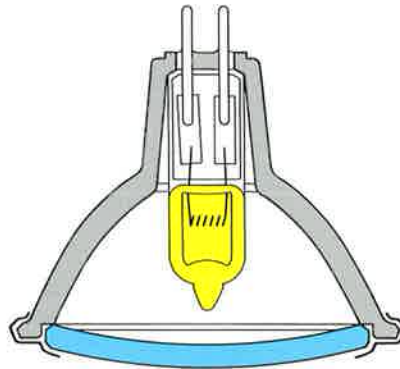


LIGHTSTREAM OPEN & SEALED DICHOIC MIRROR LAMPS



the features that give THORN consistent beam definition

To the outstanding features of existing THORN dichroic mirror lamps, the *sealed* dichroic lamps add unique design advantages.



LIGHTSTREAM sealed mirror lamps



Metal rim The anodised metal rim ensures retention of the front glass without affecting the light output.



Front glass in clear borosilicate does not dull the lamp performance.



Sealed against dirt. The front glass seals against dirt and maintains light output in dirty and harsh environments.



Extra protection. The front glass protects the capsule from mishandling and contact with combustible materials. THORN *sealed* mirror lamps are suitable for exterior applications in luminaires designed to relevant IP class.



New colours. Red, yellow, green and blue, applied to the front glass of the sealed lamp, give saturated colours superior to reflector-coated lamps.



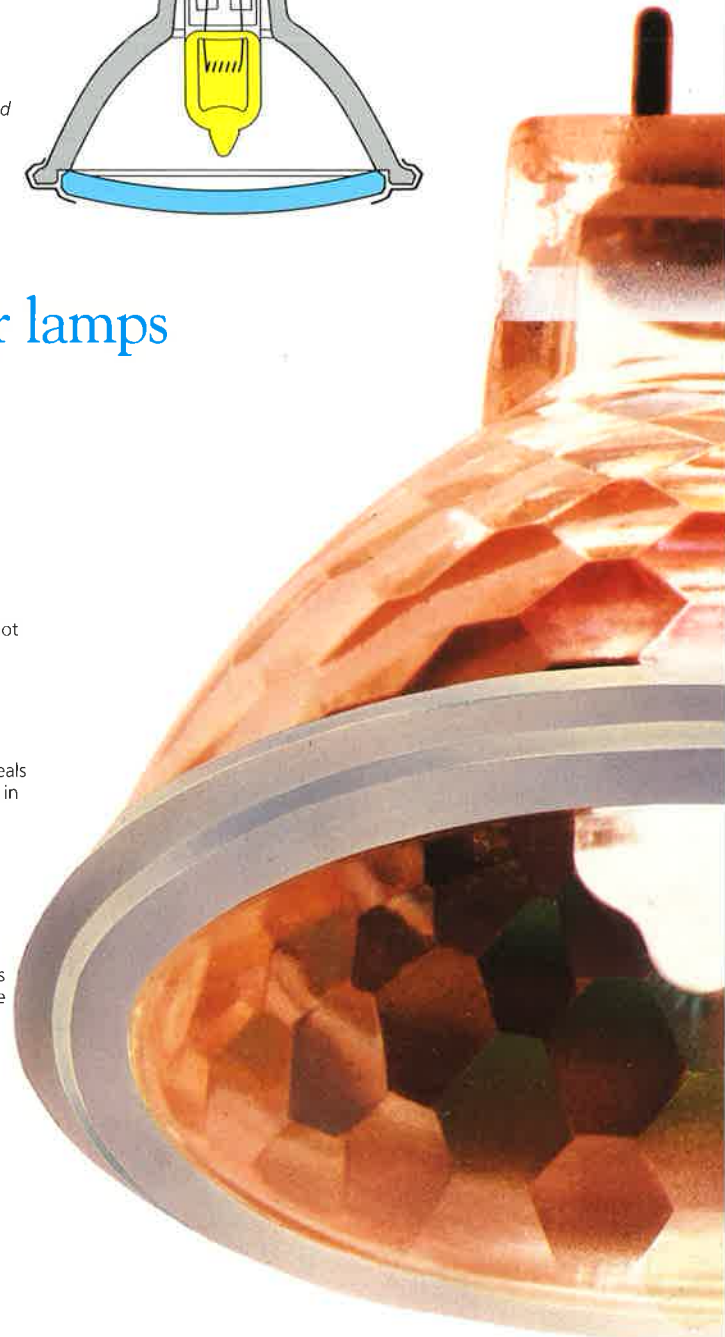
Neodymium Reduces yellow light producing whites of greater purity and enriched colours. Colour and Neodymium lamps are now available in 50mm diameter and in early '90, 35mm.



