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IS 9900-4 (1981): High pressure mercury vapour lamps, Part 4: Go and no-go gauges of lamp caps. (Superseding IS : 2183 and IS: 7023) [ETD 23: Electric Lamps and their Auxiliaries]



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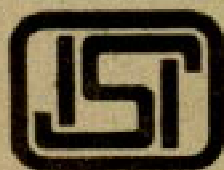
IS : 9900 (Part IV) - 1981

Indian Standard

SPECIFICATION FOR HIGH PRESSURE MERCURY VAPOUR LAMPS

PART IV 'GO' AND 'NO-GO' GAUGES OF LAMP CAPS

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*Indian Standard*SPECIFICATION FOR HIGH PRESSURE
MERCURY VAPOUR LAMPS

PART IV 'GO' AND 'NO-GO' GAUGES OF LAMP CAPS

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Indian Standard

SPECIFICATION FOR HIGH PRESSURE MERCURY VAPOUR LAMPS

PART IV 'GO' AND 'NO-GO' GAUGES OF LAMP CAPS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 July 1981, after the draft finalized by the Electric Lamps and Accessories Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 As a first step towards standardization of high pressure mercury vapour lamps, a schedule covering dimensions and some of the essential characteristics of HPMV lamps (IS : 2183) was first published in 1963 and subsequently revised in 1973. A standard containing methods of tests for HPMV (IS : 7023) was published in 1973. It has now been possible to evolve a more detailed specification covering standard types of HPMV lamps and methods of tests to be used for determining their electrical characteristics.

0.3 This standard (Part IV) is one of the series of Indian standards which deals with high pressure mercury vapour lamps. This series will have the following four parts:

Part I Requirements and tests

Part II Standard lamp data sheets

Part III Dimensions of lamp caps

Part IV 'GO' and 'NO-GO' gauges of lamp caps

This series of Indian standards, therefore, in due course when all parts are published, will supersede IS : 2183-1973* and IS : 7023-1973†.

*Schedule for high pressure mercury vapour lamps.

†Methods of tests for high pressure mercury vapour lamps.

0.4 While preparing this standard, assistance has been derived from IEC Pub 61-3 (1969) 'Lamp caps and holders together with gauges for the control of interchangeability and safety: Part III Gauges', issued by the International Electrotechnical Commission.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part IV) specifies the essential dimensions of 'Go' and 'No-Go' gauges for bayonet B22d-3 ($90^\circ/135^\circ$)/ 25×26 and edison E27 and E40 caps on finished lamps for use on high-pressure mercury vapour lamps. The standard also specifies the method of testing for dimensions of the lamp caps with these gauges.

2. DIMENSIONS OF GAUGES

2.1 The dimensions of gauges shall be in accordance with the appropriate tables given below:

- | | | | |
|--|-----|-----|---------|
| a) 'Go' gauge for cap B22d-3 ($90^\circ/135^\circ$)/
25 \times 26 on finished lamps | ... | ... | Table 1 |
| b) 'Go' gauge for E40 caps on finished lamps | ... | ... | Table 2 |
| c) 'Go' gauge for E27 caps on finished lamps | ... | ... | Table 3 |
| d) 'No-Go' gauge for E40 caps on finished lamps | ... | ... | Table 4 |
| e) 'No-Go' gauge for E27 caps on finished lamps | ... | ... | Table 5 |

3. TESTS FOR DIMENSIONS OF LAMP CAPS

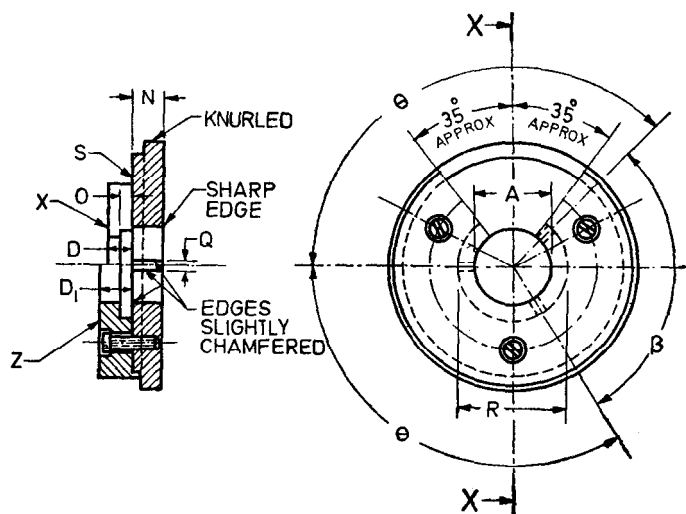
3.1 Tests for checking the dimensions of the caps on the finished lamps shall be carried out with the help of the gauges as specified in the appropriate Tables 1 to 5.

