

High intensity discharge lamps

High intensity discharge lamps

GE invented mercury lamps in 1931, high pressure sodium lamps in 1962 and metal halide in 1964.

GE has continually improved its HID lamp category by introducing CMH 20W first to the market. Meeting special lighting requirements, the Lucalox PhotoSyntheses Light lamp has become available for the horticulture industry to provide better growing conditions in countries where the level of sunshine is not smooth.

The HID range falls into several categories: metal halide, sodium discharge lamps divided into high-pressure sodium-low-pressure sodium and mercury. High intensity discharge lamps are characterised by reliability, high efficiency and low operating costs.

Nearly all HID lamps require a ballast and starting gear. GE solved that need and has launched a new range of electronic ballast for CMH lamps. It comprises of a complete series of economic, high quality ballasts with 20, 35 and 70W integral and remote ballasts.



High Intensity Discharge

Metal Halide selector	112
ConstantColor™ CMH	118
Arcstream™	119
Kolorarc™	119
Multi-Vapor™	120
Multi-Vapor™ High Output	120
Sportlight™	121
High Pressure Sodium	122
Understanding product data	124
Lucalox™ T	125
Lucalox™ E	125
Lucalox™ XO	125
Lucalox™ HO	126
Lucalox™ TD	126
Lucalox™ RFL	126
Lucalox™ E-Z Lux™	126
Elliptical Diffuse - I	126
Lucalox™ I	126
Lucalox™ Superlife	126
Mercury	127
Understanding product data	128
Kolorlux Standard (MBF)	129
Kolorlux Deluxe	129
Kolorlux Dx Long Life	129
Blended Light	129
Blacklight (UV)	129
Low Pressure Sodium	130
SOX	130
SOX-Plus	130
SOX-E	130
Discharge comparison guide	132
General information	134

High Intensity Discharge Lamps

High intensity discharge lamps

Metal halide lamps

Selecting the right product

While all HID lamps offer outstanding efficiency and long life, there are distinct differences in performance among the five basic types of HID lamps. The following two charts should help you to understand these differences so that you can select the right lamp for your application.

Key performance criteria

	Colour Temperature Options (K)	Colour Rendering (Ra)	Life (Hours)	Efficiency (LPW)
Metal Halide	3000 (WDL) 3500 (BDL) 4000 (NDL) 6000 (DL)	65-93	3,500-20,000	68-105
High Pressure Sodium	2 000	25-60	28,500-55,000	66-150
Mercury	3 500 4 000	42-52	12,000-24,000	19-63
Low Pressure Sodium	1 800		16 000	100-198

Best option Good option

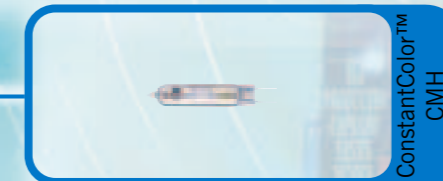
Major applications

	Retail	Display	Commercial Interior	Sports Lighting	Stadium	High Bay	Industrial	Warehouses	Amenity	Pedestrian Areas	Floodlighting	Security	Street Lighting	Highways	Horticulture
Metal Halide	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
High Pressure Sodium						•	•	•	•	•	•	•	•	•	•
Mercury								•	•	•	•	•	•	•	•
Low Pressure Sodium												•	•	•	•

Choose the appropriate one from the wide selection of GE metal halide lamps.

- To make lamp selection easier than ever, GE has defined its metal halide range in five distinct groups - ConstantColor™CMH, Arcstream™, Kolorarc™, Multi-vapor™ and Spotlight™.
- GE metal halide lamps with their bright, high quality white light and energy-efficiency are ideal for a wide range of applications.
- Constant colour lamp to lamp throughout life.

GE makes it easy to choose the right metal halide. Simply select the right product family for your task and preferred ballast and you will pinpoint the correct lamp for perfect results.



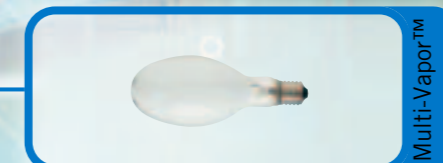
GE's unique 3 part arc tube design provides higher durability that results in excellent reliability.



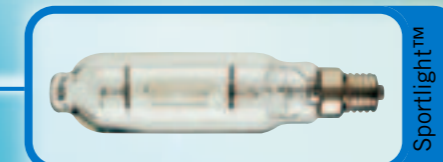
Lamps operate on high pressure sodium / metal halide ballasts incorporating thermal protection (to EN IEC 61167) with metal halide ignitors.



Lamps operate on high pressure mercury ballasts with metal halide ignitor.



Lamps operate on Constant Wattage Gear (CWA).



Lamps for sports and floodlighting.

Applications: retail display lighting, decorative lighting and spotlighting of individual features.

High quality metal halide light is ideal for illuminating colour critical public spaces such as shopping areas and walkways.

High intensity discharge lamps


Metal halide lamps

The full line up of metal halide lamps

Lumen value table

Retail/Display



Lamp Format	Operating Position	Colour:	20W		35W		70W		100W	150W		DL
			WDL	NDL	WDL	NDL	WDL	NDL	WDL	WDL	NDL	
Arcstream ConstantColor CMH Ceramic Metal Halide lamps for superior colour control and operating efficiencies												
	Single Ended	U	1700 lm		3400 lm	6200 lm						
	Single Ended	U			3400 lm	6000 lm		6000 lm		14000 lm	13000 lm	
	Double Ended	HOR				7000 lm		6200 lm		14500 lm	12500 lm	
	PAR20 Spot	U			2100 lm							
	PAR20 Flood	U			2100 lm							
	PAR30 Spot	U			2400 lm	4700 lm						
	PAR30 Flood	U			2400 lm	4700 lm						
	Elliptical Clear	U				6300 lm			9200 lm			
	Elliptical Diffuse	U				6000 lm			8700 lm			
	Tubular Clear	U				6000 lm			9200 lm	14000 lm		
Arcstream™ Lamps operate on high pressure sodium/metal halide ballasts incorporating thermal protection with metal halide ignitor												
	Single Ended	U				5200 lm		5200 lm		11500 lm	12000 lm	
	Double Ended	HOR				5500 lm	5500 lm	5500 lm		12000 lm	12000 lm	11000 lm
	Tubular Clear	HOR VBU										
	Elliptical Clear	U HOR										
	Elliptical Diffuse	U HOR VBU										
Kolorarc™ Lamps operate on high pressure mercury ballasts with metal halide ignitor												
	Tubular Clear	HOR VBU										
	Elliptical Clear	HOR VBU										
	Elliptical Diffuse	HOR VBU										
Multi-Vapor™ Lamps operate on constant wattage gear (CWA)												
	Elliptical Clear	U										
	Elliptical Diffuse	U VBU										
Multi-Vapor™ High Output More light, longer life												
	Elliptical Clear	HOR VBU										
	Elliptical Diffuse	HOR VBU										
Sportlight™ For sports and floodlighting												
	Linear	HOR										
	Tubular Clear	HOR										
	Hot Restrike											
	Internal Ignitor											
	Elliptical Clear	U										
	Elliptical Diffuse	HOR U										
	PAR 64	U										
	PAR 64 Hot Restrike	U										

