

JIS

JAPANESE INDUSTRIAL STANDARD

**Tungsten halogen lamps
(non-vehicle)**

JIS C 7527—1994

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Tungsten halogen lamps (non-vehicle)

C 7527-1994

1. Scope This Japanese Industrial Standard specifies the tungsten halogen lamps mainly for general lightings, stage, studios, projectors and optical instruments, (hereafter referred to as the "lamps").

Remarks 1. The following Standards are cited in this Standard:

JIS C 7709 Lamp caps and holders

JIS C 7801 General rules of testing methods for lamps

JIS H 4461 Tungsten wires for lighting and electronic equipments

JIS Z 8113 Glossary of lighting terms

2. The International standard corresponding to this Standard is given below:

IEC 357-1982 (including Amendments 1 to 5) Tungsten halogen lamps
(non-vehicle)

2. Definitions For the purpose of this Standard, in addition to the definitions specified in JIS C 7801 and JIS Z 8113 the following principal definitions apply:

- (1) rated voltage A voltage which is marked on the lamp.
- (2) rated power consumption The power consumption which is marked on the lamp.
- (3) maximum luminous intensity The maximum value of luminous intensity in a luminous intensity distribution curve.
- (4) divergence (angle) of beam In a luminous intensity distribution curve two directions along which the luminous intensity becomes equal to 1/2 of the maximum luminous intensity are considered as the border of beam. This term means the angle made by these two directions.
- (5) aging To operate a lamp initially under specific conditions for the purpose of stabilizing characteristics of the lamp.
- (6) rated lighting time The time which is specified in advance, for the purpose of measuring the lumen maintenance factor.
- (7) lumen maintenance factor The ratio of the total luminous flux after the specified lighting time to the total luminous flux in the initial characteristics.
- (8) life The lighting time until the lamp becomes unusable, or until the lamp is considered as unusable based on some regulation e.g. requirements shown in the specification.

- (9) rated life The officially expressed life based on the mean value of life on the same type lamps which have been manufactured over a long period.
- (10) lighting position The direction of lighting which does not cause any trouble to the performances in daily service of the lamp.
- (11) standard lighting direction The lighting direction at the time of test.
- (12) dichroic mirror A mirror which reflects the wavelength range of visible light in the incident light and transmits the remaining wavelength range.
3. Classification The lamps are classified as given in Table 1 according to types.

The type designation is formed in the following arrangement:

Item 1	Item 2	Item 3	Item 4	Item 5
Symbol denoting halogen lamp	Symbol denoting principal use	Symbol denoting kind of coil (1)	Symbol denoting existence or nonexistence of reflector	Numeral and symbol denoting rated voltage, rated power consumption
J	No marking: general lighting P: stage, studio C: projector, optical instrument	No marking: single coil D: double coil	No marking: non-existence R: existence	V: rated voltage W: rated power consumption

Item 6	Item 7	Item 8	Item 9
Symbol denoting filament splicing system, glass bulb finishing or temperature distribution of light source	Symbol denoting existence or nonexistence of front glass	Symbol denoting diameter of reflecting mirror	Symbol denoting base
Filament splicing system A: C-8 Glass bulb finishing No marking: transparent bulb N: with ultra-red ray reflecting film Temperature distribution of light source B: 3050 K C: 3200 K	When reflecting mirror exists No marking: non-existence K: existence	When reflecting mirror exists 3: $\phi 35$ 5: $\phi 50$	EZ: EZ10 G: type G GY: type GY

Note ⁽¹⁾ For lamps for projector and optical instrument, this item may be emitted if reflector exists.

Example: Items up to 4 of a lamp for projector, double coil, with reflecting mirror shall be expressed as JC DR according to the said arrangement, but it may be expressed as JCR.

- Remarks 1. In general the type designation is expressed with items 1 to 5. Items 6 to 9 are added as needed.
2. If necessary / or the like is added between item 6 and item 7.

