

HMAO



HMAO
High Mast Advanced Optix




HOLOPHANE

HIGH MAST HMAO

The High Mast Advanced Optix (HMAO) luminaire has been engineered for new and retrofit high mast applications. With the latest in high-efficiency LED technology it provides a complete lighting solution for the simplest through to the most complex area lighting applications.

The specially engineered optical modules come with a full range of distribution options to meet the highest performance standards and deliver outstanding visibility and uniformity. For over 125 years Holophane has enjoyed an enviable reputation throughout the world for expertise, quality and innovation in lighting. From the earliest days, when the company pioneered its famous glass refractor, the Holophane name has been ever present as a leader in the field of luminaire and lighting design. HMAO is a continuation of this proud tradition.

Applications

- Freight Terminals
- Industrial Facilities
- Car Parks
- Truck stops
- Ports and Docks
- Airports
- Motorways
- Toll Plazas

Overview

- 3000°K & 4000°K colour temperature.
- CRI > 70.
- Lumen packages ranging from 30,000 - 100,000 lumens.

TM66 CEAM-Make Rating

Preliminary Rating: 2.3 (Definite/substantial progress to circularity).

Approvals



Complies with EN60598

IP65 and IK07

-20°C to +45°C (L75X limited to +40°C)

Durability
Performance
Reliability



For further information please visit the Holophane website www.holophane.co.uk

PRODUCT FEATURES

HIGH MAST HMAO

In this very competitive environment, it is becoming increasingly important to reduce operating costs and improve efficiency. Holophane is your expert when it comes to delivering the most efficient lighting solutions to help you achieve that goal.

Taking advantage of the most advanced technologies available, you can achieve an energy saving of up to 66% over existing installations. Holophane's High Mast Advanced Optix (HMAO) helps you to reduce installation and long term maintenance costs.

HMAO is available in 6, 9 or 12 optical pod configurations dependent on lumen package.

Two piece electrical housing. Upper casting can be detached/hinged to aid installation.

Advanced optical control

By combining the latest in LED technology with our advanced glass refractor optic we are able to break up the image of the LEDs with a PrismGlow effect. This reduces the glare normally associated with individual LEDs and eliminates hot spots on the working environment thus creating a more uniform vertical and horizontal lighting solution.

Glass Refractor

The major advantage of glass over aluminium or plastic is its low electrostatic charge, which makes it less attractive to dust and dirt accumulation over time. A glass refractor has a much lower light depreciation over time than either aluminium or plastic, fewer luminaires are required, significantly reducing installation, operating and maintenance costs.

Ventilated optical housing which can be rotated to suit application.

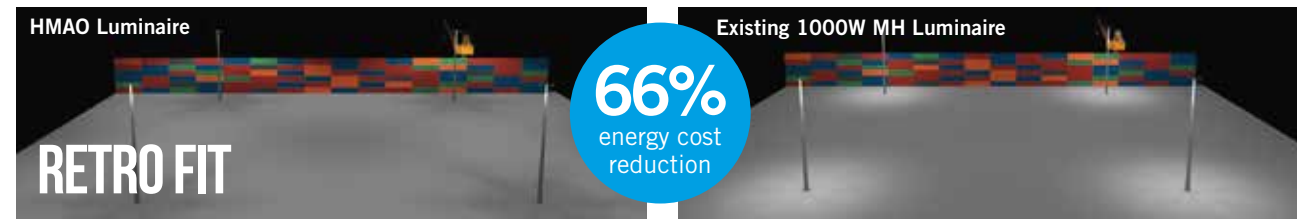
Self-cleaning Effect

The glass optics and the vertical ventilation slots in the heat-sink chassis work together in creating a self-cleaning optic. The heat generated by the LEDs helps to channel cooler and denser air across the low static optical glass surface thus preventing the settling of dust particles and enhancing the lumen maintenance of the luminaire.



RETROFIT NEW BUILD

Customer benefit expressed in numbers on a new build and retrofit installation.



