

Our current halogen assortment features a new twist. Lower wattage eco-halogen lamps provide the same light quality as standard halogens while saving energy.



Halogen Lamps



MR11
G4/GU4 BASE

MR11, 6 VOLT, DICHROIC (LOW VOLTAGE)

Watts	Lamp Base	Order No.	Domestic Code	Master Carton/ Inner Pack	Pack Type	Candle Power	Beam Spread	Beam Type	Filament Type	Kelvin	Avg. Rated Hours	Light Center Length (LCL)	ANSI Code	MOL
5	G4	04771	5MR11Q/NFL/LN/CD <i>Clear Lens</i>	36/6	Card	200	16	Medium	C8	2900	2000	7/8"	—	1 3/8" (35mm)

MR11, 12 VOLT, DICHROIC (LOW VOLTAGE)

Watts	Lamp Base	Order No.	Domestic Code	Master Carton/ Inner Pack	Pack Type	Candle Power	Beam Spread	Beam Type	Filament Type	Kelvin	Avg. Rated Hours	Light Center Length (LCL)	ANSI Code	MOL
5	G4	04766	5MR11Q/NFL/LN/CD <i>Clear Lens</i>	36/6	Card	200	16	Medium	C8	2900	2000	7/8"	—	1 3/8" (35mm)
10	GU4	04761	10MR11Q/NFL/LN/CD <i>Clear Lens</i>	36/6	Card	650	16	Medium	C6	2900	2000	7/8"	—	1 3/8" (35mm)
20	GU4	04463	20MR11Q/NFL	100/10	Box	1500	16	Narrow Flood	C8	2950	2000	7/8"	FTC	1 3/8" (35mm)
	GU4	04750	20MR11Q/NFL/LN/CD <i>Clear Lens</i>	36/6	Card	1600	16	Medium	CC6	2950	2000	7/8"	FTC	1 3/8" (35mm)
	GU4	06214 •	20MR11X/FL/LN/CD2 <i>Clear Lens, Xenon</i>	36/6	Card (2)	700	30	Flood	C8	2900	10000	7/8"	FTD	1 3/8" (35mm)
35	GU4	04765	35MR11Q/NFL/LN/CD <i>Clear Lens</i>	36/6	Card	2800	16	Medium	C6	3000	2000	7/8"	FTF	1 3/8" (35mm)



MR16
GUS.3 BASE



FROST LENS MR16
GUS.3 BASE



CLEAR LENS MR16
GUS.3 BASE

MR16, 12 VOLT, DICHROIC (LOW VOLTAGE)

Watts	Lamp Base	Order No.	Domestic Code	Master Carton/ Inner Pack	Pack Type	Candle Power	Beam Spread	Beam Type	Filament Type	Kelvin	Avg. Rated Hours	Light Center Length (LCL)	ANSI Code	MOL
20	GUS.3	04450	20MR16Q/SP	100/10	Box	3300	12	Spot	C8	2950	2000	1"	ESX	1 13/16" (46mm)
	GUS.3	04451	20MR16Q/FL	100/10	Box	460	36	Flood	C8	2950	2000	1"	BAB	1 13/16" (46mm)
	GUS.3	04581	20MR16Q/FL	100/10	Box	460	38	Flood	C8	2950	5000		BAB	1 7/8" (48mm)
	GUS.3	04749	20MR16Q/SP/LN/CD <i>Clear Lens</i>	36/6	Card	3500	12	Spot	C8	2950	2000	1"	ESX	1 13/16" (46mm)
	GUS.3	04781	20MR16Q/FL/LN/CD <i>Clear Lens</i>	36/6	Card	600	32	Flood	C8	2950	2000	1"	BAB	1 13/16" (46mm)
	GUS.3	05200	20MR16Q/F/FL/LN/CD <i>Frost Lens</i>	36/6	Card	570	36	Flood	C8	3000	4000	1"	BAB	1 13/16" (46mm)
	GUS.3	06212 •	20MR16X/FL/LN/CD2 <i>Clear Lens, Xenon</i>	36/6	Card(2)	700	32	Flood	C8	2950	10000	1 1/6"	BAB	1 13/16" (46mm)
35	GUS.3	04562	35MR16Q/FL	100/10	Box	1500	38	Flood	C8	3000	5000	1"	FMW	1 7/8" (48mm)
	GUS.3	04563	35MR16Q/FL/LN/CD <i>Clear Lens</i>	36/6	Card	1250	32	Flood	C8	3000	2000	1"	FMW	1 13/16" (46mm)
50	GUS.3	04454	50MR16Q/SP	100/10	Box	9150	12	Spot	C8	3050	2000	1"	EXT	1 13/16" (46mm)
	GUS.3	04455	50MR16Q/NFL	100/10	Box	3000	20	Narrow Flood	C8	3050	2000	1"	EXZ	1 13/16" (46mm)
	GUS.3	04456	50MR16Q/FL	100/10	Box	1500	38	Flood	C8	3050	2000	1"	EXN	1 13/16" (46mm)
	GUS.3	04556	50MR16Q/FL/LN <i>Clear Lens</i>	100/10	Box	1500	38	Flood	C8	3050	2000	1"	EXN	1 13/16" (46mm)
	GUS.3	04559	50MR16Q/SP/LN/CD <i>Clear Lens</i>	36/6	Card	10000	12	Spot	C8	3050	2000	1"	EXT	1 13/16" (46mm)
	GUS.3	04586	50MR16Q/FL	100/10	Box	2000	38	Flood	C8	3000	5000	1"	EXN	1 7/8" (48mm)
	GUS.3	04755	50MR16Q/NFL/LN/CD <i>Clear Lens</i>	36/6	Card	4300	18	Narrow Flood	C6	3050	2000	1"	EXZ	1 13/16" (46mm)
	GUS.3	04756	50MR16Q/FL/LN/CD <i>Clear Lens</i>	36/6	Card	1650	32	Flood	C8	3050	2000	1"	EXN	1 13/16" (46mm)
	GUS.3	05201	50MR16Q/F/FL/LN/CD <i>Frost Lens</i>	36/6	Card	1550	49	Flood	C6	2950	4000	1"	EXN	1 13/16" (46mm)
	GUS.3	06213 •	50MR16X/FL/LN/CD2 <i>Clear Lens, Xenon</i>	36/6	Card(2)	1500	32	Flood	C8	3050	10000	1 1/6"	EXN	1 13/16" (46mm)
75	GUS.3	04458	75MR16Q/FL	100/10	Box	2000	38	Flood	C8	3050	2000	1"	EYC	1 13/16" (46mm)
	GUS.3	04757	75MR16Q/SP/LN/CD <i>Clear Lens</i>	36/6	Card	15000	12	Spot	C8	3050	2000	1"	EYF	1 7/8" (48mm)
	GUS.3	04758	75MR16Q/FL/LN/CD <i>Clear Lens</i>	36/6	Card	2940	32	Flood	C8	3050	2000	1"	EYC	1 13/16" (46mm)