Table 1. Classification

Name	Type designation	Attached Table
Low-voltage single-cap type for general lighting	J12V20W J12V50W J12V75W J12V20WA J12V50WA J12V75WA	Attached Table 1.1
Commercial-voltage single-cap type for general lighting ⁽²⁾	JD100V65WN JD110V65WN JD100V85WN JD110V85WN JD100V130WN JD110V130WN JD100V75W JD110V75W JD100V100W JD110V100W JD100V150W JD110V150W JD100V200W JD110V200W JD100V250W JD110V250W JD100V500W JD110V500W JD200V500W JD220V500W	Attached Table 1.2
Commercial-voltage double-cap type for general lighting ⁽²⁾	J100V150W J110V150W J100V200W J110V200W J100V300W J110V300W J100V500W J110V500W J200V1000W J220V1000W J200V1500W J220V1500W	Attached Table 1.3

Table 1 (continued)

Name	Type designation	Attached Table
Low-voltage ϕ -50 reflector type for general lighting	JR12V20W/K5 JR12V35W/K5 JR12V50W/K5 JR12V65W/K5 JR12V20W/5 JR12V35W/5 JR12V50W/5 JR12V20W/K5EZ JR12V35W/K5EZ JR12V50W/K5EZ JR12V65W/K5EZ JR12V20W/5EZ JR12V35W/5EZ JR12V50W/5EZ	Attached Table 1.4
Low-voltage ϕ -35 reflector type for general lighting	JR12V20W/K3 JR12V35W/K3 JR12V20W/3 JR12V35W/3 JR12V20W/K3EZ JR12V35W/K3EZ	Attached Table 1.5
Commercial-voltage ϕ -50 reflector type for general lighting ⁽²⁾	JDR100V50WKN JDR110V50WKN JDR100V75WKN JDR110V75WKN JDR100V60WK JDR110V60WK JDR100V100WK JDR110V100WK JDR100V60W JDR110V60W JDR100V75W JDR110V75W JDR100V100W JDR110V100W	Attached Table 1.6
Commercial-voltage single-cap type for stage and studio	JP100V1000WCG JP100V1500WCG JP100V2000WCG JP100V3000WCG	Attached Table 2.1

Table 1 (continued)

Name	Type designation	Attached Table
Commercial-voltage double-cap type for stage and studio	JP100V500WC JP100V750WB JP100V750WC JP100V1000WB JP100V1000WC JPD100V650WC	Attached Table 2.2
Low-voltage single-cap type for projector and optical instrument	JC12V50W JC12V100W JC15V150W JC24V150W JC24V250W JC36V400W	Attached Table 3.1
Commercial-voltage single-cap type for projector and optical instrument	JCD100V150W JCD100V300W JCD100V650W JCD100V650WGY JC100V650W	Attached Table 3.2
Low-voltage ϕ -50 reflector type for projector and optical instrument	JCR12V75W JCR12V100W JCR15V150W JCR24V250W	Attached Table 3.3

Note (2) As for commercial voltage lamps for general lighting, there are lamps of rated voltage 100/110 V (designed at 105 V). These lamps have same performances as those of lamps with test voltage 105 V and rated voltage 100 V.

4. Performances

4.1 Initial characteristics The initial characteristics, when the lamp is tested in accordance with 9.3, shall be as follows:

- (1) The power consumption of the lamps shown in Attached Table 3.1 shall not exceed 112 % of the appropriate value in this Attached Table. For other lamps the consumption shall not exceed 108% of the appropriate value in Attached Tables.
- (2) For lamps whose total luminous flux is specified, the measured value shall be not less than 85 % of the appropriate total luminous flux given in Attached Tables 1.1 to 1.3 Attached Table 2.1, Attached Table 2.2, Attached Table 3.1 and Attached Table 3.2.