Design Parameters

- Designed to EN 12464-2:2014
- Target of 30 lux
- 30m mounting height in a 1000m grid
- Designed to 8000 hours

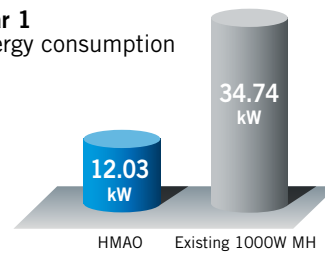
Product Used

- 32 High Mast Advanced Optix
 - Luminous flux: c45,000
 - Luminous efficiency: 144 lpw
- 32 1000MH Luminaire
 - Luminous flux: c67,000
 - Luminous efficiency: 62 lp/W

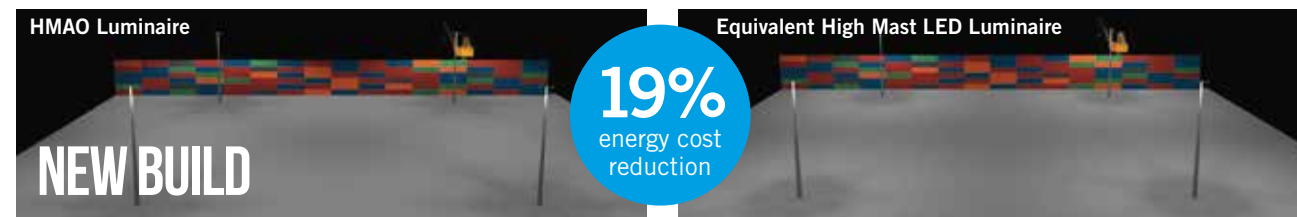
Benefits

- 66% year 1 energy savings
- Improved light control
- Horizontal/vertical uniformity improved

Year 1 energy consumption



HMAO		1000W MH
32	No of Luminaires	32
32	Eav (lux)	31
0.597	Uniformity	0.552
12.03	Total Power Load kW	34.72
£4,831	Year 1 Energy	£13,940



Design Parameters

- Designed to EN 12464-2:2014
- Target of 30 lux
- 30m mounting height in a 1000m grid
- Designed to 8000 hours

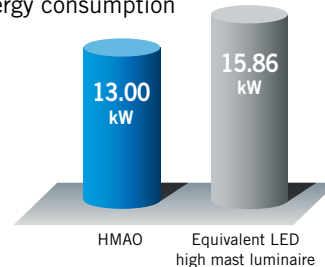
Product Used

- 26 High Mast Advanced Optix (HMAO)
 - Luminous flux: c60,000
 - Luminous efficiency: 144 lpw
- 26 Equivalent LED High Mast Luminaire
 - Luminous flux: c56,000
 - Luminous efficiency: 93 lp/W

Benefits

- 19% year 1 energy savings
- 20% improvement in uniformity
- Improved vertical illumination
- Low glare

Year 1 energy consumption



HMAO		Equivalent LED high mast luminaire
26	No of Luminaires	26
30	Eav (lux)	30
0.779	Uniformity	0.651
13.00	Total Power Load kW	15.86
£5,220	Year 1 Energy	£6,368

* Designed to EN12464-2:2014 ref 5.4

SPECIFICATION

Specification

HMAO shall consist of six, nine or twelve prismatic glass refractors manufactured from borosilicate glass to ensure longevity and minimise dirt depreciation. Each glass lens houses an LED module and creates individual optical pods. Each optical pod is housed in a fully ventilated and finned housing manufactured from aluminium to maximise heat transfer. The electrical housing consists of two castings containing the drivers, 10kV surge protection and electrical termination. The luminaire chassis and electrical housing utilises all three heat transfer mechanisms of conduction, convection and radiation to ensure that the high density modules and electronic drivers are thermally managed. Mounting is via the four bolt side arm mounting with +/-5 degree tilt and suitable for 42mm and 60mm.

3000K or warmer must be selected for IDA dark sky certification.

Features and benefits

Thermally Managed Solution

- Utilises convection and conduction to thermally manage the LEDs ensuring longer life and high delivered lumen outputs to replace 400-1000 watt metal halide systems.
- Gear housing designed to maximise heat dissipation, via conduction, from critical electronic components to ensure that they are run as cool as possible to deliver a long system life.

Exceptional Optical Performance

- Glass refractor technology which delivers a wholly luminous effect that accurately controls the output of the LEDs, reduces glare with its 'PrismGlow' and delivers excellent uniformity.
- Rotatable optical assembly providing on site alignment of distributions to specific lighting requirements and ensuring equal weight distribution on existing mast head frame.
- Seven dedicated distributions designed for all types of retrofit or new installations where high mounting is required.