Sports/Floodlighting



High Bay/Industrial



175W	250W	400W	750W	1000W	1500W	1600W	2000W
Arcstream ConstantColor CMH Ceramic Metal Halide lamps for superior colour control and operating efficiencies							
	23500 lm		40000 lm				
	25000 lm		42000 lm				
Arcstream™ Lamps operate on high pressure sodium/metal halide ballasts incorporating thermal protection with metal halide ignitor							
	20000 lm	20000 lm					
		21000 lm	19000 lm	35000 lm			
		22500 lm	19000 lm				
		19500 lm	17000 lm				
			17000 lm				
Kolorarc™ Lamps operate on high pressure mercury ballasts with metal halide ignitor							
					25000 lm		
					28000 lm		
				34000 lm			
				30500 lm			
				32000 lm	24000 lm		
				32000 lm	26000 lm		
Multi-Vapor™ Lamps operate on constant wattage gear (CWA)							
	13600 lm	20800 lm		36000 lm		105000 lm	
	12900 lm	18000 lm	19800 lm	35000 lm		99800 lm	
				34000 lm			
Multi-Vapor™ High Output More light, longer life							
		23000 lm		40000 lm			
				40000 lm	38000 lm		
		21600 lm		37600 lm			
				37600 lm	37600 lm		
Sportlight™ For sports and floodlighting							
			67000 lm			120000 lm	135000 lm
					80000 lm		
							170000 lm
							170000 lm
							190000 lm
					92000 lm		
						68000 lm	
					92000 lm		
					76000 lm		
					76000 lm		

High intensity discharge lamps

Metal halide lamps



The Esplanade in Helsinki

Bright Light and Excellent Color Performance

GE's ConstantColor™ CMH lamps are the latest advance in a long term lighting revolution. Ceramic Metal Halide lamps provide exceptionally consistent colour rendition helping to highlight both texture and colour. Concentrated brightness and excellent optical control allow maximum design flexibility from floodlighting to area lighting.

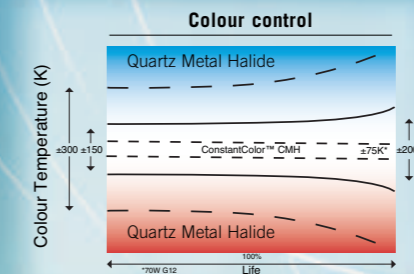
- Long life - up to 15,000 hours
- Consistent colour over life
- Bright light and excellent colour rendition
- High efficiency up to 100 lm/W
- Available in two colour temperatures 3000K and 4200K
- Direct replacement for High Pressure Sodium and Quartz Metal Halide lamps to fit existing installations
- Shrouded versions available for use in open luminaires
- UV control
- Available in elliptical, tubular, linear, single ended and PAR lamp shapes and up to 150 watts for maximum versatility

ConstantColor CMH The light source of the future

Natural White Light with Maximum Flexibility



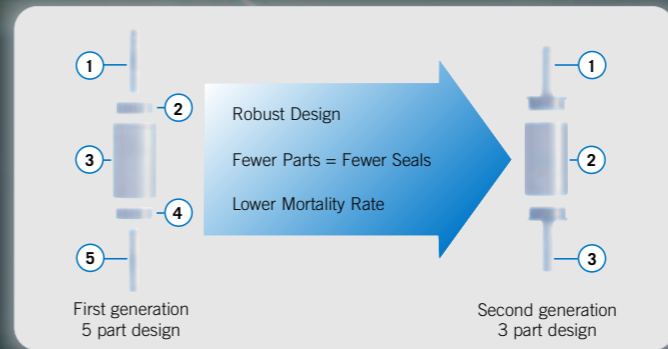
A complete range of shapes, wattages and colour temperatures to match all needs



The new range of ConstantColor™ CMH lamps has been designed to provide the best alternative for retail lighting, city beautification and decorative exterior lighting:

- Crisp and vibrant white light
- Excellent colour rendering up to 90 CRI Ra and two colours for flexible lighting solutions
- Exceptional lumen maintenance over life to ensure original lighting design quality
- Constant colour over life and uniformity lamp to lamp for consistent lighting effects
- With GE's unique 3 part arc tube, ConstantColor™ CMH lamps last for up to 15,000 hours with exceptional lumen maintenance for design reliability.
- Lumen efficiency of up to 100 lm/w gives an almost identical lumen standard as High Pressure Sodium lamps meeting customer requirements in terms of cost of lighting

Borobudur Temple



GE Lighting's Six Sigma quality drive initiated a fresh approach to the customers' requirements of delivering significant reliability improvements. This process determined that a 3 part design of the arc tube would reduce potential weak points in the seals, resulting in increased reliability.

High intensity discharge lamps

Metal halide lamps

Arcstream™

Choose Arcstream™ with metal halide ballasts and ignitors for retail display lighting, high quality exterior floodlighting and anywhere a crisp, white light is required.

- Perfect optical control delivering a highly accurate, quality light precisely where you want it
- Long life up to 9,000 hours
- Excellent colour reproduction making it ideal for display lighting
- Good colour consistency throughout life, so your display maintains its features



Kolorarc™

Choose Kolorarc™ with mercury ballasts and metal halide ignitors for commercial and industrial interiors, shopping malls and floodlighting.

- High brightness - providing high illumination levels even when installed in high ceiling areas
- High energy efficiency - offering maximum energy cost savings
- Excellent colour reproduction providing more attractive lighting environments compared to high pressure sodium and mercury arc lamps



Multi-Vapor™

Choose high output Multi-Vapor™ lamps with constant wattage auto-transformer (CWA) ballasts for large scale commercial and industrial interiors, shopping malls and floodlighting.

- Extra long life - of up to 20,000 hours on CWA gear
- Warm, rich colour - that gives merchandise, furnishings and decor added appeal
- High colour temperatures - to blend exceptionally well in mixed applications with incandescent, halogen and warm white fluorescent sources



