

**THE DUTCH POWERHOUSE**  
**MONARCH**

THE POWERFUL TOPLIGHT FOR  
GREENHOUSES AND INDOOR FACILITIES

# MONARCH

## THE DUTCH POWERHOUSE

### TECHNICAL DATASHEET

#### Spectral Data

##### HIGH EFFICIENT

Art#	Spectrum	Optical properties*1				Spectral specifications in % *1				Imparted heat	
		Photon Flux (µmol/s)*2	Consumed power (W)	Efficacy (µmol/J)	Efficacy dimmed to 50%*3 (µmol/J)	blue 400-500	mid 500-600	red 600-700	far-red >700	W	BTU/hr
M.AAMK.02	Low Blue	5000	1250	4.0	4.2	4.2	0.1	95.5	0.2	328	1119
M.AAML.02	Low Blue White	4710	1250	3.8	4.0	4.9	5.1	89.7	0.3	365	1245
M.AAMM.02	Low Blue White + Far-red	4435	1250	3.6	3.8	4.6	10.4	75.2	9.8	417	1423
M.AAMN.02	Medium Blue	4800	1250	3.8	4.0	9.6	0.1	90.1	0.2	338	1153
M.AAMO.02	Medium Blue White	4610	1250	3.7	3.9	9.3	5.1	85.3	0.3	366	1249
M.AAMP.02	Broad Spectrum	4220	1250	3.4	3.6	9.0	16.9	73.7	0.4	424	1447

##### ECONOMIC

Art#	Spectrum	Optical properties*1				Spectral specifications in % *1				Imparted heat	
		Photon Flux (µmol/s)*2	Consumed power (W)	Efficacy (µmol/J)	Efficacy dimmed to 50%*3 (µmol/J)	blue 400-500	mid 500-600	red 600-700	far-red >700	W	BTU/hr
M.AAME.02	Low Blue	4660	1250	3.7	4.0	4.2	0.1	95.5	0.2	387	1320
M.AAMF.02	Low Blue White	4450	1250	3.6	3.9	4.8	5.0	89.9	0.3	392	1338
M.AAMG.02	Low Blue White + Far-red	4175	1250	3.3	3.6	4.5	10.2	75.6	9.7	467	1593
M.AAMH.02	Medium Blue	4535	1250	3.6	3.9	9.4	0.1	90.3	0.2	389	1327
M.AAMI.02	Medium Blue White	4355	1250	3.5	3.8	9.1	5.0	85.6	0.3	416	1419
M.AAMJ.02	Broad Spectrum	3985	1250	3.2	3.5	8.9	16.6	74.1	0.4	471	1607





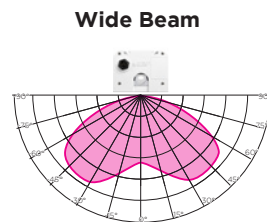
### HPS REPLACEMENT HIGH EFFICIENT

Art#	Spectrum	Optical properties*1				Spectral specifications in % *1				Imparted heat	
		Photon Flux (μmol/s)*2	Consumed power (W)	Efficacy (μmol/J)	Efficacy dimmed to 50%*3 (μmol/J)	blue 400-500	mid 500-600	red 600-700	far-red >700	W	BTU/hr
M.AALY.02	Low Blue	4110	1050	3.9	4.1	5.1	0.1	94.5	0.2	285	972
M.AALZ.02	Low Blue White	3945	1050	3.8	4.0	4.7	5.4	89.6	0.3	309	1051
M.AAMA.02	Low Blue White + Far-red	3710	1050	3.5	3.8	4.8	10.3	75.3	9.6	352	1201
M.AAMB.02	Medium Blue	4025	1050	3.8	4.0	9.1	0.1	90.5	0.2	287	979
M.AAMC.02	Medium Blue White	3840	1050	3.7	3.9	9.8	5.5	84.5	0.2	312	1065
M.AAMD.02	Broad Spectrum	3525	1050	3.4	3.5	8.6	17.4	73.5	0.4	361	1232

### HPS REPLACEMENT ECONOMIC

Art#	Spectrum	Optical properties*1				Spectral specifications in % *1				Imparted heat	
		Photon Flux (μmol/s)*2	Consumed power (W)	Efficacy (μmol/J)	Efficacy dimmed to 50%*3 (μmol/J)	blue 400-500	mid 500-600	red 600-700	far-red >700	W	BTU/hr
M.AALS.02	Low Blue	3880	1050	3.7	4.0	5.1	0.1	94.6	0.2	328	1119
M.AALT.02	Low Blue White	3725	1050	3.5	3.8	4.6	5.3	89.8	0.3	350	1194
M.AALU.02	Low Blue White + Far-red	3490	1050	3.3	3.6	4.8	10.1	75.6	9.5	395	1348
M.AALV.02	Medium Blue	3800	1050	3.6	3.9	8.9	0.1	90.7	0.2	330	1126
M.AALW.02	Medium Blue White	3625	1050	3.5	3.7	9.6	5.4	84.8	0.2	355	1211
M.AALX.02	Broad Spectrum	3,325	1050	3.2	3.4	8.5	17.2	73.9	0.4	401	1368

### Light distribution



Other compositions of spectra are available on request.