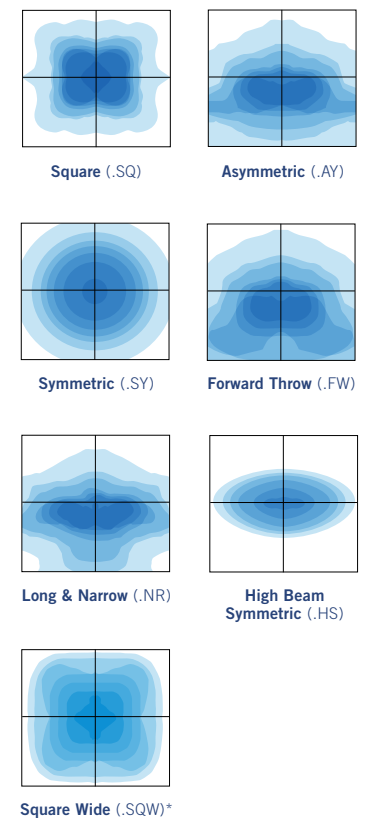
Enhanced Lumen Maintenance

- Glass optics ensure a low electrostatic charge which make it less attractive to dust and dirt accumulation over time so improving dirt depreciation.
- Ventilated luminaire chassis works together with the glass optics to create self-cleaning system which enhances the lumen maintenance of the luminaire over time.

Installation Flexibility

- Suitable for side entry mounting via the integrated four bolt mounting system which also offers 0 or 5 degree tilt.

Light Distributions



*Series 4 only

SPECIFICATION

HIGH MAST SYSTEM

HMAO is available as a replacement for existing high mast luminaires or as part of a complete highmast system.

Holophane High Mast System

The most sophisticated system on the market. This mast system consists of a headframe mounting ring for luminaire mounting, winch assembly and suitably rated switchfuse mounted in the mast base, complete with foundation set. The latched raise and lower system utilises heavy duty stainless steel cables in conjunction with three continuous contact iris action guide arms on the lowering ring. This allows all maintenance to be carried out at ground level using a portable power tool connected to the mast supply.

Available at heights of 15m, 20m, 25m or 30m.