MR16
GU7.9/8.0 BASE



MR16
GU10 BASE



JDR
INTERMEDIATE BASE



JDR
MEDIUM BASE



T3 JC
G4 BASE



T4 JC
G6.35 BASE

MR16, 120 VOLT, DICHROIC (LINE VOLTAGE)

Watts	Lamp Base	Order No.	Domestic Code	Master Carton/ Inner Pack	Pack Type	Candle Power	Beam Spread	Beam Type	Filament Type	Kelvin	Avg. Rated Hours	Light Center Length (LCL)	MOL
35	GU10	04741	35MR16Q/GU10/FL/LN/CD	36/6	Card	500	32		CC2V	2800	1500	3/16"	2" (50mm)
45	GU7.9/8.0	04518	45MR16Q/FL	100/10	Box	1800	36	Flood	CC8	3050	1500	3/16"	1 3/4" (127mm)
	GU7.9/8.0	04711	45MR16Q/FL/LN/CD <i>Clear Lens</i>	36/6	Card	1800	36	Flood	CC8	3050	2000	3/16"	1 3/4" (127mm)
50	GU10	04449	50MR16Q/GU10/FL	100/10	Box	1800	36	Flood	CC8	3050	1500	3/16"	2" (50mm)
	GU10	03529	50MR16Q/GU10/F/FL/LN/CD <i>Frost Lens</i>	36/6	Card	900	36	Flood	CC2V	3050	2000	3/16"	2" (50mm)
	GU7.9/8.0	04725	50MR16Q/FL/LN/CD <i>Clear Lens</i>	36/6	Card	950	32	Flood	CC2V	3050	2000	3/16"	1 3/4" (127mm)
	GU10	04740	50MR16Q/GU10/FL/LN/CD	36/6	Card	950	32	Flood	CC2V	3050	1500	3/16"	2" (50mm)
	GU10	06211	• 50MR16X/GU10/FL/LN/CD2 <i>Clear Lens, Xenon</i>	36/6	Card(2)	1100	30	Flood	CC8	3050	3500	1 5/16"	2" (50mm)

JDR, 120 VOLT (LINE VOLTAGE)

Watts	Lamp Base	Order No.	Domestic Code	Master Carton/ Inner Pack	Pack Type	Candle Power	Beam Spread	Beam Type	Filament Type	Kelvin	Avg. Rated Hours	Light Center Length (LCL)	ANSI Code	MOL
75	Inter.	04760	75JDR16Q/IN/NFL/LN/CD	36/6	Card	1350	20	Narrow Flood	CC8	2900	1500	2"	FSA	2 3/4" (69mm)
	Med.	04731	75JDR16Q/IN/NFL/LN/CD	36/6	Card	1350	20	Medium	CC8	2900	1500	2"	FSB	2 3/4" (69mm)

JC (LOW VOLTAGE)

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/ Inner Pack	Pack Type	Finish	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
T3													
5	G4	04510	5T3	12	100/10	Box	Clear	C6	2800	2000	60	7/8"	1 3/16" (29mm)
10	G4	04442	10T3	12	100/10	Box	Clear	C6	2900	2000	130	7/8"	1 3/16" (29mm)
	G4	04742	10T3/CD	12	36/6	Card	Clear	CC8	2900	2000	120	7/8"	1 3/16" (29mm)
	G4	06216	• 10T3X/CD2 <i>Xenon</i>	12	36/6	Card(2)	Clear	C6	2900	5000	100	7/8"	1 3/4" (127mm)
20	G4	04436	20T3	12	100/10	Box	Clear	C6	2950	2000	300	7/8"	1 3/16" (29mm)
	GY6.35	04444	20T3Q	12	100/10	Box	Clear	C6	2950	2000	300	1"	1 5/8" (39mm)
	G4	04734	20T3/F/CD	12	36/6	Card	Frost	C6	2950	2000	290	7/8"	1 3/16" (29mm)
	G4	04736	20T3/CD	12	36/6	Card	Clear	CC8	2950	2000	300	7/8"	1 3/16" (29mm)
	G4	06209	• 20T3X/CD2 <i>Xenon</i>	12	36/6	Card(2)	Clear	C6	2900	10000	300	7/8"	1 3/16" (29mm)
35	GY6.35	04445	35T3Q	12	100/10	Box	Clear	C6	3050	2000	595	1"	1 5/8" (39mm)
50	GY6.35	04427	50T3Q/24V	24	100/10	Box	Clear	CC6	3050	2000	800	1"	1 5/8" (39mm)
50	GY6.35	04438	50T3Q	12	100/10	Box	Clear	C6	3050	2000	900	1"	1 5/8" (39mm)
T4													
20	GY6.35	04743	20T4Q/CD	12	36/6	Card	Clear	CC8	2950	2000	300	1"	1 5/8" (39mm)
35	GY6.35	04745	35T4Q/CD	12	36/6	Card	Clear	C6	3000	2000	600	1"	1 5/8" (39mm)
50	GY6.35	04735	50T4Q/F/CD	12	36/6	Card	Frost	CC8	3050	2000	870	1"	1 5/8" (39mm)
50	GY6.35	04738	50T4Q/CD	12	36/6	Card	Clear	CC8	3050	2000	900	1"	1 5/8" (39mm)
75	GY6.35	04739	75T4Q/CD	12	36/6	Card	Clear	C6	3050	2000	1350	1"	1 5/8" (39mm)
100	GY6.35	04729	100T4Q/CD	12	36/6	Card	Clear	C6	3050	2000	2100	1"	1 5/8" (39mm)



T4 JCD
GY7.9/8.0 BASE



T4 JCD
GY6.35 BASE



T4 JCD
GY8.6 BASE



G9



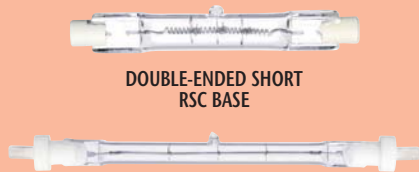
G9 FROST

JCD, 120 VOLT (LINE VOLTAGE)

