



उत्पाद मैनुअल
आई एस 418 : 2004 के अनुसार
घरेलु और ऐसे ही सामान्य प्रयोजनों के लिए टंगस्टन फिलामेंट लैंप (चौथा पुनरीक्षण)
के लिए

दस्तावेज संख्या - पीएम/आईएस 418/2/ अप्रैल 2024

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

**PRODUCT MANUAL FOR
TUNGSTEN FILAMENT LAMPS FOR DOMESTIC AND SIMILAR
GENERAL LIGHTING PURPOSE (FOURTH REVISION)**

ACCORDING TO IS 418 : 2004

Document No - PM/IS 418/2/April 2024

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.

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PRODUCT MANUAL
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1.	मानक संख्या IS No.	:	IS 418 : 2004
	शीर्षक Title	:	TUNGSTEN FILAMENT LAMPS FOR DOMESTIC AND SIMILAR GENERAL LIGHTING PURPOSE (FOURTH REVISION)
	संशोधनों की संख्या No. of amendments	:	5
2.	नमूना दिशानिर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	NA
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण	:	650 lamps – for GoL/CSoL

	Sample Quantity		Please refer Annex – B for FS/MS
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX – C
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX – D
5.	एक दिन में संभावित परीक्षण Possible tests in a day:	:	Please refer ANNEX-E
6.	लाइसेंस का दायरा /Scope of the Licence	:	Licence is granted to use Standard Mark as per IS 418:2004 with the following scope:
	Name of Product:		Tungsten Filament Lamps for Domestic and Similar General Lighting Purposes
	Type		Rated voltage _____ V, Rated wattage _____ W, Rated frequency _____ Hz, Bulb Designation _____, Type of cap _____, Finish _____, Luminous Flux _____.

ANNEX – A

समूहीकरण दिशानिर्देश **Grouping Guidelines**

1. For considering GoL/CSoL of Tungsten Filament Lamps for Domestic and Similar General Lighting Purposes as per IS 418:2004, the following grouping shall be considered:
 - a. Lamps of the same rated Wattage from the same lamp data sheet (normal or high luminous flux), whose rated voltage falls within the same voltage range (for eg. 230V-250V) shall constitute a group as per Cl. 3.2 of IS 418:2004.
2. Any one variety of Tungsten Filament Lamp listed in the individual lamp data sheet (as given in Annex-G of IS 418 : 2004) shall be tested to cover all the varieties of Tungsten Filament Lamps in that particular lamp data sheet considering the above grouping.
3. With respect to Rated Voltage, any one sample of Tungsten Filament Lamp from rated voltages of 230V, 240V or 250V shall be tested to cover all these voltages i.e. 230V, 240V and 250 V. However, for Tungsten Filament Lamp having rated voltage of 110V, separate sample shall be tested.
4. The Firm shall declare the varieties of Lamps they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

ANNEX – B

Sampling/ Acceptance Procedure for FS/MS

Sl. No.	Test	Test Method	No. of Samples	Qualifying Limit
1.	Marking legibility Marking durability	4.2.1 & Table 6 of IS 15518 (Part 1) : 2004	60	3
2.	Accidental Contact	4.3 & Table 6 of IS 15518 (Part 1) : 2004	60	2
3.	Cap Temperature Rise	4.4 & Table 6 of IS 15518 (Part 1) : 2004	5	All should pass
4.	Resistance to torque (unused lamps) test by attributes	4.5 & Table 6 of IS 15518 (Part 1) : 2004	60	All should pass
5.	Resistance to torque (after heating) test by attributes	4.5 & Table 6 of IS 15518 (Part 1) : 2004	20	All should pass
6.	Insulation resistance	4.6 & Table 6 of IS 15518 (Part 1) : 2004	60	All should pass
7.	Accidentally live parts	4.7 & Table 6 of IS 15518 (Part 1) : 2004	60	All should pass
8.	Creepage Distances	4.8 & Table 6 of IS 15518 (Part 1) : 2004	60	All should pass
9.	Interchangeability	4.10 & Table 6 of IS 15518 (Part 1) : 2004	60	3
10.	Lamp Dimensions	7.1 of IS 418:2004	60	5
11.	Wattage	8.1 of IS 418:2004	60	8
12.	Luminous Flux Initial	8.2 of IS 418:2004	60	8
13.	Lumen maintenance & Life Test	9.1, 10.1 & 10.2 of IS 418:2004	20	3

Note 1: Total no. of samples to be drawn are 60 for each rating. 10 additional samples may be drawn to accommodate accidental breakages, if any.

