

Low voltage single ended capsules

Low Voltage Single Ended (SEQ)
UV-Control Halogen Lamps
5W, 10W, 20W, 35W, 50W, 75W, 100W

Product information

These lamps are made from a quartz material which blocks virtually all UV-B and UV-C radiation. With a transmission cut-off wavelength of between 350 and 400 nm, it is ideal for lamps requiring maximum visible transmittance with nearly complete UV protection.

The lamps use doped quartz which is an effective barrier to potentially harmful ultra-violet radiation while maintaining the other high quality properties of standard clear fused quartz.

The axial filament types have been specifically developed to satisfy the demand for a wide smooth beam with a good cut-off, from a miniature linear reflector, for the uniform lighting of vertical surfaces, for table lamps for task lighting, or for wall mounted or portable uplighters. With all wattages having the axial filament at the same light centre, one luminaire design may cover a range of illuminances for a variety of residential and commercial requirements. When used in spot reflectors these lamps may also be more efficient alternatives to transverse filament types, because a substantial portion of the filament will always be in the focal point.



Features

- Small filament – Compact Size
- Robust filament
 - Longer life (3-4Khrs)
 - Shock resistance
- Much higher efficacy (Lm/W) than mains voltage halogen (~30-35% better)
- UV radiation falls below the international threshold values
- Fully dimmable

Applications

- General lighting for residential and commercial purposes, especially illumination of light sensitive objects in shop-windows, galleries, museums, etc.

IEC Standards

GE tungsten halogen lamps comply with the following international standards where applicable:

- IEC 60432-3 Tungsten Halogen Lamps Safety Standard
- IEC 60357 Tungsten Halogen Lamps Performance Standard
- IEC 60061 Lamp Caps & Holders



Basic data

Wattage [W]	Rated Wattage [W]	Volts [V]	Cap	Product Description	Reference to line in Dimension table	Product Code	Lumen [lm]	CCT [K]	Life [h]	Length [mm]	Diameter [mm]	Switching cycle [on/off]	Warm up time	Pack Qty
Single ended low voltage capsule - Transversal Filament														
20	20,0	6	G4	M34/FHE/Q20 G4	2	34719	350	2900	2,000	32	8	8,000	instant on	20
5	5,0	12	G4	M9/H5 G4	2	42959	60	2800	2,000	32	8	8,000	instant on	20
10	10,0	12	G4	M11/H10 G4	2	34674	140	2800	2,000	32	8	8,000	instant on	20
10	10,0	6	G4	M42/Q10 G4	2	34728	140	2800	2,000	32	8	8,000	instant on	20
20	20,0	12	G4	M47/Q20 G4	2	34715	380	2900	2,000	32	8	8,000	instant on	100
35	35,0	12	GY6.35	M95/Q35/GY6.35	1	34708	550	2900	3,000	44	11	12,000	instant on	100
50	50,0	12	GY6.35	M32/Q50 GY6.35	1	34702	930	2900	3,000	44	11	12,000	instant on	100
75	75,0	12	GY6.35	M313/Q75/GY6.35	1	34682	1350	2900	3,000	44	11	12,000	instant on	20
100	100,0	12	GY6.35	M28/Q100 GY6.35	1	34676	2200	3000	3,000	44	11	12,000	instant on	100
100	100,0	24	GY6.35	M67/Q100 GY6.35 24V	1	34663	2000	3000	3,000	44	11	12,000	instant on	100
Single ended low voltage capsule - Axial Filament														
20	20,0	12	GY6.35	M76/Q20/GY6.35	1	34712	300	2800	3,000	44	11	12,000	instant on	100
35	35,0	12	GY6.35	M75/Q35/GY6.35	1	34710	600	2900	4,000	44	11	16,000	instant on	100
50	50,0	12	GY6.35	M74/Q50/GY6.35	1	34703	900	2900	4,000	44	11	16,000	instant on	100
75	75,0	12	GY6.35	M73/Q75/GY6.35	1	34683	1350	2900	4,000	44	11	16,000	instant on	20
100	100,0	12	GY6.35	M180/Q100/GY6.35	1	34664	2150	3000	4,000	44	11	16,000	instant on	20
Single ended low voltage capsule - Low Pressure, Axial Filament														
10	10,0	12	G4	Q10T2,5/12V G4	3	35705	140	2800	2,000	32	8	8,000	instant on	20
20	20,0	12	G4	Q20T2,5/12V G4	3	35710	320	2900	2,000	32	8	8,000	instant on	20
20	20,0	12	GY6.35	Q20T3/12V GY6.35	1	35696	300	2800	2,000	44	11	8,000	instant on	20
35	35,0	12	GY6.35	Q35T3/12V GY6.35	1	35699	600	2900	2,000	44	11	8,000	instant on	20
50	50,0	12	GY6.35	Q50T3/12V GY6.35	1	35700	900	2900	2,000	44	11	8,000	instant on	20
75	75,0	12	GY6.35	Q75T3/12V GY6.35	1	35701	1350	2900	2,000	44	11	8,000	instant on	20
Single ended low voltage capsule Start - Transversal Filament														
10	10,0	12	G4	M11/Q10/G4 ST	3	12708	100	2700	1,000	32	8	4,000	instant on	20
20	20,0	12	G4	M47/Q20/G4 ST	3	12711	250	2800	1,000	32	8	4,000	instant on	20
35	35,0	12	GY6.35	M95/Q35/GY6.35 ST	1	12712	480	2800	1,000	44	11	4,000	instant on	20
50	50,0	12	GY6.35	M32/Q50/GY6.35 ST	1	12713	800	2900	1,000	44	11	4,000	instant on	20
100	100,0	12	GY6.35	Q100/GY6.35 ST	1	12718	1950	3000	1,000	44	11	4,000	instant on	20

