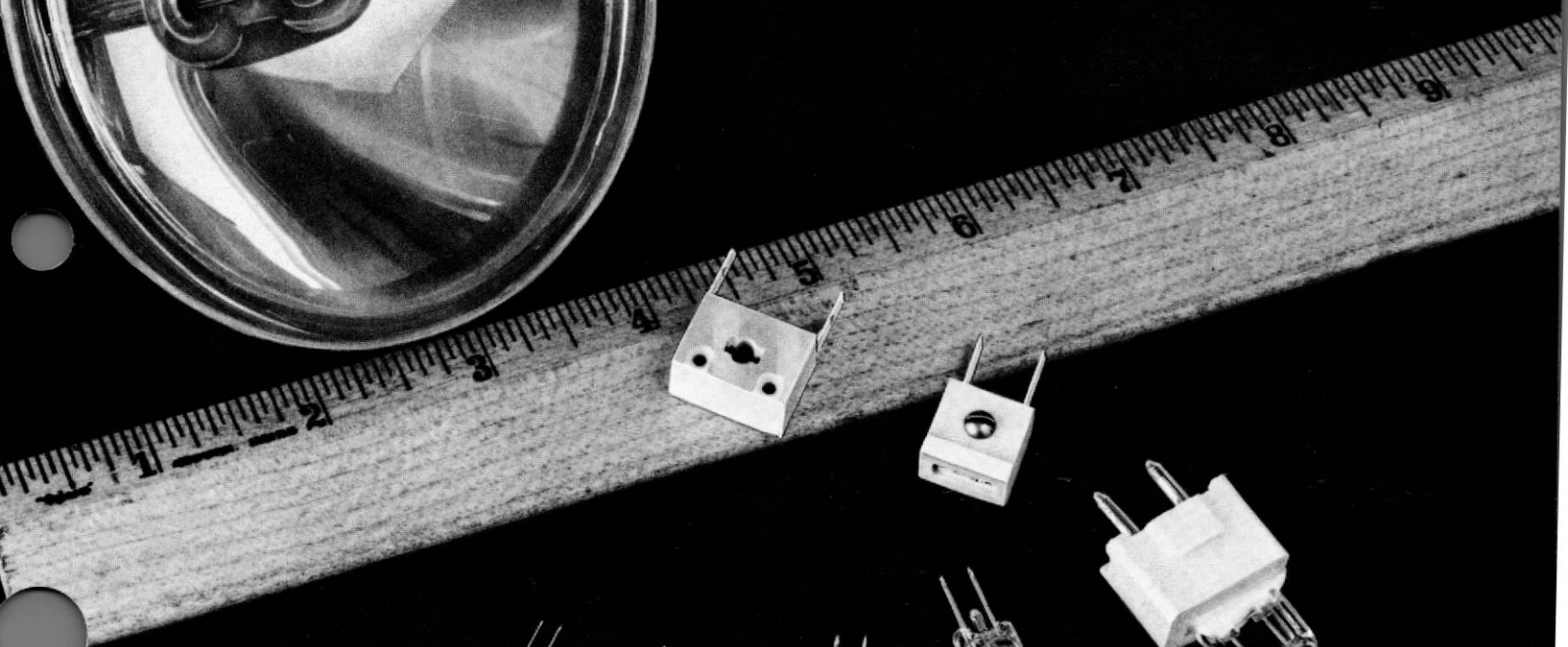
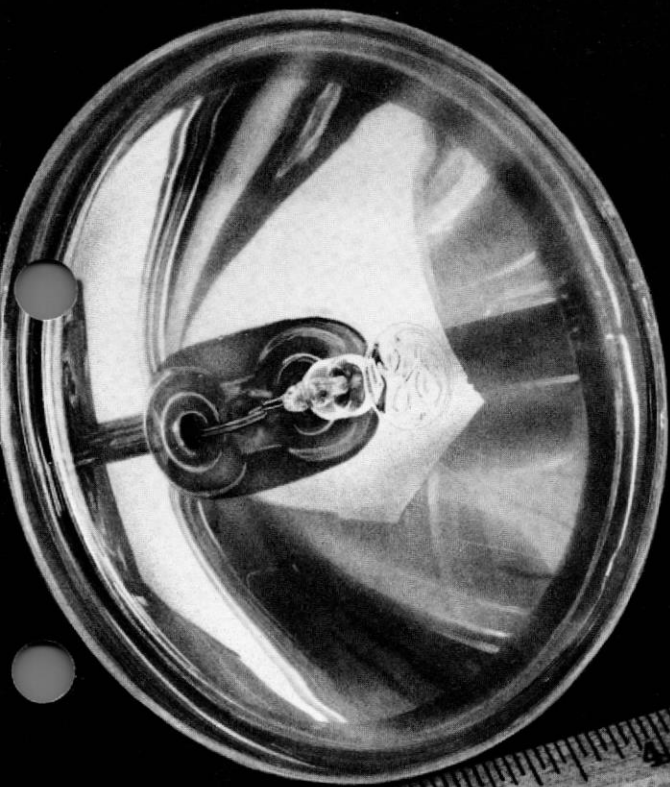


MINIATURE, SUB-MINIATURE, SEALED BEAM



Halogen-Cycle

INCANDESCENT LAMPS



GENERAL  ELECTRIC

WHAT IS A HALOGEN-CYCLE LAMP?

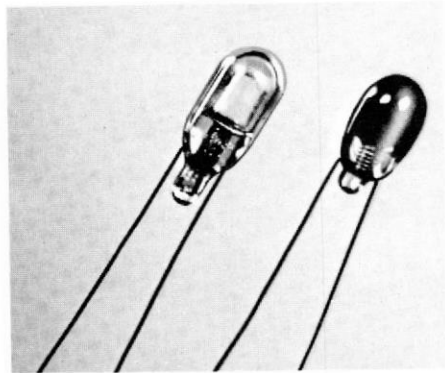
Very high light output from a very small package.

That's because GE halogen-cycle lamps are made with special high-temperature glass or quartz bulbs that can withstand the high temperatures generated by the required wattage. These same high temperatures are necessary to initiate and maintain the "cycling" of the lamps' halogen vapor, such as iodine. The vapor combines with particles of evaporated tungsten from the filament and redeposits the tungsten continuously back onto the filament . . . instead of the bulb wall. The results are a strong, long-lasting filament and the virtual elimination of bulb blackening.

A member of the long-established incandescent lamp family, GE halogen-cycle lamps are available in miniature ($\frac{3}{8}$ and $\frac{1}{2}$ inch diameter) and subminiature ($\frac{3}{16}$ and $\frac{1}{4}$ inch diameter) bulb sizes, as well as in sealed beams. A typical miniature halogen-cycle lamp rated at 62 watts produces as much light as a familiar 60-watt household lamp. Yet the miniature halogen-cycle lamp is only $\frac{1}{6}$ the size of the household lamp.

Light that maintains its initial output level for virtually the life of the lamp.

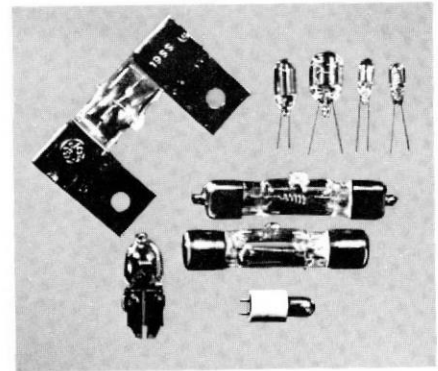
Most halogen-cycle lamps produce 85 to 95% of their initial light output at 70% of their life expectancy. That's a 50% improvement in total light emitted throughout life compared to conventional incandescent lamps. One reason: virtual elimination of bulb blackening due to recycling of tungsten particles to and from the filament.



Halogen versus vacuum incandescent at 70% of life. Note the bulb blackening on the incandescent lamp on the right.

