

UDC 621.882.31

June 1987

Hexagon cap nuts

DIN
917

Sechskanthutmuttern, niedrige Form

Supersedes April 1977 edition.

In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

In harmonization with ISO 272, the new widths across flats as specified in ISO 272 have been adopted in addition to the previous widths across flats for thread sizes M 10, M 12, M 14 and M 22.

The new widths across flats 16, 18, 21, 34 shall be used instead of the previous widths across flats 17, 19, 22, 32; see example of designation in clause 4.

It is intended to omit the obsolescent widths across flats by 1 July 1992 at the least.

Dimensions in mm

1 Field of application

This standard specifies requirements for M 4 to M 72 coarse and fine pitch thread hexagon cap nuts assigned to product grade A.

If, in special cases, nuts are to comply with specifications other than those given in this standard, e.g. regarding property class, they shall be selected in accordance with the appropriate standards.

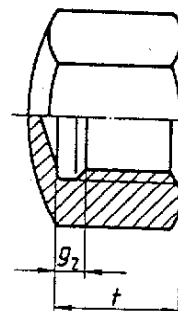
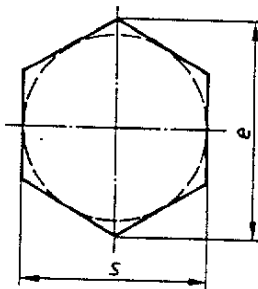
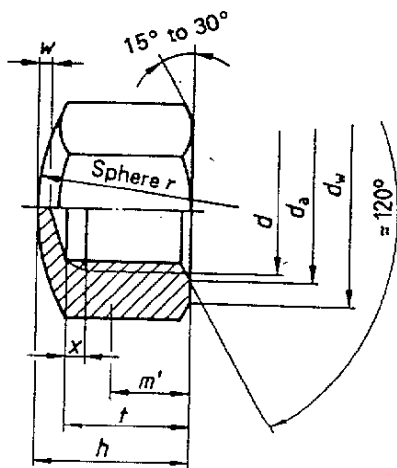
2 Dimensions

up to 10 mm nominal thread diameter

(with thread run-out or thread undercut, at the manufacturer's discretion)

from 12 mm nominal thread diameter

(with thread undercut)



Other dimensions as for left-hand illustration.

m' = minimum wrenching height.

Continued on pages 2 to 5

Table.

Series 1		M 4	M 5	M 6	M 8	M 10	M 12	(M 14)	M 16	(M 18)	M 20			
Thread size	Series 2	-	-	-	M 8 x 1	M 10 x 1	M 12 x 1,5	(M 14 x 1,5)	M 16 x 1,5	(M 18 x 1,5)	M 20 x 2			
	Series 3	-	-	-	-	M 10 x 1,25	M 12 x 1,25	-	-	(M 18 x 2)	M 20 x 1,5			
	$P^1)$	0,7	0,8	1	1,25	1,5	1,75	2	2	2,5	2,5			
d_a	min.	4	5	6	8	10	12	14	16	18	20			
	max.	4,6	5,75	6,75	8,75	10,8	13	15,1	17,3	19,5	21,6			
d_w	min.	5,8	6,8	8,8	11,3	14,3	15,3	16,2	17,2	19,2	20,2	22,2	25,3	28,2
e	min.	7,66	8,79	11,05	14,38	17,77	18,90	20,03	21,1	23,35	24,49	26,75	29,56	32,95
$x^2)$ max.	Series 1	1,05	1,2	1,5	1,87	2,25	-	-	-	-	-	-	-	
	Series 2	-	-	-	1,5	1,5	-	-	-	-	-	-	-	
	Series 3	-	-	-	-	1,87	-	-	-	-	-	-	-	
$g_2^3)$ max.	Series 1	-	-	-	-	-	6,4	7,3	7,3	9,3	9,3			
	Series 2	-	-	-	-	-	5,6	5,6	5,6	5,6	7,3			
	Series 3	-	-	-	-	-	4,9	-	-	7,3	5,6			
h	max = nominal size	5,5	7	9	12	14	16	18	20	22	25			
	min.	5,2	6,64	8,64	11,57	13,57	15,57	17,57	19,48	21,48	24,48			
m'	min.	2,75	3,5	4,5	6	7	8	9	10	11	12,5			
r	\approx	8	10	12	15	20	25	28	30	32	35			
s	max = nominal size	7	8	10	13	16	17	18	19	21	22	24	27	30
	min.	6,78	7,78	9,78	12,73	15,73	16,73	17,73	18,67	20,67	21,67	23,67	26,16	29,16
t	min.	4,16	4,96	6,71	9,21	10,65	13,15	14,65	16,65	18,58	20,58			
	max.	4,64	5,44	7,29	9,79	11,35	13,85	15,35	17,35	19,42	21,42			
w	min.	1	1	1,5	2	2	2	2	2	2	2	2,5		
Mass (7,85 kg/dm ³) for 1000 units, in kg, approximately.		1,31	2,2	4,29	9,5	4)	19,3	4)	25,5	4)	37	48,1	70	94,1
Use of values given in brackets should be avoided where possible.														
1) P = pitch of coarse thread as specified in DIN 13 Part 15.														
2) For sizes not exceeding M 10, thread undercut or thread run-out with x not exceeding 1,5 P .														
3) For sizes exceeding M 10, thread undercut with g_2 not exceeding the values specified in DIN 76 Part 1 (type D, short thread undercut).														
4) At present no values of mass specified.														

