

Infusion™ Module

Next Generation of M1000, M1500,
M2000, M3000 and M4500 Series

The LED platform with built-in upgradeability



DATA SHEET

Product information

GE Lighting's range of Infusion™ LED modules has provided the lighting industry with a game-changing platform, opening up new possibilities for the use of long-lasting controllable, low maintenance LED solutions where the quality of light is critical to the customer/visitor experience.

The range provides a complete tool kit to the designer when specifying directional accent lighting, whether in track, adjustable, or multi-gimbal fittings. It also provides the freedom to create attention-grabbing displays, with the flexibility to alternate beam angles and light packages by simply swapping modules and/or optics. Plus, there's the assurance of GE reliability and performance: like all of our LED chips and luminaires, the Infusion™ range is tested with LM79 & LM80 rigor.

The new generation Infusion™ modules are also great examples of the sustainability of the Infusion™ module system. Luminaires built around the Infusion™ platform are easily upgradeable to more efficient modules in the future, which will be of great benefit to end-users as energy costs rise, LED costs fall and efficacy continues to increase.

The Infusion™ LED solution maintains incredibly consistent color quality from module to module – as low as 2-MacAdam ellipse consistency. The socketable system design ensures consistent thermal performance, and this in turn means that color consistency can be easily translated through to the luminaire.

Applications



Retail



Offices



Museums



Education



Healthcare



Hospitality

Features & benefits

- Wide range of different lighting solutions from one platform
- Modular solution for quick, tool-free upgrading
- Lowest cost of ownership in the long term
- Long-term color consistency
- Five lumen packages ranging from 1000 to 4500lm
- Four colour temperature options 2700K, 3000K, 3500K and 4000K for crisp white light
- Exceptionally stable CRI across all color ratings
- Excellent lumen maintenance, L85 50,000 hours.

IEC standards

- IEC62471: Photobiological safety of lamps and lamp systems.
- IEC62031: LED modules for general lighting – safety specification.



GE imagination at work



Specification summary

Product Code	Description	CCT [K]	CRI [Ra]	Colour Variation (MacAdam Ellipse)	Rated Life (L85) [h]	Drive Current [mA]	Nominal Lumens [lm]	Nominal Watts [W]	LPW*	Nominal Voltage [V]
Infusion™ M1000 Series										
19192	M1000/827/W/G4	2700	> 80	< 4-steps	50,000	700	1000	10.5	95	15
19193	M1000/830/W/G4	3000	> 80	< 4-steps	50,000	700	1100	10.5	105	15
19195	M1000/835/W/G4	3500	> 80	< 4-steps	50,000	700	1100	10.5	105	15
19196	M1000/930/W/G4	3000	90	< 2-steps	50,000	700	800	10.5	76	15
19197	M1000/840/W/G4	4000	> 80	< 4-steps	50,000	700	1100	10.5	105	15
Infusion™ M1500 Series										
19198	M1500/827/W/G4	2700	> 80	< 4-steps	50,000	700	1400	14.5	97	20.7
19200	M1500/830/W/G4	3000	> 80	< 4-steps	50,000	700	1500	14.5	103	20.7
19201	M1500/835/W/G4	3500	> 80	< 4-steps	50,000	700	1500	14.5	103	20.7
19202	M1500/930/W/G4	3000	90	< 2-steps	50,000	700	1200	14.5	83	20.7
19207	M1500/840/W/G4	4000	> 80	< 4-steps	50,000	700	1500	14.5	103	20.7
Infusion™ M2000 Series										
19209	M2000/827/W/G4	2700	> 80	< 4-steps	50,000	1400	2000	21	95	15
19210	M2000/830/W/G4	3000	> 80	< 4-steps	50,000	1400	2100	21	100	15
19211	M2000/835/W/G4	3500	> 80	< 4-steps	50,000	1400	2200	21	105	15
19214	M2000/930/W/G4	3000	90	< 2-steps	50,000	1400	1700	21	81	15
19215	M2000/840/W/G4	4000	> 80	< 4-steps	50,000	1400	2200	21	105	15
Infusion™ M3000 Series										
19216	M3000/827/W/G4	2700	> 80	< 4-steps	50,000	1400	2800	29.5	95	21.1
19218	M3000/830/W/G4	3000	> 80	< 4-steps	50,000	1400	3000	29.5	102	21.1
19220	M3000/835/W/G4	3500	> 80	< 4-steps	50,000	1400	3000	29.5	102	21.1
19224	M3000/930/W/G4	3000	90	< 2-steps	50,000	1400	2300	29.5	78	21.1
19225	M3000/840/W/G4	4000	> 80	< 4-steps	50,000	1400	3100	29.5	105	21.1
Infusion™ M4500 Series										
19226	M4500/827/W/G4	2700	> 80	< 4-steps	50,000	1400	4300	46	93	32.9
19230	M4500/830/W/G4	3000	> 80	< 4-steps	50,000	1400	4500	46	98	32.9
19231	M4500/835/W/G4	3500	> 80	< 4-steps	50,000	1400	4600	46	100	32.9
19307	M4500/930/W/G4	3000	90	< 2-steps	50,000	1400	3600	46	78	32.9
19337	M4500/840/W/G4	4000	> 80	< 4-steps	50,000	1400	4700	46	102	32.9

*LPW = Lumen per Watt

Note: Use in dry location only or in luminaire which is designed and tested to an environmental location appropriate for the intended operating conditions.