Note 2: Col-4 indicates the no. of samples for the particular test as given in Col-2. Col-5 indicates the individual no. of failures allowed for the particular test, beyond which the sample shall be considered as failing.

Note 3: In case the total no. of failures are less than the no. stipulated in Col-5 but beyond 9, for all the tests combined, the sample shall be considered as failing.

Note 4: The above procedure is applicable only for FS & MS. For the purpose of Grant of Licence & Inclusion of new varieties the procedure for batch testing as given in IS 418 : 2004 and IS 15518 (Part 1) :2004 shall apply.

ANNEX – C

परीक्षण उपकरणों की सूची

List Of Test Equipment***(INDICATIVE LIST, FOR GUIDANCE ONLY)******Major test equipment required to test as per the Indian Standard***

Sl. No.	Tests Used In With Clause Reference	Test Equipment/Chemical
1.	Marking (Cl. 4.2.1 & A-1 of IS 15518 (Part 1))	Smooth cloth, water
2.	Protection against accidental contact in screw lampholder Cl. 4.3 of IS 15518 (Part 1)	Gauge
3.	Lamp Cap temperature rise Cl. 4.4 of IS 15518 (Part 1)	Cap Temperature Rise Test Apparatus
4.	Resistance to Torque Cl. 4.5 of IS 15518 (Part 1)	Oven, Torque test holder, Torque Tester
5.	Insulation Resistance Cl. 4.6 of IS 15518 (Part 1)	Megger
6.	Creeepage distances for B15d, B22d Capped Lamps Cl. 4.8 of IS 15518 (Part 1)	Vernier Caliper
7.	Interchangeability Cl. 4.10 of IS 15518 (Part 1)	GO/ NO-GO gauge
8.	Lamp Dimension Cl. 7 of IS 418	Vernier Calliper
9.	Wattage Cl. 8.1 and Luminous Flux Initial Cl. 8.2 of IS 418	Spherical Photometric Integrator

Note: The above list is indicative only and may not be treated as exhaustive.

ANNEX – C

निरीक्षण और परीक्षण की स्कीम

Scheme Of Inspection And Testing

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: **Tungsten Filament Lamps for Domestic and Similar Lighting Purposes manufactured in a day from the same consignment of raw material** shall constitute a control unit. The manufacturer has the choice to define their own control unit/batch/lot and submit the same to the BIS.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as "R" or other tests which can be subcontracted as "S". Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for

routine tests (indicated as “R” in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 **Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1)**, where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 **TEST RECORDS**- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. **PACKING AND MARKING** - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly **on each lamp and also on its packaging** provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the **IS 418 : 2004**.

3.2 **Additional Marking requirements**: The material shall also be marked with the following additional requirement on packaging:

a) “For BIS certification details please visit www.bis.gov.in”;

4. **REJECTION** - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1
(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub- contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
Glass shell							
	Length and diameter	4.1.1	IS 1112 (Part 1)	S	As per sampling plan given in IS 1112 (Part 1)	Each lot of same size of glass shell	No further testing is required if accompanied with Test certificate or ISI Marked
	Wall Thickness	4.1.2		S			
	Ovality	4.1.3		S			
	Seaminess	4.1.4		S			
	Bubbles	4.2.1		S			
	Cords & Striae	4.2.2		S			
	Stones	4.2.3		S			
	Adhered glass	4.2.4		S			
	Defects in blowing	4.2.5		S			
	Finishing	4.2.6		S			
	Annealing	4.3		S			
Filament							
	Visual Examination	7.4	IS 12897	S	As per sampling plan given in IS 12897	Each lot of same rating	No further testing is required if accompanied with Test certificate or ISI Marked
	Overall Length	7.5		S			
	Leg Length	7.6		S			
	Brittleness Test	7.7		S			
	Uniformity of Coiling	7.8		S			
	Pitch Touching	7.9		S			
	Flash off tendency	7.11		S			
	Cold resistance	7.13		S			
	Weight of filament	7.14		S			

