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IS 2687 (1991): Cap nuts [PGD 31: Bolts, Nuts and Fasteners Accessories]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
टोपीनुमा नट — विशिष्ट
(दूसरा पुनरीक्षण)

Indian Standard
CAP NUTS — SPECIFICATION
(*Second Revision*)

UDC 621.882.38

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Bolts, Nuts and Fasteners Accessories Sectional Committee had been approved by the Light Mechanical Engineering Division Council.

This standard was originally published in 1964 and revised in 1975. The present revision has been necessitated consequent upon the revision of IS 1367 : 1967 'Technical supply conditions for threaded steel fasteners' to incorporate the changes agreed at International Level.

In this revision, the following changes have been made:

- a) Contents of standard have been revised and aligned with the latest version of basic standards related to fasteners.
- b) Precision grade P has been redesignated as Product Grade A as per IS 1367 (Part 2) : 1979.
- c) Minimum wrenching height m has been included.
- d) Nut bearing faces have been specified more precisely by introducing dimension d_a and d_w .
- e) All the non-preferred sizes have been deleted.
- f) The width across flat dimension has been changed for thread size M10, M12 from 17 and 19 to 16 and 18 mm respectively. The dimensions relating to old width across flats are given below:

Nominal Thread Size	Old Width Across Flat(s)		d_w	e
	<i>Max=Nom</i>	<i>Min</i>	<i>Min</i>	<i>Min</i>
10	17	16·73	15·3	18·9
12	19	18·67	17·2	21·1

- g) Technical supply conditions have been brought out in a table form.
- h) Provision of threaded hole for sizes > M24 has been deleted.
- j) Thread sizes have been added.

The standard has been fully revised by changing the contents and presentation.

The Cap Nuts of thread sizes M10 and M12 with old width across flats dimension shall be phased out of production and use gradually.

In the preparation of this standard, assistance has been derived from DIN 917-1987 'Hexagon Cap Nuts' issued by Din, Deutsches Institut für Normung.

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 or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

CAP NUTS — SPECIFICATION

(Second Revision)

1 SCOPE

This Indian Standard covers the requirements for cap nuts of product Grade A in the size range M4 to M48 with coarse pitch and fine pitch threads.

2 REFERENCES

2.1 The following Indian Standards are necessary adjuncts to this standard:

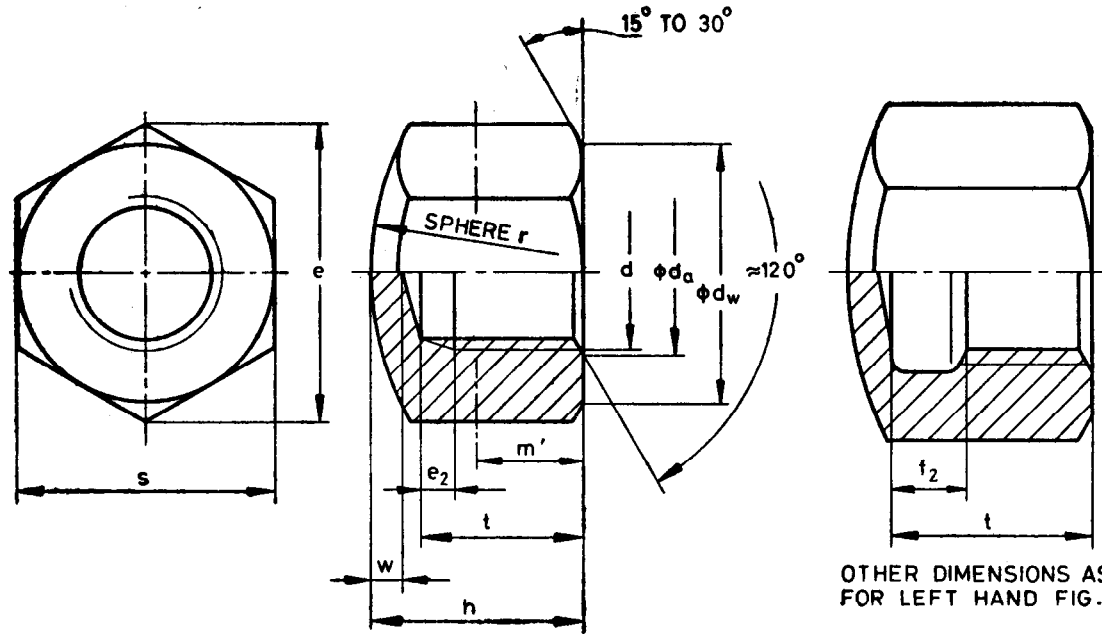
IS No.	Title	IS No.	Title
		(Part 11)	Electroplated coatings on threaded fasteners (under preparation)
		(Part 13) : 1983	Hot dip galvanised coatings on threaded fasteners (<i>second revision</i>)
		(Part 14) : 1984	Stainless steel threaded fasteners (<i>second revision</i>)
		(Part 18) : 1979	Marking and mode of delivery (<i>second revision</i>)
1367	Technical supply conditions for threaded steel fasteners:	1369 : 1982	Dimensions for screw thread runouts and undercuts (<i>second revision</i>)
(Part 1) : 1980	Introduction and general information (<i>second revision</i>)	2614 : 1969	Methods of sampling of fasteners (<i>first revision</i>)
(Part 2) : 1979	Product grades and tolerances (<i>second revision</i>)	4218	ISO Metric screw threads — Tolerances (<i>first revision</i>)
(Part 6) : 1980	Mechanical properties and test methods for nuts with specified proof loads (<i>second revision</i>)	(Part 5) : 1979	ISO Metric screw threads — Limits of sizes for commercial bolts and nuts (diameter range 1 to 52 mm) (<i>first revision</i>)
(Part 10) : 1979	Surface discontinuities on nuts (<i>second revision</i>)	(Part 6) : 1978	

