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APPENDIX I

ARC LAMP SPECIFICATIONS

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■ Characteristics

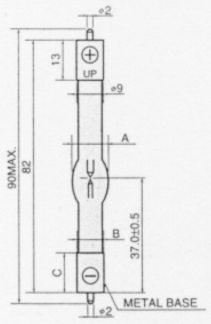
Type No.	Power Consumption (W)	Arc Length (mm)	Dimensional Outline	Window Material	Spectral Distribution (nm)	Lamp Current (Adc)	Lamp Voltage Typ. (Vdc)	Supply Voltage Min. Ⓐ (Vdc)	Radiant Intensity at 550nm Typ. (μW/cm²·nm at 50cm)	Output Stability Ⓑ Drift Typ. (%/h)	Output Stability Ⓑ Fluctuation Max. (%p-p)	Operating Life Guaranteed Life Ⓒ (h)	Operating Life Average Life (h)	Equivalent Lamps
L2173	35	1.0	❶	Fused Silica	185 to 2000	3.5±0.5	11	50	0.25	±0.5	1.0	1000	2000	—
L2193				Ozone-free Silica	220 to 2000									
L2174	75	1.3	❶	Fused Silica	185 to 2000	5.4±0.5	15	50	0.56	±0.5	1.0	1000	2000	USHIO UXL-75-XO
L2174-01														
L2174-02			❷											OSRAM XBO75W/2
L2194			❶	Ozone-free Silica	220 to 2000									
L2194-01														WACOM KXL-75
L2194-02			❷											
L2175	150	2.5	❸	Fused Silica	185 to 2000	7.5±0.5	20	65	2.00	±0.5	1.0	1200	2500	USHIO UXL-151S OSRAM XBO150W/1 WACOM KXL-151
L2195				Ozone-free Silica	220 to 2000									
L2273		2.0 (GS Type)		Fused Silica	185 to 2000	8.5±0.5	18	65	2.11	±0.5	1.0	1800	3000	USHIO UXL-150MO OSRAM XBO150W/GS
L2274				Ozone-free Silica	220 to 2000									
L2479	300	3.0	❹	Fused Silica	185 to 2000	15.0±1.0	20	80	5.06	±0.5	1.0	1000	2000	USHIO UXL-300D-O WACOM KXL-300F
L2480				Ozone-free Silica	220 to 2000									

Ⓐ Open-circuit voltages necessary for certain lighting of lamps.
Ⓑ After 20 minute operation.
Ⓒ The life end is defined as the time at which the radiant intensity falls to 50% of its initial value or when the output fluctuation exceeds ±0.5%.

■ Dimensional Outline

Unit: mm

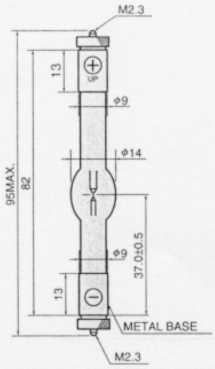
❶ L2173, L2174, L2194, etc.



	L2173 L2193	L2174 L2194	L2174-01 L2194-01
A	φ12	φ14	φ14
B	φ9	φ9	φ7.5
C	13	13	11

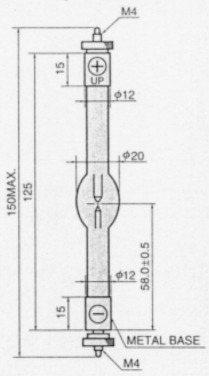
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❷ L2174-02, L2194-02



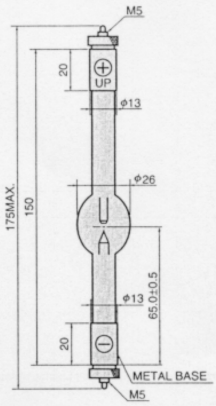
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❸ L2175, L2195, L2273, L2274



