

| Description | Nominal Dome Size (mm) | Sloped Kerb H (mm) | W (Kg) | 300mm Kerb H (mm) | W (Kg) |
|---------------------|------------------------|--------------------|--------|-------------------|--------|
| Fixed Trade Dome | Min 600 x 600 | 311 | 10.9 | 461 | 13.3 |
| | Max 1800 x 2400 | 427 | 71.9 | 577 | 79.7 |
| Fixed Ultra Dome | Min 600 x 600 | 346 | 17.4 | 496 | 19.8 |
| | Max 1800 x 2400 | 462 | 94.7 | 612 | 102.5 |
| Opening Trade Dome* | Min 600 x 600 | 346 | 15.0 | 496 | 17.4 |
| | Max 1800 x 1800 | 462 | 61.6 | 612 | 68.3 |
| Opening Ultra Dome* | Min 600 x 600 | 346 | 18.8 | 496 | 21.2 |
| | Max 1800 x 1800 | 462 | 72.9 | 612 | 79.6 |

*not all product options available - contact Brett Martin Daylight Systems for advice

Note: Weights based on triple skin dome.
For Quad skin dome; add 2.4 Kg/m²
For Argon filled Glass dome; add 25 Kg/m²

TECHNICAL SUPPORT: For any technical information/queries please contact your supplier.

Brett Martin Daylight Systems operates a policy of continuous product improvement, and reserves the right to alter specifications at any time without notice. Every effort has been taken to ensure all details contained in this document are correct at the time of going to press but this document should be used only as a guide and does not in any way form part of a contract or warranty. It is the customer's responsibility to ensure that the product is suitable for the actual conditions of use, which are beyond the control of Brett Martin Daylight Systems.

General Product Dimensions Continued

Restrictions on available size and opening options apply. **Glass** glazing is therefore *not available* in some sizes, please check for availability of opening variants with Brett Martin Daylight Systems technical department.

Wind and Snow Load

Please refer to BBA Certificate 06/4385, Section 9.

Mardome Rooflights have been independently tested to show that when correctly fitted in accordance with our instructions, they will resist wind loads calculated in accordance with BS EN 1991-1-4: 2005, and imposed loads in accordance with BS EN 1873: 2005 as shown in Table 8.

Table 8
Resistance to Snow and Wind Loads

| Rooflight Type | Dimensions (mm) | Snow Load (N.m ⁻²) | Wind Load (N.m ⁻²) |
|----------------|-----------------|--------------------------------|--------------------------------|
| Domed | 1200 x 2400 | 1125 | 1500 |
| Pyramid | 1500 x 1500 | 1750 | 3000 |

Installation, Handling, Maintenance & Storage

Full installation details, maintenance and product care details, can be found in the relevant Technical Bulletins.

Table 9
Technical Bulletins

| Technical Bulletin | Technical Bulletin Description |
|--------------------|---|
| TB 186 | Installation for Mardome Trade on Sloping, 300mm AND Direct Fix Kerb |
| TB 187 | Installation for Mardome Ultra on Sloping, 300mm AND Direct Fix Kerb |
| TB 188 | Installation for Mardome Trade & Ultra on Sloping, 300mm AND Direct Fix Kerb with Manual (MLD and Access Hatch) Opening Options |
| TB 189 | Installation for Mardome Trade & Ultra on Sloping, 300mm AND Direct Fix Kerb with PCD/PCR/PCS Powered Opening Options |
| TB 190 | Installation for Mardome Trade & Ultra on Sloping, 300mm AND Direct Fix Kerb with SV30 Powered Opening Option |
| TB 191 | Installation for Mardome Kerb Adapter on Existing Upstand for Unvented AND Vented Domes |
| TB 193 | Installation of Acoustic Pack on Mardome Trade on Sloping and 300mm Kerb AND Mardome Ultra on Sloping and 300mm Kerb |
| COSHH12 | COSHH Data Sheet for Dome Rooflights - Product Safety and Handling Data Sheet |
| TB 203 | Polycarbonate Dome: Product care before & after installation |