

Table 1. Characteristics of mid-wattage metal halide lamps (data gathered from manufacturers' literature)

Rated lamp power (watts)	Manufacturer	Start type	Bulb designation	Initial light output (lumens)	Mean light output (lumens)	Lamp life (hours)	ANSI code	CCT (kelvin)	CRI	Warm-up time (minutes)	Restrike time (minutes)
175	GE	Probe	BD17 PAR38 ED28	U: 14100—15000 V: 12900—13600 H: 11700	V: 8800 H: 7400	V: 10000 H: 6000	M57 (CWA)	3900—4000	65—70	2—4	10—15
	GE	Pulse	BD17 ED23.5	16000—17500	12000—13000	15000	M137	3200—4000	65—75	<2	<6
	OSRAM SYLVANIA	Probe	ED17 BT28	U: 12500—14400 V: 11800—14400 H: 11080—15000	U: 10000—12000 V: 7600—12000 H: 7500—10300	U: 7500—10000 V: 10000 H: 7500	M57 (CWA)	4200	65—70	2—4	9—15
	Philips	Probe	ED17 ED28	12000—15000	7560—12000	10000	M57	3200—4300	65—70	3—5	10—20
	Philips	Pulse	ED28	16000	11200	15000	M137	3900	65	2—4	2—4
	Venture	Probe	ED17 ED28 T15	V: 12000—15000 H: 10800—12600	7800—9800	7500—10000	M57 (CWA)	3200—5200	65—75	3—5	5—10
	Venture	Pulse	ED17 ED28	16600—17500	13300—14000	15000	M137 M152	3700—4000	65—70	1—2	2—4
200	Venture	Pulse	ED17 ED28	19000—21000	15200—16800	12000—15000	M136	3200—4000	65—70	1—2	2—4
225	Venture	Probe	ED28	18000—20000	11700—13000	10000	M58 (CWA)	3700—4000	65—70		

Table 1 continued

Rated lamp power (watts)	Manufacturer	Start type	Bulb designation	Initial light output (lumens)	Mean light output (lumens)	Lamp life (hours)	ANSI code	CCT (kelvin)	CRI	Warm-up time (minutes)	Restrike time (minutes)
250	GE	Probe	ED28 T15	U: 19000–21000 V: 19800–20800 H: 18200–19100	U: 9400–13300 V: 13000–13500 H: 11600–12400	U: 10000–15000 V: 10000 H: 6000	M58 (CWA)	3900–4200	65–70	2–4	10–15
	GE	Pulse	ED28	21500–23000	15500–17000	15000, 20000	M138	3900–4200	65	<2	<6
	OSRAM SYLVANIA	Probe	BT28 ET18	U: 17500 V: 17500–23000 H: 17200–23000	U: 13000 V: 13000–17500 H: 15000–17500	U: 10000 V: 10000 H: 10000	M58	3200–4200	65–70	2–4	7–12
	OSRAM SYLVANIA	Pulse	BT28	23500	19200	15000	M138	4200	65	2–3	4–7
	Philips	Probe	ED18 ED28 T15 BT28	18000–23000	11300–19125	10000	M58 S50	3200–4300	65–70	3–5	10–20
	Philips	Pulse	ED28	23800	16600	15000	M138	4300	65	2	4
	Venture	Probe	ED28 T15	V: 19000–33000 H: 17100–18900	12400–15000	V: 7500–10000 H: 5625–7500	M58 (CWA) S50	3200–5200	65–75	3–5	5–10
	Venture	Probe	T8	20000	13000	10000	M80 (CWA)	3000–4200	70		
	Venture	Pulse	ED28	22600–25000	18100–20000	15000	M138 M153	3700–4000	65–70	2–3	3–5
300	Venture	Pulse	ED28 ED37	27500–30500	22000–24400	20000+	M151	3700–4000	65–70		

Table 1 continued

Rated lamp power (watts)	Manufacturer	Start type	Bulb designation	Initial light output (lumens)	Mean light output (lumens)	Lamp life (hours)	ANSI code	CCT (kelvin)	CRI	Warm-up time (minutes)	Restrike time (minutes)
320	GE	Pulse	ED28 ED37	30000-34000	16500-25000	20000	M132	3700-4000	65-70	<2	<6
	OSRAM SYLVANIA	Pulse	BT28	30000-32000	19700-21000	20000	M132	3900-4300	65-70		4-7
	Philips	Pulse	ED28	V: 30080-31700 H: 27200-28800	V: 21960-23140 H: 19860-21000	V: 20000 H: 15000	M132	V: 3600-3900 H: 3900-4300	65-70	2	5-7
	Venture	Pulse	ED28 ED37	29700-34000	23800-27200	15000-20000+	M132 M154	3700-4000	65-70	2-3	4-8
320/350	OSRAM SYLVANIA	Pulse	BT28	V: 30000-32000 H: 28000-30000	V: 19700-21000 H: 18400-19700	V: 20000 H: 15000	M132 M131	4300	65-70	2-4	4-7
325	GE	Probe	ED37	V: 26300-28000 H: 24200-25800	V: 12900-13300 H: 11800-12200	V: 20000 H: 10000		3700-4000	65-70	10-15	10-15
	Venture	Probe	ED37	26600-28000	17300-18200	20000	H33	3700-4000	65-70		
350	GE	Pulse	ED37	33400-37000	23500-27500	20000, 30000	M131	3700-4000	65-70	<2	<6
	Philips	Pulse	ED37	35000-37000	26250-28000	20000	M131	3700-4000	65	2	4
	Venture	Pulse	ED28 ED37	33300-37000	26600-29600	15000-20000+	M131	3200-4000	65-70	2-3	4-8