Sportlight™

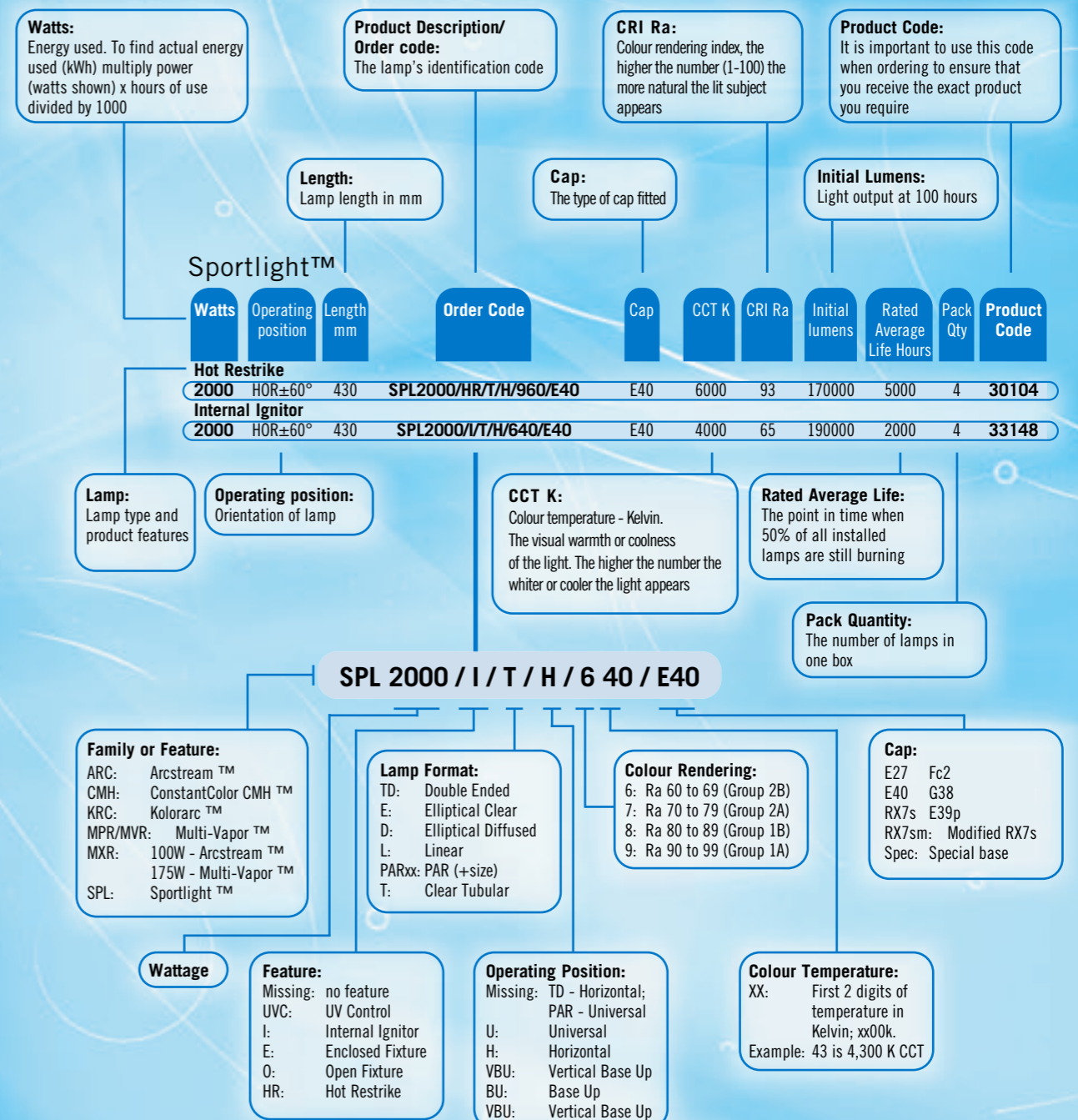
Choose Sportlight™ high wattage lamps for sports and floodlighting. The excellent colour rendering and appearance of these lamps makes them especially suitable where television cameras are used.

- Excellent optical control - with minimal beam spread even at long focal lengths
- High output - providing high illumination levels even from high towers
- Excellent colour performance - accurately reproducing colours to create more authentic and attractive floodlit environments



Metal Halide identification

The following glossary of terms and descriptions can help you when checking metal halide lamp specifications and how to use the order codes when ordering products. Within each product line, lamps are divided into families - within families, lamps are listed by wattage.



High intensity discharge lamps

Metal halide lamps

Multi-Vapor™

Watts	Operating position	Length mm	Order Code	Cap	CCT K	CRI Ra	Initial lumens	Rated Average Life Hours	Rated Average Life H	Rated Avr. Life V	Pack Qty	Product Code	Fig No.
Elliptical Clear													
175	U	216	MVR175/U/40	E40	4000	65	13600	10000		10000	12	47762	1
250	U	216	MVR250/U/40	E40	4200	65	20800	10000		10000	6	44542	2
400*	U	295	MVR400/U/40	E40	4000	65	36000	20000		20000	6	43907	3
1000*	U	385	MVR1000/U/40	E40	4000	65	105000	12000		12000	6	41828	4

Elliptical Diffuse													
175	U	216	MVR175/C/U/40	E40	3900	70	12900	10000		10000	12	47763	5
250	U	216	MVR250/C/U/40	E40	3900	70	19800	10000		10000	12	44543	6
250	U	210	MVR250/SP30/U/40	E40	3000	70	18000 V/16600 H		6000	10000	12	17715	6
400*	VBU±15°	295	MVR400/SP30/VBU/40	E40	3200	70	34000	20000		20000	6	21440	7
400*	U	295	MVR400/C/U/40	E40	3700	70	35000	20000		20000	6	43908	7
1000*	U	385	MVR1000/C/U/40	E40	3400	70	99800	12000		12000	6	41829	8

Operating from CWA control gear
 Initial lumen values and Rated Average Life based on vertical orientation for Universal types. Multi-Vapor™ lamps must operated in fully enclosed fixtures except those marked *when used VBU or VBD +/-15°.
 For lamps requiring enclosed fixtures, lens/diffuser material must be able to contain fragments of hot quartz or glass (up to 1100 °C)
 Lamps operated in the vertical position that are not designated "Enclosed Fixtures only" lamp may be used in an open or enclosed lighting fixture depending upon the application and operating environment.
 For example, if the lamp is located near combustible material or in an area which is unoccupied for extended periods, an enclosed fixture which can contain fragments of hot quartz or glass is recommended.
 For more information contact your fixture manufacturer.

Multi-Vapor™ High Output

Watts	Operating position	Length mm	Order Code	Cap	CCT K	CRI Ra	Initial lumens	Rated Average Life Hours	Rated Average Life H	Pack Qty	Product Code
Elliptical Clear											
250	HOR±15°	210	MVR250/HOR	E39p	4200	65	23000	15000		12	18101
400	HOR±15°	292	MVR400/H/HOR	E39p	4200	65	40000	20000		6	18096
400	VBU±15°	295	MVR400/C/VBU/40	E40	4000	65	40000	20000		6	49860
400*	VBU±15°	292	MPR400/VBU/O/40	E40	3400	65	38000	20000		6	18709

Elliptical Diffuse											
250	HOR±15°	210	MVR250/C/HOR	E39p	3600	70	21600	15000		12	18103
400	HOR±15°	292	MVR400/C/HOR	E39p	4000	70	37600	20000		6	18097
400	VBU±15°	295	MVR400/C/VBU/40	E40	3700	70	37600	20000		6	49857
400*	VBU±15°	292	MPR400/C/VBU/O/40	E40	3000	70	37600	20000		6	27738

Operating from CWA control gear
 Initial lumen values and Rated Average Life based on vertical orientation for Universal types. Multi-Vapor™ lamps must operated in fully enclosed fixtures except those marked *when used VBU or VBD +/-15°.
 For lamps requiring enclosed fixtures, lens/diffuser material must be able to contain fragments of hot quartz or glass (up to 1100 °C)
 Lamps operated in the vertical position that are not designated "Enclosed Fixtures only" lamp may be used in an open or enclosed lighting fixture depending upon the application and operating environment.
 For example, if the lamp is located near combustible material or in an area which is unoccupied for extended periods, an enclosed fixture which can contain fragments of hot quartz or glass is recommended.
 For more information contact your fixture manufacturer.