4.2 Lumen maintenance factor The lumen maintenance factor, when the lamp for which this factor is specified is tested in accordance with 9.4, shall conform to the appropriate value of Attached Tables 1.1 to 1.3, Attached Table 2.1, Attached Table 2.2, Attached Table 3.1 and Attached Table 3.2.

5. Construction The construction shall comply with the following requirements:

- (1) Attaching of the cap with the glass bulb shall be secure, and shall not work loose in use.
- (2) Connection of the lead-in wires with the filament and of the lead-in wires with the cap shall be secure.
- (3) The filaments shall be attached to correct position in relation with the cap or reflecting mirror.
- (4) For lamps of reflector type with front glass, the front glass shall be securely attached.

6. Dimensions The dimensions shall be as given in Attached Tables 1 to 3 and Attached Figs 1 to 3. The caps shall comply with Annex 2 in addition to compliance with JIS C 7709.

7. Appearance The lamp bulbs shall be free from flaws, streaks, bubbles, striae, etc. detrimental to service.

8. Materials The materials shall comply with the following requirements:

- (1) The filaments used shall be the tungsten wires specified in JIS H 4461 or suitable tungsten wires equal to or superior to the above.
- (2) The glass bulb shall have thermal resistance endurable in use. Quartz glass or the similar glass, free from flaws streaks, bubbles, striae etc. detrimental to service shall be used.
- (3) The reflecting surface of the lamp having a reflecting mirror shall be high in reflectance, and be free from flaws, unevennesses, etc. detrimental to service.
- (4) For glass bulbs with film applied to the surface, materials which will not easily peel off and will not cause deterioration of characteristics shall be used.
- (5) In the sealing part, molybdenum, tungsten, molybdenum alloy, nickel or a metal equal to or superior thereto in qualities shall be used.
- (6) An appropriate metal having thermal resistant property such as nickel or tungsten shall be used for the conductive part of the cap, and steatite porcelain, resin or an insulating material equal or superior thereto in qualities shall be used for the insulating part.
- (7) In addition to the inert argon gas, a slight quantity of halogen group elements such as iodine, bromine and the like or compounds thereof shall be sealed-in inside the lamp.

9. Tests

9.1 Appearance test Carry out the appearance test (including the construction and marking) as specified in 4.1 of JIS C 7801.

9.2 Dimensional test Carry out the dimensional test shall by using the instruments specified in 4.2 of JIS C 7801.

9.3 Initial characteristics tests Apply the rated voltage of substantially sinusoidal a.c. at a frequency of 50 Hz or 60 Hz, or of d.c. to the lamp terminals to operate the lamp, measure the power consumption in accordance with 4.3.5 of JIS C 7801, and further measure the total luminous flux in accordance with 4.3.6 of the same standard.

Carry out this test, after the lamp has been aged until the characteristics become approximately constant, and carry out the measurement after the characteristics have been stabilized by operating the lamp under the rated voltage. In this case, the direction of lamp at lighting shall be the standard direction at lighting given in Attached Table 1 to 3.

9.4 Lumen maintenance factor test Measure the lumen maintenance factor, on the lamp under life test, in accordance with 9.3 when the specified lighting time given in Attached Tables 1.1 to 1.3, Attached Table 2.1, Attached Table 2.2, Attached Table 3.1 and Attached Table 3.2 is attained.

9.5 Life test In a room of windless condition ⁽³⁾ at ordinary temperature, apply the rated voltage of substantially sinusoidal a.c. at 50 Hz or 60 Hz or of d.c. to the lamp terminals to operate the lamp, and measure the time lapsed until the lamp finishes lighting. If the life factor with respect to the voltage is obvious the test may be carried out under. Carry out this test under no vibration condition, and the direction at lighting shall be the standard direction at lighting given in Attached Tables 1 to 3, and the fluctuation of the voltage during lighting shall be within ± 1 %.

Note ⁽³⁾ Cool the lamp shown in Attached Table 3 under the test conditions specified by the manufacturer.