Infusion™ heatsink

SKU	Description	Corresponding Module Series*	Outer diameter [mm]	Height [mm]	Pack quantity	Manuf. process	Surface finish	Material	Thermal resistance** HS to Ambient [K/W] T _{amb} =25°C	
96503	HS G1 110×35 BLACK PTH20.5 PAS	M1000, M1500, M2000	110	35	36 pcs/box	Extrusion	Black anodized	AL 6063	1.9	
96504	HS G1 160×12 BLACK PTH20.5 PAS	M1000, M1500, M2000	160	12	80 pcs/box	Extrusion	Black anodized	AL 6063	1.8	
96505	HS G1 160×60 BLACK PTH35.7 PAS	M3000, M4500	160	60	16 pcs/box	Extrusion	Black anodized	AL 6063	1.1	

*Data based on GE internal measurements. Different fixture designs may require different heatsinks.

**Thermal resistance and Thermal wattages provide only for system level thermal simulation. This data can change based on multiple factors.

Accessories

Infusion™ LED modules are supplied without integrated optics giving luminaire designers the flexibility to design or use optics of their choice according to the application needs.

GE offers a range of optical attachments to interface with the Infusion™ LED modules, each featuring a twist-and-lock interface for easy, tool-free replacement and assembly.



Optics

Module Series	Module Product Code	Module CCT [K]	Optic Beam Category*	Optic Product Code		Peak Intensity [cd]	Nominal Beam Angle** [°]	Nominal Diameter of optics [mm]	Nominal Length of optics [mm]	Lumen with optic [lm]**	LOR [%]***	Module lumen**	Note
				White	Black								
M1000	19192	827	FL	97208	65294	3800	25	75	43	990	90%	1100	with diffuser
	19193	830				4200	25	75	43				
	19195	835				4200	25	75	43				
	19196	930				3000	25	75	43				
	19197	840				4200	25	75	43				
	19192	827	FL	98480	98486	3200	25	100	71	945	86%	1100	with diffuser
	19193	830				3500	25	100	71				
	19195	835				3500	25	100	71				
	19196	930				2500	25	100	71				
	19197	840				3500	25	100	71				
	19192	827	WFL	99995	99996	2200	35	55	45	900	82%	1100	with diffuser
	19193	830				2400	35	55	45				
	19195	835				2400	35	55	45				
	19196	930				1700	35	55	45				
	19197	840				2400	35	55	45				
	19192	827	WFL	97206	65295	2400	35	75	43	945	86%	1100	with diffuser
	19193	830				2700	35	75	43				
	19195	835				2700	35	75	43				
	19196	930				1900	35	75	43				
	19197	840				2700	35	75	43				
	19192	827	WFL	98483	98489	2000	35	100	71	910	83%	1100	with diffuser
	19193	830				2200	35	100	71				
	19195	835				2200	35	100	71				
	19196	930				1600	35	100	71				
	19197	840				2200	35	100	71				
	19192	827	VWFL	97207	65296	1000	55	75	43	920	84%	1100	with diffuser
	19193	830				1100	55	75	43				
	19195	835				1100	55	75	43				
19196	930	800				55	75	43					
19197	840	1100				55	75	43					
19192	827	VWFL	98485	98491	1100	55	100	71	845	77%	1100	with diffuser	
19193	830				1200	55	100	71					
19195	835				1200	55	100	71					
19196	930				900	55	100	71					
19197	840				1200	55	100	71					

Module Series	Module Product Code	Module CCT [K]	Optic Beam Category*	Optic Product Code		Peak Intensity [cd]	Nominal Beam Angle** [°]	Nominal Diameter of optics [mm]	Nominal Length of optics [mm]	Lumen with optic [lm]**	LOR [%]***	Module lumen**	Note	
				White	Black									
M1500	19198	827	FL	97208	65294	4600	25	75	43	1320	88%	1500	with diffuser	
	19200	830				4900	25	75	43					
	19201	835				4900	25	75	43					
	19202	930				3900	25	75	43					
	19207	840				4900	25	75	43					
	19198	827	FL	98480	98486	4300	25	100	71	1275	85%	1500	with diffuser	
	19200	830				4600	25	100	71					
	19201	835				4600	25	100	71					
	19202	930				3700	25	100	71					
	19207	840				4600	25	100	71					
	19198	827	WFL	99995	99996	2900	35	55	45	1245	83%	1500	with diffuser	
	19200	830				3100	35	55	45					
	19201	835				3100	35	55	45					
	19202	930				2400	35	55	45					
	19207	840				3100	35	55	45					
	19198	827	WFL	97206	65295	2800	35	75	43	1305	87%	1500	with diffuser	
	19200	830				3000	35	75	43					
	19201	835				3000	35	75	43					
	19202	930				2400	35	75	43					
	19207	840				3000	35	75	43					
	19198	827	WFL	98483	98489	2700	35	100	71	1245	83%	1500	with diffuser	
	19200	830				2900	35	100	71					
	19201	835				2900	35	100	71					
	19202	930				2300	35	100	71					
	19207	840				2900	35	100	71					
	19198	827	VWFL	97207	65296	1300	55	75	43	1260	84%	1500	with diffuser	
	19200	830				1400	55	75	43					
	19201	835				1400	55	75	43					
	19202	930				1100	55	75	43					
	19207	840				1400	55	75	43					
	19198	827	VWFL	98485	98491	1500	55	100	71	1155	77%	1500	with diffuser	
	19200	830				1600	55	100	71					
	19201	835				1600	55	100	71					
	19202	930				1300	55	100	71					
	19207	840				1600	55	100	71					
	M2000	19209	827	FL	64996	65297	5700	25	75	43	1865	89%	2100	with diffuser
		19210	830				6000	25	75	43				
		19211	835				6200	25	75	43				
		19214	930				4800	25	75	43				
		19215	840				6200	25	75	43				
		19209	827	FL	98481	98487	7200	25	100	71	1785	85%	2100	with diffuser
		19210	830				7600	25	100	71				
		19211	835				8000	25	100	71				
		19214	930				6200	25	100	71				
		19215	840				8000	25	100	71				
		19209	827	WFL	64995	65298	3800	35	75	43	1865	89%	2100	with diffuser
		19210	830				4000	35	75	43				
		19211	835				4200	35	75	43				
19214		930	3200				35	75	43					
19215		840	4200				35	75	43					
19209		827	WFL	98484	98490	4200	35	100	71	1740	83%	2100	with diffuser	
19210		830				4400	35	100	71					
19211		835				4600	35	100	71					
19214		930				3600	35	100	71					
19215		840				4600	35	100	71					
19209		827	VWFL	64994	65301	2200	55	75	43	1760	84%	2100	with diffuser	
19210		830				2300	55	75	43					
19211		835				2500	55	75	43					
19214		930				1900	55	75	43					
19215	840	2500				55	75	43						
19209	827	VWFL	98485	98491	2300	55	100	71	1595	76%	2100	with diffuser		
19210	830				2400	55	100	71						
19211	835				2500	55	100	71						
19214	930				1900	55	100	71						
19215	840				2500	55	100	71						