Sportlight™

Watts	Operating position	Length mm	Order Code	Cap	CCT K	CRI Ra	Initial lumens	Rated Average Life Hours	Rated Average Life H	Pack Qty	Product Code
Linear											
750	HOR±15°	256	SPL750/L/H/652/Rx7SM	Rx7s	5200	65	67000	6000		1	30058
1000	HOR±15°	256	SPL1000/L/H/652/Rx7SM	Rx7s	5200	65	80000	6000		1	34523
1500	HOR±15°	256	SPL1500/L/H/652/Rx7SM	Rx7s	5200	65	120000	6000		1	16920
1600	HOR±15°	256	SPL1600/L/H/652/Rx7SM	Rx7s	5200	65	135000	6000		1	16921
2000	HOR±15°	311	SPL2000/L/H/654/spec	spec.	5400	65	200000	6000		1	16922

Tubular Clear											
1000	HOR±60°	340	SPL1000/T/H/960/E40	E40	6000	90	80000	8000		6	30056
2000	HOR±60°	430	SPL2000/T/H/960/E40	E40	6000	93	170000	5000		4	30102

Hot Restrike											
2000	HOR±60°	430	SPL2000/HR/T/H/960/E40	E40	6000	93	170000	5000		4	30104

Internal Ignitor											
2000	HOR±60°	430	SPL2000/I/T/H/640/E40	E40	4000	65	190000	2000		4	33148
2000	HOR±60°	430	SPL2000/I/T/H/960/E40	E40	6000	93	170000	5000		4	30103

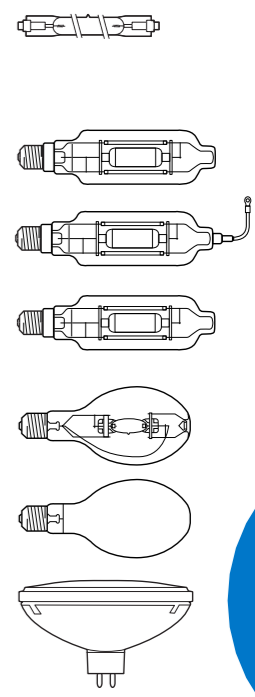
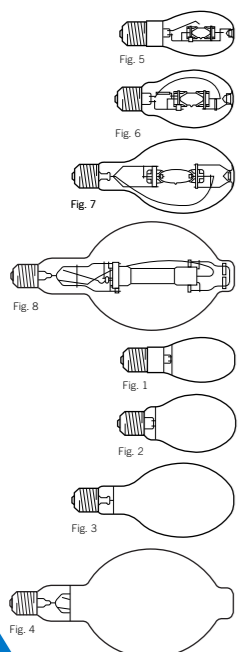
strictly for use without starting device

Elliptical Clear											
1000	U	400	SPL1000/E/U/745/E40	E40	4500	65	92000	12000		1	30054

Elliptical Diffuse											
1000	U	400	SPL1000/D/U/740/E40	E40	4000	70	92000	12000		1	30055
1000	HOR±45°	380	SPL1000/D/H/960/E40	E40	6000	90	68000	8000		4	30057

PAR 64											
1000	HOR±90°	175	CSI/PAR64/G38	G38	4000	80	76000	3500		1	29333
1000	HOR±90°	175	CSI/PAR64/HR/G38	G38	4000	80	76000	3500		1	29336

Please refer to technical catalogue/data sheet for appropriate ballast and ignitors. Sportlight™ lamps are only suitable in fully enclosed fixtures, where fixture lens/diffuser material must be able to contain fragments of hot quartz or glass (up to 1100 °C)



High intensity discharge lamps

High pressure sodium lamps

Low operating costs, long useful life, energy-efficient performance



Lucalox™ T



Lucalox™ E

- High efficiency - up to 150 lumens per watt - converting more energy into light, cutting energy and operating costs.
- Outstanding life - up to 55,000 hours substantially reducing lamp maintenance and replacement costs.
- Lamps that start out bright and stay that way, offering high maintained lumens over life.

Lucalox™ XO Photosynthesis Light Lamp (PSL)



Lighting for Horticulture
Specially developed for greenhouses, the Lucalox™ XO PSL offers the twin benefits of stable lumen maintenance and a full spectrum content that promotes photosynthesis.



Lucalox™ Standard

- The highly efficient, long-life lamp**
- Ideal for streetlighting, commercial and industrial use
 - Wide range of wattages and sizes
 - Up to 28,500 hours life
 - Highly efficient, producing 140 lumens per watt

Lucalox™ HO, XO, XO PSL

- The extra high output and long-life lamp**
- Extra light - up to 20% more lumens
 - Long life of up to 28,500 hours
 - Highly efficient, producing 150 lumens per watt
 - PSL is ideal for Horticulture Lighting

Lucalox™ Internal Ignitor

- The efficient, long-life replacement of incandescent light fittings**
- Simple - luminaires only need regular HPS ballast, simpler luminaire designs can be used
 - Efficiency and long-life from a simple and versatile retrofit lamp
 - Compact - enables use of small fixture lighting systems

Lucalox™ TD (Double-ended)

- Lucalox™ efficiency in an ultra compact size**
- Compact size - small size fits ultra compact fixtures
 - Excellent optimal control - delivers a concentrated beam of light exactly where needed
 - High efficiency
 - Long life

Lucalox™ E-Z Lux™

- Converts mercury sockets to highly efficient high pressure sodium lighting**
- Direct replacement for mercury lamps - operates on mercury ballasts
 - More efficient, higher lumens than mercury - 14% energy cost savings - 40%+ more light

Lucalox™ Superlife

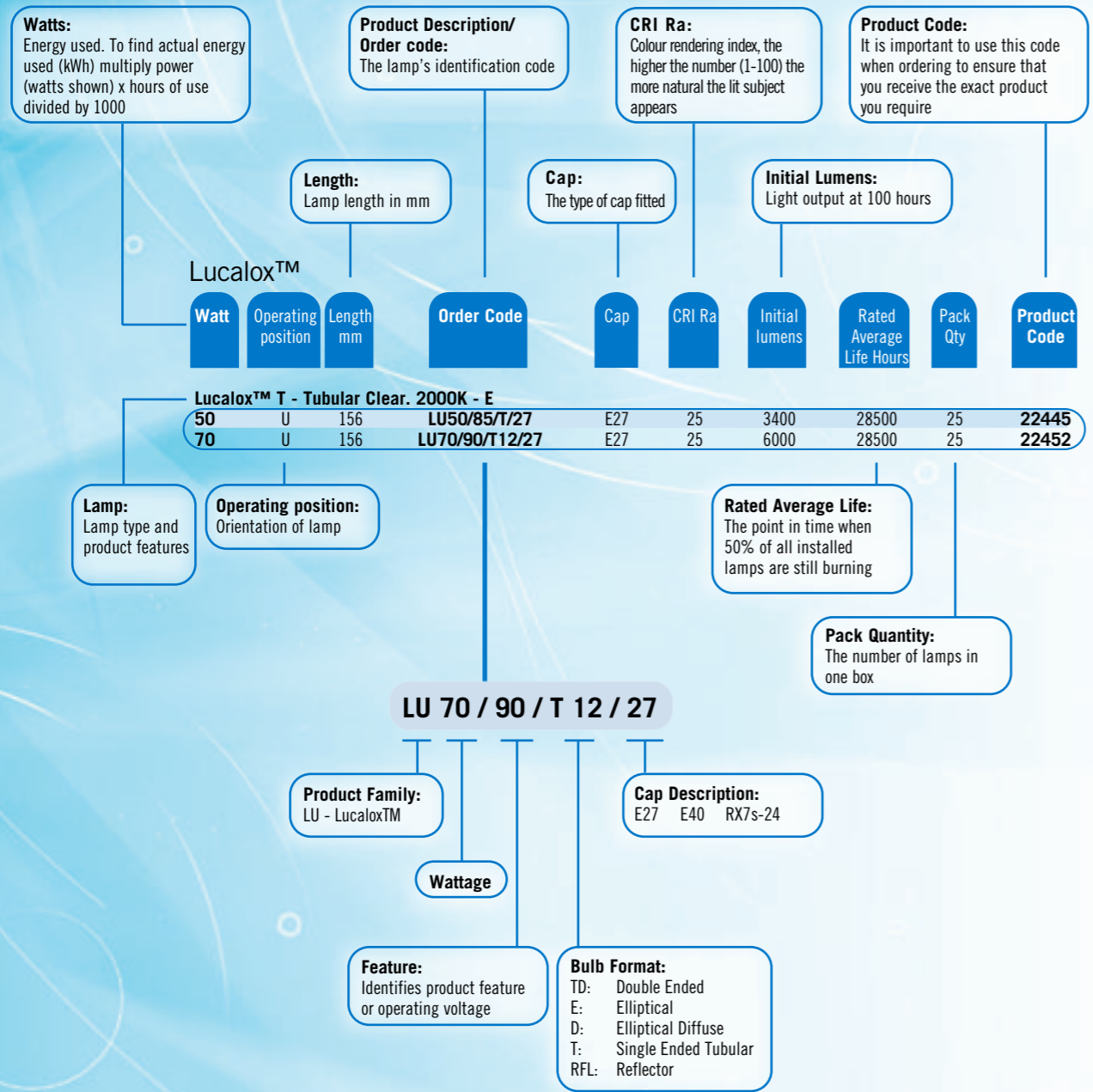
- Extra arc tube provides light instantly after power interruption**
- "Superlife" arc tube provides light instantly after momentary power interruption, and will increase to full output in 1-2 minutes
 - Longest life - dual arc tubes provide up to 55,000 hour rated life