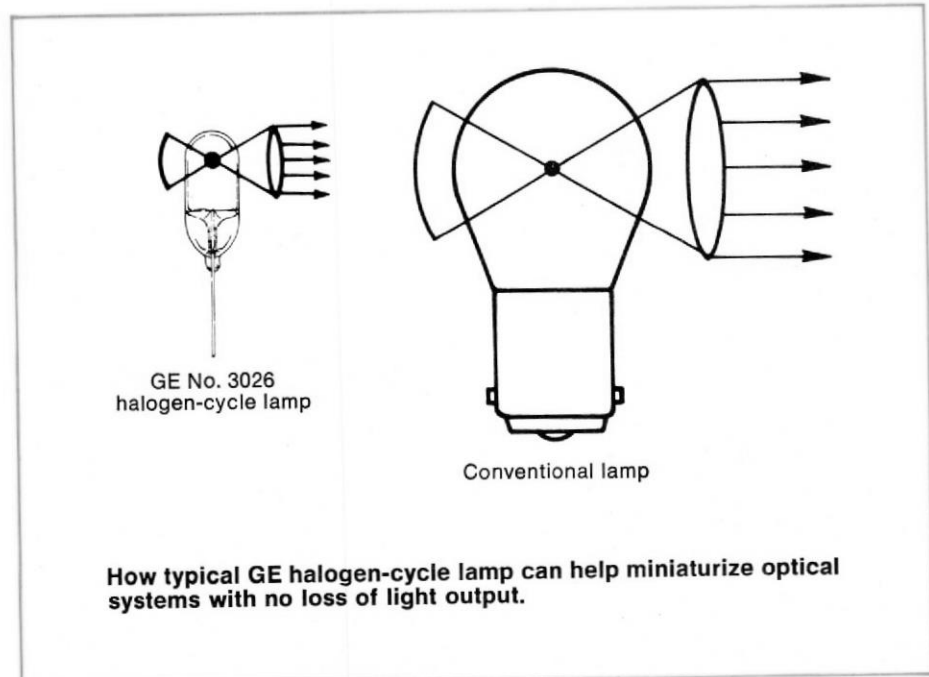
Light that is highly efficient.

In addition to their self-cleaning, nonblackening characteristics, GE halogen-cycle lamps are made with filaments that are accurately positioned inside the bulb — consistently from bulb to bulb. High-temperature-glass types have uniform bulb tops, which further enhance light output efficiency, especially for optical system applications.



WHY USE HALOGEN-CYCLE LAMPS?

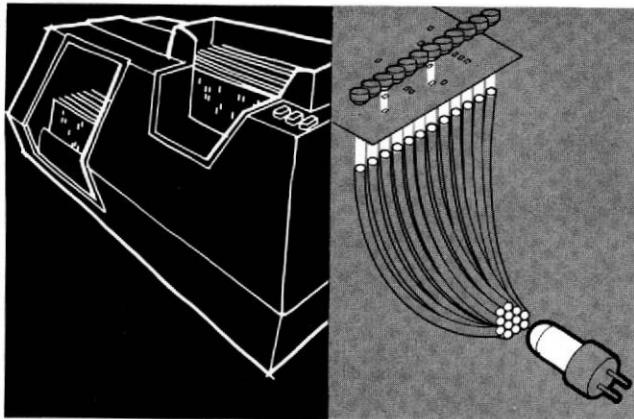
- For equipment miniaturization through smaller bulbs.
- For lower operating costs through lower electrical power requirements.
- For lower maintenance costs through longer bulb life.
- For better light efficiency through nonblackening bulb, accurate filament placement, and uniform bulb top.
- For whiter light due to higher color temperature as compared to comparable incandescent lamp.



HERE CAN LEN-CYCLE LAMPS BE USED?

Wherever space is small . . . and the lighting need is big!

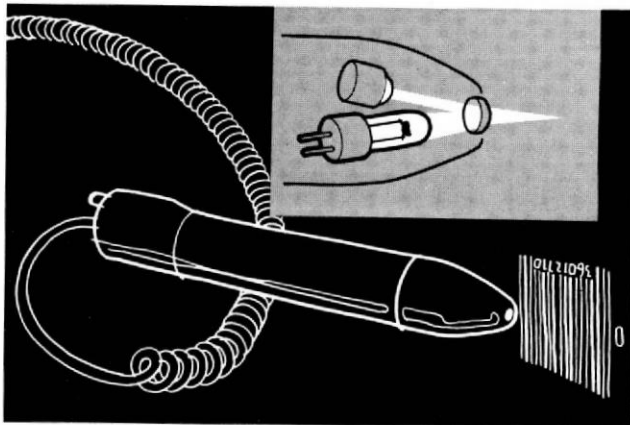
- Flashlights
- Optical Devices
- Microscope Illuminators
- Fiber Optics (lamps with lenses or reflectors)
- Hand Lanterns
- Aircraft Safety
- Flashing Beacons
- Emergency Lighting
- Inspection Devices
- High Intensity Lamps
- Warning Signs
- Scientific Instruments
- Surgical and Medical Equipment
- Tape and Card Readers
- Photocell Control
- Film Exposure
- Detection Devices
- Rotating Beacons
- Spot and Flood Lighting
- Diving Lights



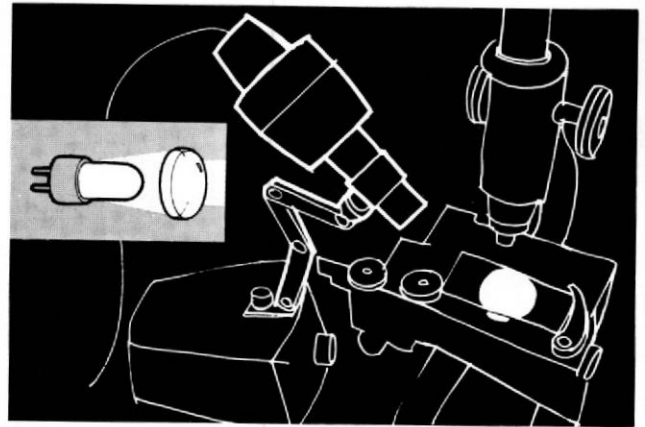
Computer card reader



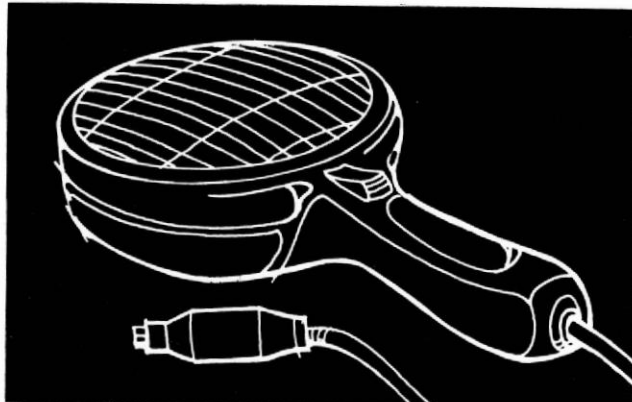
Traffic signals



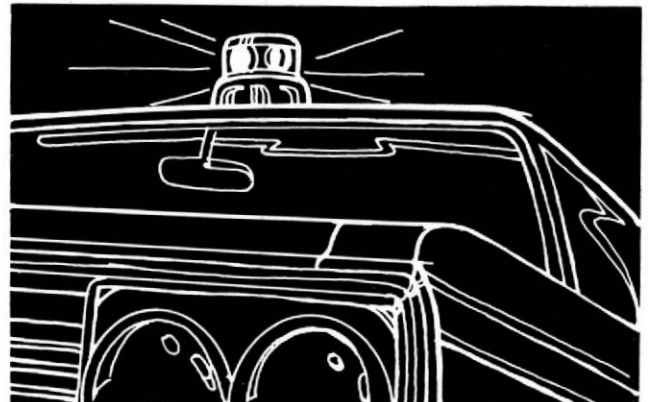
Wand for reading product codes



Microscope



Hand held spot lamp



Rotating beacon warning lights

OEM Product

Design Factors

Selection of the proper GE halogen-cycle lamps for a specific product should first of all be based on certain design factors of that product, such as the following:

- Available power source
- Available space for lamps
- Purpose of lamps (such as illumination, control, warning system).
- Amount and quality of light desired
- Life of lamp required
- In-place assembly and/or operating costs (instead of just initial purchase price)

Once factors such as these have been determined, select the appropriate lamp or lamps from the convenient charts on pages 6-11 of this Selection Guide.