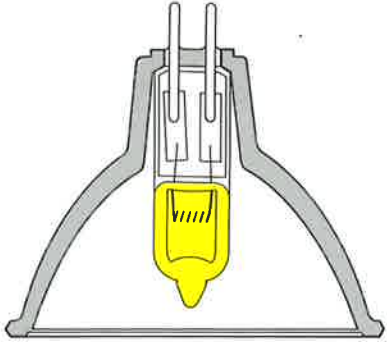
Quartz construction ensures the reliability of the lamp. Comparable lamps made from hard glass have proved more vulnerable to early failure.



New standard. The front glass adds 3mm to the overall length of a sealed lamp. To recognise this, a new international specification is required to ensure all manufacturers' lamps are dimensionally compatible. To specify a sealed lamp add the prefix '2' to the current open lamp reference e.g. 'M50' is specified as 'M250' for the sealed version.



lamps high average intensity, and reliable long life



LIGHTSTREAM open mirror lamps



Sparkle, with or without the front glass, produced by faceted reflectors gives a livelier accent lighting with a visually attractive lamp.



Optical integrity. A precisely focussed lamp is achieved by photoelectric positioning of the capsule into its reflector.



Cool beam. 23 layers of dichroic coatings reflect light forward and transmit heat rearward.



Slotted base engages with the THORN lampholder springs providing secure retention.



To Help Users achieve the most effective display lighting THORN packs show lamp's Beam Performance Cone.



Cool pinch. Innovative design of all THORN dichroic mirror lamps has created a range with probably the lowest pinch temperature of any comparable lamp in the world. A cool pinch temperature enables Sealed Lamps to be used in luminaires designed for open lamps.



Optimum beam control is achieved by reflectors specifically designed for medium/wide distribution (honeycomb facets) or narrow distribution (trapezoid facets).



12 volt 3500 hours average life* universal operating position

Lamp bases. GU5.3 and GU4 are new designations for 50mm and 35mm lamps with a retention slot in the lamp base. These can be used in GX5.3 and GZ4 lampholders, but to take advantage of the retention facility a GU5.3 or GU4 lampholder should be used.

35mm \varnothing

lamp	wattage	lamp cap	peak beam cd	beam angle to half peak degrees	diameter mm max	length mm max	colour K	filament type	bulb finish
M264	12	GU4	5760	7	35.3	42.5	2900	trans	clear
M252	20		4950	10		42.5			
M251	20		1584	17		39.5			
M262	20		540	30		39.5			
M265	35		8100	8		42.5			
M266	35		2700	20		39.5			

*except M264 2000 hrs



		12W M264		20W M252		35W M265	
m		7°	lux	10°	lux	8°	lux
1		12	5760	17	4950	14	8100
2		24	1440	35	1238	28	2025
3		37	640	52	550	42	900
4		49	360	70	310	56	507
5		61	230	87	198	70	324

		M251		M266	
m		17°	lux	20°	lux
1		30	1584	35	2700
2		60	396	71	675
3		90	176	106	300
4		120	99	141	169
5		149	63	176	108

		M262	
m		30°	lux
1		54	540
2		107	135
3		161	60
4		214	34
5		268	22



Trapezoidal faceted mirror reflector for narrower beams



Honeycomb mirror reflector for medium/wide beams

These cones indicate the angle at which the intensity of the beam is at 50% of peak. Peak illuminance (lux) and beam diameter are given for planes at right angles and at various distances (m) from the source.

