

mardome

Dome Rooflights

TB200

August 2017

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).

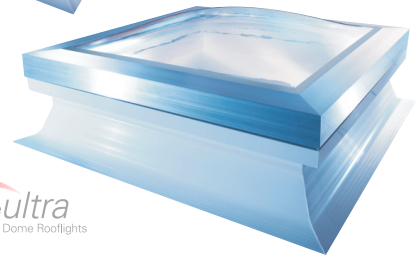
Mardome Rooflights are designed and manufactured under an ISO9001 approved quality system. Product options which will help to satisfy differing requirements for light transmission, thermal performance, ventilation and acoustics are available (summary below / details from page 2 onwards).

BBA Approval

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



mardometrade
Dome Rooflights



mardomeultra
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)

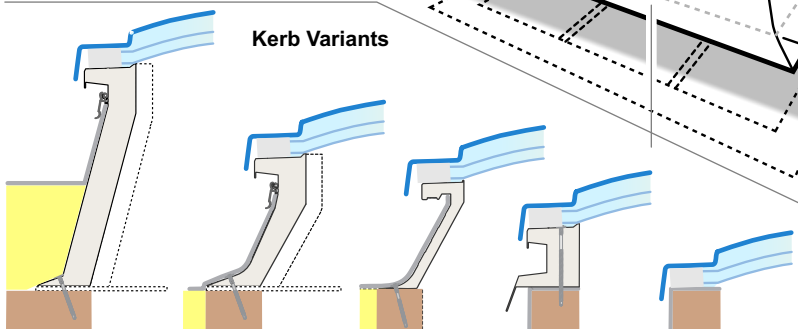
Hinged Opening

- 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*

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.)

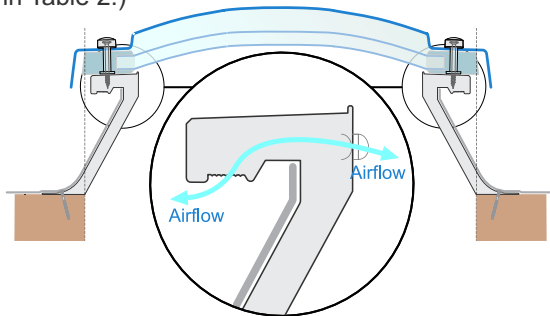


Table 2
Ventilation Options

Ventilation Type	Description	Rating
Trickle Ventilation (Hit-and-Miss)	Manually operated trickle ventilation provides background ventilation to the interior	Provides 8400m 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 7822m 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

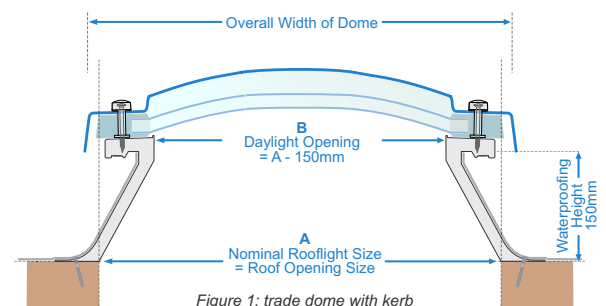


Figure 1: trade dome with kerb

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

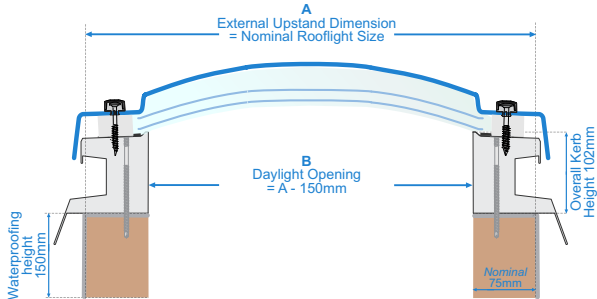


Figure 2: opening / ventilated dome without sloped or 300mm kerb

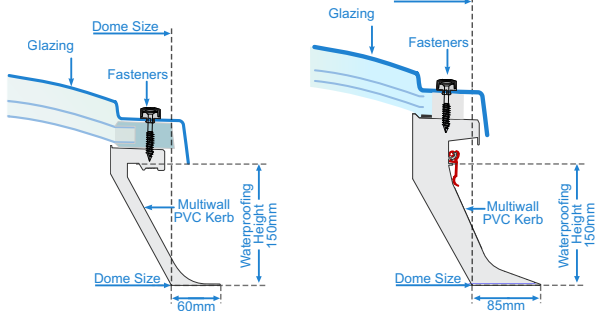


Figure 3: Trade dome with kerb detail

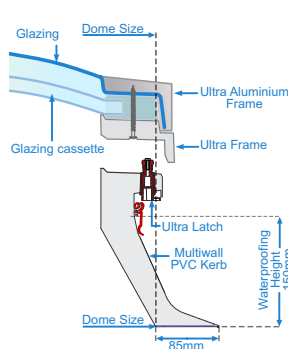


Figure 4: Ultra dome with kerb detail

Table 7
Product Overall Height & Weight

Description	Nominal Dome Size (mm)	Sloped Kerb		300mm Kerb	
		H (mm)	W (Kg)	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