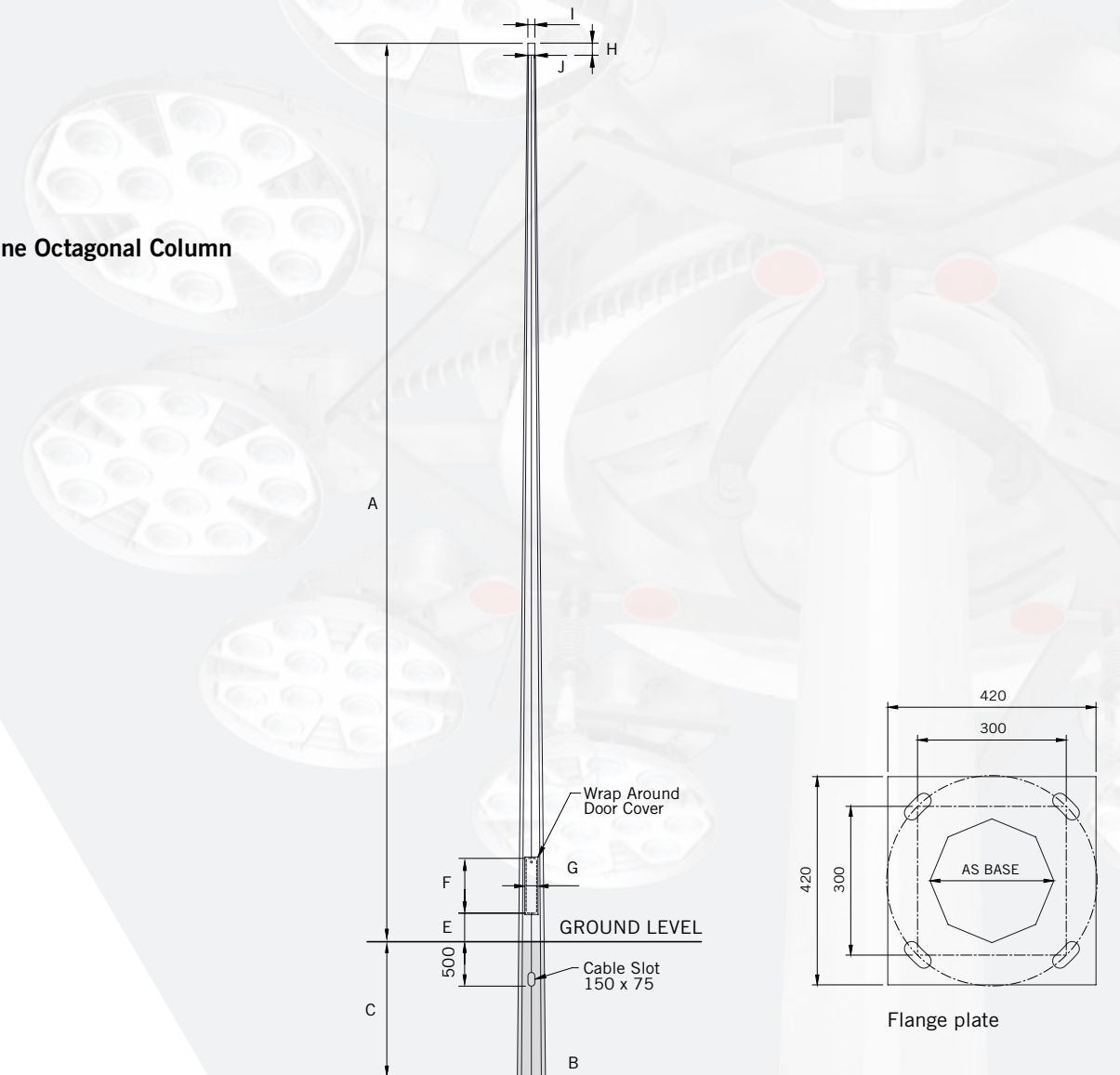
Positive fail-safe latching



Continuous contact guide arms

HIGH MAST

Holophane Octagonal Column



description	Nominal Height	Root End Diameter*	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length*	Spigot Diameter*	Shaft Diameter*	Weight kg* (Rooted/Flange Plate)	Bending Moment (ULS) Nm
8m standard duty	7700	246.3	1200	8900	300	600	115	130	76.1	N/A	111/113	Please contact Holophane for Information
10m standard duty	9700	308	1500	11200	300	600	115	130	76.1	N/A	167/153	
12m standard duty	11700	308	1700	13400	300	600	115	130	60.3	N/A	197/179	
12m heavy duty	11700	290	1700	13400	300	600	115	130	76.1	N/A	203/192	
15m standard duty	14700	322	1700	16400	300	600	115	130	60.3	N/A	257/240	
15m heavy duty	14700	379	2000	16700	300	600	115	130	88.9	N/A	421/398	

* Exclusion TBC

8-12m std Poles	Flange Plate FB2	Bolts	M24 x 820
15m std Poles	Flange Plate FB2	Bolts	M30

Contact Holophane for more information

Flange Plate and J-Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and J-Bolts are supplied.

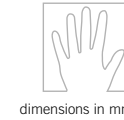
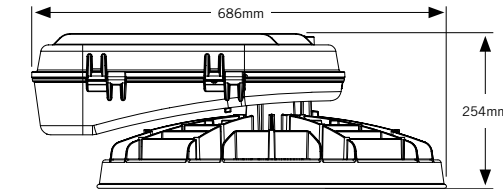
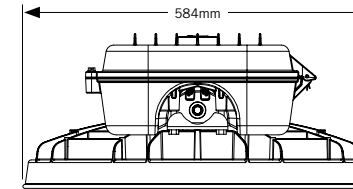
std = Standard **hd** = Heavy Duty Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