50mm \emptyset

35, 50mm \emptyset Neodymium

lamp	wattage	lamp cap	peak beam cd	beam angle to half peak degrees	diameter mm max	length mm max	colour K	filament type	bulb finish
M268	20	GU5.3	4500	11	50.7	47.5	2900	trans	clear
M294			900	24					frosted
M269			450	36					frosted
M271	35	GU5.3	8100	8	50.7	47.5	2900	trans	clear
M270			3240	18					clear
M281			873	38					frosted
M249	FXK 50	GU5.3	10800	10	50.7	47.5	3000	trans	clear
M250	FXJ		3330	21				trans	clear
M258	FXH		1395	38				trans	frosted
M280			630					axial	frosted
M260	65	GU5.3	12960	12	50.7	47.5	3000	axial	clear
M282			6075	18				axial	clear
M261			1822	38				axial	clear
M298			729	60				trans	frosted

lamp	wattage	lamp cap	beam angle to half peak degrees	diameter mm max	length mm max
50mm	M104	50	GU5.3 10	50.7	47.5
	M105		21		
35mm	M148	20	GU4 10	35.3	42.5

Neodymium dichroic mirror lamps

The front glass of these lamps is treated with Neodymium to reduce the yellow content of its light, thus greatly enhancing whites, reds, blues, greens and giving them an exceptional

feeling of crispness, Neodymium also induces appreciable differentiation in colours and patterns all of which gain in richness and depth.

	20W M268		35W M271		50W M249		65W M260	
m	11°	lux	8°	lux	10°	lux	12°	lux
1	.19	4500	.14	8100	.17	10800	.21	12960
2	.39	1125	.28	2025	.35	2700	.42	3240
3	.58	500	.42	900	.52	1270	.63	1440
4	.77	282	.56	504	.70	675	.84	810
5	.96	180	.70	324	.87	432	1.05	518
	M294		M270		M250		M282	
m	24°	lux	18°	lux	21°	lux	18°	lux
1	.43	900	.32	3240	.37	3330	.32	6075
2	.85	225	.63	810	.74	833	.63	1518
3	1.28	100	.95	360	1.11	370	.95	675
4	1.70	57	1.27	203	1.48	208	1.27	380
5	2.13	36	1.58	130	1.85	133	1.58	243
	M269		M281		M258		M261	
m	36°	lux	38°	lux	38°	lux	38°	lux
1	.65	450	.69	873	.69	1395	.69	1822
2	1.30	113	1.38	219	1.38	349	1.38	455
3	1.95	50	2.07	97	2.07	155	2.07	202
4	2.60	28	2.75	55	2.75	87	2.75	113
5	3.25	18	3.44	35	3.44	56	3.44	72
	M280		M298					
m	60°	lux	60°	lux				
1	1.15	630	1.15	729				
2	2.31	158	2.31	182				
3	3.46	70	3.46	81				
4	4.62	40	4.62	45				
5	5.77	25	5.77	29				

20W M148	50W M104	50W M105
10°	10°	21°
.17	.17	.37
.35	.35	.74
.52	.52	1.11
.70	.70	1.48
.87	.87	1.85



Neodymium

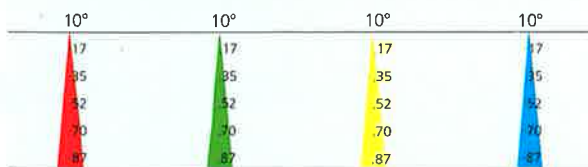


Halogen

35, 50mm \varnothing colours

	colour	lamp	wattage lamp cap	beam angle to half peak degrees	diameter mm max	length mm max
50mm	Red	M249R	50 GU5.3	10	50.7	47.5
	Green	M249G				
	Yellow	M249Y				
	Blue	M249B				
35mm	Red	M252R	20 GU4	10	35.3	42.5
	Green	M252G				
	Yellow	M252Y				
	Blue	M252B				

New colours. Red, yellow, green and blue, applied to the front glass of the sealed lamp, give saturated colours superior to reflector-coated lamps.



Lamp bases. GU5.3 and GU4 are new designations for 50mm and 35mm lamps with a retention slot in the lamp base. These can be used in GX5.3 and GZ4 lampholders, but to take advantage of the retention facility a GU5.3 or GU4 lampholder should be used.