*Rules for rounding off numerical values (revised).

TABLE 1 'GO' GAUGE FOR CAP B22d-3 (90°/135°)/25 × 26 ON FINISHED LAMPS

(Clause 3.1)

All dimensions in millimetres.



DIMENSION	B22	TOLERANCE	DIMENSION	B22	TOLERANCE
A	22.15	+0.01 -0.0	Q	2.50	+0.0 -0.04
D	6.00	+0.0 -0.01	R	29.50	+0.0 -1.0
D ₁	8.00	+0.02 -0.0	θ	135°	+5' -5'
N	6.70	+0.0 -0.01	β	90°	+5' -5'
O	3.05	+0.0 -0.1	—	—	—

Pin dimensions checked by a suitable gauge.

PURPOSE — For the control of dimensions *A Max*, *N Min*, *D Min*, *D₁ Max* and the angular position of the pins illustrated in Table 1 of Part III of this standard.

TESTING — The cap shall enter the gauge until the pins have passed through the slots *Q*. The cap is then turned through a small angle and is pressed so that the pins are in close contact with surface *S*. In this position the contact making surface shall not be below surface *X* nor shall it project beyond the surface *Z*. '*N*' of the gauge tests the diameter of the cap for a sufficient length to ensure interchangeability of the caps in the holders.

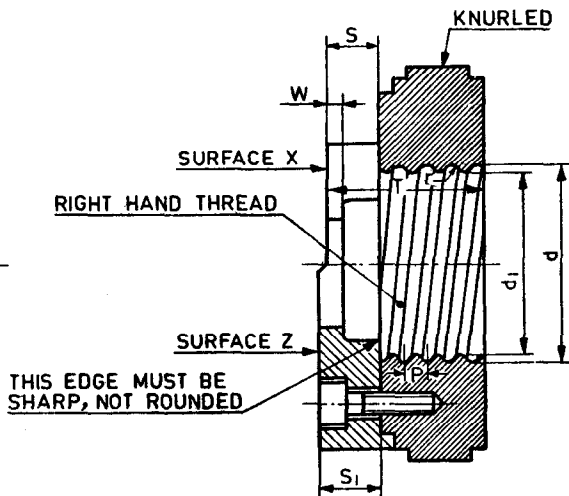
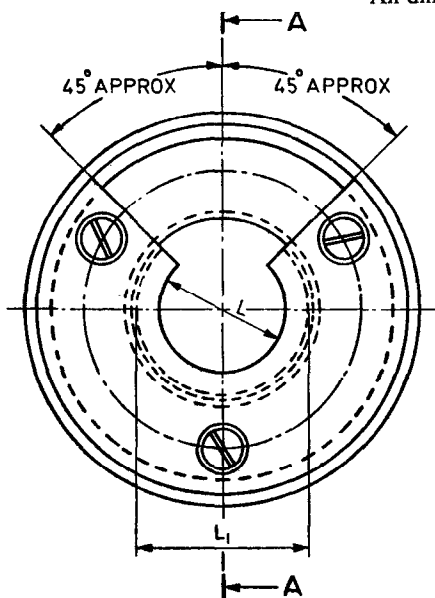
NOTE — A similar gauge may be used for testing caps provided that provision is made for checking dimension *D Max* of the above mentioned sheet.

Reference IEC Sheet No. 7006-19-2

TABLE 2 'GO' GAUGE FOR E40 CAPS ON FINISHED LAMPS

(Clause 3.1)

All dimensions in millimetres.