10. Inspections

10.1 Type inspection The type inspection shall be carried out for the following items:

- (1) Appearance (construction, appearance and marking)
- (2) Dimensions
- (3) Initial characteristics
- (4) Lumen maintenance factor

11. Designation The product shall be designated by the name and the type designation.

Example 1. Halogen lamp for general lighting low-voltage single cap type J12V50WA

Example 2. Halogen lamp for general lighting low-voltage ϕ -50 reflector type
JR12V50W/K5

Example 3. Halogen lamp for stage and studio commercial-voltage single-cap type
JP100V1000WCG

12. Markings

12.1 Marking on product The following items shall be indelibly marked on an easily visible place of each lamp:

- (1) Type designation (other items than item 5 in type designation may be omitted)
- (2) Manufacturer's name or abbreviation

12.2 Marking on package The following items shall be marked on the package container:

- (1) Name and type designation (some parts of name may be omitted)
- (2) If the container includes the same type lamp with different cap, the names of caps
- (3) Manufacturer's name or abbreviation

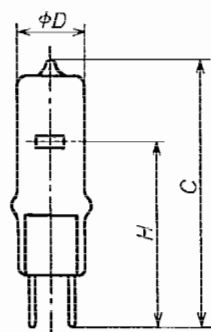
13. Cautionary notices in Handling For the purpose to be used by users under reasonable conditions, the following cautionary notices shall be made well-known by an instruction, printing on packaging box, etc.

- (1) As the lamp is hot during lighting or immediately after the light is put off, hands and skins shall absolutely be kept away from the lamp.
- (2) If the lamp is operated as stained, it shows short life sometimes due to deterioration of the glass bulb, the lamp shall be handled with clean glove, and shall not be touched with bare hand.
- (3) The lamp on which the direction at lighting is designated, it shall be used in the designated direction without fail.
- (4) Since the halogen lamp breaks and scatters sometimes when it is dropped, hit by other things or injured due to high pressure inside the bulb, it shall be handled with sufficient care in use.
- (5) At the replacement of lamp, the ratings (voltage, wattage) and shape of cap shall be verified, new lamp shall be securely mounted to the lampholder, the protective cover of lamp shall be removed and then the lamp shall be used.

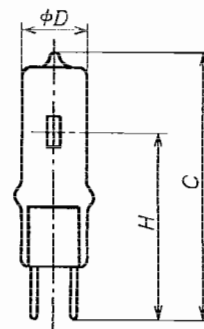
Attached Table 1. Halogen lamps for general lighting

Attached Table 1.1 Low voltage single-cap type for general lighting

Attached Fig. 1.1.1



Attached Fig. 1.1.2



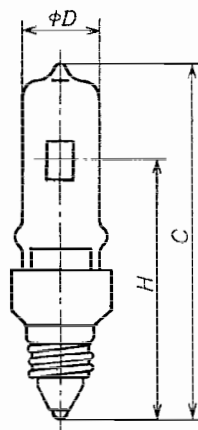
Attached Table 1.1 (continued)

Type designation	Rated voltage V	Shape and dimensions	Cap	Operating position	Standard direction of lighting	Initial characteristics		Lumen maintenance factor		(Informative reference)		Dimensions		
						Power consumption W	Total luminous flux lm	Specified lighting time h	%	Rated life h	Distribution temperature K	D	C	H (Informative reference) mm
J12V20W	12	Attached Fig. 1.1.1	G4	Free	Vertical with cap upwards	20	320	1000	90 min.	2000	3000	10 max.	33 max.	19.5
J12V50W			GY6.35-15 or G6.35-15 (*)			50	900					12 max.	44 max.	30
J12V75W						75	1350							
J12V20WA		Attached Fig. 1.1.2	G4			20	320					10 max.	33 max.	22
J12V50WA			GY6.35-15 or G6.35-15 (*)			50	900					12 max.	44 max.	30
J12V75WA						75	1350							

Note (*) Lamps with cap G 6.35-15 will be abolished in future.