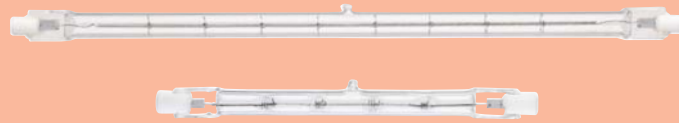
Watts	Lamp Base	Order No.	Domestic Code	Master Carton/ Inner Pack	Pack Type	Finish	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
20	GY7.9/8.0	04710	20T4Q/GY8/120/CD	36/6	Card	Clear	CC2V	2700	1500	200	1 3/16"	1 11/16" (43mm)
	G8	06210	20T4X/G8/120/CD2 <i>Xenon</i>	36/6	Card(2)	Clear	C6	2700	5000	175	1 3/16"	1 11/16" (43mm)
25	GY6.35	04715	25T4Q/120/CD	36/6	Card	Clear	CC8	2850	1500	255	1 3/16"	1 11/16" (43mm)
	GY7.9/8.0	04721	25T4Q/GY8/120/CD	36/6	Card	Clear	CC2V	2850	1500	255	1 3/16"	1 11/16" (43mm)
35	GY6.35	04431	35T4Q/120	100/10	Box	Clear	CC8	2900	1500	420	1 3/16"	1 11/16" (43mm)
	GY6.35	04031	35T4Q/120/CD	36/6	Card	Clear	CC2V	2900	1500	380	1 3/16"	1 11/16" (43mm)
	GY7.9/8.0	04722	35T4Q/GY8/120/CD	36/6	Card	Clear	CC8	2900	1500	380	1 3/16"	1 11/16" (43mm)
	GY8.6	04712	35T4Q/GY86/120/CD	36/6	Card	Clear	CC8	2900	1500	380	1 3/16"	2" (50mm)
50	GY6.35	04417	50T4Q/120	100/10	Box	Clear	CC8	2900	1500	800	1 3/16"	1 11/16" (43mm)
	GY6.35	04717	50T4Q/120/CD	36/6	Card	Clear	CC8	2900	1500	600	1 3/16"	1 11/16" (43mm)
	G8	04889	50T4Q/G8/120/CD	36/6	Card	Clear	CC8	2900	1500	600	1 3/16"	1 11/16" (43mm)
75	GY8.6	04714	75T4Q/GY86/120/CD	36/6	Card	Clear	CC8	2900	1500	1050	1 3/16"	1 11/16" (43mm)
	GY6.35	04718	75T4Q/120/CD	36/6	Card	Clear	CC8	2900	1500	1050	1 3/16"	1 11/16" (43mm)
100	GY8.6	04713	100T4Q/GY86/120/CD	36/6	Card	Clear	CC8	2900	1500	1500	1 3/16"	1 7/8" (48mm)
	GY6.35	04719	100T4Q/120/CD	36/6	Card	Clear	CC8	2900	1500	1500	1 3/16"	1 7/8" (48mm)

G9

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/ Inner Pack	Pack Type	Finish	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
25	G9	04870	25T4Q/G9/120/CD	120	36/6	Card	Clear	CC2V	2800	2000	255	1 1/4"	2 3/16" (56mm)
40	G9	04901	40T4Q/G9/120	120	100/6	Box	Clear	CC2V	2800	2000	480	1 1/4"	2 3/16" (56mm)
	G9	04703	40T4Q/G9/F/120	120	100/10	Box	Frost	CC8	2800	2000	440	1 1/4"	2 3/16" (56mm)
	G9	04871	40T4Q/G9/120/CD	120	36/6	Card	Clear	CC2V	2800	2000	480	1 1/4"	2 3/16" (56mm)
	G9	04855	40T4Q/G9/F/120/CD	120	36/6	Card	Frost	CC8	2800	2000	460	1 1/4"	2 3/16" (56mm)
60	G9	04879	60T4Q/G9/120/CD	120	36/6	Card	Clear	CC8	2800	2000	800	1 1/4"	2 3/16" (56mm)



DOUBLE-ENDED SHORT
RSC BASE



DOUBLE-ENDED LONG
RSC BASE



DOUBLE-ENDED LONG
METAL FIN BASE

DOUBLE-ENDED, SHORT

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/ Inner Pack	Pack Type	Finish	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
75	RSC	04779	75T3Q/S/CD	120	36/6	Card	Clear	C8	2800	1500	1050	1 5/8"	3 1/16" (78mm)
100	RSC	04477	100T3Q/S	120	100/10	Box	Clear	C8	2900	1500	1300	1 5/8"	3 1/16" (78mm)
	RSC	04777	100T3Q/S/CD	120	36/6	Card	Clear	CC8	2900	1500	1650	1 5/8"	3 1/16" (78mm)
150	RSC	04474	150T3Q/S	120	100/10	Box	Clear	C8	3000	1500	2400	1 5/8"	3 1/16" (78mm)
	RSC	04774	150T3Q/S/CD	120	36/6	Card	Clear	CC8	3000	1500	2600	1 5/8"	3 1/16" (78mm)
	RSC	04783	150T3Q/S/RS/130/CD	130	36/6	Card	Clear	CC8	3000	1500	2600	1 5/8"	3 1/16" (78mm)
			<i>Commercial Service®, Rough Service</i>										
	RSC	04974	150T3Q/S/CD2	120	36/6	Card(2)	Clear	CC8	2900	1500	2600	1 5/8"	3 1/16" (78mm)
250	RSC	04759	250T3Q/S/CD	120	36/6	Card	Clear	CC8	3050	1500	4000	1 5/8"	3 1/16" (78mm)
300	RSC	04775	300T3Q/S/CD	120	36/6	Card	Clear	C8	3050	1500	5000	1 5/8"	3 1/16" (78mm)