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❹ L2479, L2480



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■ Characteristics

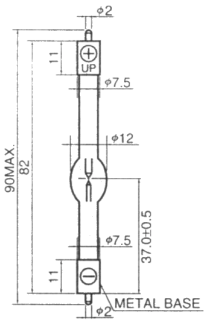
Type No.	Power Consumption (W)	Arc Length (mm)	Dimension Outline	Window Material	Spectral Distribution (nm)	Lamp Current (Adc)	Lamp Voltage Typ. (Vdc)	Supply Voltage Min. (Vdc) Ⓐ	Output Stability (after 20 minutes operation) Drift Typ. (%/h)	Output Stability (after 20 minutes operation) Fluctuation Max. (%p-p)	Operating Life Guaranteed Life Min. (h) Ⓑ	Operating Life Average Life (h)
L2421	50	1.0	❶	Fused Silica	185 to 2000	3.5±0.5	14	50	±0.5	2.0	500	1000
L2481	75	1.0	❷	Fused Silica	185 to 2000	5.4±0.5	14	50	±0.5	2.0	500	1000
L2481-01			❷									
L2481-02			❸									
L2422	100	1.3	❷	Fused Silica	185 to 2000	5.5±0.5	18	50	±0.5	2.0	500	1000
L2422-01			❷									
L2422-02			❸									
L7046			❷	Ozone-free Silica	220 to 2000							
L2482	150	1.7	❹	Fused Silica	185 to 2000	7.5±0.5	20	65	±0.5	2.0	1000	2000
L7047			❹	Ozone-free Silica	220 to 2000							
L2423	200	2.0	❹	Fused Silica	185 to 2000	8.0±0.5	24	65	±0.5	2.0	1000	2000
L2423-01			❺									
L2570			❹	Ozone-free Silica	220 to 2000							
L2570-01			❺									
L2483	350	2.5	❻	Fused Silica	185 to 2000	14.0±1.0	25	70	±0.5	2.0	500	1000
L2424	500	3.0	❼	Fused Silica	185 to 2000	20.0±1.0	25	70	±0.5	2.0	500	1000

Ⓐ Open-circuit voltages necessary for certain lighting of lamps.
Ⓑ The life end is defined as the time at which the radiant intensity falls to 50% of its initial value or when the output fluctuation exceeds ±1.0%.

■ Dimensional Outline

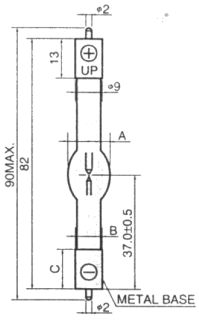
Unit: mm

❶ L2421



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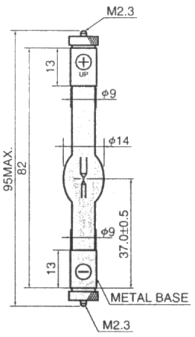
❷ L2481, -01, L2422, -01, L7046



	L2481	L2481-01	L2422 L7046	L2422-01
A	φ14	φ14	φ14	φ14
B	φ9	φ7.5	φ9	φ7.5
C	13	11	13	11

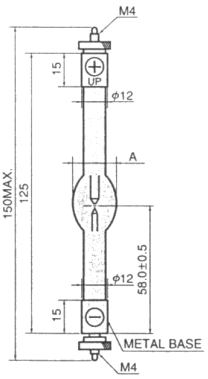
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❸ L2481-02, L2422-02



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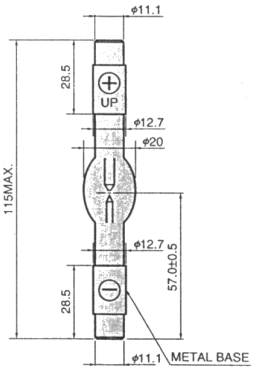
❹ L2482, L7047, L2423, L2570



	L2482 L7047	L2423 L2570
A	φ18	φ20

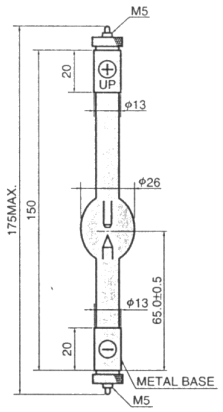
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❺ L2423-01, L2570-01



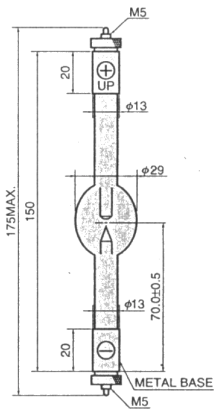
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❻ L2483