Attached Table 1.2 Commercial-voltage single-cap type for general lighting

Attached Fig. 1.2



Attached Table 1.2 (continued)

(a) Type designation	(b) Rated voltage V	Shape and dimensions	Cap	Operating position	Standard direction of lighting	Initial characteristics		Lumen maintenance factor		(Informative reference)		Dimensions		
						Power consump- tion W	Total luminous flux lm	Specified lighting time h	%	Rated life h	Distribution temperature K	D mm	C mm	H (Informative reference) mm
JD100V65WN, JD110V65WN	100,110	Attached Fig. 1.2	E11	Free	Vertical with cap upwards	65	1120	1000	90 min.	2000	2850 (c)	14 max.	75 max.	49
JD100V85WN, JD110V85WN						85	1600				2900 (c)			
JD100V130WN, JD110V130WN						130	2400					16 max.		
JD100V75W, JD110V75W						75	1120	750		1500	2850	14 max.		
JD100V100W, JD110V100W						100	1600							
JD100V150W, JD110V150W						150	2400				2900	16 max.		
JD100V200W, JD110V200W						200	3400	1000		2000			85 max.	56
JD100V250W, JD110V250W						250	4500							
JD100V500W, JD110V500W						500	9500				2950			
JD200V500W, JD220V500W	200,220					500	8500				2900		100 max.	66

Note (5) Color temperature is shown because lamps are with infrared reflecting film.

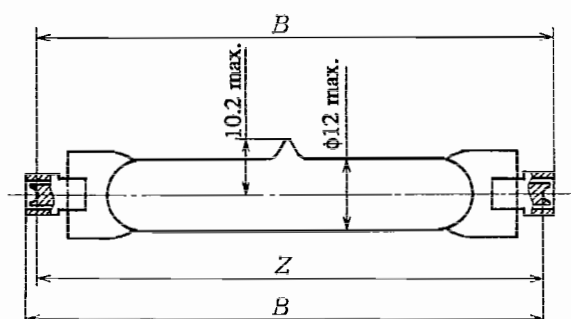
- Remarks 1. Lamps of type designation suffixed with N are those with a film which transmits visible radiation and reflects infrared radiation (hereafter referred to as infrared radiation reflecting film) applied on the surface.
2. The infrared radiation reflecting film means a thin optical film which transmits visible radiation and reflects the infrared radiation.

Informative reference: The lamp indicated in this Attached Table is that having a fuse in its cap.

Attached Table 1.3 Commercial voltage double-cap type for general lighting

Unit: mm

Attached Fig. 1.3



Attached Table 1.3 (continued)

(2) Type designation	(3) Rated voltage V	Shape and dimensions	Cap	Operating position	Standard direction of lighting	Initial characteristics		Lumen maintenance factor		(Informative reference)		Dimensions	
						Power consumption W	Total luminous flux lm	Specified lighting time h	%	Rated life h	Distribution temperature K	Z (4) mm	B mm
J100V150W, J110V150W	100,110	Attached Fig. 1.3	R7s-12 or R7s-15	Horizontal $\pm 4^{\circ}$	Horizontal	150	2400	1000	90 min.	2000	3000	114.2 $\pm$ 1.6	117.6 max.
J100V200W, J110V200W						200	3600						
J100V300W, J110V300W			300			5900							
J100V500W, J110V500W			500			10500							
J200V1000W, J220V1000W	200,220		R7s-15			1000	21000					205.0 $\pm$ 1.6	208.4 max.
J200V1500W, J220V1500W						1500	33000				245.0 $\pm$ 1.6	248.4 max.	

Note (6) This expresses the distance between cap contacts and means the distance between the rod ends when two rods having hemispherical and of R1.5 mm at both ends are placed facing each other and pushed on the cap.

The combination with the lampholder shall be as stated in Annex 1.