DOUBLE-ENDED, LONG

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/ Inner Pack	Pack Type	Finish	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
100	RSC	04865	100T3Q	120	100/10	Box	Clear	C8	2900	1500	1200	2 5/16"	4 5/8" (118mm)
150	RSC	04473	150T3Q	120	100/10	Box	Clear	C8	2900	1500	2400	2 5/16"	4 5/8" (118mm)
	RSC	04773	150T3Q/CD	120	36/6	Card	Clear	C8	2950	1500	2600	2 5/16"	4 5/8" (118mm)
	RSC	04784	150T3Q/RS/130/CD	130	36/6	Card	Clear	C8	2950	1500	2400	2 5/16"	4 5/8" (118mm)
			<i>Commercial Service®, Rough Service</i>										
	RSC	04973	150T3Q/CD2	120	36/6	Card(2)	Clear	C8	2900	2000	2600	2 5/16"	4 5/8" (118mm)
300	RSC	04476	300T3Q	120	100/10	Box	Clear	C8	3000	1500	5950	2 5/16"	4 5/8" (118mm)
	RSC	04828	300T3Q/130	130	100/10	Box	Clear	C8	3000	1500	5950	2 5/16"	4 5/8" (118mm)
			<i>Commercial Service®</i>										
	RSC	04776	300T3Q/CD	120	36/6	Card	Clear	C8	3000	2000	5000	2 5/16"	4 5/8" (118mm)
	RSC	04786	300T3Q/RS/130/CD	130	36/6	Card	Clear	C8	3000	1500	5000	2 5/16"	4 5/8" (118mm)
			<i>Commercial Service®, Rough Service</i>										
	RSC	04976	300T3Q/CD2	120	36/6	Card(2)	Clear	C8	2900	1500	5000	2 5/16"	4 5/8" (118mm)
	Metal Fin	04724	300T3Q/F14/CD	120	36/6	Card	Clear	C8	3000	1500	5000	2 3/4"	5 3/4" (145mm)
500	RSC	04478	500T3Q	120	100/10	Box	Clear	C8	3050	1500	10500	2 5/16"	4 5/8" (118mm)
	RSC	04829	500T3Q/130	130	100/10	Box	Clear	C8	3050	1500	10500	2 5/16"	4 5/8" (118mm)
			<i>Commercial Service®</i>										
	RSC	04778	500T3Q/CD	120	36/6	Card	Clear	C8	3050	2000	9500	2 5/16"	4 5/8" (118mm)
	RSC	04978	500T3Q/CD2	120	36/6	Card(2)	Clear	C8	2900	1500	9500	2 5/16"	4 5/8" (118mm)
	RSC	04788	500T3Q/RS/130/CD	130	36/6	Card	Clear	C8	3050	1500	9500	2 5/16"	4 5/8" (118mm)
			<i>Commercial Service®, Rough Service</i>										
1500	RSC	04480	1500T3Q/240	240	100/10	Box	Clear	C8	3100	1500	33000	5"	10" (254mm)



SINGLE-ENDED
E11 BASE



T3 XENON/KRYPTON
E11 BASE



T3 XENON/KRYPTON
CANDELABRA BASE



SINGLE-ENDED D.C.
BAYONET BASE

SINGLE-ENDED, E11 BASE

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/Inner Pack	Pack Type	Finish	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	ANSI Code	MOL
50	E11	04423	50T4Q/E11	120	100/10	Box	Clear	CC8	2900	1300	600	1 7/16"	—	2 5/16" (58mm)
	E11	04723	50T4Q/E11/CD	120	36/6	Card	Clear	CC2V	2900	1300	600	1 7/16"	—	2 5/16" (58mm)
75	E11	04416	75T4Q/E11	120	100/10	Box	Clear	CC8	2900	1300	1450	1 7/16"	—	2 1/2" (64mm)
	E11	04706	75T4Q/F/E11/CD	120	36/6	Card	Frost	CC8	2900	1300	1050	1 7/16"	—	2 1/2" (64mm)
	E11	04716	75T4Q/E11/CD	120	36/6	Card	Clear	CC8	2900	1450	1050	1 7/16"	—	2 1/2" (64mm)
100	E11	04467	100T4Q/E11	120	100/10	Box	Clear	CC8	2950	1300	1900	1 7/16"	ESN	2 1/2" (64mm)
	E11	04767	100T4Q/E11/CD	120	36/6	Card	Clear	CC8	2950	1300	1500	1 7/16"	ESN	2 1/2" (64mm)
150	E11	04468	150T4Q/E11	120	100/10	Box	Clear	CC8	3000	1300	3300	1 7/16"	ETG	2 5/16" (58mm)
	E11	04768	150T4Q/E11/CD	120	36/6	Card	Clear	CC8	3000	1300	2500	1 7/16"	ETG	2 5/16" (58mm)
250	E11	04469	250T4Q/E11	120	100/10	Box	Clear	CC8	3050	1300	4000	1 3/4"	EHT	3 1/8" (78mm)
	E11	04769	250T4Q/E11/CD	120	36/6	Card	Clear	CC8	3050	1300	4250	1 3/4"	EHT	3 1/8" (78mm)
500	E11	04470	500T4Q/E11	120	100/10	Box	Clear	CC8	3100	2000	9000	2 3/8"	EVR	3 1/2" (88mm)

SINGLE-ENDED, D.C. BAYONET BASE

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/Inner Pack	Pack Type	Finish	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	ANSI Code	MOL
T3/T4														
35	D.C. Bay.	04412	35Q/DC/CD	120	36/6	Card	Clear	CC2V	2900	1500	380	1 1/4"	—	1 7/8" (48mm)
50	D.C. Bay.	04835	50Q/DC/CD	120	36/6	Card	Clear	CC2V	2900	1500	600	1 1/4"	—	2" (50mm)
	D.C. Bay.	04836	50Q/DC	120	100/10	Box	Clear	CC8	2900	1500	600	1 1/4"	—	2" (50mm)
75	D.C. Bay.	04837	75Q/DC	120	100/10	Box	Clear	CC8	2900	1500	975	1 1/4"	—	2 3/16" (55mm)
100	D.C. Bay.	04746	100Q/DC/CD	120	36/6	Card	Clear	CC8	2950	1500	1500	1 7/16"	ESR	2 5/16" (58mm)
	D.C. Bay.	04846	100Q/DC	120	100/10	Box	Clear	CC8	2950	1500	1400	1 7/16"	ESR	2 5/16" (58mm)
150	D.C. Bay.	04847	150Q/DC	120	100/10	Box	Clear	CC8	3000	1500	2250	1 7/16"	ETC	2 5/16" (58mm)

T3 XENON/KRYPTON (INCANDESCENT ALTERNATIVE TO HALOGEN)