Four Types of GE Halogen-Cycle Lamps

General Electric manufactures four groups of halogen-cycle lamps.

- High-temperature glass—miniature and subminiature.
 - Quartzline fused quartz—miniature.
 - High temperature glass Halogen sealed beams.
 - Quartzline sealed beams.
1. Miniature and subminiature high temperature glass halogen
 - In 17 designs
 - 10 new high efficiency all-glass G-4 two-pin lamps.
 - Voltage from 3.5 to 14... wattage from 2.5 to 50.
 - Lengths from 1/2" to 2 1/4"
 - Bulb diameters of 3/16, 1/4, 3/8 and 1/2 inches
 - In wire terminal, all glass based two-pin, in glass reflectors, and bayonet bases.

The increased range in candlepower and wattages of these new halogen-cycle two-pin lamps allows for many new and present design applications. The lamp design consists of a hemispherical bulb top which enhances light output uniformity

when compared to a top-tipped halogen lamp. The sturdy two pins allow positive electrical connection minimizing voltage drops due to intermittent connections. The halogen regenerative cycle reduces the bulb blackening which impedes the light output throughout the lamp life cycle.

Electrical connections to lamps offered with molybdenum leads can be made by crimping or welding. Substantial heat is generated in all halogen lamps so allowance should be made for dissipation of excessive heat in equipment design.

The big "plus" for all the glass halogen lamps is cost . . . considerably less than Quartzline® lamps.

2. Quartzline® fused-quartz bulb—miniature size.
 - Available in 25 models.
 - Voltage from 6 to 32 . . . wattage from 16 to 200.
 - Overall lengths from 1.136 to 2.25 inches.
 - Bulb diameters: 3/8 and 1/2 inch.
 - Bulb material: chemically pure fused quartz for its high softening temperature, low coefficient of expansion.
 - Wide variety of bases—see Selection Chart on page 8.

Quartzline lamps are normally used for special applications . . . but can also be used in many general applications, if the designer so chooses. Although considerably more costly than high-temperature-glass halogen-cycle lamps, Quartzline lamps can withstand thermal shock. A lighted Quartzline lamp, for instance, will not crack or break even when suddenly exposed to water, ice, or liquid nitrogen.

3. Quartzline® sealed beam lamps with quartz inner bulbs.
 - Available in 8 models.
 - 13 and 28 volts . . . 250 to 600 watts.
 - Beam candlepower from 16,000 to 765,000.

- Quartzline fused-quartz bulb enclosed in sealed beam lamp.
- Three sealed beam lamp sizes.
- Screw terminal bases.

Quartzline sealed beam lamps are used mostly for aircraft exterior applications, such as landing, taxiing, flood, and wing inspection lights. But they can be used anywhere designers need a combination halogen-cycle/sealed beam lamp.

These lamps consist of a small halogen-cycle lamp enclosed in a hermetically sealed beam lamp with heat-resistant glass lens and aluminized parabolic reflector. Except for the smaller halogen-cycle lamp inside, the lamps resemble automotive and other vehicular headlamps and are made in the same standard sizes. But they combine the high light output of halogen-cycle lamps with the hermetical sealing and other advantages of the integral lighting unit known as a sealed beam lamp.

4. Glass halogen sealed beam lamps
 - In 17 types.
 - 6 to 12.8 volts . . . 8 to 50 watts.
 - Beam candlepower from 550 to 160,000.
 - Two standard sizes: PAR-36 and PAR-46.
 - Screw terminals and slip-on terminals.
 - Glass halogen sealed beam lamps use high temperature halogen-cycle inner bulbs enclosed in a hermetically sealed lamp.

Halogen sealed beam lamps are finding many new applications that can take advantage of their higher light output compared to standard incandescent sealed beam lamps. Standard PAR-36 and PAR-46 size halogen sealed beam lamps allow possible use in existing housings. Several different beam patterns are available for such applications as spot lamps, farm tractor and implement lights, emergency vehicle rotating beacons, flood lights, marine docking lights, utility and work lights, emergency lighting, hand lanterns, etc.

Lamp Efficiency

Many new Halogen lamps in this catalog are filled to high internal gas pressures to maximize lamp efficiency (candlepower or lumens per watt). Because both lamp bulb material and pressure varies by lamp design, different caution notices apply. See appropriate notice for your lamp selection on page 11.

Operating Temperatures

Because operating temperatures (watts plus environment) are critical to the effectiveness of the self-cleaning properties of halogen-cycle lamps, *bulb wall* temperatures should not go below 250°C. Hot spots on the bulb wall itself can go as high as 700°C in normal operation with no detrimental effects. However, precautions must be taken in the selection of materials for lamp-holders, reflectors, and lamp housings because the 700°C bulb-wall temperature is greater than the kindling points of many materials.

Lamp base temperatures should not exceed 350°C because, above that temperature, lead wires may deteriorate and the basing cement may loosen, causing premature lamp failure.

Sockets

Many of the glass halogen lamps are designed with two-pin contacts made of .028" metal pins spaced 4 millimeters (.157") apart. This is the international standardized G-4 construction. For these lamps GE manufactures G-4 ceramic sockets. All based and glass G-4 two-pin lamps will fit into GE G-4 sockets. However, GE's all-glass two-pin lamps might not be compatible with other G-4 sockets, since many sockets do not provide clearance for the exhaust tip between the pins.

Because some other GE Halogen cycle lamps are specialized, commercial lampholders are not always available. Some design suggestions are:

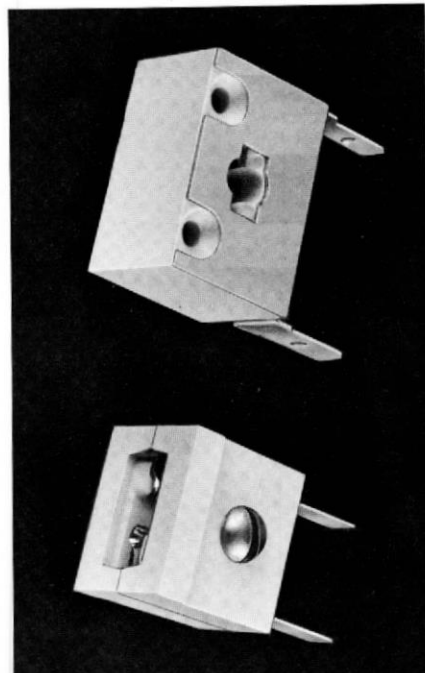
- Make lampholder an integral part of the device. This keeps weight

and space requirements to a minimum.

- Design holder to conduct heat away from the lamp base to keep the seal area below the critical temperature of 350°C. However, do not draw excessive heat from the bulb to the point where the bulb wall temperature falls below 250°C.
- Use materials such as nickel because of the high operating temperatures of the lamps.
- Insure good electrical contact between the holder and lamp. Molybdenum lead wires should be clamped, tightly crimped or welded; soldering is not recommended.
- Use high temperature cement.