SECTION AA

D IMENSION	E40	TOLERANCE
d	39.50	+0.03 -0.0
d_1	35.90	+0.03 -0.0
L	27	+0.1 -0.1
L_1	34.0	+0.03 -0.03
S	8.0	+0.0 -0.03
S_1	10.0	+0.03 -0.0
T	34.0	+0.0 -0.03
r	1.85	—
W	2	+0.1 -0.1
P	6.350	—

PURPOSE — For the control of thread and dimensions S_1 Min, S_1 Max and T_1 Min of screw caps given in Table 3 of Part III of this standard.

TESTING — When the cap is fully inserted into the gauge the contact making surface shall not be below surface *X* nor shall it project beyond surface *Z*.

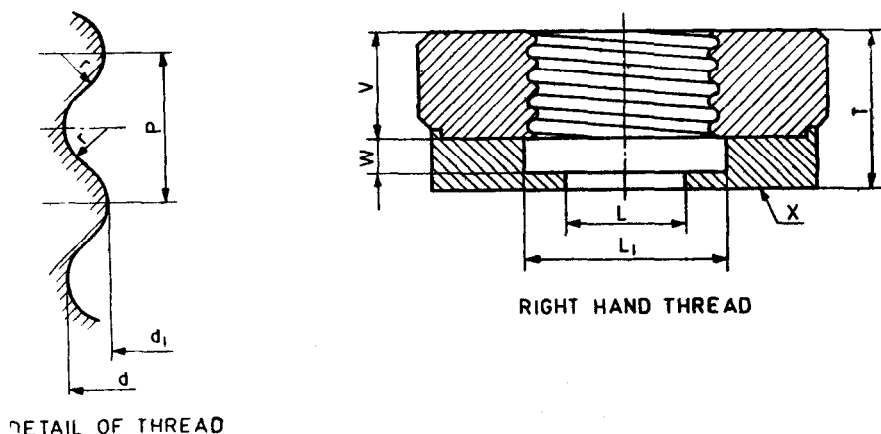
NOTE — Similar gauges may be used for testing unmounted caps provided that provision is made for checking dimensions *S* *Max* of the drawings given under 'Purpose'.

Reference IEC Sheet No. 7006-27-5

TABLE 3 'GO' GAUGE FOR E27 CAPS ON FINISHED LAMPS

(Clause 3.1)

All dimensions in millimetres.



REFERENCE	DIMENSION	TOLERANCE	LIMIT AFTER WEAR
d	26.45	+0.03 -0.0	26.50
d_1	24.26	+0.03 -0.0	24.31
L	16.5	+0.1 -0.1	—
L_1	28	+0.2 -0.2	—
P	3.629	—	—
r	1.025	—	—
T	22.0	+0.0 -0.03	—
V	15	+0.1 -0.1	—
W	5	+0.1 -0.1	—

The sharp part of the edge of the thread shall be broken with a radius of 0.2 to 0.3 mm.

PURPOSE — To check the maximum dimensions of the screw thread and dimension T_1 Min of caps on finished lamps shown in Table 2 of Part III of this standard.

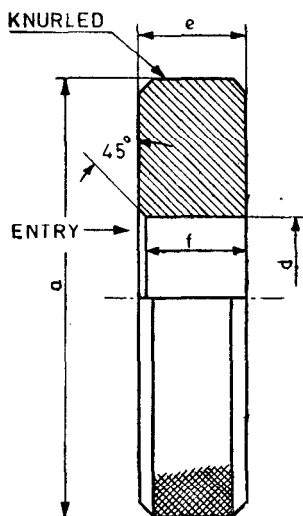
TESTING — When the cap on a finished lamp has been screwed into the gauge as far as it will go, the centre contact shall be co-planar with, or project beyond, surface X .

Reference IEC Sheet No. 7006-27B-1

TABLE 4 'NO-GO' GAUGE FOR E40 CAPS ON FINISHED LAMPS

(Clause 3.1)

All dimensions in millimetres.