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/Inner Pack	Pack Type	Finish	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
20	E11	06256	20T3/KX/E11	120	100/10	Box	Clear	CC8	2000	2000	200	1 7/8"	2 1/2"
	Cand.	06250	20T3/KX/E12	120	100/10	Box	Clear	CC8	2000	2000	200	1 11/16"	2 7/16"
	Cand.	06253	20T3/KX/F/E12	120	100/10	Box	Frost	CC8	2000	2000	190	1 11/16"	2 7/16"
40	E11	06257	40T3/KX/E11	120	100/10	Box	Clear	CC8	2000	2000	560	1 7/8"	2 1/2"
	E11	06260	40T3/KX/F/E11	120	100/10	Box	Frost	CC8	2000	2000	540	1 7/8"	2 1/2"
	Cand.	06251	40T3/KX/E12	120	100/10	Box	Clear	CC8	2000	2000	560	1 11/16"	2 7/16"
	Cand.	06254	40T3/KX/F/E12	120	100/10	Box	Frost	CC8	2000	2000	540	1 11/16"	2 7/16"
60	E11	06258	60T3/KX/E11	120	100/10	Box	Clear	CC8	2000	2000	960	1 7/8"	2 1/2"
	E11	06261	60T3/KX/F/E11	120	100/10	Box	Frost	CC6	2000	2000	950	1 7/8"	2 1/2"
	Cand.	06252	60T3/KX/E12	120	100/10	Box	Clear	CC8	2000	2000	960	1 11/16"	2 7/16"
	Cand.	06255	60T3/KX/F/E12	120	100/10	Box	Frost	CC8	2000	2000	950	1 11/16"	2 7/16"



F15



B11

SL19
CUT GLASSG25
CUT GLASS

T10



BT15

A19
ECO-HALOGEN

SPECIALTY AND DECORATIVE

Watts	Lamp Base	Order No.	Domestic Code		Volts	Master Carton/Inner Pack	Pack Type	Finish	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
F15														
60	Med.	05014	60F15/H/CD		120	36/6	Card	Clear	CC8	2800	2000	935	—	4 3/4" (121mm)
B11														
40	Cand.	04029	40B11/H/FAN/CB/CD2		120	60/10	Card(2)	Clear	CC8	2800	2000	460	2 5/16"	3 3/4" (76mm)
SL19														
60	Med.	05005	60SL19/H/CG/130		130	36/6	Box	Cut Glass	CC8	2800	2000	825	3"	5" (127mm)
G25														
45	Med.	05020	45G25/H/CG		120	36/6	Box	Cut Glass	CC8	2800	2000	600	3"	4 11/16" (118mm)
T10														
40	Med.	04834 •	40T10/H/CD		120	24/4	Card	Clear	CC8	2700	2250	520	—	5 1/4" (134mm)
BT15														
60	Med.	36819	60BT15/H/CD		120	36/6	Card	Clear	CC8	2800	3000	1080	3"	4 1/8" (104mm)
	Med.	36820	60BT15/H/SW/CD		120	36/6	Card	Soft White	CC8	2800	3000	900	3"	4 1/8" (104mm)
75	Med.	36821	75BT15/H/SW/CD		120	36/6	Card	Soft White	CC8	2800	3000	1250	3"	4 1/8" (104mm)
100	Med.	36822	100BT15/H/SW/CD		120	36/6	Card	Soft White	CC8	2800	2000	1800	3"	4 1/8" (104mm)
A19 ECO-HALOGEN														
42	Med.	36800 •	42A19/SW/ECO/H/2		120	60/12	Box(2)	Soft White	CC8	2800	1000	785	2 3/4"	4 1/4" (107mm)
72	Med.	36801 •	72A19/SW/ECO/H/2		120	60/12	Box(2)	Soft White	CC8	2800	1000	1500	2 3/4"	4 1/4" (107mm)



ENCAPSULATED

Watts	Lamp Base	Order No.	Domestic Code		Volts	Master Carton/Inner Pack	Pack Type	Candle Power	Beam Spread	Beam Type	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
PAR16																
40	Med.	05401	40PAR16/H/NFL		120	24/6	Box	530	30	Narrow Flood	CC8	2950	2000	400	2"	3 1/8" (78mm)
	Med.	36979	40PAR16/H/NFL/130 <i>Commercial Service®</i>		130	24/6	Box	530	30	Narrow Flood	CC8	2950	2000	400	2"	3 1/8" (78mm)
60	Med.	05402	60PAR16/H/NFL		120	24/6	Box	1100	30	Narrow Flood	CC8	2950	2000	660	2"	3 1/8" (78mm)
	Med.	05410	60PAR16/H/NFL/2		120	6	Box (2)	1100	30	Narrow Flood	CC8	2950	2000	660	2"	3 1/8" (78mm)
	Med.	36980	60PAR16/H/NFL/130 <i>Commercial Service®</i>		130	24/6	Box	1100	30	Narrow Flood	CC8	2950	2000	660	2"	3 1/8" (78mm)
75	Med.	05407	75PAR16/H/NFL		120	24/6	Box	1600	30	Narrow Flood	CC8	2950	2000	900	2"	3 1/8" (78mm)
PAR20																
35	Med.	05419	35PAR20/H/NFL		120	24/6	Box	630	30	Narrow Flood	CC8	2700	2000	380	2"	3 1/8" (78mm)
50	Med.	03508	50PAR20/H/F/FL/130 <i>Frost, Commercial Service®</i>		130	24/6	Box	—	50	Flood	CC8	—	2000	500	—	3 1/8" (78mm)
	Med.	05206	50PAR20/H/F/FL <i>Frost</i>		120	24/6	Box	—	56	Flood	CC8	—	2500	500	—	3 1/8" (78mm)
	Med.	05420	50PAR20/H/NFL		120	24/6	Box	1050	30	Narrow Flood	CC8	2950	2000	550	2"	3 1/8" (78mm)
	Med.	05421	50PAR20/H/SP		120	24/6	Box	2400	10	Spot	CC8	2950	2000	550	2"	3 1/8" (78mm)
	Med.	05422	50PAR20/H/NFL/2		120	6	Box	1050	25	Narrow Flood	CC8	2950	2000	550	—	3 1/8" (78mm)
	Med.	36910	50PAR20/H/FL/130 <i>Commercial Service®</i>		130	24/6	Box	1250	30	Flood	CC8	2950	2500	550	2"	3 1/8" (78mm)
	Med.	36981	50PAR20/H/SP/130 <i>Commercial Service®</i>		130	24/6	Box	2100	10	Spot	CC8	2950	2500	550	2"	3 1/8" (78mm)
PAR30																
50	Med.	05210	50PAR30/H/LN/F/FL <i>Frost, Long Neck</i>		120	24/6	Box	—	50	Flood	CC8	—	2500	600	—	4 11/16" (118mm)
	Med.	05423	50PAR30/H/FL		120	24/6	Box	1350	35	Flood	CC8	2950	2000	660	1 4/5"	3 1/2" (88mm)
	Med.	05424	50PAR30/H/NFL		120	24/6	Box	1500	25	Narrow Flood	CC8	2950	2000	660	1 4/5"	3 1/2" (88mm)
	Med.	05425	50PAR30/H/SP		120	24/6	Box	5000	10	Spot	CC8	2950	2000	660	1 4/5"	3 1/2" (88mm)
	Med.	05426	50PAR30/H/FL/LN		120	24/6	Box	1350	35	Flood	CC8	2950	2000	660	2 3/4"	4 11/16" (118mm)
	Med.	05428	50PAR30/H/SP/LN		120	24/6	Box	5000	10	Spot	CC8	2950	2000	660	2 3/4"	4 11/16" (118mm)
	Med.	36911	50PAR30/H/FL/130		130	24/6	Box	1350	35	Flood	CC8	2950	2500	660	1 4/5"	3 1/2" (88mm)
	Med.	36912	50PAR30/H/FL/LN/130 <i>Long Neck, Commercial Service®</i>		130	24/6	Box	1350	35	Flood	CC8	2950	2500	660	2 3/4"	4 11/16" (118mm)