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❼ L2424

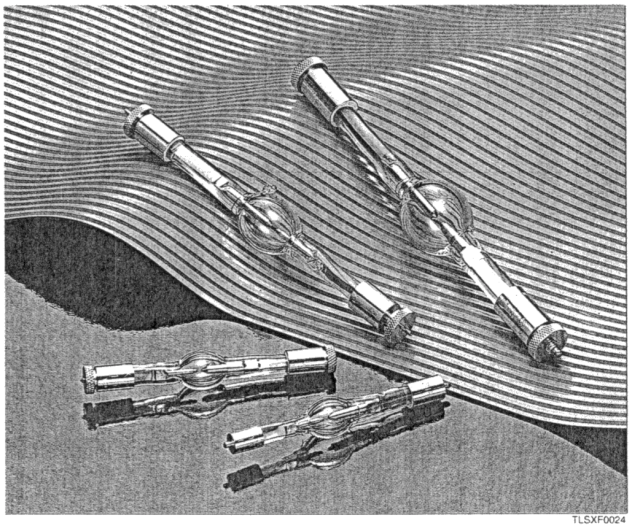


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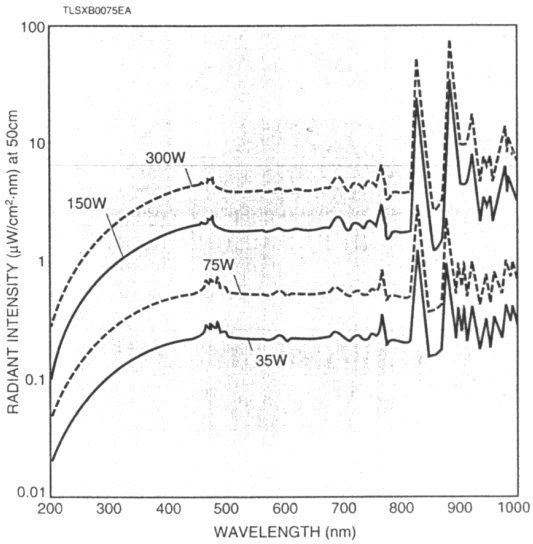
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Super-Quiet Xenon Lamps

Hamamatsu Super Quiet Xenon Lamps are point light sources with extremely high brightness and color temperature that emit a continuous spectrum from the UV to infrared region, making them ideal as light sources in a variety of photometric applications such as spectrophotometers. These super quiet lamps employ a high performance BI cathode (barium-impregnated electrode) that ensures extremely enhanced stability and long service life.

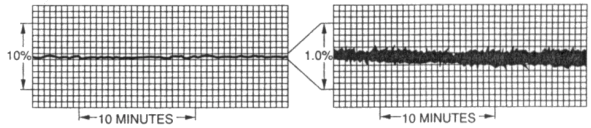


Spectral Distribution (Fused silica type)

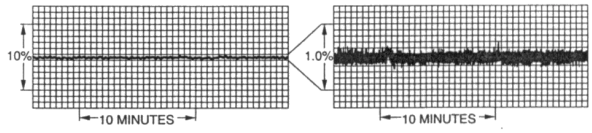


Fluctuation vs. Operating Time

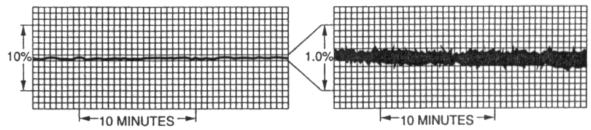
After 5 hour operation



After 1000 hour operation



After 2000 hour operation



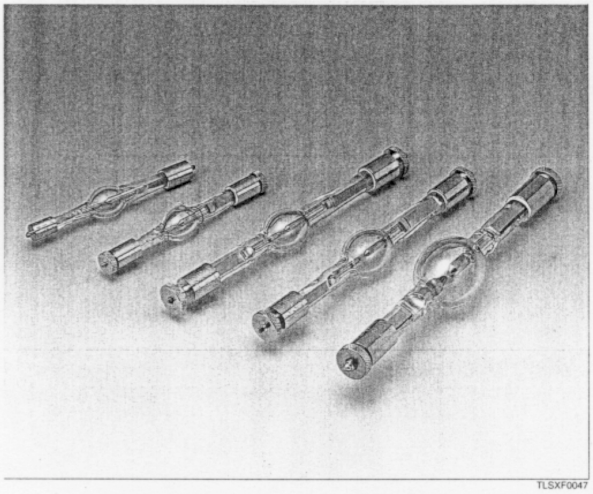
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SF-61DX2. Appendix I.
Issue 2. December, 2001.