12 volt 3500 hours average life* universal operating position



35mmØ

50mmØ



lamp	ANSI code	wattage	lamp cap	peak beam cd	beam angle to half peak degrees	diameter mm max	length mm max	colour K	filament type	bulb finish
M64	FTA	12	GU4	6400	7	35.3	38.5	2900	trans	clear
M52	FTB	20	GU4	5500	10	35.3	38.5			
M55	FSS		SBC B15D	5500	10		42.0			
M51	FTC		GU4	1760	17		35.5			
M54	FST		SBC B15D	1760	17		42.0			
M62	FTD		GU4	600	30		35.5			
M63	FSV		SBC B15D	600	30		42.0			
M65	FTE	35	GU4	9000	8	35.3	38.5			
M66	FTF			3000	20		35.5			

*except M56 3000 hrs
M57 3000 hrs
M64 2000 hrs

lamp	ANSI code	wattage	lamp cap	peak beam cd	beam angle to half peak degrees	diameter mm max	length mm max	colour K	filament type	bulb finish
M68	ESX	20	GU5.3	5000	11	50.7	44.5	2900	trans	clear
M94	BBF			1000	24					frosted
M69	BAB			500	36					frosted
M71	FRB	35	GU5.3	9000	8	50.7	44.5	2900	trans	clear
M70	FRA			3600	18					clear
M81	FMW			970	38					frosted
M49	EXT	50	GU5.3	12000	10	50.7	44.5	3000	trans	clear
M57	-		SBC B15D	12000	10					clear
M50	EXZ		GU5.3	3700	21					clear
M56	-		SBC B15D	3700	21					clear
M58	EXN		GU5.3	1550	38					frosted
M80	FNV		GU5.3	700	60					axial
M60	EYF	75	GU5.3	16000	12	50.7	44.5	3000	axial	clear
M82	FNW			7500	18					axial
M61	EYC			2250	38					axial
M98	-			900	60					trans

12W M64			20W M52 M55*			35W M65		
m	7°	lux	10°	lux	8°	lux		
1	12	6400	17	5500	14	9000		
2	24	1600	35	1375	28	2250		
3	37	711	52	611	42	1000		
4	49	400	70	344	56	563		
5	61	256	87	220	70	360		
M51 M54*			M66					
m	17°	lux	20°	lux				
1	30	1760	35	3000				
2	60	440	71	750				
3	90	196	106	333				
4	1.20	110	1.41	188				
5	1.49	70	1.76	120				
M62 M63*								
m	30°	lux						
1	54	600						
2	1.07	150						
3	1.61	67						
4	2.14	38						
5	2.68	24						

*SBC base

These cones indicate the angle at which the intensity of the beam is at 50% of peak. Peak illuminance (lux) and beam diameter are given for planes at right angles and at various distances (m) from the source.



Trapezoidal faceted mirror reflector for narrower beams



Honeycomb mirror reflector for medium/wide beams

20W M68			35W M71			50W M49 M57*			75W M60		
m	11°	lux	8°	lux	10°	lux	12°	lux			
1	19	5000	14	9000	17	12000	21	16000			
2	39	1250	28	2250	35	3000	42	4000			
3	58	556	42	1000	52	1333	63	1778			
4	77	313	56	560	70	750	84	1000			
5	96	200	70	360	87	480	105	640			
M94			M70			M50 M56*			M82		
m	24°	lux	18°	lux	21°	lux	18°	lux			
1	43	1000	32	3600	37	3700	32	7500			
2	85	250	63	900	74	925	63	1875			
3	1.28	111	95	400	1.11	411	95	833			
4	1.70	63	1.27	225	1.48	231	1.27	469			
5	2.13	40	1.58	144	1.85	148	1.58	300			
M69			M81			M58			M61		
m	36°	lux	38°	lux	38°	lux	38°	lux			
1	65	500	69	970	69	1550	69	2250			
2	1.30	125	1.38	243	1.38	388	1.38	562			
3	1.95	56	2.07	108	2.07	172	2.07	250			
4	2.60	31	2.75	61	2.75	97	2.75	140			
5	3.25	20	3.44	39	3.44	62	3.44	90			
M80			M98								
m	60°	lux	60°	lux							
1	1.15	700	1.15	900							
2	2.31	175	2.31	225							
3	3.46	78	3.46	100							
4	4.62	44	4.62	56							
5	5.77	28	5.77	36							

* SBC base

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