Table. (concluded)

Thread size	Series 1	(M 22)	M 24	(M 27)	M 30	M 36	M 42	M 48	(M 56)	(M 64)	(M 72 x 6)
	Series 2	(M 22 x 1,5)	M 24 x 2	(M 27 x 2)	M 30 x 2	M 36 x 3	M 42 x 3	M 48 x 3	(M 56 x 4)	(M 64 x 4)	(M 72 x 4)
	Series 3	(M 22 x 2)	-	-	-	-	-	-	-	-	-
p 1)		2,5	3	3	3,5	4	4,5	5	5,5	6	-
d_a	min.	22	24	27	30	36	42	48	56	64	72
	max.	23,7	25,9	29,1	32,4	38,9	45,4	51,8	61	69,1	77,8
d_w min.		29,5	31,4	33,2	38	42,7	51,1	60,6	69,4	78,7	88,2
e min.		35,03	37,29	39,55	45,20	50,85	60,79	72,02	82,60	93,56	104,86
g_2 3) max.	Series 1	9,3	10,7	10,7	12,7	14	16	18,5	20	21	21
	Series 2	5,6	7,3	7,3	7,3	10,7	10,7	10,7	14	14	14
	Series 3	7,3	-	-	-	-	-	-	-	-	-
h	max = nominal size	28	30	32	34	44	52	58	68	75	85
	min.	27,48	29,48	31,38	33,38	43,38	51,26	57,26	67,26	74,26	84,13
m' min.		14	15	16	17	22	26	29	34	37,5	42,5
r ≈		35	40	50	60	70	80	90	110	130	130
s	max = nominal size	32	34	36	41	46	55	65	75	85	95
	min.	31	33	35	40	45	53,8	63,8	73,1	82,8	92,8
t	min.	21,58	23,58	25,58	27,58	35,5	41,5	47,5	55,4	61,4	66,4
	max.	22,42	24,42	26,42	28,42	36,5	42,5	48,5	56,6	62,6	67,6
w min.		3	3	3	3	4	4	4	5	5	5
Mass (7,85 kg/dm ³) for 1000 units, in kg, approximately.		119	4)	165	229	310	577	958	1410	2100	2840
Use of values given in brackets should be avoided where possible. For 1), 3) and 4), see page 2.											