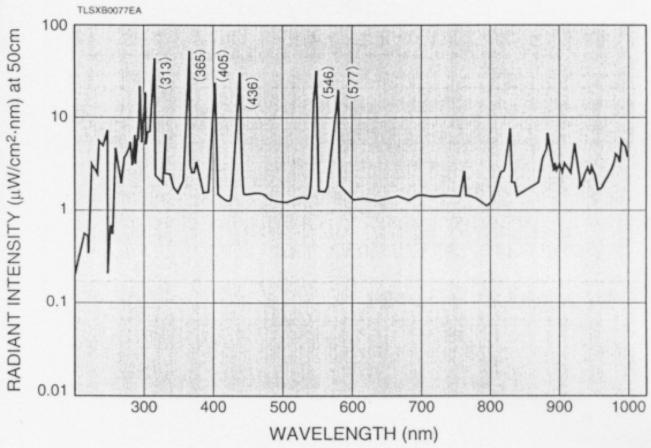
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Super-Quiet Mercury Xenon Lam

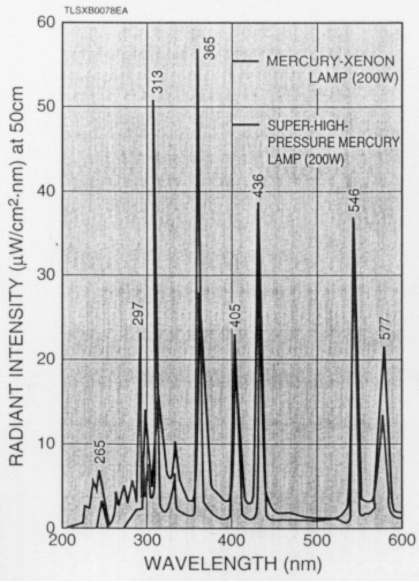
Mercury-Xenon lamps are designed to provide high radiant energy in the UV region. These lamps are sealed with an optimum mixture of Mercury and Xenon gas that offer the best characteristics of both Xenon lamps and super-high-pressure Mercury lamps. For example, the spectral distribution includes the continuous spectrum from UV to infrared of Xenon gas and the intense line spectra of Mercury in the UV to visible region. The radiant spectrum in the UV region is higher in intensity and sharper in width when compared with super-high-pressure Mercury lamps and Xenon lamps. Mercury-Xenon lamps also feature instantaneous lighting and re-lighting, which are difficult to obtain in super-high-pressure Mercury lamps, thus making these Mercury-Xenon lamps an excellent choice as UV light sources.
Just as with super quiet Xenon lamps, Hamamatsu super quiet Mercury-Xenon lamps employ a high performance BI cathode (Barium-impregnated electrode) that ensures extremely enhanced stability and long service life.



Spectral Distribution (200 W type)



Comparison of Spectral Distribution between Mercury-Xenon Lamps and Super-High-Pressure Mercury Lamps



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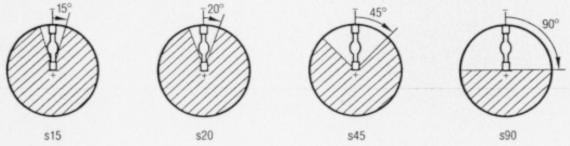
1 HBO Short Arc Mercury Lamps