Table 1 continued

Rated lamp power (watts)	Manufacturer	Start type	Bulb designation	Initial light output (lumens)	Mean light output (lumens)	Lamp life (hours)	ANSI code	CCT (kelvin)	CRI	Warm-up time (minutes)	Restrike time (minutes)
350/400	OSRAM SYLVANIA	Pulse	BT37	32000–39000	23000–28000	20000	M131 M135	3300–3500	65–70	2–4	5–7
360	GE	Probe	ED37	35000–39000	23000–27000	20000	M59 (CWA)	4000–4300	65–70	10–15	10–15
	OSRAM SYLVANIA	Probe	BT37	V: 34500–36000 H: 30000	V: 22500–24200 H: 19000	V: 20000 H: 15000	M59 (CWA)			2–4	7–12
	Venture	Probe	ED28 ED37	33500–36000	21800–23400	20000	M59 (CWA)	3700–4000	65–70		
400	GE	Probe	BT28 BT37 ED18 ED28	U: 25000–44000 V: 31000–36000 H: 28500–33100	U: 17500–32000 V: 18600–24000 H: 17100–22100	U: 10000–20000 V: 15000–20000 H: 10000–15000	M59	3700–4000	65–70	2–4	10–15
	GE	Pulse	ED37	40000–44000	27500–33000	20000, 30000	M135	3700–4000	65–70	<2	<6
	OSRAM SYLVANIA	Probe	BT28 BT37	U: 35000–41000 V: 35000–42000 H: 32000–40000	U: 20600–28000 V: 22000–26000 H: 20500–26000	U: 20000 V: 20000 H: 15000–20000	M59	3200–4500	60–70	2–4	7–12
	OSRAM SYLVANIA	Pulse	BT37	42000	31000	20000	M135	4000	65–70	2–4	5–7
	Philips	Probe	ED18 ED28 ED37 T15	32500–40000	20800–30600	20000	M59 S51	3200–4100	65–70	4	15
	Philips	Pulse	ED37 BT37	42000–44000	29400–31000	20000	M135 M128	3700–4000	66–92	3	4

Table 1 continued

Rated lamp power (watts)	Manufacturer	Start type	Bulb designation	Initial light output (lumens)	Mean light output (lumens)	Lamp life (hours)	ANSI code	CCT (kelvin)	CRI	Warm-up time (minutes)	Restrike time (minutes)
(400 (cont'd))	Venture	Probe	BT37 ED28 ED37 T15	29300–40000	21100–26000	7500–20000	M59 (CWA) S51	3200–5200	65–75	3–5	8–15
	Venture	Pulse	ED28 ED37	40000–44000	32000–35200	15000–20000+	M135 M155	3700–4000	65–70	2–3	4–8

Notes: At present all the mid-wattage MH lamps have a quartz arc tube. Ceramic arc tube lamps will be available soon.

Definitions of terms used in Table 1:

ANSI code—Indicates the electrical operating designation of the lamp, which must match that of the ballast. The letter M represents the high-intensity discharge lamp classification, which in this case is metal halide. The number following the letter represents the set of all key electrical characteristics of the lamp, so as to ensure electrical interchangeability. For more information, see ANSI C78.380-1997.

Bulb designation—An abbreviation of the shape and size of the lamp's outer envelope; the letter or letters indicate the shape and the numbers indicate the bulb's maximum diameter in eighths of an inch. For example, an ED17 is an elliptical, dimpled lamp that is 17/8 in. (2 1/8 in.) in diameter.

CCT—Correlated color temperature, which describes the color appearance of the light that is produced as compared to a reference source.

CRI—Color rendering index, a scale for describing the effect of a light source on the color appearance of objects being illuminated, with 100 representing the reference condition and being the maximum CRI possible.

CWA—Constant wattage autotransformer.

Initial light output—The lamp's light output in lumens, after 100 hours of seasoning.

Lamp life (also known as average rated life)—The number of hours at which half of a large group of lamps has failed under standard test conditions.

Mean light output—The lamp's light output at 40% of rated lamp life. **U** = universal burning position; **V** = vertical burning position; **H** = Horizontal burning position.

Rated lamp power—Manufacturer-supplied lamp power in watts.

Restrike time—The time it takes for the lamp to produce 90% of its initial light output after it has been extinguished and immediately restarted, unless otherwise indicated.

Start type—Technology used to start the lamp, which can be either probe or pulse start.

Warm-up time—The time it takes for a lamp to produce 90% of its initial light output when it is started, unless otherwise indicated.