Module Series	Module Product Code	Module CCT [K]	Optic Beam Category*	Optic Product Code		Peak Intensity [cd]	Nominal Beam Angle** [°]	Nominal Diameter of optics [mm]	Nominal Length of optics [mm]	Lumen with optic [lm]**	LOR [%]***	Module lumen**	Note
				White	Black								
M3000	19216	827	FL	64996	65297	6500	25	75	43	2640	88%	3000	with diffuser
	19218	830				7000	25	75	43				
	19220	835				7000	25	75	43				
	19224	930				5300	25	75	43				
	19225	840				7200	25	75	43				
	19216	827	FL	98482	98488	7900	25	100	71	2310	77%	3000	with diffuser
	19218	830				8500	25	100	71				
	19220	835				8500	25	100	71				
	19224	930				6500	25	100	71				
	19225	840				8700	25	100	71				
	19216	827	WFL	97208	65294	6600	35	75	43	2610	87%	3000	with diffuser
	19218	830				7000	35	75	43				
	19220	835				7000	35	75	43				
	19224	930				5400	35	75	43				
	19225	840				7300	35	75	43				
	19216	827	WFL	98484	98490	5300	35	100	71	2460	82%	3000	with diffuser
	19218	830				5700	35	100	71				
	19220	835				5700	35	100	71				
	19224	930				4400	35	100	71				
	19225	840				5900	35	100	71				
	19216	827	VWFL	64994	65301	2700	55	75	43	2490	83%	3000	with diffuser
	19218	830				2900	55	75	43				
	19220	835				2900	55	75	43				
	19224	930				2200	55	75	43				
19225	840	3000				55	75	43					
19216	827	VWFL	98485	98491	3000	55	100	71	2280	76%	3000	with diffuser	
19218	830				3200	55	100	71					
19220	835				3200	55	100	71					
19224	930				2500	55	100	71					
19225	840				3300	55	100	71					
M4500	19226	827	FL	64996	65297	8500	25	75	43	3915	87%	4500	with diffuser
	19230	830				8900	25	75	43				
	19231	835				9100	25	75	43				
	19307	930				7100	25	75	43				
	19337	840				9300	25	75	43				
	19226	827	FL	98482	98488	10600	25	100	71	3465	77%	4500	with diffuser
	19230	830				11100	25	100	71				
	19231	835				11300	25	100	71				
	19307	930				8900	25	100	71				
	19337	840				11600	25	100	71				
	19226	827	WFL	97208	65294	7800	35	75	43	3870	86%	4500	with diffuser
	19230	830				8100	35	75	43				
	19231	835				8300	35	75	43				
	19307	930				6500	35	75	43				
	19337	840				8500	35	75	43				
	19226	827	WFL	98484	98490	7500	35	100	71	3690	82%	4500	with diffuser
	19230	830				7800	35	100	71				
	19231	835				8000	35	100	71				
	19307	930				6300	35	100	71				
	19337	840				8200	35	100	71				
	19226	827	VWFL	64994	65301	3800	55	75	43	3735	83%	4500	with diffuser
	19230	830				3900	55	75	43				
	19231	835				4000	55	75	43				
	19307	930				3100	55	75	43				
19337	840	4100				55	75	43					
19226	827	VWFL	98485	98491	4400	55	100	71	3420	76%	4500	with diffuser	
19230	830				4600	55	100	71					
19231	835				4700	55	100	71					
19307	930				3600	55	100	71					
19337	840				4800	55	100	71					

Holders



Product Code	Description	Body Colour	Lead Insulation	Lead Length [mm]
66233	MHOLDERW/PVC600	White	PVC	600
66232	MHOLDERB/PVC600	Black	PVC	600
97276	MHOLDERW/LSOH600	White	LSOH	600
97277	MHOLDERB/LSOH600	Black	LSOH	600
61450	MACCO7HOLDERW	White	None	n/a
78835	MACCO7HOLDERB	Black	None	n/a