ENCAPSULATED

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/ Inner Pack	Pack Type	Candle Power	Beam Spread	Beam Type	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
PAR30															
75	Med.	03510	75PAR30/H/F/FL/130 <i>Frost, Commercial Service®</i>	Ⓢ 130	24/6	Box	—	50	Flood	CC8	—	2000	1000	—	3 1/2" (88mm)
	Med.	03513	75PAR30/H/F/FL/LN/130 <i>Frost, Long Neck, Commercial Service®</i>	Ⓢ 130	24/6	Box	—	50	Flood	CC8	—	2000	1000	—	4 11/16" (118mm)
	Med.	05211	75PAR30/H/LN/F/FL <i>Frost, Long Neck</i>	Ⓢ 120	24/6	Box	—	48	Flood	CC8	—	2500	990	—	4 11/16" (118mm)
	Med.	05412	75PAR30/H/FL/LN/2 <i>Long Neck</i>	Ⓢ 120	6	Box (2)	2400	38	Flood	CC8	2950	2000	1100	—	4 11/16" (118mm)
	Med.	05427	75PAR30/H/FL/LN <i>Long Neck</i>	Ⓢ 120	24/6	Box	2400	35	Flood	CC8	2950	2000	1100	2 3/4" 4 11/16" (118mm)	
	Med.	05429	75PAR30/H/SP/LN <i>Long Neck</i>	Ⓢ 120	24/6	Box	8000	10	Spot	CC8	2950	2000	1100	2 3/4" 4 11/16" (118mm)	
	Med.	05435	75PAR30/H/FL	Ⓢ 120	24/6	Box	2400	35	Flood	CC8	2950	2000	1100	1 3/4" 3 1/2" (88mm)	
	Med.	05436	75PAR30/H/NFL	Ⓢ 120	24/6	Box	3200	25	Narrow Flood	CC8	2950	2000	1100	1 3/4" 3 1/2" (88mm)	
	Med.	05437	75PAR30/H/SP	Ⓢ 120	24/6	Box	8000	10	Spot	CC8	2950	2000	1100	1 3/4" 3 1/2" (88mm)	
	Med.	36913	75PAR30/H/FL/130 <i>Commercial Service®</i>	Ⓢ 130	24/6	Box	2400	35	Flood	CC8	2950	2500	1100	1 3/4" 3 1/2" (88mm)	
	Med.	36914	75PAR30/H/FL/LN/130 <i>Long Neck, Commercial Service®</i>	Ⓢ 130	24/6	Box	2000	35	Flood	CC8	2950	2500	1100	2 3/4" 4 11/16" (118mm)	
	Med.	36983	75PAR30/H/NFL/130 <i>Commercial Service®</i>	Ⓢ 130	24/6	Box	3200	25	Narrow Flood	CC8	2950	2500	1100	1 3/4" 3 1/2" (88mm)	
PAR38															
45	Med.	05213	45PAR38/H/F/FL <i>Frost</i>	Ⓢ 120	12/6	Box	—	43	Flood	CC8	—	2500	470	—	5 3/16" (132mm)
	Med.	05270	45PAR38/H/FL/2	Ⓢ 120	6	Box (2)	1700	30	Flood	CC8	2950	2000	520	3 1/8" 5 3/16" (132mm)	
	Med.	05470	45PAR38/H/FL	Ⓢ 120	12	Box	1700	30	Flood	CC8	2950	2000	520	3 1/8" 5 3/16" (132mm)	
	Med.	05472	45PAR38/H/SP	Ⓢ 120	12	Box	5800	10	Spot	CC8	—	2000	520	3 1/8" 5 3/16" (132mm)	
	Med.	36915	45PAR38/H/FL/130 <i>Commercial Service®</i>	Ⓢ 130	12/6	Box	1700	30	Flood	CC8	—	2500	520	3 1/8" 5 3/16" (132mm)	
75	Med.	03519	75PAR38/H/F/FL/130 <i>Frost, Commercial Service®</i>	Ⓢ 130	12/6	Box	—	50	Flood	CC8	2950	2000	1000	—	5 3/16" (132mm)
	Med.	03526	75PAR38/H/F/FL <i>Frost</i>	Ⓢ 120	12/6	Box	—	50	Flood	CC8	2950	2500	990	—	5 3/16" (132mm)
	Med.	05475	75PAR38/H/FL	Ⓢ 120	12	Box	2400	30	Flood	CC8	2950	2000	1100	3 1/8" 5 3/16" (132mm)	
	Med.	36916	75PAR38/H/FL/130 <i>Commercial Service®</i>	Ⓢ 130	12/6	Box	3300	30	Flood	CC8	2950	2500	1040	3 1/8" 5 3/16" (132mm)	
90	Med.	03517	90PAR38/H/F/FL/130 <i>Frost, Commercial Service®</i>	Ⓢ 130	12/6	Box	—	50	Flood	CC8	—	2000	1200	—	5 3/16" (132mm)
	Med.	05214	90PAR38/H/F/FL <i>Frost</i>	Ⓢ 120	12/6	Box	—	48	Flood	CC8	—	2000	1200	—	5 3/16" (132mm)
	Med.	05284	90PAR38/H/FL/2	Ⓢ 120	6	Box (2)	4000	30	Flood	CC8	2950	2000	1270	3 1/8" 5 3/16" (132mm)	
	Med.	05484	90PAR38/H/FL	Ⓢ 120	12	Box	4000	30	Flood	CC8	2950	2000	1270	3 1/8" 5 3/16" (132mm)	
	Med.	05486	90PAR38/H/VWFL	Ⓢ 120	12	Box	2000	50	Very Wide Flood	CC8	2950	2000	1270	3 1/8" 5 3/16" (132mm)	
	Med.	05487	90PAR38/H/SP	Ⓢ 120	12	Box	10500	10	Spot	CC8	2950	2000	1270	3 1/8" 5 3/16" (132mm)	
	Med.	36917	90PAR38/H/FL/130 <i>Commercial Service®</i>	Ⓢ 130	12/6	Box	3750	30	Flood	CC8	2950	2500	1270	3 1/8" 5 3/16" (132mm)	
	Med.	36989	90PAR38/H/SP/130 <i>Commercial Service®</i>	Ⓢ 130	12/6	Box	10500	10	Spot	CC8	2950	2500	1270	3 1/8" 5 3/16" (132mm)	



