



**PRODUCT MANUAL FOR  
HIGH STRENGTH STRUCTURAL NUTS  
ACCORDING TO IS 6623:2004**

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence 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 licence/certificate.*

1.	<b>Product</b>	:	IS 6623:2004
	<b>Title</b>	:	High Strength Structural Nuts
	<b>No. of Amendments</b>	:	0
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	As per Cl. 5.1 of IS 6623: 2004 read in conjunction with Cl. 6 of IS 1367 (Part 6): 2018.
b)	<b>Grouping guidelines</b>	:	Please refer ANNEX - A
c)	<b>Sample Size</b>	:	6 nos. (In case sample of Hot Dip Galvanized Nuts is drawn, 2 nos. should be before galvanizing for dimensional tests)
3.	<b>List of Test Equipment</b>	:	Please refer ANNEX – B
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX – C
5.	<b>Possible tests in a day:</b>	Please refer ANNEX – D	
6.	<b>Scope of the Licence:</b>		
	“Licence is granted to use Standard Mark as per IS 6623:2004 with the following scope:		
	Name of the product	High Strength Structural Nuts	
	Property Class	8 S/10 S	
	Size	M 12/ M 16/ M 20/ M 22/ M 24/ M 27/ M 30/ M36	
	Finish	Plain (Dull Black) / Galvanized	

**ANNEX – A**

**Grouping Guidelines**

1. High Strength Structural Nuts are classified based on the following:
  - a. Property Class – 8 S/10 S
  - b. Size – M 12/ M 16/ M 20/ M 22/ M 24/ M 27/ M 30/ M36  
Finish – Plain (Dull Black) (Property Class 8 S, 10 S)  
Galvanized (Property Class 10 S)
2. Considering the above, the following grouping guidelines for GoL/CSoL shall be followed:
  - a. One sample each of lowest size, any intermediate size and highest size of each property class shall be tested for all requirements in order to cover the complete range of sizes for that particular property class.
  - (b) For property class 10S, if galvanized nut is tested then plain (dull black) finish nuts of corresponding sizes may also be covered.
3. The Firm shall declare the Varieties of Nuts they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
4. During the operation of license, it shall be ensured that all varieties covered in the license are tested in rotation, to the extent possible.

**ANNEX B****List of Test Equipment***Major test equipment required to test as per the Indian Standard*

<b>Sl. No.</b>	<b>Tests used in with Clause Reference</b>	<b>Test Equipment</b>
1.	Dimension (Cl.4, Table 1)	Vernier Caliper, Steel Scale, Micrometer, Angle protector
2.	Thread requirement (Cl.4.2)	Thread Gauge
3.	Hardness (Cl.5)	Hardness Testing Machine
4.	Mechanical Properties (Cl.5)	Universal Testing Machine
5.	Galvanizing test (Cl. 6.2) IS 1367 (Part 13)	Magnetic or electronic Coat meter, weighing balance, Arrangement for uniformity of coating, Arrangement for adhesion of coating
6.	Anti-seizing test (Cl. 6.2.1, Annex A)	Testing arrangement as per Annex A
7.	General requirements & Surface Finish (Cl.7)	Magnifying glass 10X or MPI or eddy Current equipment

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

**ANNEX C**

**Scheme of Inspection And Testing**

**1. LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

**1.1** The manufacturer shall prepare a calibration plan for the test equipments.

**2. TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.

**3. LABELLING AND MARKING** – As per the requirement of IS 6623:2004.

**4. CONTROL UNIT** – All the nuts of same designation manufactured from the same consignment of raw materials during a day shall constitute a control unit.

**5. LEVELS OF CONTROL** - The tests, as indicated in Table 1 attached and at the levels of control specified therein, shall be carried out on the whole production of the factory which is covered by this scheme and appropriate records and charts maintained in accordance with paragraph 2 above. All the production which conforms to the Indian Standards and covered by the licence shall be marked with Certification Mark of the Bureau.

**5.1** All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

**6. REJECTIONS** – 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**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4.1	Dimension	Table1 Fig 1	IS 6623	R	Five	As per sampling plan given in IS 1367 (Part 17).	The existing frequency for dimensional verification would be applicable only when the firm is having adequate system of checking the dimensions and inspection at a frequency of 15 min/ 30 min for each operation.
4.2	Thread Requirement		IS 4218 [Parts (1,2,3 &4)] IS 14962 [Parts (1,2,3,4 &5)]	R	Five		
5	Material	6 & Table 3	IS 1367 (Pt 6)	S	One	Each Consignment	No further testing is required, if accompanied with test certificate or ISI marked.
	<b>Mechanical Properties</b>						
	(i) Proof Load	Table 2 9.1	IS 6623 IS 1367 (Pt 6)	R	One	One heat treatment batch	
(ii) Hardness	Table 2 9.2	IS 6623 IS 1367 (Pt 6)	R	Three	One heat treatment batch		
6.1	Finish	6.1	IS 6623	R	All		Visual Only

<b>Hot dip Galvanizing</b>							
6.2	Mass of coating	4.1	IS 1367 (Pt 13)	R	As per sampling plan given in IS 1367 (Part 13).		In case of failure, twice the number of samples shall be tested. If any sample fails, the batch represented by the samples shall be rejected or the batch may be re-galvanized and retested.
	Uniformity of coating	4.2		R			
	Adhesion	4.3		R			
	Appearance and defects	5		R			
6.2.1	Anti-seizing test (For hot dip galvanized nut only)	Annex A	IS 6623	R	Three	Every heat treatment batch	
7.1	Surface discontinuities		IS 1367(Pt 10)	R	Five	Every heat treatment batch	
7.2	General Requirement		IS 1367(Pt 1)				
7.3 & 7.4	Bolts (if supplied with nut)		IS 3757	-do-	-do-		No testing required in case Bolt is ISI Marked.
7.5	Washers (if provided)		IS 6649	-do-	-do-		No testing required in case Washer is ISI Marked.

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note- 2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.

**ANNEX – D**

**Possible tests in a day**

- (i) Dimension and tolerance (Cl.4.1)
- (ii) Thread requirement (Cl.4.2)
- (iii) Mechanical Properties (Cl.5)
- (iv) Finish (Cl.6.2)
- (v) Hot dip galvanizing (Cl.6.2)
- (vi) Surface Discontinuities (Cl.7.1)