High intensity discharge lamps

High pressure sodium lamps

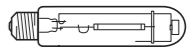
High Pressure Sodium identification

The following glossary of terms and descriptions can help you when checking high pressure sodium lamp specifications and explains how to use the order codes when ordering products. Within each product line, lamps are divided into families - within families, lamps are listed by wattage.

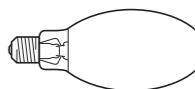


Lucalox™

Watt	Operating position	Length mm	Order Code	Cap	CRI Ra	Initial lumens	Rated Average Life Hours	Pack Qty	Product Code
Lucalox™ T - Tubular Clear. 2000K									
50	U	156	LU50/85/T/27	E27	25	3400	28500	25	22445
70	U	156	LU70/90/T12/27	E27	25	6000	28500	25	22452
100	U	211	LU100/100/M0/T/40	E40	25	9600	28500	12	93767
150	U	211	LU150/100/40	E40	25	15000	28500	12	44244
250	U	260	LU250/T/40	E40	25	27500	28500	12	22453
400	U	283	LU400/T/40	E40	25	50000	28500	12	11678
1000	U	372	LU1000/110/T/40 4pk	E40	25	130000	24000	4	34832

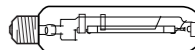


Watt	Operating position	Length mm	Order Code	Cap	CRI Ra	Initial lumens	Rated Average Life Hours	Pack Qty	Product Code
Lucalox™ E - Elliptical Diffuse. 2000K									
50	U	156	LU50/85/D/27	E27	25	3300	28500	12	10794
70	U	156	LU70/90/D/27	E27	25	5800	28500	12	10101
100	U	211	LU100/100/M0/D/40	E40	25	9200	28500	12	93766
150	U	227	LU150/100/D/40	E40	25	14500	28500	12	44245
250	U	227	LU250/D/40	E40	25	26000	28500	12	44052
400	U	282	LU400/D/40	E40	25	47500	28500	6	44057
1000	U	372	LU1000/110/D/40	E40	25	120000	24000	1	30228

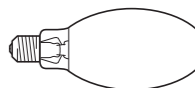


I - Internal Starter; E - External Starter

Watt	Operating position	Length mm	Order Code	Cap	CCT K	CRI Ra	Initial lumens	Amps	Rated Average Life Hours	Pack Qty	Product Code
Lucalox™ XO - (Extra Output) Tubular Clear											
50	U	156	LU50/85/X0/T/27	E27		25	4400		28500	25	93373
70	U	156	LU70/90/X0/T/27	E27		25	6600		28500	25	93375
100	U	211	LU100/100/X0/T/40	E40		25	10500		28500	12	93376
150	U	211	LU150/150/X0/T/40	E40		25	17500		28500	12	93377
250	U	260	LU250/X0/T/40	E40		25	33000		28500	12	93378
400	U	283	LU400/X0/T/40	E40		25	56500		28500	12	93269
600	U	283	LU600/X0/T/40	E40		25	90000		28500	12	93270
750	U	292	LU750/X0/T/40	E40	2100	20	112000	7.1	12000	12	10910



Watt	Operating position	Length mm	Order Code	Cap	CCT K	CRI Ra	Initial lumens	Amps	Rated Average Life Hours	Pack Qty	Product Code
Lucalox™ XO - (Extra Output) Elliptical Diffuse											
100	U	186	LU100/100/X0/D/40	E40		25	10000		28500	12	93379
150	U	227	LU150/100/X0/D/40	E40		25	16900		28500	12	93380
250	U	227	LU250/X0/D/40	E40		25	31200		28500	12	93381
400	U	282	LU400/X0/D/40	E40		20	54000		28500	12	93296



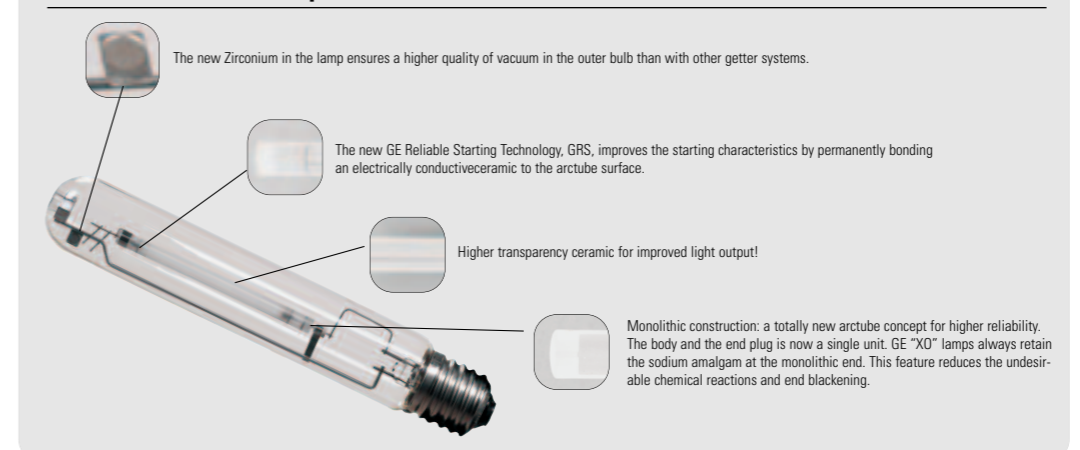
Watt	Operating position	Length mm	Order Code	Cap	CCT K	CRI Ra	Initial lumens	Amps	Rated Average Life Hours	Pack Qty	Product Code
Lucalox™ XO PSL - (XO PhotoSynthesis Light) Tubular Clear											
400	U	283	LU400/X0 PSL/T/E40	E40	2100	22	56500		28500	12	17106
600	U	283	LU600/X0 PSL/T/E40	E40	2100	20	90000		28500	12	17107
750	U	293	LU750/X0 PSL/T/E40	E40	2100	20	112000		16000	12	17108