Dimensions

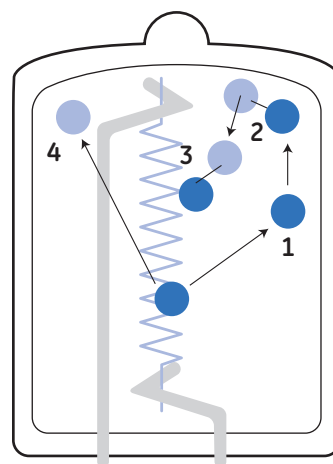
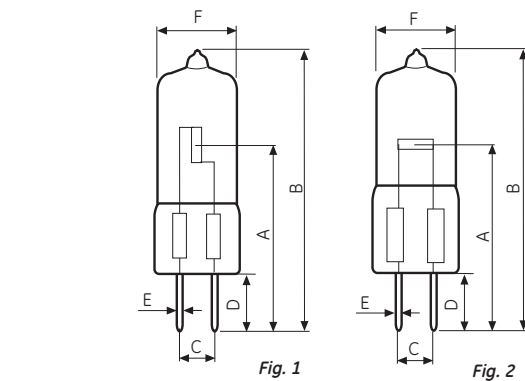
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
1	30 ± 0.5	44 max.	6.35±0.25	7.5 min.	1.25	11 max.
2	19.5 ± 0.5	32 max.	4±0.25	7.5 min.	0.7	9 max.
3	22 ± 0.5	32 max.	4±0.25	7.5 min.	0.7	9 max.

Tungsten halogen principle

The tungsten filament is enclosed in a gas filled quartz bulb, together with a controlled quantity of halogen. At the operating temperature some tungsten vapourizes and migrates to the cooler areas of the bulb wall where before it can be deposited, it combines with the halogen to form a tungsten halide. This circulates until it comes near the filament where the halide dissociates and deposits the tungsten back on the filament. This cycle continues throughout the operating life of the lamp.

As the bulb wall remains clean the bulb size can be reduced considerably by the use of quartz which can withstand the high wall temperatures.

The small bulb and strong materials withstand much higher working pressures and the increased gas density. This reduces filament evaporation, thus offering increased performance either as more light or longer life.