Code	Luminaire (required)						
HMAO	High Mast Advanced Optix						
Code	Series (required)						
.4	Series 4						
Code	Lamp Type (required)						
.LC30X	LED light engine producing c.30,000 lm with a nominal 3000K or 4000K colour temperature						
.LC35X	LED light engine producing c.35,000 lm with a nominal 3000K or 4000K colour temperature						
.LC45X	LED light engine producing c.45,000 lm with a nominal 3000K or 4000K colour temperature						
.LC50X	LED light engine producing c.52,000 lm with a nominal 3000K or 4000K colour temperature						
.LC60X	LED light engine producing c.60,000 lm with a nominal 3000K or 4000K colour temperature						
.LC70X	LED light engine producing c.70,000 lm with a nominal 3000K or 4000K colour temperature						
.LC75X	LED light engine producing c.75,000 lm with a nominal 3000K or 4000K colour temperature						
.LC80X	LED light engine producing c.80,000 lm with a nominal 3000K or 4000K colour temperature						
.LC90X	LED light engine producing c.90,000 lm with a nominal 3000K or 4000K colour temperature						
.LC100X	LED light engine producing c.100,000 lm with a nominal 3000K or 4000K colour temperature						
Code	Optics						
.NR	Long and Narrow light distribution						
.HS	High beam symmetric distribution						
.AY	Asymmetric light distribution						
.FW	Forward throw light distribution						
.SQ	Square light distribution						
.SY	Symmetrical light distribution						
.SQW	Square wide light distribution						
Code	Colour						
.C9	Metallic Silver RAL9006						
.RAL****	RAL Colour (customer choice)						
Code	Control Gear (options)						
.LRD	DALI, number of addresses will vary on the lumen version configured						
.CL7	Programmed to deliver 70% of the initial lumens over the life of the luminaire						
.CL8	Programmed to deliver 80% of the initial lumens over the life of the luminaire						
.CL9	Programmed to deliver 90% of the initial lumens over the life of the luminaire						
Code	Photocell (options)						
.TSZ	Complete with miniature 70 lux factory fitted photocell (Zodion SS12)						
.T1	Complete with NEMA socket (to accept standard NEMA Photocell, available from Holophane*)						
.T5	Complete with 5-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others)						
.T5T	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top						
.T7	Complete with 7-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others)						
.T7T	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top						
.TZ01	Complete with 4-Pin Zhaga Socket - Top (suitable photocell/node supplied by others) with weather proof locking top.†						
Code	Paint Finish (options)						
.C	Enhanced Paint Finish						
Code	Voltage (options)						
.C-PROTEC	With 20kV/10kA surge protection						
HMAO	.4	.LC30X	.NR	.C9	.LRD	.TSZ	.C
Example							



Replace 'X' in lamp type code with either:
3 for 3000K
4 for 4000K

DIMENSIONS & PERFORMANCE



dimensions in mm



Rotatable optical assembly



Four bolt mounting suitable for 42mm and 60mm side entry



Hinged upper casting

Typical luminaire performance

Configuration	Delivered Lumens	Power Consumption (W)	Driver output current (mA)	Luminaire total no. of LED modules	Luminaire efficacy (lm/W)	Rated life of LED module (L70B50 @Tq 25°C)
HMAO.4.LC30X	c.30,000	180	565	6	167	100,000
HMAO.4.LC35X	c.35,000	212	667	6	165	100,000
HMAO.4.LC45X	c.45,000	279	878	6	161	100,000
HMAO.4.LC52X	c.50,000	317	989	6	164	100,000
HMAO.4.LC60X	c.60,000	374	787	9	160	100,000
HMAO.4.LC70X	c.70,000	446	938	9	157	100,000
HMAO.4.LC75X	c.75,000	486	1017	9	154	100,000
HMAO.4.LC80X	c.80,000	502	792	12	159	100,000
HMAO.4.LC90X	c.90,000	583	919	12	154	100,000
HMAO.4.LC100X	c.100,000	658	1040	12	152	100,000

Weight

HMAO 23 kg

Windage

HMAO 0.120 m²

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

Code	HMAOE HMAO Octagonal column					
Code	Luminaire mounting height					
.10	10 metre column					
.12	12 metre column					
.15	15 metre column					
Code	Brackets					
.1S	Single head short bracket					
.1L	Single head long bracket					
.2S	Twin head short bracket					
.2L	Twin head long bracket					
Code	Bracket type					
.SA60	Side arm bracket suitable for 60mm entry					
.SA605	5° tilt side arm bracket suitable for 60mm entry					
Code	Column category					
.LMZ	For light & medium area wind zones					
.HVZ	For heavy area wind zones					
.HEZ	For extra heavy area wind zones					
Code	Colour (bracket finish only)					
.GV	Galvanised only bracket					
.GV9	Galvanised and painted metallic silver (RAL 9006)					
Code	Optional base type					
.FB4	Flange base mounting (suitable for ground level installation only). 420 x 420 plate with 300 x 300 centres.					
HMAOE	.12	.1L	.SA60	.LMZ	.GV	.FB4
Example						

Note: 15m twin head for HEZ wind zone not available as standard. Please contact Holophane for further information.

accessories

Code	HELE.FS1 Anchor bolt kit M24 x 820mm. Suitable for Octagonal columns.					
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Note: 42/60mm side entry, 10kV/10kA surge protection as standard.
*Luminaire is IP65 when options .T1 or .T are selected. † Not available with .LRD

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

accessories

Code	HMAO.SD90 90° shield					
Code	HMAO.SD120 120° shield					
Code	HMAO.SD180 180° shield					

Note: The specifications of the Holophane luminaire, all descriptions, illustrations, drawings and specifications in the Holophane catalogue and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.



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Expanding the boundaries of lighting™