I - Internal Starter; E - External Starter

High pressure sodium lamps operating from HPS ballast and HPS ignitor

 External Ignitor required  Internal Ignitor

GE Lucalox™ XO Lamp



High intensity discharge lamps

Mercury

Lucalox™ continued

Watt	Operating position	Length mm	Order Code	Cap	CRI Ra	Initial lumens	Rated Average Life Hours	Pack Qty	Product Code
Lucalox™ HO - (High Output) Tubular Clear									
50	U	156	LU50/85/HO/T27	E27	25	4000	28500	25	35109
70	U	156	LU70/90/HO/T27	E27	25	6500	28500	25	35112
150	U	211	LU150/150/HO/T/40	E40	25	17500	28500	12	35114
250	U	260	LU250/HO/T/40	E40	25	33000	28500	12	35120
400	U	283	LU400/HO/T/40	E40	25	56500	28500	12	47963
600	U	283	LU600/HO/T/40	E40	25	90000	28500	12	47962

Lucalox™ HO - (High Output) Elliptical Diffuse									
150	U	227	LU150/100/HO/D/40	E40	25	16900	28500	12	35301
250	U	227	LU250/HO/D/40	E40	25	31200	28500	12	35302
400	U	282	LU400/HO/D/40	E40	25	53700	28500	6	35295

Lucalox™ TD - Double Ended									
250	HOR±20°	191	LU250/TD	Rx7s-24	25	23000	20000	10	30241
400	HOR±20°	256	LU400/TD	Rx7s-24	25	43000	20000	10	30244
1000	HOR±20°	334	LU1000/TD	Rx7s-24	25	137000	20000	10	30246

Lucalox™ RFL - Reflector									
70	U	144	LU70/RFL	E27	25	4000	28500	10	30238

Lucalox™ E-Z Lux™ - Direct replacement for mercury lamps - Operates from mercury ballasts									
Elliptical Diffuse									
110	U	175	LUH110/D/27-SHx	E27	25	8800	16000	40	39512
215	U	232	LUH215/D/EZ/40	E40	25	18000	12000	12	49941

Lucalox™ I - Elliptical Clear									
50	U	156	LU50/85/I/27	E27	25	3400	12000	12	11733
70	U	156	LU70/90/I/27	E27	25	6000	12000	12	11735

Lucalox™ I - Elliptical Diffuse									
50	U	156	LU50/85/D/I/27	E27	25	3300	12000	12	11734
70	U	156	LU70/90/D/I/27	E27	25	5800	12000	12	11736

Lucalox™ Superlife - Tubular Clear									
50	U	156	LU50/85/SBY/T/27	E27	25	3400	40000	25	35585
70	U	156	LU70/90/SBY/T/27	E27	25	6000	40000	25	35593
100	U	211	LU100/100/MO/SBY/T/40	E40	25	9600	40000	12	17899
150	U	211	LU150/100/SBY/T/40	E40	25	15000	50000	12	35594
250	U	260	LU250/SBY/T/40	E40	25	27500	55000	12	35586
400	U	283	LU400/SBY/T/40	E40	25	50000	55000	12	35582

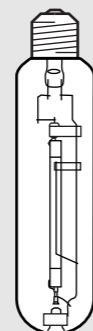
Lucalox™ Superlife - Elliptical Diffuse									
50	U	156	LU50/85/SBY/D/27	E27	25	3300	40000	12	35583
70	U	156	LU70/90/SBY/D/27	E27	25	5800	40000	12	35587
150	U	227	LU150/100/SBY/D/40	E40	25	14500	50000	12	35589
250	U	227	LU250/SBY/D/40	E40	25	26000	55000	12	35590
400	U	282	LU400/SBY/D/40	E40	25	47500	55000	6	35591

I - Internal Starter; E - External Starter

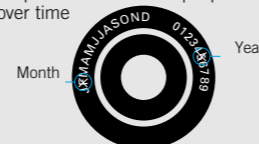
⚠ External Ignitor required ⚠ Internal Ignitor

GE Lucalox™ Lamp

- Nickel Alloy Cap**
Corrosion free, good electrical contact throughout life and moisture damage is eliminated
- High maintained light output**
- Shorter re-strike time**
Than either metal halide or mercury lamps
- Starts and operates at temperatures as low as -40°C**
- Provides a warm golden light**
- Average rated life of up to 28,500Hrs**
Increased to 55,000 for Superlife versions. Offering lower replacement costs



- Lamp Cap Identification**
Helps measure the lamp's performance over time



- Clean Arc Tube**
- Highest efficiency/lowest operating costs among the High Intensity Discharge (HID) product range with acceptable colour rendering**

High quality colour from a versatile range of lamps



Kolorlux™

- Ideal for commercial, industrial and outdoor applications with a wide choice of lamp types and ratings.
- Good colour rendering.
- Modest installation and running costs.

The Kolorlux range offers six different types of mercury lamp, each with their own particular qualities.

Kolorlux Standard

Traffic and industrial lamps.

Blended Light

An alternative to incandescent requiring no control gear and giving warm white light with good energy efficiency.

Kolorlux Deluxe

Warm colour and enhanced light output for indoor and outdoor applications.

Kolorlux DX Long Life

Meeting IEC and ANSI specifications for applications demanding standard US spec.

Blacklight (UV)

Emits long-wave UV creating fluorescence making it ideal for research and special effects.