HBO Short Arc Mercury Lamps

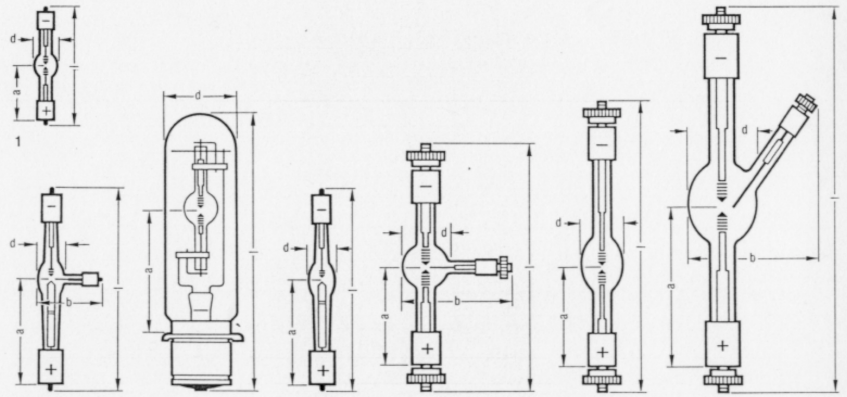
Lamp (Order reference)		HBO 50 W/AC	HBO 50 W/3	HBO 75 W	HBO 100 W/1 [1]	HBO 100 W/2	HBO 200 W [1]		HBO 200 W/2		HBO 200 W/4	HBO 350 W	HBO 500 W [1]		HBO 500 W/2	
Type of current		AC	DC	AC	DC	DC	DC	AC	DC	AC [5]	AC	DC	DC	AC [5]	DC	AC [5]
Lamp supply voltage U_V	V	220	> 45	220	> 45	> 45	> 105	220	> 105	220	220	> 125	> 140	220	> 140	220
Operating voltage of lamp [2] U_L	V	$\frac{L_1}{L_2}$ $\frac{39 \cdots 45}{34 \cdots 39}$	22 rated value	51 ± 4	20 rated value	20 rated value	65 ··· 47	$\frac{61 \pm 4}{53 \pm 4}$	65 ··· 47	$\frac{61 \pm 4}{53 \pm 4}$	$\frac{61 \pm 6}{-}$	60 ··· 75	85 ··· 67	$\frac{81 \pm 4}{73 \pm 4}$	85 ··· 67	$\frac{81 \pm 4}{73 \pm 4}$
Operating current at operating voltage range J_L	A	$\frac{L_1}{L_2}$ $\frac{1.3}{1.45}$	2.3	1.6	5.0 rated value	5.0 rated value	3.1 ··· 4.2	$\frac{3.6}{4.2}$	3.1 ··· 4.2	$\frac{3.6}{4.2}$	$\frac{3.6}{-}$	4.7 ··· 5.9	5.9 ··· 7.4	$\frac{7.1}{7.8}$	5.9 ··· 7.4	$\frac{7.1}{7.8}$
Rated power of lamp [2] P_L	W	50	50	75	100	100	200		200		200	350	500		500	
Luminous flux Φ	lm	2000	1300	2650	2000	2200	9500		10000		9500	19500	28500		30000	
Luminous efficacy	lm/W	40	26	35	20	22	47.5		50		47.5	55.5	57		60	
Light intensity I	cd	230	150	270	260	260	1000		1000		950	2100	2850		2850	
Average luminance L	cd/cm²	30000	90000	6500	170000	170000	40000		40000		33000	50000	30000		30000	
Arc width w x height h [4]	mm	0.3 x 1.0	0.2 x 0.35	0.7 x 2.8	0.25 x 0.25	0.25 x 0.25	0.6 x 2.2		0.6 x 2.2		0.6 x 2.2	0.8 x 2.7	1.1 x 4.1		1.1 x 4.1	
Average lamp life	h	100	200	400	100	200	200		400	200	200	400	200		400	200
Diameter d	mm	9.5	9.5	30	10	10	18		17		17	20	26.5		26.5	
Length l max.	mm	53	53	122	90	90	108		128		128	128	170		170	
Distance a	mm	22.5 ± 2	22.5 ± 2	55.6 ± 0.5	43 ± 2	43 ± 2	41 ± 2		41 ± 2		41 ± 2	46.5 ± 2	68 ± 2		68 ± 2	
Breadth b	mm	–	–	–	28	–	45		–		–	–	53		–	
Burning position with stamped base down		s 45	s 45	s 15	s 45	s 90	s 45		s 45		s 45	s 15	s 20		s 20	
Base cathode		SFa 6-2	SFa 6-2		SFa 7.5-2	SFa 7.5-2	SFc 10-4		SFc 10-4 [4]		SFc 10-4	8-32 UNC-3 A	SFc 13-4		SFc 13-4	
Base anode		SFa 6-2	SFa 8-2	P 28 s	SFa 9-2	SFa 9-2	SFc 10-4		SFc 10-4		SFc 10-4	8-32 UNC-3 A	SFc 13-4		SFc 13-4	
Base ignition electrode		–	–		SFa 5-2	–	SFc 6-3		–		–	–	SFc 9.5-4		–	
Standard pack [3]	pcs	10	10	10	10	10	10		10		10	10	10		10	
Figure no.		1	1	3	2	4	5		6		6	6	7		6	
Price																

Examples of burning positions

permissible
not permissible



[1]) Lamps with starting electrode, for replacement only.
[2]) Immediately after ignition the operating voltage stays below the rated value. During run-up it gradually rises to the rated value. Only after about 15 minutes the run-up is completed. For DC operation, use rated power (see section "Power Supplies" page 11).
[3]) Single lamps also available.
[4]) w = half width of luminance, h = electrode gap at operating temperature.
[5]) Preferably for DC operation (see section "Ignition" page 11).
[6]) Also available with screw thread 8-33 UNC-3A, ord. ref. HBO 200 W/TM.



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