Finished Lamps on whole production (Safety Requirements)							
5	Marking	4.2.1 & Table 6	IS 15518 (Part 1)	R	200*	All classes with same method of marking	*Minimum annual sample per grouping for lamps made most of the year
5	Protection against accidental contact in screw lamp holders	4.3 & Table 6				All lamps tested with their appropriate gauge	*Minimum annual sample per grouping for lamps made most of the year. For lamps not made frequently the sample size shall be 32.
5	Lamp cap temperature rise	4.4 & Table 6		S	20*	Lamps of each class quarterly or in case of change in design	*Minimum annual sample per grouping. For any design changes, the no. of samples shall be 5.
5	Resistance to Torque (Unused lamps) a) Test by attributes	4.5 & Table 6		S	200*	All lamps with the same cement and the same cap	*Minimum annual sample per grouping for lamps made most of the year. For lamps not made frequently, the sample size shall be 80.
5	Resistance to Torque (after heating) a) Test by attributes	4.5 & Table 6		S	125*	Once in a year for lamps with the same cement and the same cap.	
5	Insulation resistance	4.6 & Table 6		R	315*	All classes with B 22d & E 27 lamps	*Minimum annual sample per grouping
5	Accidentally live parts	4.7 & Table 6		R	100% by inspection		—

5	Creepage distances	4.8 & Table 6		R	5*	All lamps with B 22d caps whenever there is a change in design	*Minimum annual sample per grouping. If one sample fails further 5 samples shall be tested.
5	Safety at end of life (Induced failure test)	4.9 & Table 6	IS 15518 (Part 1)	S	125* or 1000*	Lamps of all classes whenever there is a change in design.	*Minimum annual sample per grouping. Sample size shall be 125 if one class is to be assessed. For several classes or grouped classes, minimum 50 samples per class shall be taken, provided that total samples of all classes are at least 1000. Please see G-1 & G-2.
5	Safety at end of life (Operation to failure)	4.9 & Table 6		S	315*	Once in a year for all classes of lamps.	*Minimum annual sample per grouping
5	Interchangeability	4.10 & Table 6		S	32*	Quarterly for all classes of lamp with the same cap.	*Minimum annual sample per grouping
Finished lamps on whole production (Performance Requirements)							
7	Lamp Dimensions	7	IS 418:2004	R	200*	Each Control Unit	*Refer Note 1
8	Wattage	8.1		R	300*	Daily	*Refer Note 2
8	Luminous Flux Initial	8.2		R	300*	Daily	*Refer Note 2
9	Lumen Maintenance	9.1		S	200*	Once in every 4	*Refer Note 3

10	Life Test	10.1 & 10.2		S		months	
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Note-1: Firm should exercise adequate control so that whole production should meet the requirements.

ANNEX – E

एक दिन में संभावित परीक्षण Possible Tests in a day

1. Marking (Cl. 4.2.1 & Table 6 of IS 15518 (Part 1))
2. Lamp Dimensions (Cl. 7 of IS 418)
3. Wattage (Cl. 8.1 of IS 418)
4. Luminous Flux Initial (Cl. 8.2 of IS 418)
5. Accidentally live parts (Cl. 4.7 & Table 6 of IS 15518 (Part 1))
6. Protection against accidental contact in screw lamp holders (Cl. 4.3 and Table 6 of IS 15518 (Part 1))
7. Insulation resistance (Cl. 4.6 & Table 6 of IS 15518 (Part 1))
8. Interchangeability (Cl. 4.10 & Table 6 of IS 15518 (Part 1))