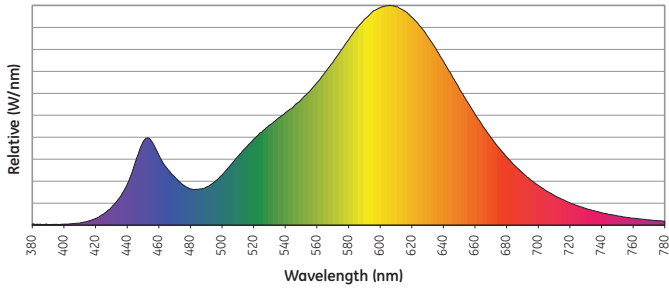
Drivers



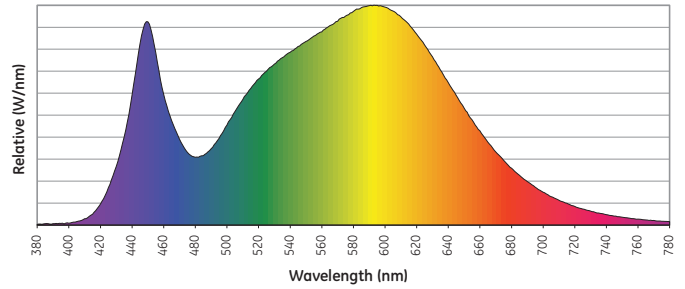
SKU	Description	Input voltage [V]	Frequency [Hz]	Current [mA]	Dimming	Max wattage[W]	Vf
94562	LED30CC 0.7/1.4 ESRDL 1-10V	220-240	50/60	700/1400	1-10V	30	15-40
94563	LED30CC 0.7/1.4 ESRDL DALI	220-240	50/60	700/1400	DALI	30	15-40
96507	LED55 CC 1.4 ESRDL 1-10V	220-240	50/60	1400	1-10V	55	15-40
96508	LED55 CC 1.4 ESRDL DALI	220-240	50/60	1400	DALI	55	15-40

Spectral power distribution

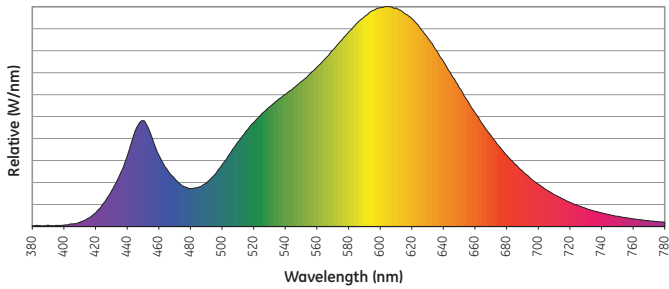
Spectral distribution for Infusion™ 827:



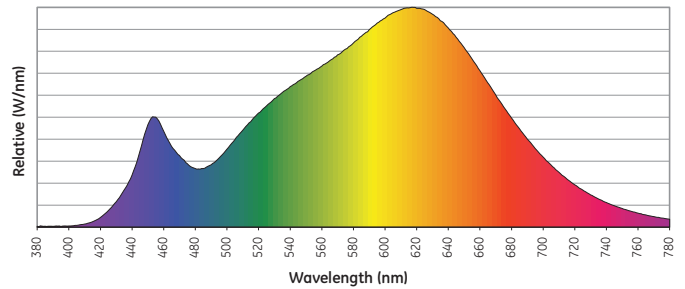
Spectral distribution for Infusion™ 840:



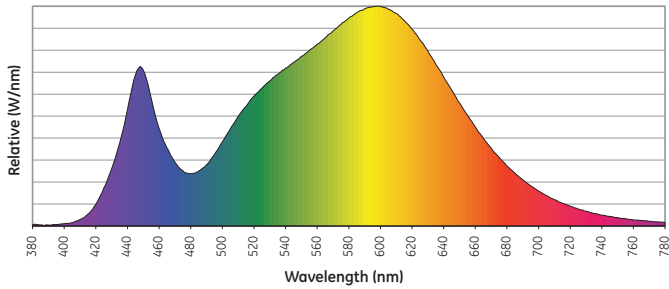
Spectral distribution for Infusion™ 830:



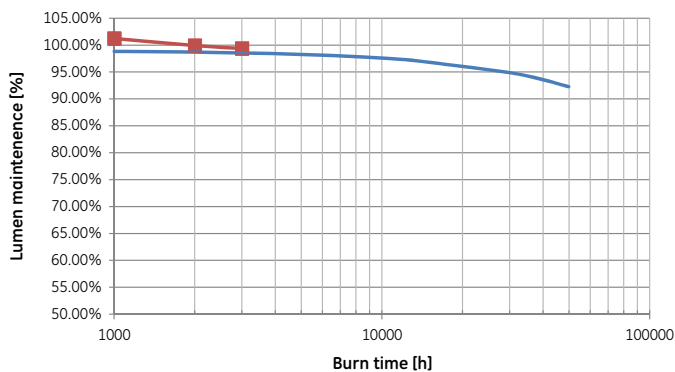
Spectral distribution for Infusion™ 930:



Spectral distribution for Infusion™ 835:



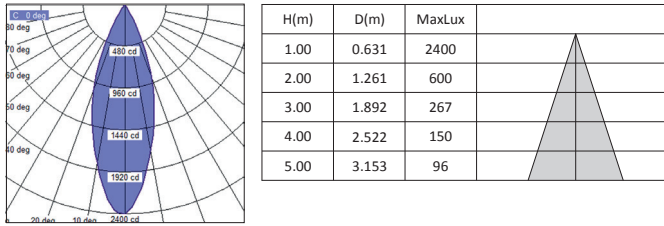
Lumen maintenance



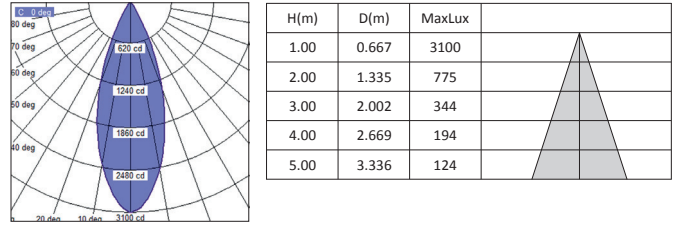
- L85 50,000 hour prediction (TM21)
- Actual average ($T_c=65^\circ\text{C}$, nominal drive current)