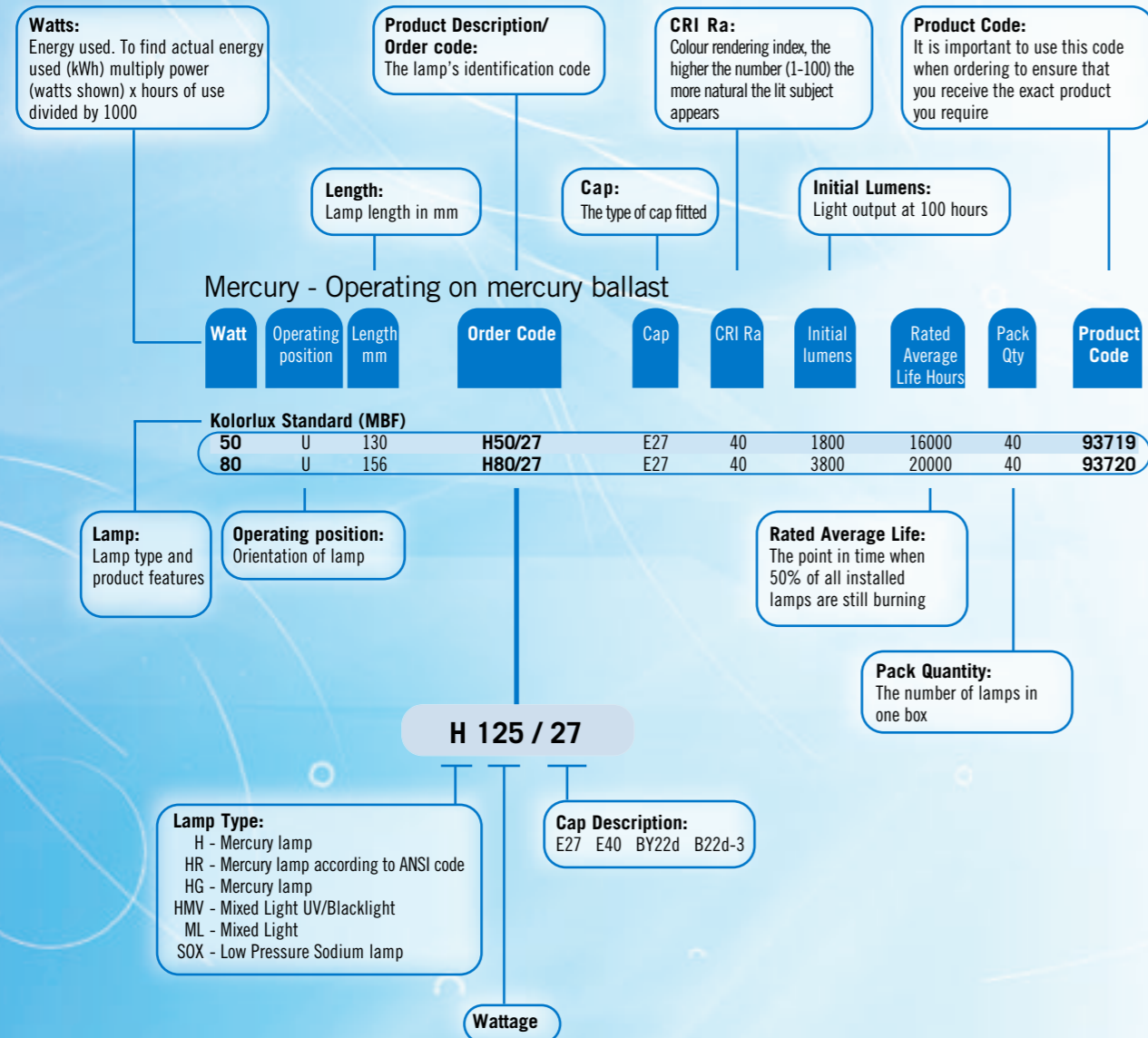
Good colour performance, long-term reliability and low operating costs mean mercury lamps are widely used in industrial lighting.

High intensity discharge lamps

Mercury

Mercury and Low Pressure Sodium identification

The following glossary of terms and descriptions can help you when checking mercury and low pressure sodium lamp specifications and explains how to use the order codes when ordering products. Within each product line, lamps are divided into families - within families, lamps are listed by wattage.



Mercury - Operating on mercury ballast

Watt	Operating position	Length mm	Order Code	Cap	CRI Ra	Initial lumens	Rated Average Life Hours	Pack Qty	Product Code
Kolorlux Standard (MBF)									
50	U	130	H50/27	E27	40	1800	16000	24	93719
80	U	156	H80/27	E27	40	3800	20000	24	93720
80	U	156	H80/B22	B22d-3*	40	3800	20000	24	93778
125	U	170	H125/27	E27	40	6300	20000	24	92619
125	U	170	H125/B22	B22d-3*	40	6300	20000	24	92831
250	U	227	H250/40	E40	40	13000	20000	12	92620
400	U	292	H400/40	E40	40	22500	20000	12	92621

Watt	Operating position	Length mm	Order Code	Cap	CRI Ra	Initial lumens	Rated Average Life Hours	Pack Qty	Product Code
Kolorlux Deluxe									
50	U	130	H50NDX/27	E27	57	2000	16000	24	93781
80	U	156	H80NDX/27	E27	57	4000	20000	24	93782
80	U	156	H80NDX/B22	B22d-3*	57	4000	20000	24	93783
125	U	170	H125NDX/27	E27	55	6500	20000	24	92896
125	U	170	H125NDX/B22	B22d-3*	55	6500	20000	24	92897
250	U	227	H250NDX/40	E40	55	14000	20000	12	92898
400	U	292	H400NDX/40	E40	50	24000	20000	12	92899

Watt	Operating position	Length mm	Order Code	Cap	CRI Ra	Initial lumens	Rated Average Life Hours	Pack Qty	Product Code
Kolorlux DX Long Life									
250	U	213	HR250DX37/40	E40	50	12100	24000	12	32372
400	U	290	HR400DX33/40	E40	50	22500	24000	6	32294

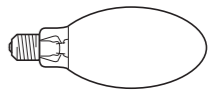
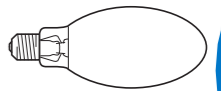
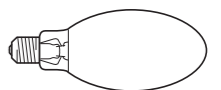
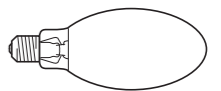
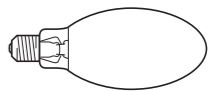
*B22d-3 is a 3 pin BC cap.

Watt	Operating position	Length mm	Order Code	Cap	CRI Ra	Initial lumens	Rated Average Life Hours	Pack Qty	Product Code
Blended Light (MBTF)									
160	VER±30°	170	HMLI160/230-240V	E27	52	3100	8000	40	85954
160	VER±30°	170	HMLI160/240-250V	E27	52	3100	8000	40	85965
250	VER±30°	227	HMLI250/230-240V	E40	52	5600	8000	12	85948
250	U*	227	HMLI250/240-250V	E40	52	5600	8000	12	85962
500	U*	292	HMLI500/230-240V	E40	52	14000	8000	10	85904

*Operating position universal but optimum orientation VER ± 45°.

Watts	Operating position	Length mm	Order Code	Cap	CCT K	Initial lumens	Pack Qty	Product Code
Blacklight (UV)								
125*	U	170	HgV125/27	E27	2.75	1.15	24	92956
160**	U	170	HMV160/230-240/27	E27	1.20	0.75	24	92957

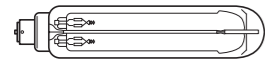
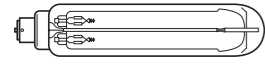
* Operating from mercury ballast. ** No ballast required



High intensity discharge lamps

Low pressure sodium

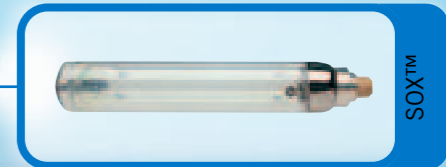
Low Pressure Sodium Lamps - 16,000 hours



Watts	Operating position	Length mm	Order Code	Cap	CCT K	Initial lumens	Pack Qty	Product Code
SOX								
18	HOR±20°	216	S0x18	BY22d*	1800	1800	16	21294
35	HOR±20°	311	S0x35	BY22d*	1800	4600	16	21296
55	HOR±20°	425	S0x55	BY22d*	1800	7650	16	21297
90	HOR±20°	528	S0x90	BY22d*	1800	12750	9	21298
135	HOR±20°	775	S0x135	BY22d*	1800	22000	9	21299
SOX - PLUS								
35	HOR±20°	311	S0xPLUS35W	BY22d*	1800	4600	16	36750
55	HOR±20°	425	S0xPLUS55W	BY22d*	1800	7650	16	36754
90	HOR±20°	528	S0xPLUS90W	BY22d*	1800	12750	9	36756
135	HOR±20°	775	S0xPLUS135W	BY22d*	1800	22000	9	36759
SOX-E - Economy								
26	HOR±20°	311	S0x26E	BY22d*	1800	4060	16	30204
36	HOR±20°	425	S0x36E	BY22d*	1800	6400	16	30205
66	HOR±20°	528	S0x66E	BY22d*	1800	10800	9	30209
91	HOR±20°	775	S0x91E	BY22d*	1800	16800	9	30211

*BY22d is 2 pin BC cap.