REFLECTORS

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/ Inner Pack	Pack Type	Finish	Beam Spread	Beam Type	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL
R16															
40	Med.	36809	40R16/H/FL/CD	120	36/6	Card	Frost	70	Flood	CC8	3000	2500	450	2 1/2"	3 1/2" (88mm)
R20															
35	Med.	36802	•35R20/ECO/H/FL	120	36/6	Box	Frost	—	Flood	CC8	2800	2500	310	2 11/16"	3 7/8" (98mm)
50	Med.	36810	50R20/H/FL	120	36/6	Box	Frost	70	Flood	CC8	3000	2500	550	2 1/2"	3 7/8" (98mm)
BR25															
75	Med.	36811	75BR25/H/FL	120	36/6	Box	Frost	70	Flood	CC8	3000	2500	1000	2 3/4"	4 3/4" (120mm)
BR30															
50	Med.	36803	•50BR30/ECO/H/FL	120	36/6	Box	Frost	—	Flood	CC8	2800	2500	590	4"	5 5/16" (135mm)
60	Med.	36303	60BR30/H/FL	120	36/6	Box	Frost	60	Flood	CC8	3000	2500	750	3 5/16"	5 5/16" (135mm)
75	Med.	36304	75BR30/H/FL	120	36/6	Box	Frost	60	Flood	CC8	3000	2500	1020	3 5/16"	5 5/16" (135mm)
	Med.	36883	75BR30/H/FL/130	130	36/6	Box	Frost	60	Flood	CC8	3000	2500	1020	3 5/16"	5 5/16" (135mm)
BR40															
50	Med.	36804	•50BR40/ECO/H/FL	120	6	Box	Frost	—	Flood	CC8	2800	2500	590	4 3/16"	6 1/2" (165mm)
75	Med.	36814	75BR40/H/FL	120	6	Box	Frost	60	Flood	CC8	3000	2500	1050	5"	6 1/2" (165mm)
80	Med.	36805	•80BR40/ECO/H/FL	120	6	Box	Frost	—	Flood	CC8	2800	2500	1080	4 3/16"	6 1/2" (165mm)
100	Med.	36815	100BR40/H/FL	120	6	Box	Frost	60	Flood	CC8	3000	2500	1500	5"	6 1/2" (165mm)

ECO-HALOGEN

Watts	Lamp Base	Order No.	Domestic Code	Volts	Master Carton/ Inner Pack	Pack Type	Finish	Beam Type	Filament Type	Kelvin	Avg. Rated Hours	Lumens	Light Center Length (LCL)	MOL	
A19															
42	Med.	36800	•42A19/SW/ECO/H/2	120	30/6	Box(2)	Soft White	—	CC8	2800	1000	785	2 3/4"	4 1/4" (107mm)	
72	Med.	36801	•72A19/SW/ECO/H/2	120	30/6	Box(2)	Soft White	—	CC8	2800	1000	1500	2 3/4"	4 1/4" (107mm)	
R20															
35	Med.	36802	•35R20/ECO/H/FL	120	36/6	Box	Frost	Flood	CC8	2800	2500	310	2 11/16"	3 7/8" (98mm)	
BR30															
50	Med.	36803	•50BR30/ECO/H/FL	120	36/6	Box	Frost	Flood	CC8	2800	2500	590	4"	5 5/16" (135mm)	
BR40															
50	Med.	36804	•50BR40/ECO/H/FL	120	6	Box	Frost	Flood	CC8	2800	2500	590	4 3/16"	6 1/2" (165mm)	
80	Med.	36805	•80BR40/ECO/H/FL	120	6	Box	Frost	Flood	CC8	2800	2500	1080	4 3/16"	6 1/2" (165mm)	

HALOGEN 130 VOLT COMPARISON CHART

130V LAMP ON 130V LINE

130V ON 120V LINE

Order No.	Watts	Domestic Code	Master Carton/ Inner Pack	Avg. Rated Hours	Lumens	Watts	Hours	Lumens
03508	50	50PAR20/H/F/FL/130	Ⓢ 24/6	2000	500	44	5600	375
03510	75	75PAR30/H/F/FL/130	Ⓢ 24/6	2000	1000	66	5600	750
03513	75	75PAR30/H/F/FL/LN/130	Ⓢ 24/6	2000	1000	66	5600	750
03517	90	90PAR38/H/F/FL/130	Ⓢ 12/6	2000	1200	79	5600	900
03519	75	75PAR38/H/F/FL/130	Ⓢ 12/6	2000	1000	66	5600	750
04783	150	150T3Q/S/RS/130/CD	36/6	1500	2600	132	4200	1950
04784	150	150T3Q/RS/130/CD	36/6	1500	2400	132	4200	1800
04786	300	300T3Q/RS/130/CD	36/6	1500	5000	264	4200	3750
04788	500	500T3Q/RS/130/CD	36/6	1500	9500	440	4200	7125
04828	300	300T3Q/130	100/10	1500	5950	264	4200	4463
04829	500	500T3Q/130	100/10	1500	10500	440	4200	7875
05005	60	60SL19/H/CG/130	Ⓢ 36/6	2000	825	53	5600	619
36883	75	75BR30/H/FL/130	Ⓢ 36/6	2500	1020	66	7000	765
36910	50	50PAR20/H/FL/130	Ⓢ 24/6	2500	550	44	7000	413
36911	50	50PAR30/H/FL/130	Ⓢ 24/6	2500	660	44	7000	495
36912	50	50PAR30/H/FL/LN/130	Ⓢ 24/6	2500	660	44	7000	495
36913	75	75PAR30/H/FL/130	Ⓢ 24/6	2500	1100	66	7000	825
36914	75	75PAR30/H/FL/LN/130	Ⓢ 24/6	2500	1100	66	7000	825
36915	45	45PAR38/H/FL/130	Ⓢ 12/6	2500	520	40	7000	390
36916	75	75PAR38/H/FL/130	Ⓢ 12/6	2500	1040	66	7000	780
36917	90	90PAR38/H/FL/130	Ⓢ 12/6	2500	1270	79	7000	953
36979	40	40PAR16/H/NFL/130	Ⓢ 24/6	2000	400	35	5600	300
36980	60	60PAR16/H/NFL/130	Ⓢ 24/6	2000	660	53	5600	495
36981	50	50PAR20/H/SP/130	Ⓢ 24/6	2500	550	44	7000	413
36983	75	75PAR30/H/NFL/130	Ⓢ 24/6	2500	1100	66	7000	825
36989	90	90PAR38/H/SP/130	Ⓢ 12/6	2500	1270	79	7000	953

