

THE DUTCH POWERHOUSE
MONARCH

THE POWERFUL TOP LIGHT FOR
GREENHOUSES AND INDOOR FACILITIES

MONARCH

THE DUTCH POWERHOUSE

TECHNICAL DATASHEET

Spectral Data

HIGH EFFICIENT

		Optical properties*1				Spectral specifications*1				Imparted heat	
Code	Spectra	PhotonFlux ($\mu\text{mol/s}$)*2	Consumed Power (W)	Efficacy @ 100% ($\mu\text{mol/J}$)	Efficacy dimmed to 50%*3	blue 400- 500	mid 500- 600	red 600- 700	far-red >700	W	BTU/ hr
M.AAGA.02	Low Blue	4730	1250	3.8	4.0	4.3	0.1	95.3	0.3	370	1260
M.AAGB.02	Low Blue White	4520	1250	3.6	3.8	4.8	5.2	89.7	0.3	398	1357
M.AAGC.02	Low Blue White + Far-Red	4220	1250	3.4	3.6	5.1	10.2	74.9	9.8	454	1550
M.AAGD.02	Medium Blue	4630	1250	3.7	3.9	8.6	0.1	91.0	0.3	371	1264
M.AAGE.02	Medium Blue White	4430	1250	3.5	3.8	9.1	5.3	85.3	0.3	399	1361
M.AAGF.02	Broad Spectrum	4060	1250	3.3	3.5	8.6	17.2	73.7	0.5	455	1552

ECONOMIC

		Optical properties*1				Spectral specifications*1				Imparted heat	
Code	Spectra	PhotonFlux ($\mu\text{mol/s}$)*2	Consumed Power (W)	Efficacy @ 100% ($\mu\text{mol/J}$)	Efficacy dimmed to 50%*3	blue 400- 500	mid 500- 600	red 600- 700	far-red >700	W	BTU/ hr
M.AAGG.02	Low Blue	4430	1250	3.5	3.9	4.4	0.1	95.2	0.3	426	1453
M.AAGH.02	Low Blue White	4240	1250	3.4	3.7	4.6	5.1	90.0	0.3	451	1538
M.AAGI.02	Low Blue White + Far-Red	3930	1250	3.2	3.5	5.0	10.0	75.6	9.4	508	1732
M.AAGJ.02	Medium Blue	4340	1250	3.5	3.8	8.4	0.1	91.2	0.3	426	1453
M.AAGK.02	Medium Blue White	4160	1250	3.3	3.7	8.9	5.1	85.7	0.3	451	1538
M.AAGL.02	Broad Spectrum	3820	1250	3.1	3.3	8.3	16.8	74.4	0.5	502	1712





Spectral Data

HPS REPLACEMENT

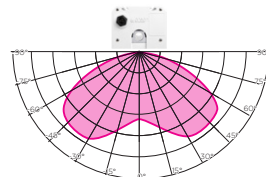
Code	Spectra	Optical properties*1				Spectral specifications*1				Imparted heat	
		PhotonFlux (μmol/s)*2	Consumed Power (W)	Efficacy @ 100% (μmol/J)	Efficacy dimmed to 50%*3	blue 400-500	mid 500-600	red 600-700	far-red >700	W	BTU/hr
M.AAGM.02	Low Blue	3940	1050	3.8	4.0	5.2	0.1	94.4	0.3	313	1067
M.AAGN.02	Low Blue White	3790	1050	3.6	3.8	5.1	5.0	89.6	0.3	335	1142
M.AAGO.02	Low Blue White + Far-Red	3530	1050	3.4	3.6	5.1	10.3	74.8	9.8	384	1309
M.AAGP.02	Medium Blue	3890	1050	3.7	3.9	7.9	0.1	91.7	0.3	314	1071
M.AAGQ.02	Medium Blue White	3790	1050	3.6	3.8	9.1	5.0	85.6	0.3	336	1146
M.AAGR.02	Broad Spectrum	3390	1050	3.2	3.4	8.7	17.4	73.4	0.5	384	1309

HPS REPLACEMENT ECONOMIC

Code	Spectra	Optical properties*1				Spectral specifications*1				Imparted heat	
		PhotonFlux (μmol/s)*2	Consumed Power (W)	Efficacy @ 100% (μmol/J)	Efficacy dimmed to 50%*3	blue 400-500	mid 500-600	red 600-700	far-red >700	W	BTU/hr
M.AAGS.02	Low Blue	3680	1050	3.5	3.9	5.1	0.1	94.5	0.3	361	1231
M.AAGT.02	Low Blue White	3550	1050	3.4	3.7	5.0	4.8	89.9	0.3	381	1299
M.AAGU.02	Low Blue White + Far-Red	3280	1050	3.1	3.5	5.0	10.0	75.6	9.4	430	1466
M.AAGV.02	Medium Blue	3640	1050	3.5	3.8	7.7	0.1	92.0	0.2	362	1234
M.AAGW.02	Medium Blue White	3490	1050	3.3	3.7	8.9	4.8	86.0	0.3	381	1299
M.AAGX.02	Broad Spectrum	3190	1050	3.0	3.3	8.4	16.9	74.2	0.5	425	1449

Light distribution

Wide Beam



Other spectrum variations on request.

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

*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; 50% power.

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 A²s
Inrush current peak	20A @ 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

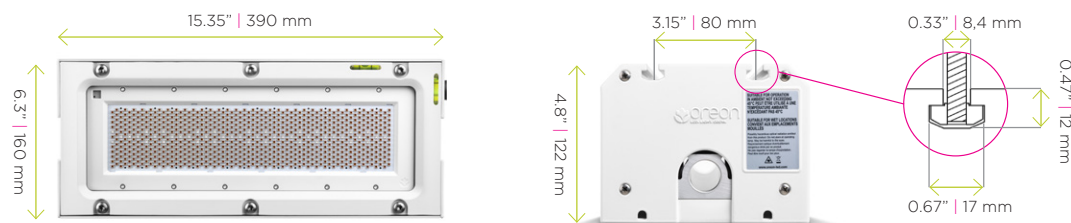
Cooling liquid	Water (pH 4-8)
Cooling liquid temperature limits	Dew point up to 113°F 45°C. No lower than 39.2°F 4°C.
Self protection cut off temperature	140°F 60°C
Water connection	Pipe thread ISO 228-G 3/4" (2x)
Required flow velocity	Flow velocity must be at least 0.3 m/s and should not exceed 1.5 m/sec. (inner Ø 24.1 mm)
Flow velocity formula	$v = Q \cdot n / 19000$ (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

Quantity per pallet	49 pcs.
Gross weight per pallet	1148.7 lb 521 kg
Pallet dimensions (EUR)	31.5" x 47.24" x 56.69"
	800 x 1200 x 1440 mm
HS-code	9405 42 39 90

Air freight

Quantity per pallet	63 pcs.
Gross weight per pallet	1461.7 lb 663 kg
Pallet dimensions (EUR)	31.5" x 47.24" x 71.26"
	800 x 1200 x 1810 mm
HS-code	9405 42 39 90

Sea/Road freight

Quantity per pallet	63 pcs.
Gross weight per pallet	1461.7 lb 663 kg
Pallet dimensions (EUR)	31.5" x 47.24" x 71.26"
	800 x 1200 x 1810 mm
HS-code	9405 42 39 90

Compliance

Conforms to/Certified to ANSI/CAN/UL 8800



Subject to printing and typing errors.

V230207

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