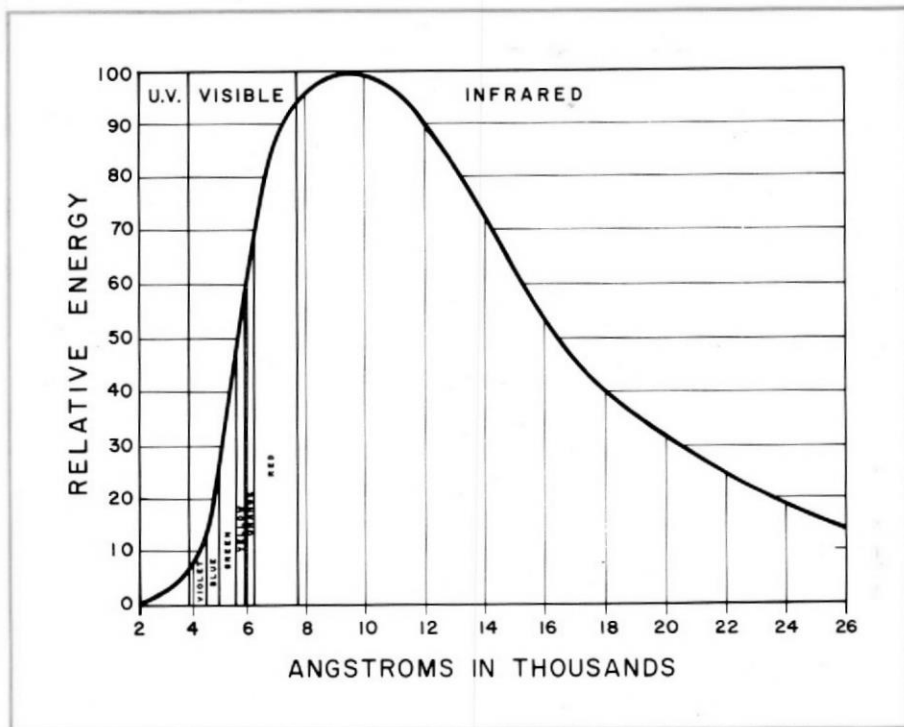
Distribution of Spectral Radiation

Halogen-cycle lamps offer great amounts of visible and infrared energy from a small light source, with about 90% of this energy in the infrared. Some GE models can be used for specialized applications where small amounts of ultraviolet are required.



G-4 Sockets

Pictured above are the two ceramic sockets manufactured by Miniature Lamp Products Department for G-4 two-pin lamps in this catalog. On the top is the "G-4 socket" for mounting the lamp at right angles to the male amp. connectors (.187" x .013"). On the bottom is the "G-4A Socket" for mounting the lamp parallel to the male amp. connectors (.110" x .018").



Spectral curve for GE Quartzline lamp No. 1958. Curves for lamps of longer or shorter life will be slightly different.

SELECON GU General Electric High-Temperature Glass Halogen-Cycle Lamps

Lamp No.	Design Volts	Watts	Candle Power Approx.	Rated Average Lab Life (Hrs.)	Filament Type	Approx. Color Temp °K	Bulb			Light	
							Type	Diameter		Center Length	
								MM	In.	MM	In.
2600(11) 2601(11)	3.5	2.5	2.9 —**	20 20	C-6 C-6	3100 3100	T1-1/2 TL1-1/2	4.8 4.8	3/16 3/16	1.88(125) —	.074(125) —
2602(131) 2604X(131)	5 5	10 10	—** —**	5,000 5,000(75)	C-6 C-6	2600 2600	TL2-3/4 TL2-3/4	9.0 9.0	23/64 23/64	— —	— —
784(131) 785(131) 786(131) 787(131) 788(131)	6 6 6 6 6	6 8 12 10 20	9 13 19 16 32	50(75) 50(75) 50(75) 100(75) 100(75)	C-6 C-6 C-6 C-6 C-6	 3300 3300	T2-1/4 T2-1/4 T2-1/4 T2-1/4 T2-1/4	7.0 7.0 7.0 7.0 7.0	9/32 9/32 9/32 9/32 9/32	19.5 19.5 19.5 19.5 19.5	.768 .768 .768 .768 .768
3026(11) 3027(11)	6.3 6.3	13.2 13.2	20 16	75 75	C-6 C-6	3025 3025	T2 T2	6.4 6.4	1/4 1/4	2.92(125) 22.5	.115(125) .89
1391(131)	10.5	42	—*	8,000	CC-6	2500	T2-3/4	9.0	23/64	—	—
789(131) 7695(131) 790(131) 791(131) 792(131)	12 12.8 14 14 14	14 50 25 35 50	24 100 42 61 90	200(75) 100(75) 200(75) 200(75) 200(75)	C-6 C-6 C-6 C-6 C-6	3240 3240 3240 3240 3240	T2-3/4 T3-1/4 T2-3/4 T2-3/4 T2-3/4	9.0 10.3 9.0 9.0 9.0	23/64 13/32 23/64 23/64 23/64	19.5 31.75 19.5 19.5 19.5	.768 1 1/4 .768 .768 .768

(75) Estimated. Based on limited test information.

(124) .028" metal pins spaced 4 mm (.157") apart. All GE G-4 two-pin lamps will fit into GE G-4 sockets. However, GE's all-glass two-pin lamps might not be compatible with other G-4 sockets since many sockets do not provide clearance for the exhaust tip.

(125) From top of bulb.

* Reflector lamp

** Lens end lamp

Important . . . See page 11 for caution notices 11 and 131.

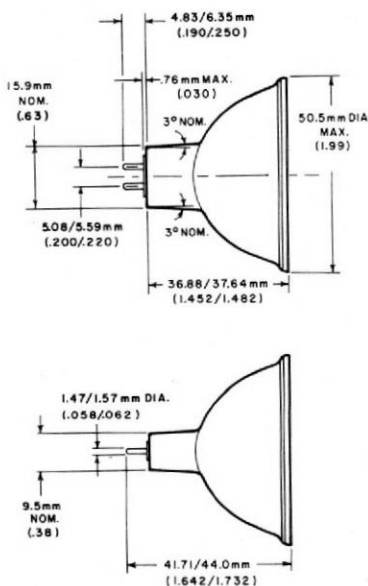


Figure 1

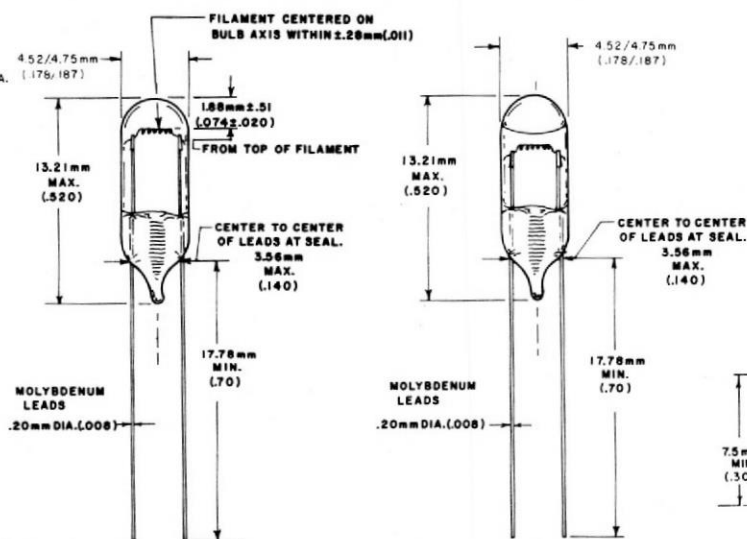


Figure 2

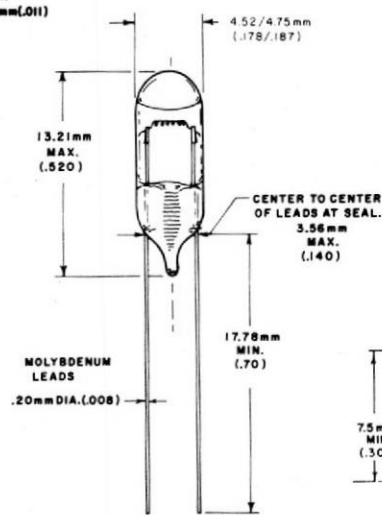


Figure 3

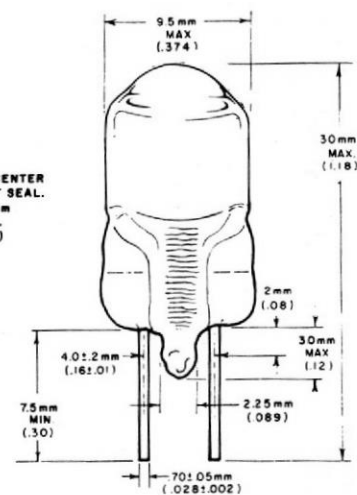


Figure 4

For assistance in lamp applications and latest lamp design information consult your GE lamp representative listed on the back page.