Photometric data

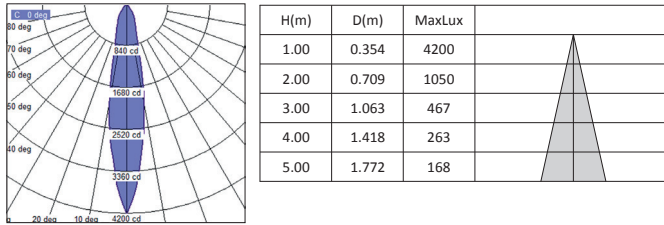
Infusion™ M1000, 830, 25° – 55mm optics



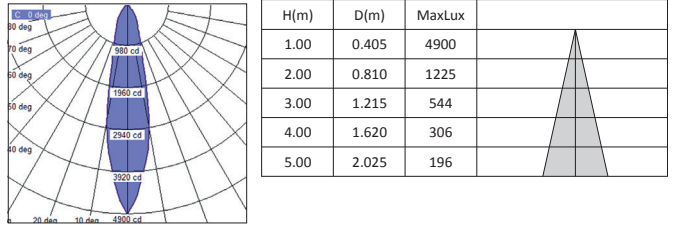
Infusion™ M1500, 830, 35° – 55mm optics



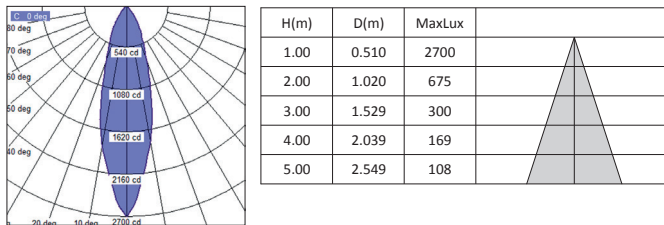
Infusion™ M1000, 830, 25° – 75mm optics



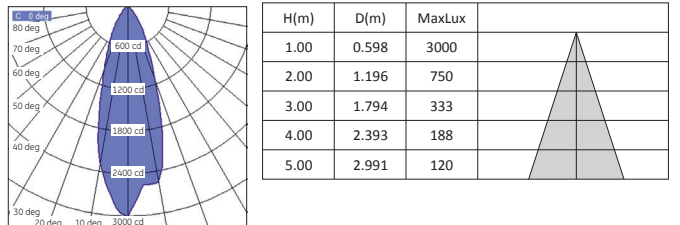
Infusion™ M1500, 830, 25° – 75mm optics



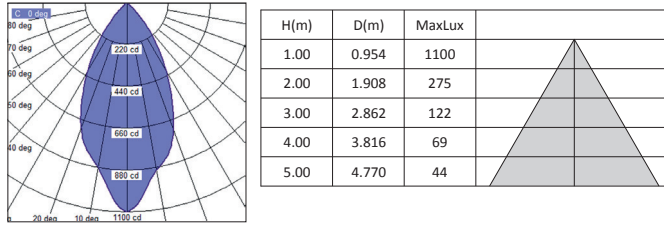
Infusion™ M1000, 830, 35° – 75mm optics



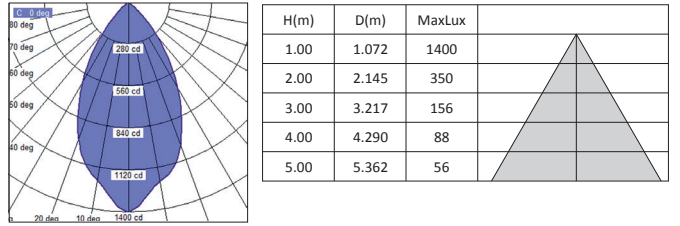
Infusion™ M1500, 830, 35° – 75mm optics



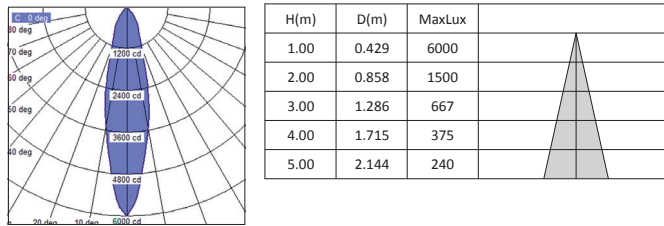
Infusion™ M1000, 830, 55° – 75mm optics



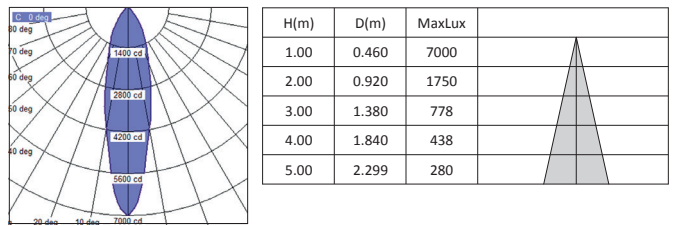
Infusion™ M1500, 830, 55° – 75mm optics



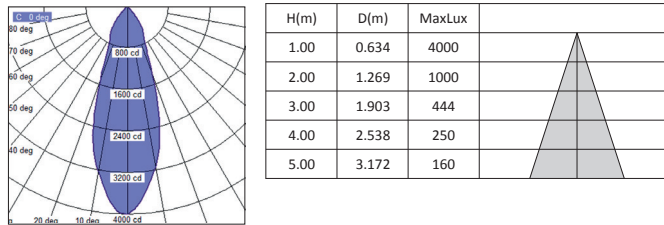
Infusion™ M2000, 830, 25° – 75mm optics