1. Tungsten evaporation
2. W- halogen reaction at bulb
3. Halogen returns to filament
4. Halogen returns to cycle

Bulb remains clear, "hot-spot" forming delayed

Light, life & voltage

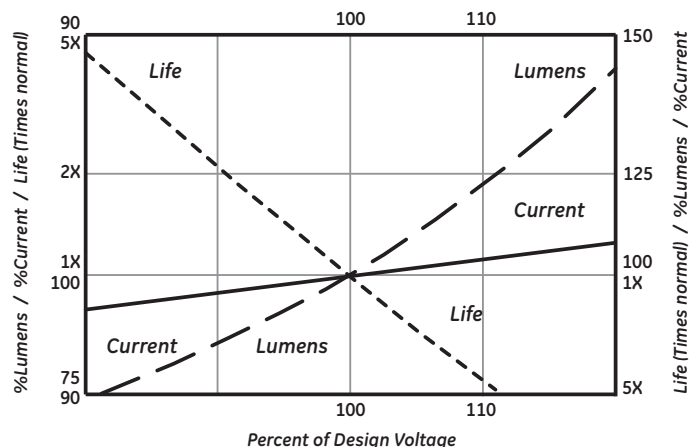
For any particular lamp, the light output and life depend upon the voltage at which a lamp is operated. For instance, as approximations, the light output varies as the 3.6th power of the voltage and the life varies inversely as the 12th power of the voltage. The Chart and Tables below illustrate the effects of overvoltage or undervoltage applied to lamp on its current, life and light output. The values given (except for long life lamps) are reasonably valid between 95% and 110% rated volts.

Beyond this range the indicated characteristics may not be realised because of the increasing influence of factors which cannot be incorporated into the chart. The chart applies only to D.C. or sine-wave A.C. current. The data may differ particularly for lamp operation on half-wave rectified voltage, semiconductor dimming devices or constant operation.

UV control

The use of doped, UV filtering quartz material allows the lamp to fully comply with the stringent requirements of IEC 60432-3.

Voltage variations



Underrated Bulb Voltages (<100%)

Volts %	Amps %	Lumens %	Life %
99	99.5	96.5	111
98	99.0	93.2	122
97	98.4	89.9	136
96	97.9	86.7	150
95	97.4	83.5	167
90	94.8	69.1	287

Overrated Bulb Voltages (>100%)

Volts %	Amps %	Lumens %	Life %
101	100.5	103.6	90
102	101.0	107.2	82
103	101.5	110.9	74
104	102.0	114.8	68
105	102.5	118.7	61
110	105.0	139.7	39

Operation and Maintenance

- Low voltage tungsten halogen lamps are sensitive to voltage variations. Even a small change in voltage can have a considerable impact on lamp life (see "Light, Life & Voltage"). Designers should match fitting transformer ratings to actual mains line voltages to ensure that the lamps operate at as close to 12V as possible.
- Rapid cycling can also shorten lamp life, and designers should take advice from their GE Lighting representative before using these lamps in flashing or blinking applications.
- The lamps may be dimmed by reducing voltage. However, this may cause the bulbs to blacken. If this occurs the lamp should be run at full voltage (12V) for fifteen minutes, thereby clearing the problem. Note that the nature of low voltage lighting systems requires the use of fluorescent-type dimmers.
- Switch off supply voltage before installing/removing lamp.
- Observe temperature tolerances: pinch seal, max. 350°C, bulb wall min. 250°C.
- Lamps should be free from contamination, including finger marks, before lamp is operated. Lamps can be cleaned with a soft cloth moistened with alcohol.
- Good condition of the lampholder contacts is essential.
- Bulb wall temperatures are high and therefore lamps should not be operated in flammable atmospheres unless enclosed in suitably rated luminaires.
- Ensure lamp is cool before removing.
- Low pressure lamps can be used in open fixtures. Other lamps shall be used in fixtures assembled with glass protective shield.