Maximum Overall Length		Base Type	Figure	Applications	Lamp No.
MM	In.				
13.21	.52	Moly Wire Terminal	2	Instrument, Flashlights	2600
13.21	.52	Moly Wire Terminal	3	Instrument, Fiberoptics	2601
20.0	.787	Moly Wire Terminal	—	Instrument, Fiberoptics	2602
30.0	1.18	All Glass Two Pin G-4(124)	4	Instrument, Fiberoptics	2604X
30.0	1.18	All Glass Two Pin G-4(124)	6	Instrument	784
30.0	1.18	All Glass Two Pin G-4(124)	6	Instrument	785
30.0	1.18	All Glass Two Pin G-4(124)	6	Instrument	786
30.0	1.18	All Glass Two Pin G-4(124)	6	Instrument, Emergency Lighting	787
30.0	1.18	All Glass Two Pin G-4(124)	6	Instrument, Microscope	788
16.76	.66	Moly Wire Terminal	5	Instrument, Medical	3026
28	1.10	Based Two Pin G-4(124)	8	Instrument, Medical	3027
44.0	1.732	Two Pin	1	Instrument, Fiberoptics	1391
30.0	1.18	All Glass Two Pin G-4(124)	7	Instrument, Optical Devices	789
57.15	2¼	S. C. Bayonet	—	Instrument, Warning Signs	7695
30.0	1.18	All Glass Two Pin G-4(124)	7	Instrument, High Intensity Lamp	790
30.0	1.18	All Glass Two Pin G-4(124)	7	Instrument, Warning Signs	791
30.0	1.18	All Glass Two Pin G-4(124)	7	Instrument, Flashing Beacons	792

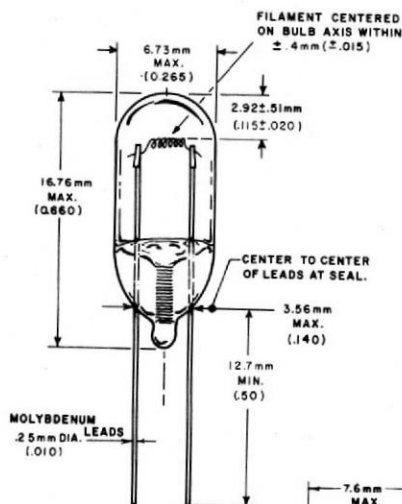


Figure 5

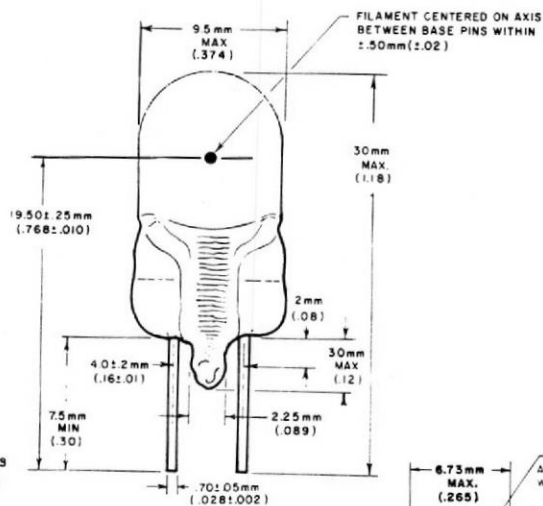


Figure 7

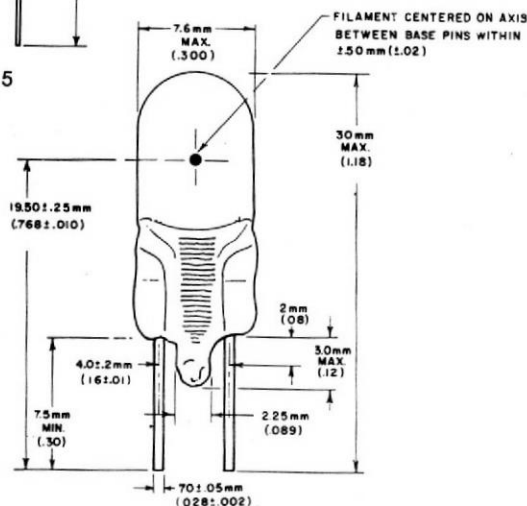


Figure 6

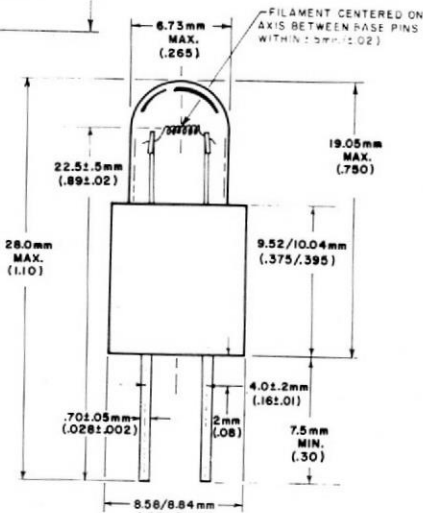


Figure 8

SELECTION GUIDE

General Electric Quartzline® Miniature Halogen Cycle Lamps

Lamp No. ⁽¹¹⁴⁾	Design Volts	Watts	Candle-power (Approx.)	Rated Average Lab Life (Hr.)	Filament Type	Approx. Color Temp. °K	Bulb			Light Center Length	
							Type	Diameter (Approx.)		MM	In.
								MM	In.		
1985	6	16	18	1,000 ⁽⁷⁵⁾	C-6	2800	T-3	9.5	3/8	19.84	.781
1974	6	20	10	10,000	C-6	2550	T-3	9.5	3/8	7.24	.285
1957	6.5	17.8	21	250	C-6	2900	T-3	9.5	3/8	28.0	1.102
1977	8.5	62	80	50	C-6	3100	T-3	9.5	3/8	11.1	7/16
1962	8.5	62	80	50	C-6	3100	T-3	9.5	3/8	7.24	.285
1962B	8.5	62	80	50	C-6	3100	T-3	9.5	3/8	7.24	.285
1978X	10	100	130	2,000	C-8	2750	T-3	9.5	3/8	—	—
1983	10	100	130	2,000	C-8 ¹³	2750	T-4	12.7	1/2	31.75	1 1/4
1988	10	100	130	2,000	C-8	2750	T-3	9.5	3/8	—	—
1960	11	60	90	1,000	CC-8	2900	T-4	12.7	1/2	19.0	3/4
1975	12.8	25	25	500	C-6	2900	T-3	9.5	3/8	12.7	1/2
1979	13	75	90	300	C-8 ¹³	2950	T-3	9.5	3/8	—	—
1984	13	75	115	400	C-6	2950	T-3	9.5	3/8	7.14	.281
1976	13	75	115	400	C-6	2950	T-3	9.5	3/8	14.22	.560
1963	13	75	90	300	C-8 ¹³	2950	T-4	12.7	1/2	19.0	3/4
1966	13	100	125	300 ⁽⁷⁵⁾	C-8 ¹³	2950	T-4	12.7	1/2	19.0	3/4
1968	28	25	15	500	C-2V ¹³	2750	T-3	9.5	3/8	10.4	1 1/2
1982	28	75	110	1,000	CC-8 ¹³	2900	T-3	9.5	3/8	27.0	1 1/16
1970	28	100	150	1,000	CC-8	2900	T-3	9.5	3/8	—	—
1970X	28	100	140	1,000 ⁽⁷⁵⁾	CC-8 ¹³	2850	T-3	9.5	3/8	—	—
1964	28	150	230	1,000	CC-8	2900	T-3	9.5	3/8	—	—
1967	28	150	210	1,000	CC-8 ¹³	2900	T-3	9.5	3/8	—	—
1958	28	150	250	300	CC-8	3050	T-4	12.7	1/2	19.0	3/4
1959	28	150	240	300	CC-8 ¹³	3050	T-4	12.7	1/2	19.0	3/4
1945	32	200	360	200	CC-6	3100	T-4	12.7	1/2	33.34	1 1/16

Important . . . See page 11 for caution notice 114. This applies to all lamps on this page.