HALOGEN BASE TYPES



E26
Medium



E17
Intermediate



E12
Candelabra



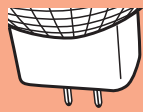
E11
Mini-Can



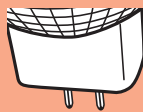
D.C.
Bayonet



G9



GU4



GU5.3



GU7.9/8.0



GU10



RSC



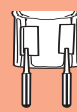
Metal
Fin



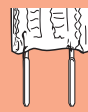
G4



GY6.35



GY7.9/8.0

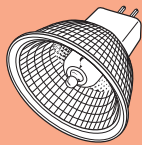


GY8.6

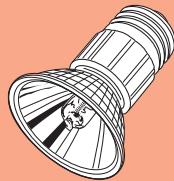
HALOGEN BASE SHAPES



MR11



MR16



JDR



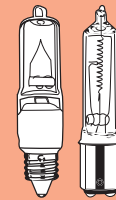
JC



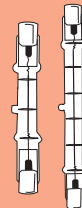
JCD



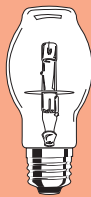
G9



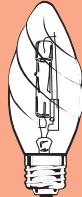
Single
Ended



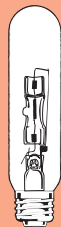
Double
Ended



BT15



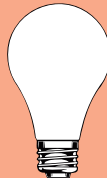
F15



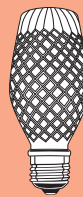
T10



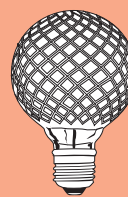
B11



A19



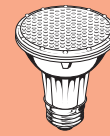
SL19
Cut Glass



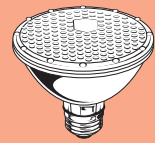
G25
Cut Glass



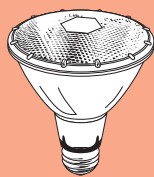
PAR16



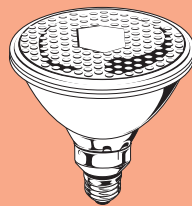
PAR20



PAR30



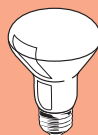
PAR30
Long Neck



PAR38



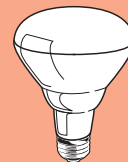
R16



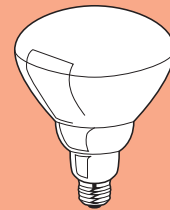
R20



BR25



BR30



BR40

HOW DO HALOGEN LAMPS WORK?

Halogen lamps by their very nature are incandescent type lamps with a few special differences. The most important difference is the "Halogen Regenerative Cycle." The halogen cycle is what gives halogen lamps their advantage, higher light output and longer life. Other benefits of halogen lamps are the ability to use smaller glass envelopes and economical use of quartz and glass alloys. Higher operating temperatures help maintain their brightness levels, produce more light in the visible wavelengths, and more efficiently convert electric current to usable light.

During assembly, a halogen lamp is filled with an inert gas just like a standard incandescent lamp; usually nitrogen, argon, krypton, or xenon. In addition to the inert gas, a small amount of a halogen compound and oxygen are added to the mix. The halogen cycle consists of four critical steps illustrated in the figures below.

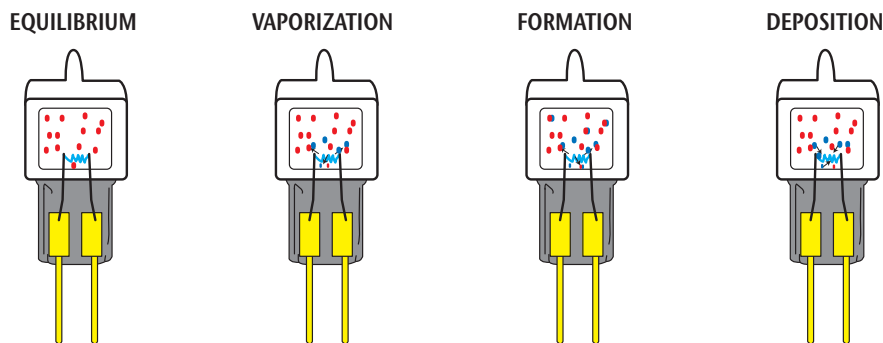
Step 1: Before you energize a lamp, the gases inside are evenly distributed, the lamp is at **equilibrium**.

Step 2: When the lamp is energized, the halogen regenerative cycle begins as the filament heats up and the tungsten filament starts to evaporate, known as **vaporization**.

Step 3: Evaporated tungsten joins with the halogen/oxygen mix and forms into tungsten oxyhalide molecules. These molecules move around inside the envelope from lower temperature areas to the higher temperature filament, referred to as **formation**.

Step 4: As the tungsten oxyhalide molecules near the higher temperature filament, the tungsten is separated from the halogen/oxygen mix. The separated tungsten is then deposited back onto the filament and reused, which is defined as **deposition**.

The filament heats up the deposited tungsten, evaporates it, forms it into molecules, and re-deposits it onto the filament again, continuing the halogen cycle over and over.



HALOGEN LAMP COMPONENTS