3 TECHNICAL SUPPLY CONDITIONS

Dimensions		Table 1		
Tolerances	Product Grade Indian Standard	A IS 1367 (Part 2) : 1979		
Screw Threads	Tolerance Indian Standards	6H IS 4218 (Part 5) : 1979 IS 4218 (Part 6) : 1978		
Material		Steel	Stainless Steel	Non-ferrous Metal
Mechanical Properties	Property ¹⁾ Class	<M36 : 5 >M36 : as agreed by purchaser & supplier	<36 : A1-50 >M36 : as agreed by purchaser & supplier	Brass or Al. Alloy
	Indian Standards	IS 1367 (Part 6) : 1980	IS 1367 (Part 14) : 1984	Min 300N/mm ²
Finish		As produced or electroplated Electroplated coatings: IS 1367 (Part 11) Hot-dip galvanized coatings: IS 1367 (Part 13) : 1983	Bright	As produced

¹⁾Any other property class or material as per the agreement between purchaser and supplier.

Table 1 Dimensions for Cap Nuts
(Clause 3)



OTHER DIMENSIONS AS
FOR LEFT HAND FIG.

m' = MINIMUM WRENCHING
HEIGHT

FOR SIZES UP TO M10

FOR SIZES M12 & ABOVE

Coarse Pitch Series 1	M4	M5	M6	M8	M10	M12	M16	M20	M24	M30	M36	M42	M48
Series 2	—	—	—	M8 × 1	M10 × 1	M12 × 1.5	M16 × 1.5	M20 × 2	M24 × 2	M30 × 2	M36 × 3	M42 × 3	M48 × 3
<i>d</i> Series 3	—	—	—	—	M10 × 1.25	M12 × 1.25	—	M20 × 1.5	—	—	—	—	—
<i>P</i> ¹⁾	0.7	0.8	1	1.25	1.5	1.75	2	2.5	3	3.5	4	4.5	5
<i>d_a</i> Min	4	5	6	8	10	12	16	20	24	30	36	42	48
Max	4.6	5.75	6.75	8.75	10.8	13	17.3	21.6	25.9	32.4	38.9	45.4	51.8
<i>d_w</i> Min	5.8	6.8	8.8	11.3	14.3	16.2	22.2	28.2	33.2	42.7	51.1	60.6	69.4
<i>e</i> Min	7.66	8.79	11.05	14.38	17.77	20.03	26.75	32.95	39.55	50.85	60.79	72.02	82.60
Series 1	1.05	1.2	1.5	1.87	2.25	—	—	—	—	—	—	—	—
<i>e₂</i> ²⁾ Series 2	—	—	—	1.5	1.5	—	—	—	—	—	—	—	—
Max Series 3	—	—	—	—	1.87	—	—	—	—	—	—	—	—
Series 1	—	—	—	—	—	6.4	7.3	9.3	10.7	12.7	14	16	18.5
<i>f₂</i> ³⁾ Series 2	—	—	—	—	—	5.6	5.6	7.3	7.3	7.3	10.7	10.7	10.7
Series 3	—	—	—	—	—	4.9	—	5.6	—	—	—	—	—
Max = Nom	5.5	7	9	12	14	16	20	25	30	34	44	52	58
<i>h</i> Min	5.2	6.64	8.64	11.57	13.57	15.57	19.48	24.48	29.48	33.38	43.38	51.26	57.26
<i>m'</i> Min	2.75	3.5	4.5	6	7	8	10	12.5	15	17	22	26	29
<i>r</i>	8	10	12	15	20	25	30	35	40	60	70	80	90
Max = Nom	7	8	10	13	16	18	24	30	36	46	55	65	75
<i>s</i> Min	6.78	7.78	9.78	12.73	15.73	17.73	23.67	29.16	35	45	53.8	63.8	73.1
Min	4.16	4.96	6.71	9.21	10.65	13.15	16.65	20.58	23.58	27.58	35.5	41.5	47.5
<i>t</i> Max	4.64	5.44	7.29	9.79	11.35	13.85	17.35	21.42	24.42	28.42	36.5	42.5	48.5
<i>w</i> Min	1	1	1.5	2	2	2	2	2.5	3	3	4	4	4

1) *P* = Coarse pitch as per IS 4218 for Series 1.2) For sizes ≤ M10 thread undercut or thread runout *e₂* Max = 1.5*P*.3) For sizes > M10 thread undercut *f₂* Max (short) as per IS 1369 : 1982.

4 DESIGNATION

4.1 The Cap Nuts shall be designated by the nomenclature, thread size and number of this standard.

4.1.1 A Cap Nut of thread size M8 shall be designated as:

Cap Nut IS 2687 — M8

4.2 When Stainless Steel, Brass or Aluminium Alloy is used for manufacture of cap nuts, the word 'Stainless Steel', 'Brass' and 'Aluminium' shall be added at the end of the designation.

4.2.1 A Cap Nut of thread size M10 and made of Brass shall be designated as:

Cap Nut IS 2687 — M10 — Brass

5 GENERAL REQUIREMENTS

5.1 With respect to surface discontinuities, the cap nuts shall conform to IS 1367 (Part 10) : 1979.

5.2 In respect of requirement not covered in this standard, the nuts shall conform to IS 1367 (Part 1) : 1980.

6 SAMPLING

6.1 Sampling and criteria for acceptance shall be in accordance with IS 2614 : 1969.

7 MARKING AND MODE OF DELIVERY

7.1 The marking of the cap nuts and mode of delivery shall be in accordance with IS 1367 (Part 18) : 1979.

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