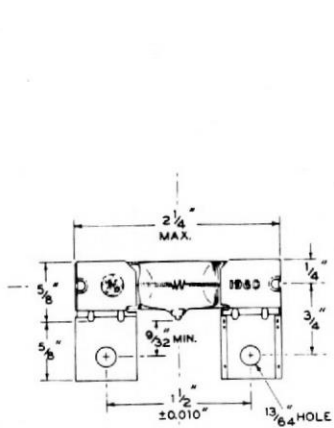


Figure 1

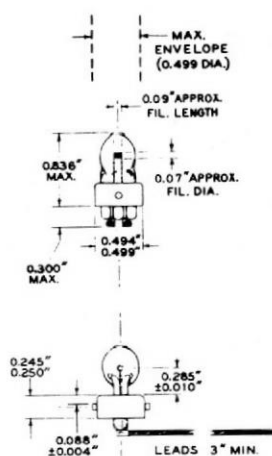


Figure 2

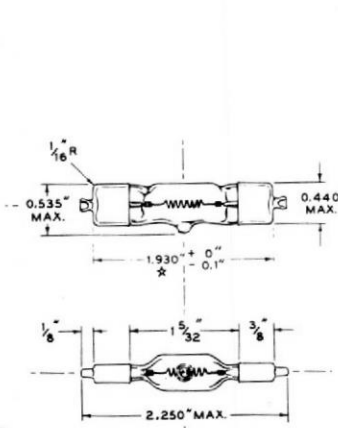


Figure 3

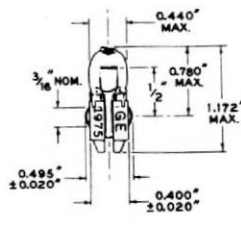


Figure 4

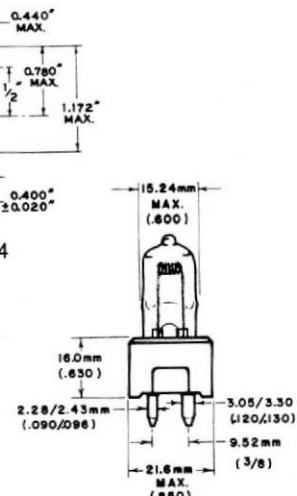


Figure 5

For assistance in lamp applications and latest lamp design information consult your GE lamp representative listed on the back page.

Maximum Overall Length		Base Type	Figure	Application	Lamp No.
MM	In.				
36.46	1.437	D.C. Bayonet*	9	Instruments	1985
28.85	1.136	Wire Terminal, Collar*	2	Instruments	1974
35.0	1.38	Molybdenum Pins*	—	Instrument	1957
29.00	1.142	Double Slide*	4	Aircraft	1977
28.85	1.136	Wire Terminal, Collar*	2	Instruments	1962
28.85	1.136	Insulated Leads, Collar*	2	Instruments	1962B
54.6	2.15	Special**	7	Aircraft	1978X
45.7	1.8	Molybdenum Pins*	8	Aircraft, Instruments	1983
54.6	2.15	Special, with leads**	—	Aircraft	1988
57.2	2¼	Tab**	1	Instruments	1960
29.77	1.172	Double Slide*	4	Aircraft, Instruments	1975
57.2	2¼	Sleeve**	3	Aircraft	1979
33.0	1.30	Wire Terminal, Collar*	2	Aircraft, Instruments	1984
33.0	1.30	Double Slide*	6	Aircraft	1976
57.2	2¼	Tab**	1	Aircraft	1963
57.2	2¼	Tab**	1	Aircraft	1966
29.77	1.172	Double Slide*	4	Aircraft	1968
47.6	1⅞	S.C. Bayonet*	10	Aircraft, Instruments	1982
57.2	2¼	Sleeve**	3	Aircraft	1970
57.2	2¼	Sleeve**	3	Aircraft	1970X
57.2	2¼	Sleeve**	3	Aircraft	1964
57.2	2¼	Sleeve**	3	Aircraft	1967
57.2	2¼	Tab**	1	Aircraft	1958
57.2	2¼	Tab**	1	Aircraft	1959
57.2	2¼	Two Pin*	5	Marine Searchlight	1945

*Single Ended Seal
(13) Filament Supported
(75) Estimated. Based on limited test information.

**Double Ended Seal

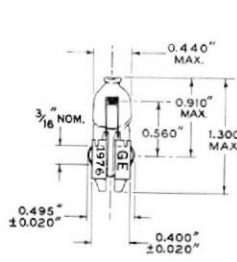


Figure 6

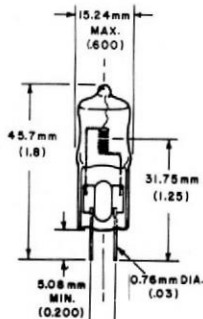


Figure 8

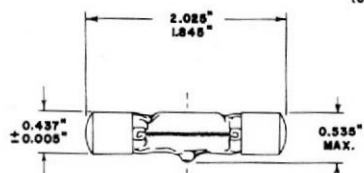


Figure 7

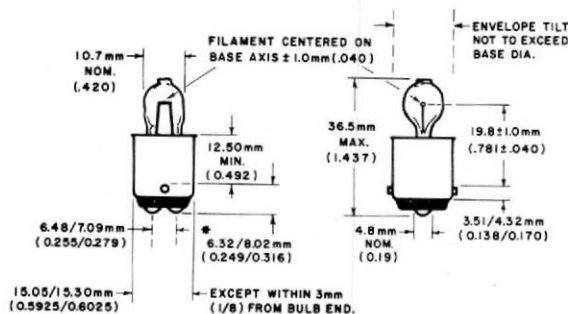


Figure 9

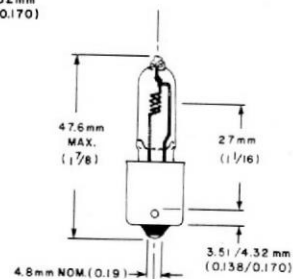


Figure 10

NOTE: These drawings show the correct bulb and base configurations, but not necessarily the correct filament, filament support, or dimensions. See "Selection Guide" for dimensions.

SELECTION GUIDE

General Electric Halogen Cycle Seal Beam Lamps

QUARTZLINE®(118)

Lamp No.	Design Volts	Watts	Beam Candle-Power (Approx.)	Rated Average Lab Life (Hrs.)	Approx. Total Spread To 10% Max. CD. (Deg.)		Bulb Type	Bulb Diameter		Maximum Overall Length	
					Horizontal	Vertical		MM	In.	MM	In.
Q4631	13	250	80,000	500	13	11	PAR 36	114	4.5	69.8	2¾
Q4632	13	250	75,000	500	14	12	PAR 36	114	4.5	69.8	2¾
Q4554	28	450	65,000	100	50	11	PAR 46	146	5.75	66.7	2⅝
Q4566	28	450	150,000	1,000 ⁽⁷⁵⁾	16	12	PAR 46	146	5.75	84.1	3⅝
Q4597	28	450	16,000	1,000	60	35	PAR 46	146	5.75	84.1	3⅝
Q4681	28	450	310,000	50	15	9	PAR 46	146	5.75	66.7	2⅝
Q4559X	28	600	765,000	100	12	8	PAR 64	203	8	88.9	3½
Q4629	28	600	24,000	1,000	55	35	PAR 64	203	8	122.2	4⅜