DIMENSION	E40	TOLERANCE
a	63	Approx
d	39.05	+0.0 -0.01
e	13.5	+0.1 -0.1
f	13	+0.1 -0.1

PURPOSE — To control the minimum major diameter of the male screw threads.

TESTING — The cap on the finished lamp shall be assumed to be correct if the gauge does not pass over the threads by its own weight.

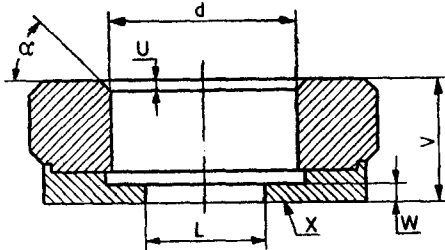
NOTE — These gauges may also be used for checking unmounted caps.

Reference IEC Sheet No. 7006-28-4

TABLE 5 'NO-GO' GAUGE FOR E27 CAPS ON FINISHED LAMPS

(Clause 3.1)

All dimensions in millimetres.



REFERENCE	DIMENSION	TOLERANCE
d	26.05	+0.0 -0.1
L	16.5	+0.1 -0.1
U	1	+0.0 -0.1
V	17.0	+0.05 -0.0
W	2	+0.1 -0.1
α	Nom 45°	
Weight (kg)	0.15	+10 percent -10 percent

PURPOSE — To check the minimum outside (major) diameter of the screw thread, dimension 'd' of E27 caps on finished lamps shown in Table 2 of Part III of this standard.

TESTING — When the gauge is placed over the thread of the cap on a finished lamp, held cap uppermost, the centre contact shall not project beyond surface 'X'.

Only the weight of the gauge itself shall be used in the test.

Reference IEC Sheet No. 7-7006-28A-1

INDIAN STANDARDS

ON

ELECTRICAL LAMPS AND ACCESSORIES

IS :

- 418-1978 Tungsten filament general service electric lamps (*third revision*)
- 897-1966 Tungsten filament electric lamps for railways rolling stock (*first revision*)
- 1258-1979 Bayonet lampholders (*second revision*)
- 1534 (Part I)-1977 Ballasts for fluorescent lamps: Part I For switch start circuits (*second revision*)
- 1569-1976 Capacitors for use in tubular fluorescent, high pressure mercury and low pressure sodium vapour discharge lamp circuits (*first revision*)
- 1606-1979 Automobile lamps (*second revision*)
- 1885 (Part XVI/Sec 3)-1967 Electrotechnical vocabulary: Part XVI Lighting, Section 3 Lamps and auxiliary apparatus
- 1901-1978 Visual indicator lamps (*first revision*)
- 2215-1968 Starters for fluorescent lamps (*second revision*)
- 2261-1975 Lamps for flashlights (*first revision*)
- 2262-1963 Transformers for high voltage luminous discharge tubes
- 2407-1963 Photometric integrators
- 2418 Tubular fluorescent lamps for general lighting service:
 - (Part I)-1977 Requirements and tests (*first revision*)
 - (Part II)-1977 Standard lamp data sheets (*first revision*)
 - (Part III)-1977 Dimensions of G-5 and G-13 bi-pin caps (*first revision*)
 - (Part IV)-1977 Go and no-go gauges for G-5 and G-13 bi-pin caps (*first revision*)
- 2592-1980 Lamps for lighting on board ships (*first revision*)
- 2596-1980 Bulbs (lamps) for miner's cap lamps (*first revision*)
- 3323-1980 Bi-pin lampholders for tubular fluorescent lamps (*first revision*)
- 3324-1965 Holders for starters for tubular fluorescent lamps
- 6616-1972 Ballasts for high pressure mercury vapour lamps
- 6701-1972 Tungsten filament miscellaneous electric lamps
- 7013-1973 Schedule for radio dial lamps
- 7027-1973 Transistorized ballasts for fluorescent lamps
- 8685-1977 Aircraft lamps
- 8901-1978 Lamps for aerodrome lighting fittings
- 8913-1978 Method of measurement of lamp cap temperature rise
- 9206-1979 Dimensions of caps for tungsten filament general service electric lamps
- 9589-1980 Electric lamps for railway signalling