3 Technical delivery conditions

Material		Steel	Stainless steel	Non-ferrous metal
General requirements		As specified in DIN 267 Part 1.		
Thread	Tolerance	6H		
	Standard	DIN 13 Part 15		
Mechanical properties	Property class ¹⁾ (material)	M 39: 5, 6 > M 39: subject to agreement.	M 39: A1-50 > M 39: subject to agreement.	CuZn = copper-zinc alloy (preferably CU2 or CU3), at the manufacturer's discretion.
	Standard	ISO 898 Part 2 DIN 267 Part 23	DIN 267 Part 11	DIN 267 Part 18
Limit deviations, geometrical tolerances	Product grade	A		
	Standard	ISO 4759 Part 1		
Surface finish		As processed.	Bright.	Bright.
		DIN 267 Part 2 shall apply with regard to surface roughness. DIN 267 Part 20 shall apply with regard to permissible surface discontinuities. DIN 267 Part 9 shall apply with regard to electroplating. DIN 267 Part 10 shall apply with regard to hot dip galvanizing.		
Acceptance inspection		DIN 267 Part 5 shall apply with regard to acceptance inspection.		
1) Different property classes or materials, or a particular grade of material (such as CU3) shall be subject to agreement.				

4 Designation

Designation of an M 12 cap nut of property class 6:

Cap nut DIN 917 – M 12 – 6

In this designation, the previous widths across flats 17 mm, 19 mm, 22 mm and 32 mm apply to the sizes with 10, 12, 14 or 22 mm thread diameter. If it is required to supply these sizes with the new widths across flats as specified in ISO 272 (16 mm, 18 mm, 21 mm and 34 mm), the width across flats (SW) shall be incorporated in the designation, e.g.:

Cap nut DIN 917 – M 12 – SW 18 – 6

If a thread undercut is particularly required for sizes up to and including 10 mm nominal thread diameter, the symbol Ri shall be added to the designation, e.g.:

Cap nut DIN 917 – M 8 – Ri – 6

The DIN 4000-2-7 tabular layout for article characteristics shall apply for nuts conforming to this standard.

Standards referred to

DIN 13 Part 15	ISO metric screw threads; fundamental deviations and tolerances for screw threads of 1 mm diameter and larger
DIN 76 Part 1	Thread run-outs and threads undercuts for ISO metric screw threads as specified in DIN 13
DIN 267 Part 1	Fasteners; technical delivery conditions; general requirements
DIN 267 Part 2	Fasteners; technical delivery conditions; types of finish and dimensional accuracy
DIN 267 Part 5	Fasteners; technical delivery conditions; acceptance inspection
DIN 267 Part 9	Fasteners; technical delivery conditions; electroplated components
DIN 267 Part 10	Fasteners; technical delivery conditions; hot dip galvanized components

DIN 267 Part 11	Fasteners; technical delivery conditions, with addenda to ISO 3508; corrosion-resistant stainless steel components
DIN 267 Part 18	Fasteners; technical delivery conditions; non-ferrous metal components
DIN 267 Part 20	Fasteners; technical delivery conditions; surface discontinuities on nuts
DIN 267 Part 23	Fasteners; technical delivery conditions; property classes for nuts with fine pitch thread (ISO classes)
DIN 4000 Part 2	Tabular layout of article characteristics for bolts, screws and nuts
ISO 272	Fasteners; hexagon products, widths across flats
ISO 898 Part 2	Mechanical properties of fasteners; nuts with specified proof load values
ISO 4759 Part 1	Tolerances for fasteners. Part 1: Bolts, screws and nuts with thread diameters between 1,6 mm (inclusive) and 150 mm (inclusive) and product grades A, B and C

Previous editions

DIN 917 Part 1: 04.42; 10.53, 03.63.

DIN 917: 12.70, 04.77.

Amendments

The following amendments have been made to the April 1977 edition.

- Widths across flats 16, 18, 21 and 34 as specified in ISO 272 have been additionally adopted for sizes M 10, M 12, M 14 and M 22.
- A note regarding the use of the obsolescent widths across flats has been included.
- The nut bearing faces have been specified more precisely by introducing dimensions d_a and d_w .
- The minimum wrenching height, m' , has been included.
- The previous type m has been replaced by product grade A, as specified in ISO 4759 Part 1.
- The standard has been revised and harmonized with other DIN Standards on hexagon nuts.

International Patent Classification

F 16 B 37/14