GLASS HALOGEN⁽¹¹⁸⁾

H7550	6	8	25,000	50 ⁽⁷⁵⁾	3	3	PAR 36	114	4.5	69.8	2¾
H7551	6	8	550	50 ⁽⁷⁵⁾	30	20	PAR 36	114	4.5	69.8	2¾
H7552	6	10	650	50 ⁽⁷⁵⁾	30	20	PAR 36	114	4.5	69.8	2¾
H7553	6	12	850	50 ⁽⁷⁵⁾	30	20	PAR 36	114	4.5	69.8	2¾
H7554	6	20	1,400	50 ⁽⁷⁵⁾	30	20	PAR 36	114	4.5	69.8	2¾
H7600	12.8	37½	60,000	300 ⁽⁷⁵⁾	9	4½	PAR 36	114	4.5	69.8	2¾
H7600-1	12.8	37½	60,000	300 ⁽⁷⁵⁾	9	4½	PAR 36	114	4.5	69.8	2¾
H7600B	12.8	37½	2,600	300 ⁽⁷⁵⁾	9	4½	PAR 36	114	4.5	69.8	2¾
H7600R	12.8	37½	7,500	300 ⁽⁷⁵⁾	9	4½	PAR 36	114	4.5	69.8	2¾
H7616	12.8	37½	70,000	300	7	4	PAR 36	114	4.5	69.8	2¾
H7616-1	12.8	37½	70,000	300	7	4	PAR 36	114	4.5	69.8	2¾
H7604	12.8	50	100,000	100 ⁽⁷⁵⁾	7	5	PAR 36	114	4.5	69.8	2¾
H7635	12.8	50	160,000	100 ⁽⁷⁵⁾	6½	4	PAR 46	146	5.75	95.2	3¾
H7606	12.8	50	1,000	400 ⁽⁴⁾⁽⁷⁵⁾	80	30	PAR 36	114	4.5	69.8	2¾
H7610	12.8	50	5,200	400 ⁽⁴⁾⁽⁷⁵⁾	25	24 ⁽⁹⁴⁾	PAR 36	114	4.5	69.8	2¾
H7609	12.8	50	2,200	400 ⁽⁴⁾⁽⁷⁵⁾	80	20	PAR 46	146	5.75	95.2	3¾
H7619	12.8	50	6,000	400 ⁽⁴⁾⁽⁷⁵⁾	20	30 ⁽⁹⁴⁾	PAR 46	146	5.75	95.2	3¾

(*) Designed to meet SAE J591b. (4) At 14 volts. (75) Estimated. Based on limited test information. (94) Trapezoidal beam pattern.

Important . . . See page 11, caution notice 118. This applies to all lamps on this page.

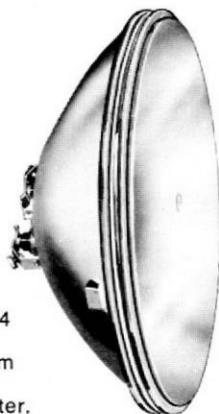
ENGINEERING SPECIFICATIONS



PAR-36 lamp, 114 mm (4.5 in.) diameter.

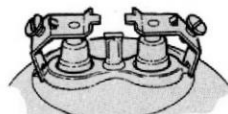


PAR-46 lamp, 146 mm (5.75 in.) diameter.

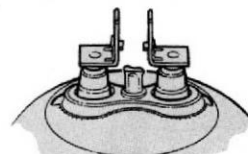


PAR-64 lamp, 203 mm (8 in.) diameter.

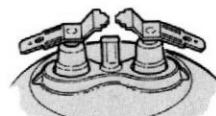
LAMP BASES



Screw terminal

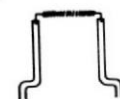


2-contact lugs

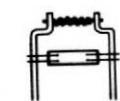


Slip on terminals

LAMP FILAMENTS



C-6 filament



CC-6 filament

	Base Type	Filament Type	Application
	Screw Terminal	C-6	Aircraft Wing Inspection
	Screw Terminal	C-6	Aircraft Flood
	Screw Terminal	CC-6	Aircraft Taxiing
	Screw Terminal	CC-6	Aircraft Flood
	Screw Terminal	CC-6	Aircraft Flood
	2-Contact Lugs	CC-6	Aircraft Landing
	Screw Terminal	CC-6	Aircraft Landing
	Screw Terminal	CC-6	Aircraft Flood

	Screw Terminal	C-6	Spot Lamp*
	Screw Terminal	C-6	Emergency Lighting
	Screw Terminal	C-6	Emergency Lighting
	Screw Terminal	C-6	Emergency Lighting
	Screw Terminal	C-6	Emergency Lighting
	Screw Terminal	C-6	Rotating Beacon
	Slip-On Terminal	C-6	Rotating Beacon
	Screw Terminal	C-6	Rotating Beacon
	Screw Terminal	C-6	Rotating Beacon
	Screw Terminal	C-6	Spot Lamp*
	Slip-On Terminal	C-6	Spot Lamp*
	Screw Terminal	C-6	Spot Lamp*
	Screw Terminal	C-6	Spot Lamp*
	Screw Terminal	C-6	Farm Tractor & Implement
	Screw Terminal	C-6	Farm Tractor & Implement
	Screw Terminal	C-6	Farm Tractor & Implement
	Screw Terminal	C-6	Farm Tractor & Implement

(11)CAUTION: This halogen cycle bulb could shatter if scratched or damaged. Use appropriate protection when handling, using, or disposing. Use in fixtures designed for the high temperature required for proper operation and that offer protection in case the bulb shatters. Turn power off when changing lamps. Allow lamp to cool before removal.

FOR SATISFACTORY PERFORMANCE:
 (1) Limit seal and outer lead wire temperature to 350°C or lead wire deterioration may occur.
 (2) Maintain a minimum bulb wall

temperature of 250°C for operation of the halogen cycle.

(3) Operate at design volts.

(114)CAUTION: This halogen cycle bulb could shatter if scratched or damaged. Use appropriate protection when handling, using, or disposing. Use in fixtures designed for the high temperature required for proper operation and that offer protection in case the bulb shatters. Turn power off when changing lamps. Allow lamp to cool before removal.

FOR SATISFACTORY PERFORMANCE:

- (1) Limit seal and outer lead wire temperature to 350°C or lead wire deterioration may occur.
- (2) Maintain a minimum bulb wall temperature of 250°C for operation of the halogen cycle.
- (3) Remove grease or fingerprints from bulb by cleaning with a grease-free solvent.
- (4) Operate at design volts.

(118)CAUTION: This sealed beam lamp has an inner halogen cycle bulb. This pressure-filled inner bulb could shatter if scratched or damaged. If the outer sealed beam is intact, this will be no problem. If the outer sealed envelope is broken do not operate but remove and dispose of lamp with care.

(131)CAUTION: This halogen cycle lamp is pressurized and may shatter. Do not operate lamp in excess of rated voltage as this will increase lamp pressure and the risk of shattering. Protect lamp against abrasions and scratches, and against liquids when lamp is operating.

To guard against personal injury, wear protective eyeglasses and clothing when handling lamp. Provide protective screen or shield with equipment in which lamp is installed or used. Turn power off when installing and before removing lamp. Dispose of lamp with care.

Because of heat generated by lamp, use only in sockets and housings designed to withstand the lamp's high operating temperatures. Do not operate in proximity to substances or materials that are flammable or adversely affected by heat or drying. Allow lamp to cool before removing.

OPERATING INSTRUCTIONS:

- (1) Limit seal and outer lead wire temperature to 350°C or lead wire deterioration may occur.
- (2) Maintain a minimum bulb wall temperature of 250°C for operation of the halogen cycle.
- (3) Operate at design volts.