\*1 Electrical and optical properties have a tolerance of ± 5%.

\*2 Output is defined as the total Photon Flux between 400-800nm.

Typical values for stable operation at 77°F | 25°C cooling water temperature.

\*3 All values mentioned in the tabel are based on 100% power, except for this column; efficacy dimmed to 50%.

## Product features

Housing material and finishing	Aluminium (IK10). Anodized / antifouling powder coating RAL 9010 (dirt repellent)
LED protection cover	High transmission glass (transmission >98%) (IK07)
Beam angle	Wide Beam: 140°
Ingress Protection LED compartment	IP67 (dust- and watertight). Fixtures can be cleaned by using pressurized water, the complete electrical circuit is sealed waterproof.
Lifespan and warranty	L90 B05 - 50,000 hours, 5 year full warranty

## Technical data

Power factor	> 0.96 @ 400 VAC
Total Harmonic Distortion (THD)	< 12%
Voltage range	277 - 480 VAC
Current range	4.6 - 2.3 A
Frequency range	50/60 Hz
Inrush energy	4.2 A <sup>2</sup> s
Inrush current peak	20 A @ 480 VAC
Leakage current	< 0.7 mA @ 480 VAC
Isolation class	Class I
Connector	Integrated: 3 pole connector Male (Wieland RST20i3 black)
Operation conditions	32 to 113°F   0 to 45°C / 95% RH
Storage conditions	32 to 140°F   0 to 60°C / 85% RH

## Cooling liquid and circuit

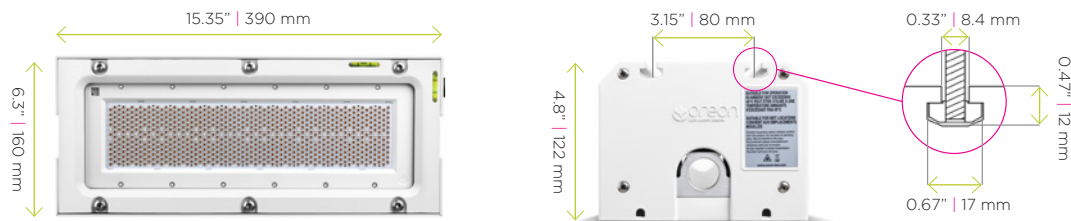
Cooling liquid	Water (pH 4-8)
Cooling liquid temperature limits	Dew point up to 113°F   45°C. No lower than 39.2°F   4°C.
Self protection cut off temperature	140°F   60°C
Water connection	Pipe thread ISO 228-G 3/4" (2x)
Required flow velocity	Flow velocity must be at least 0.3 m/s and should not exceed 1.5 m/sec. (inner Ø 24.1 mm)
Flow velocity formula	$v = Q \cdot n / 19,000$ (velocity in m/s, channel inner diameter 24.1 mm) v: minimally required flow velocity of water in the cooling channel of the lamp. (m/s) Q: heat imparted per fixture (Watt), n: number of fixtures in series on a cooling pipe

## Mounting

Top side has two dedicated T-shaped grooves. Suspension of fixture by 4x M6 bolt & T-nut or custom made bracket.

## Weight and dimensions

Nett weight	20.5 lb   9.3 kg
Product dimensions (L x W x H)	15.35" x 6.3" x 4.8"   390 mm x 160 mm x 122 mm
Carton dimensions (L x W x H)	21.65" x 8.66" x 6.89"   550 mm x 220 mm x 175 mm



## Logistic specifications

	Air freight	Sea/Road freight
Quantity per pallet	49 pcs.	90 pcs.
Gross weight per pallet	1148.7 lb   521 kg	2039 lb   925 kg
Pallet dimensions	31.5" x 47.24" x 56.69" 800 x 1200 x 1440 mm	39.37" x 47.24" x 71.26" 1000 x 1200 x 1810 mm
HS-code	9405 42 39 90	9405 42 39 90

## Compliance

Conforms to/Certified to ANSI/CAN/UL 8800



Subject to printing and typing errors.

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