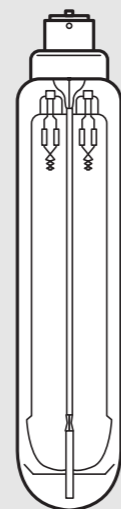
Energy-efficiency and reliability through life



- GE's SOX lamps produce light at wavelengths close to the peak sensitivity of the human eye and so provide one of the most efficient types of artificial light.
- Particularly suitable where long operating hours are demanded such as lighting roads, tunnels and pathways, where SOX lamps' remarkably low-energy/high output characteristics make them a cost-effective choice.

GE SOX-Plus Lamp - Driven by Six Sigma Quality

- **Low Conductivity Mica Support**
- **Better Electrodes**
Improved coating technique through Statistical Process Control
Superior conditioning through better activation of emitter material
Sodium resistant sleeving
- **Improved Gas Filling**
Better lamp starting due to Statistical Process Control of purity and pressure fill gas
High vacuum insulation in outer jacket



- **Smooth Arc-Tube**
No pitting of surface by features that may act as weak points
No indentations for sodium to evaporate over lamp life and reduce efficacy
Minimal discolouration of sodium resistant coating due to improved manufacturing process
- **Graduated Insulating Coating**
Optimises lamp energy balance
- **Reliable Metal Top Clip**
Robust to vibration in poor weather conditions
Mica spacer for low heat conductivity from arc-tube

Low pressure sodium lamps are ultra energy efficient and produce a familiar, yellow light.

GE's SOX lamps offer outstanding performance and reliability throughout their rated life.

Outstanding energy-efficiency producing up to 4060 lumens from just 26 watts.

Long-term reliability with lamp survival rates of up to 80% at 12,000 hours.

Long-life 16,000 hours rated average life.

Long-term performance offering 80% lumen maintenance at maximum rated life.

Discharge lamps

Run-up and re-strike time

When a discharge lamp is switched-on, current flows through gas in the arc tube and the power dissipated generates heat vaporising the mercury, sodium or halide filling until stable electrical operating conditions are achieved. This is known as the run-up or warm-up period. The run-up period can be several minutes until the lamp stabilises and achieves published lumen output and colour performance. Run-up value shown in the table is the time taken for the lamp to reach 90% of final light output.

Re-strike time is based on lamps that have fully run-up and then a momentary break in the supply voltage occurs causing extinction.

Actual run-up time and re-strike time will vary according to application, type of fitting used, factors affecting warm-up/cooling rate of the lamp and the ambient temperature.

Most discharge lamps other than high pressure mercury and Multi-Vapor™ are started by a high voltage pulse generated by a separate ignitor, which automatically switches-off after the lamp has started. Use of an external electronic starting device simplifies lamp construction and provides reliable starting performance.

Lamp	Rating (watts)	Run-up time (minutes)	Re-strike time (minutes)
Arcstream™			
Single Ended	70	1.5	3 - 5
	150	1	3 - 5
Double Ended	70	3	5 - 10
	150	3	5 - 10
	250	4	5 - 10
Elliptical	100	3	5 - 10
	250	4	5 - 10
Tubular	250	2 - 4	5 - 10
	400	2.5	5 - 10
Kolorarc™			
Elliptical	400	3 - 4	5 - 10
Tubular	400	4	5 - 10
Multi-Vapor™			
	175	3	10 - 15
	250	3	10 - 15
	400	3	10 - 15
	1000	3	10 - 15
Sportlight™			
Elliptical	1000	2 - 4	5 - 15
Linear	750	2	15 - 20
	1000	2	15 - 20
	1500	2	15 - 20
	2000	2	15 - 20
Tubular	1000	4	5 - 15
	2000	4	5 - 15 Note 2
PAR	1000	1	10 Notes 1 & 2

Notes:

1 In Floodlight
2 Hot Re-strike version also available

Lamp	Rating (watts)	Run-up time (minutes)	Re-strike time (minutes)
Lucalox™			
	50	4	less than 1
	70	4	less than 1
	100	4	less than 1
	150	4	less than 1
	250	5	less than 1
	400	3	less than 1
	1000	6	less than 1
Lucalox™ HO			
	50	3	2 - 4
	70	5	2 - 4
	100	3.5	2 - 4
	150	3.5	2 - 4
	250	3	2 - 4
	400	5	2 - 4
	600	4	2 - 4
	750	4	2 - 4
Kolorlux			
	50	6	4 - 7
	80	5	4 - 7
	125	5	4 - 7
	250	5	4 - 7
	400	5	4 - 7
	700	5	4 - 7
	1000	5	4 - 7
SOX/SOX-Plus			
	18*	12	Instant#
	35	9	Instant#
	55	9	Instant#
	90	9	10
	135	9	10
SOX E			
	26	9	Instant#
	36	9	Instant#
	66	9	10
	91	9	10

* Not available as SOX-Plus
Instant for ignitor circuits

Life of HID lamps

All life ratings for GE high intensity discharge lamps are expressed in terms of 'Rated Average Life', quoted in hours, where average is the 'median' value. This means the number of burning hours until 50% of lamps in an installation (of at least 30 lamps) are expected to have failed or not be operating to the published performance specification. Life ratings are based on lamps operating from suitable control gear for at least ten hours per switching. Lamps operating less than ten hours per start will have a reduced Rated Average Life (typically 25% reduction for each burning cycle reduction of 50%).

Ambient operating temperature

GE Lighting discharge lamps will start reliably at an ambient temperature down to -40°C for Lucalox™ high pressure sodium, -30°C for metal halide and -20°C for high pressure mercury.

Supply Voltage

Discharge lamps in this catalogue are suitable for supplies in the range 220V to 250V 50/60Hz (or 380V to 440V for some Sportlight™ products) when using suitably rated electromagnetic or electronic control gear. Supplies outside this range require a transformer (conventional, high reactance or CWA) or an electronic ballast to ensure correct lamp operation.

Lamps start and operate at 10% below rated supply voltage when the correct control gear is used. However, in order to maximise lamp survival, lumen maintenance and colour uniformity the actual supply voltage and ballast design voltage should be within ±3%. Supply variations up to ±5% are acceptable for short periods only; otherwise lamp life and/or performance will be adversely affected.

Measuring mean supply voltage at the installation and selecting the appropriate ballast setting/tapping is the recommended method of matching multi-voltage rated ballasts to actual supply voltage.

Regular switching of lamps

Continuous operation of mercury and metal halide lamps can increase the slight risk that lamps may shatter, particularly if run beyond rated-life. It is recommended, particularly towards rated end-of-life, that lamps are switched-off for 15 minutes at least once in every 24 hour period to minimise the risk of such failure.

Most metal halide lamps must be fully enclosed within a luminaire to ensure retention of any fragments in the event of a shattering failure mode - see individual lamp sections in this catalogue and lamp data sheets for details.

Circuit Fusing

Recommended HBC fuse and MCB ratings for discharge lamps are given in lamp technical data sheets and publication 'Fuse Ratings for Discharge Lamps', available from GE Lighting.

Further information

Technical data sheets provide more detailed technical information for the products listed. Contact GE Lighting Customer Service or local sales office to obtain copies.