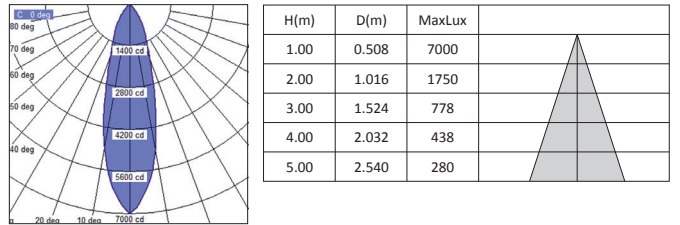
Infusion™ M3000, 830, 25° – 75mm optics



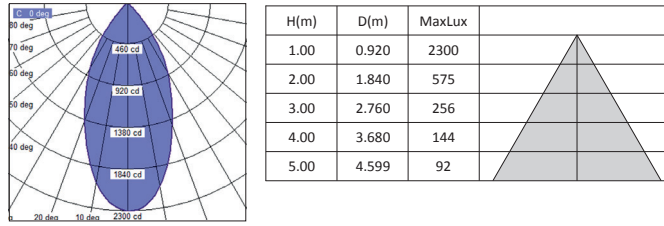
Infusion™ M2000, 830, 35° – 75mm optics



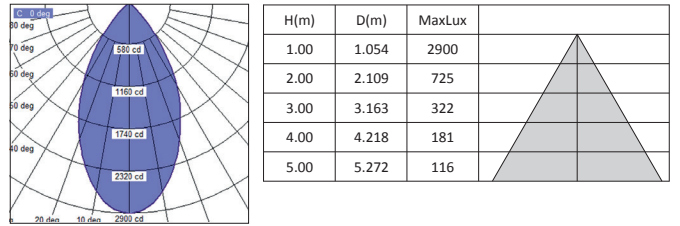
Infusion™ M3000, 830, 35° – 75mm optics



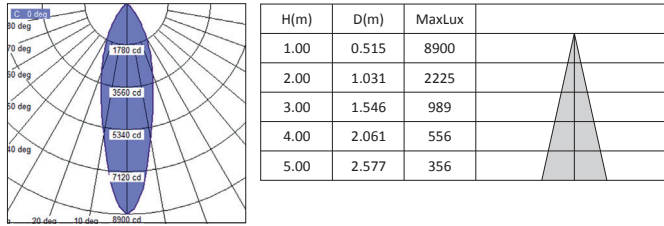
Infusion™ M2000, 830, 55° – 75mm optics



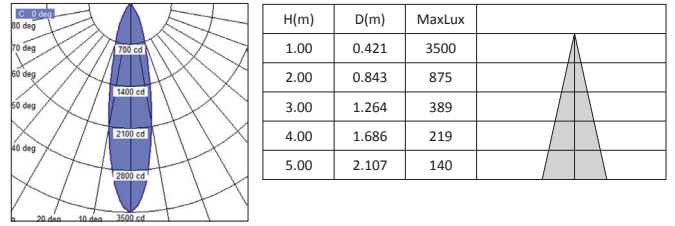
Infusion™ M3000, 830, 55° – 75mm optics



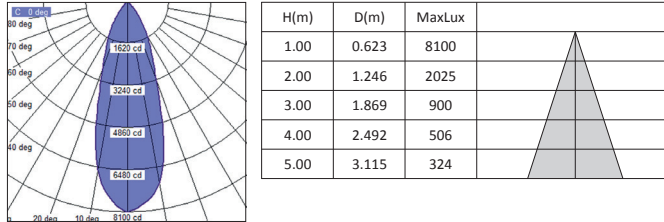
Infusion™ M4500, 830, 25° – 75mm optics



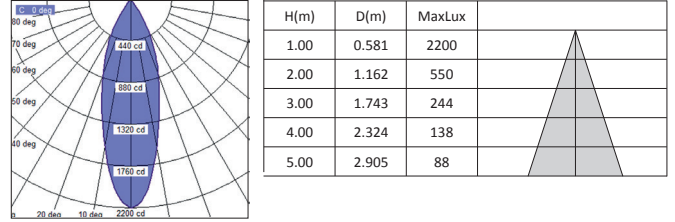
Infusion™ M1000, 830, 25° – 100mm optics (with diffuser)



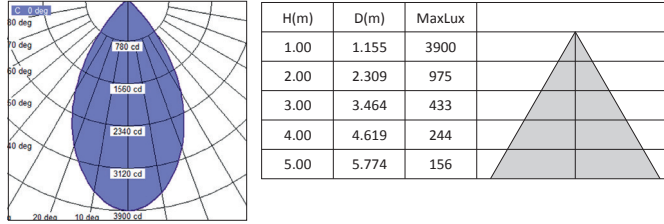
Infusion™ M4500, 830, 35° – 75mm optics



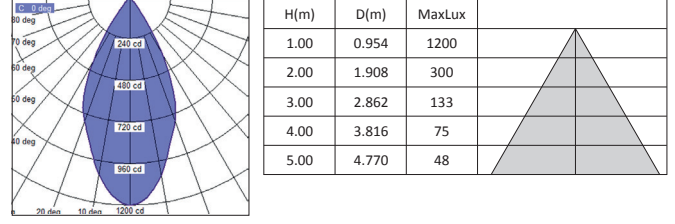
Infusion™ M1000, 830, 35° – 100mm optics (with diffuser)