General Electric Miniature Lamp Products Department Sales and Distribution Centers

SALES OFFICES (To Obtain Sales and Technical Information)

	Address	ZIP	Telephone
ANCHORAGE, ALASKA	517 West Northern Lights	99503	272-1211
ATLANTA, GA.	120 Ottley Drive, N.E.—P.O. Box 13469	30324	897-6250
BALTIMORE, MD.	1401 Parker Rd. Mail: P.O. Box 7427, Baltimore, Md.	21227	242-5700
BOSTON, MASS.	50 Industrial Place, Newton Upper Falls, Mass.	02164	332-6200
CHARLOTTE, N.C.	Mail: P.O. Box 2144	28201	376-6585
CHICAGO, ILL.	4333 Trans World Road, Schiller Park, Ill.	60176	671-6390
CINCINNATI, OHIO	49 Central Ave.	45202	559-3607
CLEVELAND, OHIO	1705 Noble Rd.—P.O. Box 2514	44112	266-4337
COLUMBUS, OHIO	800 Northwest Blvd.	43212	294-4115
DALLAS, TEXAS	6500 Cedar Springs Road	75235	358-5321
DENVER, COLO.	6501 Stapleton Dr., North	80216	320-3598
DETROIT, MICH.	15135 Hamilton Ave.	48203	956-0200
HONOLULU, HAWAII	Marine Finance Bldg., Room 413, 1109 Bethel St.	96813	537-3280
HOUSTON, TEXAS	5615 Lyman Drive	77096	644-3264
INDIANAPOLIS, IND.	2511-Q-2 East 46 St.	46205	547-5511
JACKSONVILLE, FLA.	4077 Woodcock Drive—Suite 222	32207	399-5566
N. KANSAS CITY, MO.	535 East 14th Ave.	64116	471-0123
LOS ANGELES, CA.	2747 S. Malt Ave.	90040	723-2541
MEMPHIS, TENN.	2021 S. Latham St.	38109	774-9045
MIAMI, FLA.	3655 N.W. 71st Street—P.O. Box 470857	33147	693-3811
MILWAUKEE, WIS.	8100 West Florist Ave., Mail: P.O. Box 299	53201	462-3860
MINNEAPOLIS, MINN.	8501 54th Avenue, No., New Hope, Minn.	55428	535-5151
NEWARK, N.J.	P.O. Box 439	07101	622-8000
NEW ORLEANS, LA.	Mail: Box 10236, Jefferson, La.	70181	733-9200
NEW YORK, N.Y.	1285 Boston Ave., Bldg. 26 ES, Bridgeport, Conn.	06602	334-1012
OAKLAND, CA.	999-98th Avenue, P.O. Box 24354	94623	436-9447
OKLAHOMA CITY, OKLA.	Executive Terrace Bldg., 2809 N.W. Expressway	73112	842-4028
PALO ALTO, CA.	1801 Page Mill Rd.—Suite 223	94303	493-0652
PHILADELPHIA, PA.	1000 Continental Rd.—P.O. Box 299, King of Prussia, Pa.	19406	688-5900
PITTSBURGH, PA.	575 Epsilon Dr.—P.O. Box 2801	15230	665-3764
PORTLAND, OREGON	2800 N.W. Nela Street	97210	221-5120
RICHMOND, VA.	2015 Staples Mill Rd.	23230	355-3289
ROCHESTER, N.Y.	120 Allen's Creek Rd.	14618	461-5900
SALT LAKE CITY, UTAH	6501 Stapleton Drive, N., Denver, Colorado	80216	320-3598
SEATTLE, WASH.			
ST. LOUIS, MO.	1530 Fairview Ave.	63132	997-8420
TAMPA, FLA.			
UTICA, N.Y.	1900 Bleeker St.—P.O. Box 175	13501	733-0922

DISTRIBUTION CENTERS (To Order Lamps and to Obtain Shipping Information, Local Warehouse Stocks maintained at these Points)

	Address	ZIP	Telephone
	4930 Third Avenue South, Seattle, Wash.	98134	763-2870
	120 Ottley Drive, N.E.—P.O. Box 13469	30324	897-6360
	1401 Parker Road, Arbutus, Md.	21227	242-5700
	50 Industrial Place, Newton Upper Falls, Mass.	02164	332-6200
	1001 Tuckaseegee Rd.	28208	376-6585
	4201 So. Pulaski Rd.	60632	254-6161
	49 Central Ave.	45202	559-3600
	1705 Noble Rd.	44112	266-4404
	Cleveland Distr. Ctr., 1705 Noble Rd., Cleveland Ohio	44112	266-4404
	6500 Cedar Springs Rd., Mail: P.O. Box 35425	75235	358-5321
	6501 Stapleton Dr., North	80216	320-3597
	15135 Hamilton Ave.	48203	956-0200
	Oakland Distr. Ctr., 999—98th Ave., Oakland, Calif.	94603	569-3422
	7402 Neuhaus Ave.—P.O. Box 12911	77017	644-3264
	Cincinnati Distr. Ctr., 49 Central Ave., Cincinnati, O.	45202	559-3600
	Tampa Distr. Ctr. 11101 N. 46 St., P.O. Box 16626 Tampa, Fla.	33617	988-7351
	535 East 14th Ave.	64116	471-0123
	2747 S. Malt Ave.	90040	723-2541
	2021 S. Latham St.	38109	774-9045
	3655 N.W. 71st Street—P.O. Box 470857	33147	693-3811
	8100 West Florist Ave.—P.O. Box 299	53201	462-3860
	8501 54th Avenue, No., P.O. Box 1278	55440	535-5151
	133 Boyd Street, P.O. Box 439, Newark, N.J.	07101	622-8000
	Mail: P.O. Box 10236, Jefferson, La.	70181	733-9200
	75-11 Woodhaven Blvd., Glendale, N.Y.	11227	896-6000
	999-98th Ave.—P.O. Box 24354	94623	436-9000
	Dallas Distr. Ctr., 6500 Cedar Springs Road, Dallas, Texas	75235	358-5321
	999-98th Ave., P.O. Box 24354, Oakland, Calif.	94623	436-9000
	1000 Continental Rd.—P.O. Box 299, King of Prussia, Pa.	19406	688-5900
	575 Epsilon Dr.—P.O. Box 2801	15230	665-3750
	2800 N.W. Nela Street	97210	221-5120
	Baltimore Distr. Ctr., 1401 Parker Rd., Arbutus, Md.	21227	242-5700
	Buffalo Distr. Ctr., 770 Riverview Blvd., Tonawanda, N.Y.	14150	874-5180
	Salt Lake City Distr. Ctr., 1775 West 1500 South, Salt Lake City, Utah, Mail: P.O. Box 25648	84125	972-5606
	4930 Third Avenue South, Seattle, Wash., P.O. Box 3877	98124	292-6831
	1530 Fairview Ave.	63132	997-8413
	11101 N. 46th St.—P.O. Box 16626, Tampa, Fla.	33617	988-7351
	Buffalo Distr. Ctr., 770 Riverview Blvd., Tonawanda, N.Y.	14150	874-5180

IMPORTANT NOTICE

The data and recommendations in this catalog, as well as any additional information our representatives may furnish, are for general information only. They should not be taken as representations or warranties as to the suitability of any lamp for any particular application or use, or as to its performance under any particular conditions of use. Possible applications and conditions of use are many, and beyond our control.

Since new information is constantly being uncovered through research and testing, it is not possible to know at any given time all information with respect to a lamp or its performance.

This is particularly true of newer lamps. It is, therefore, up to the purchaser to make his own determination as to the suitability of a product for his intended use and to assume the responsibility for that determination.

When any equipment design is involved, please communicate with your General Electric Lamp Representative for latest lamp design information.

This bulletin contains data which are correct as of April, 1977. GE reserves the right to make product changes at any time in order to improve design and to supply the best product possible.

The halogen-cycle lamp devices and

arrangements disclosed herein may be covered by Patents of General Electric Company or others. Neither the disclosure of any information herein nor the sales of halogen-cycle lamp devices by General Electric Company conveys any license under patent claims covering combinations of halogen-cycle lamp devices with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the halogen-cycle lamp devices with other devices or elements by any purchasers of halogen-cycle lamp devices or by others.

GENERAL  ELECTRIC