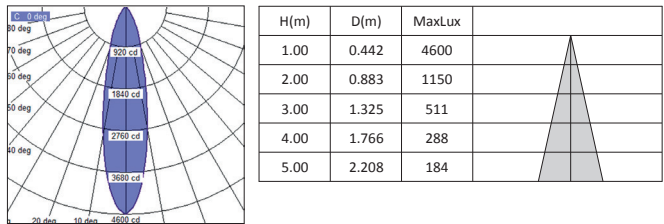
Infusion™ M4500, 830, 55° – 75mm optics



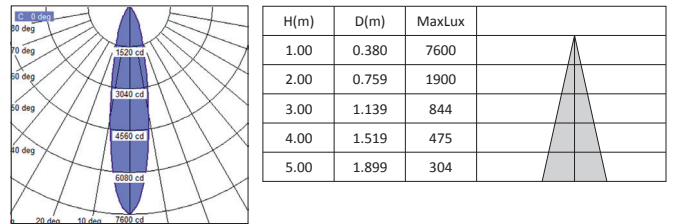
Infusion™ M1000, 830, 55° – 100mm optics (with diffuser)



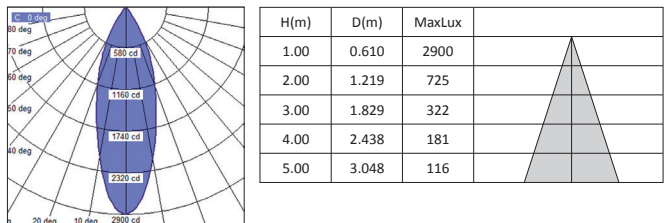
Infusion™ M1500, 830, 25° – 100mm optics (with diffuser)



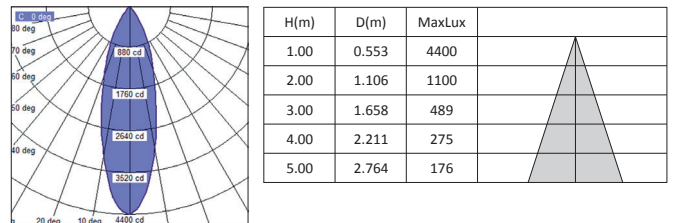
Infusion™ M2000, 830, 25° – 100mm optics (with diffuser)



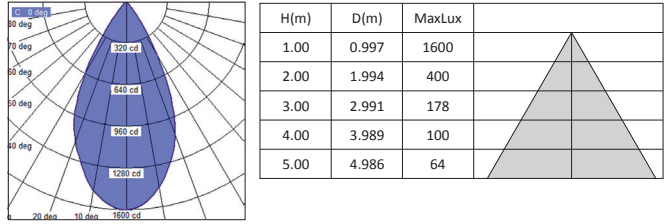
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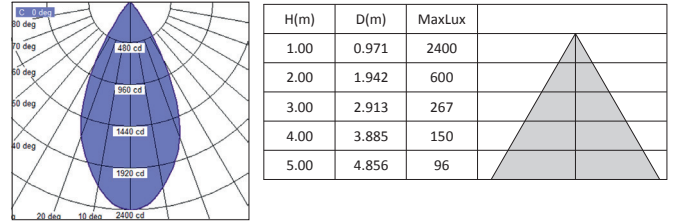
Infusion™ M2000, 830, 35° – 100mm optics (with diffuser)



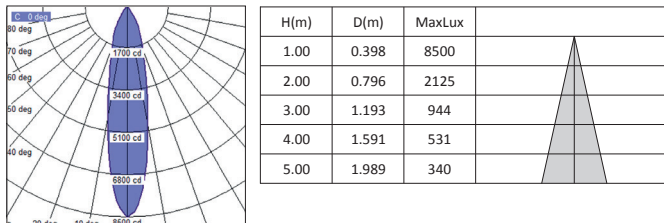
Infusion™ M1500, 830, 55° – 100mm optics (with diffuser)



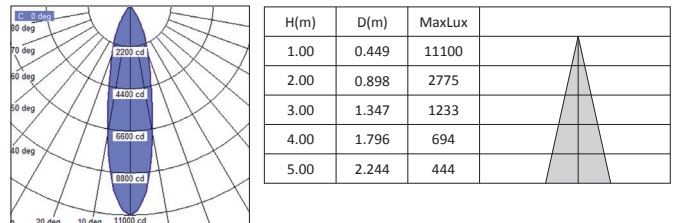
Infusion™ M2000, 830, 55° – 100mm optics (with diffuser)



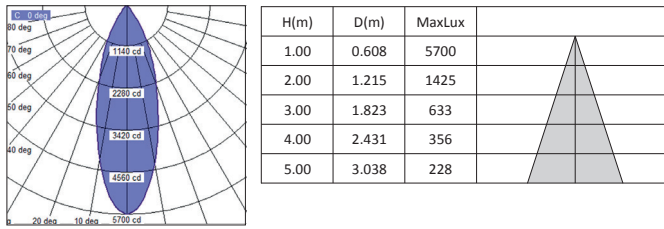
Infusion™ M3000, 830, 25° – 100mm optics (with diffuser)



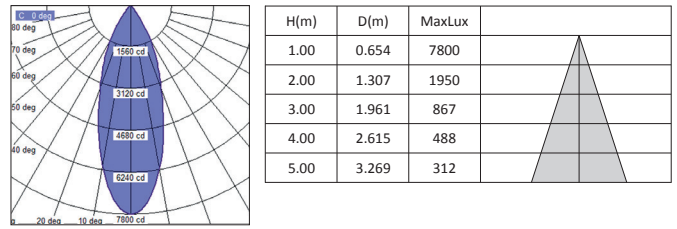
Infusion™ M4500, 830, 25° – 100mm optics (with diffuser)



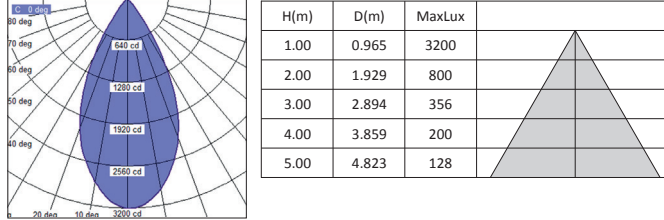
Infusion™ M3000, 830, 35° - 100mm optics (with diffuser)



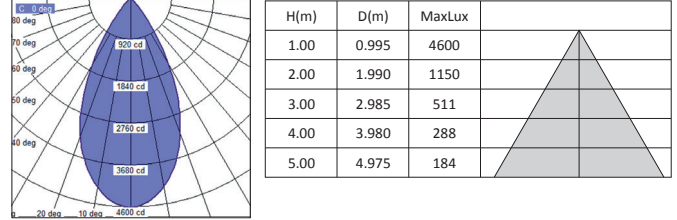
Infusion™ M4500, 830, 35° - 100mm optics (with diffuser)



Infusion™ M3000, 830, 55° - 100mm optics (with diffuser)

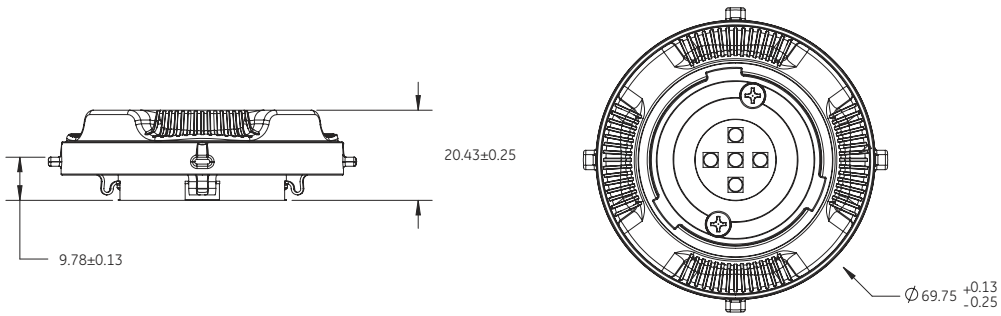


Infusion™ M4500, 830, 55° - 100mm optics (with diffuser)

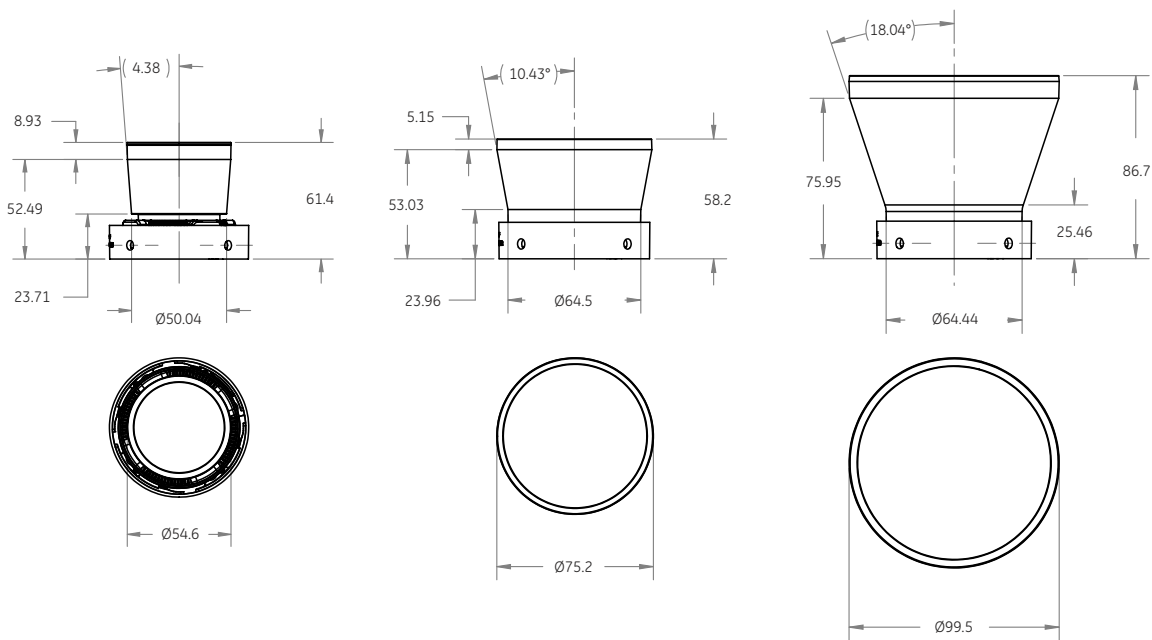


Dimensions [mm]

Module

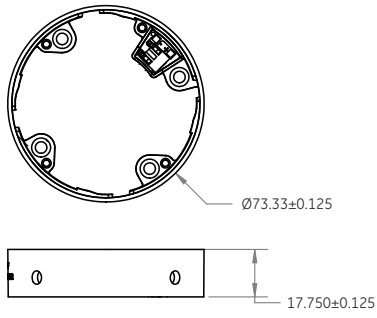


Optics



Dimensions [mm]

Holder



Heatsink

