

Hexagon nuts with metric coarse and fine pitch thread

Product grades A and B

DIN 934

Sechskantmuttern; Metrisches Regel- und Feingewinde;
Produktklassen A und B

Supersedes July 1982 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.

This standard should be used together with ISO 4032, ISO 8673, and ISO 8674. For details, see Explanatory notes. It is intended to withdraw the present standard by 1 July 1992 at the latest.

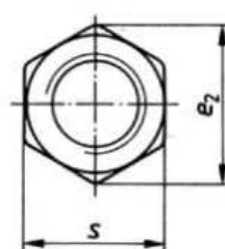
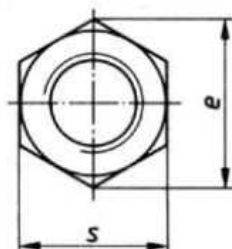
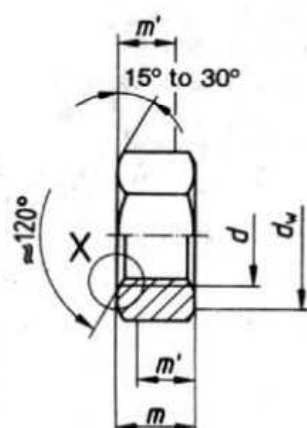
Since the revised property classes as covered in ISO 898 Part 2 can only be applied to hexagon nuts complying with the present standard for sizes between M 5 and M 39 in conjunction with the proof loads hitherto specified in DIN 267 Part 4, it is recommended that only hexagon nuts complying with ISO 4032 (coarse pitch thread) or ISO 8673 and ISO 8674 (fine pitch thread) be used, the corresponding proof loads being specified in ISO 898 Part 2 and DIN 267 Part 23. To distinguish between types of nut, the symbol identifying nuts as complying with the present standard nuts will in future have to be amended by the code number denoting the property class being set off by two permanent vertical lines, e.g. |8| (see DIN 267 Part 4).

Dimensions in mm

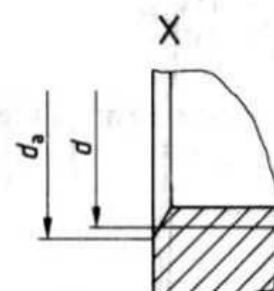
1 Field of application

This standard specifies requirements for M1 to M160 hexagon nuts, assigned to product grade A (up to size M16) or product grade B (for sizes above M16). 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 relevant standards.

2 Dimensions



In the case of sizes of M 110 or more, the hexagon edges may be radiused (Gr).



m' = minimum wrenching height (0,8 m minimum).
For designation, see clause 4.

Continued on pages 2 to 7

Table 1.

Thread size (<i>d</i>)		M 1	M 1,2	M 1,4	M 1,6	M 2	M 2,5	M 3	(M 3,5)	M 4	M 5	M 6	(M 7)
<i>P</i> ¹⁾		0,25	0,25	0,3	0,35	0,4	0,45	0,5	0,6	0,7	0,8	1	1
<i>d</i> _a	min.	1	1,2	1,4	1,6	2	2,5	3	3,5	4	5	6	7
	max.	1,15	1,4	1,6	1,84	2,3	2,9	3,45	4	4,6	5,75	6,75	7,75
<i>d</i> _w	min.	2	2,1	2,1	2,4	3,2	4,1	4,5	5	5,8	6,8	8,8	9,5
<i>e</i>	min.	2,71	3,28	3,28	3,41	4,32	5,45	6,01	6,58	7,66	8,79	11,05	12,12
<i>m</i>	max. = nominal size	0,8	1	1,2	1,3	1,6	2	2,4	2,8	3,2	4	5	5,5
	min.	0,55	0,75	0,95	1,05	1,35	1,75	2,15	2,55	2,9	3,7	4,7	5,2
<i>m'</i>	min.	0,44	0,6	0,76	0,84	1,08	1,4	1,72	2,04	2,32	2,96	3,76	4,16
<i>s</i> ²⁾	max. = nominal size	2,5	3	3	3,2	4	5	5,5	6	7	8	10	11
	min.	2,4	2,9	2,9	3,02	3,82	4,82	5,32	5,82	6,78	7,78	9,78	10,73

Thread size (<i>d</i>)		M 8	M 10	M 12	(M 14)	M 16	(M 18)	M 20
		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
		-	M 10 x 1,25	M 12 x 1,25	-	-	(M 18 x 2)	M 20 x 1,5
<i>P</i> ¹⁾		1,25	1,5	1,75	2	2	2,5	2,5
<i>d</i> _a	min.	8	10	12	14	16	18	20
	max.	8,75	10,8	13	15,1	17,3	19,5	21,6
<i>d</i> _w	min.	11,3	15,3	17,2	20,2	22,2	25,3	28,2
<i>e</i>	min.	14,38	18,9	21,1	24,49	26,75	29,56	32,95
<i>m</i>	max. = nominal size	6,5	8	10	11	13	15	16
	min.	6,14	7,64	9,64	10,3	12,3	14,3	14,9
<i>m'</i>	min.	4,91	6,11	7,71	8,24	9,84	11,44	11,92
<i>s</i> ²⁾	max. = nominal size	13	17	19	22	24	27	30
	min.	12,73	16,73	18,67	21,67	23,67	26,16	29,16

Thread size (<i>d</i>)		(M 22)	M 24	(M 27)	M 30	(M 33)	M 36	(M 39)
		(M 22 x 1,5)	M 24 x 2	(M 27 x 2)	M 30 x 2	(M 33 x 2)	M 36 x 3	(M 39 x 3)
		(M 22 x 2)	-	-	-	-	-	-
<i>P</i> ¹⁾		2,5	3	3	3,5	3,5	4	4
<i>d</i> _a	min.	22	24	27	30	33	36	39
	max.	23,7	25,9	29,1	32,4	35,6	38,9	42,1
<i>d</i> _w	min.	29,5	33,2	38	42,7	46,6	51,1	55,9
<i>e</i>	min.	35,03	39,55	45,2	50,85	55,37	60,79	66,44
<i>m</i>	max. = nominal size	18	19	22	24	26	29	31
	min.	16,9	17,7	20,7	22,7	24,7	27,4	29,4
<i>m'</i>	min.	13,52	14,16	16,56	18,16	19,76	21,92	23,52
<i>s</i>	max. = nominal size	32	36	41	46	50	55	60
	min.	31	35	40	45	49	53,8	58,8

For 1) and 2), see page 4.

Table 1. (continued)

Thread size (d)		M 42	(M 45)	M 48	(M 52)	M 56	(M 60)	M 64
		M 42 x 3	(M 45 x 3)	M 48 x 3	(M 52 x 3)	M 56 x 4	(M 60 x 4)	M 64 x 4
$P^1)$		4,5	4,5	5	5	5,5	5,5	6
d_a	min.	42	45	48	52	56	60	64
	max.	45,4	48,6	51,8	56,2	60,5	64,8	69,1
d_w	min.	60,6	64,7	69,4	74,2	78,7	83,4	88,2
e	min.	71,3	76,95	82,6	88,25	93,56	99,21	104,86
m	max. = nominal size	34	36	38	42	45	48	51
	min.	32,4	34,4	36,4	40,4	43,4	46,4	49,1
m'	min.	25,9	27,5	29,1	32,3	34,7	37,1	39,3
s	max. = nominal size	65	70	75	80	85	90	95
	min.	63,1	68,1	73,1	78,1	82,8	87,8	92,8

Thread size (d)		(M 68)	M 72 x 6	(M 76 x 6)	M 80 x 6	(M 85 x 6)	M 90 x 6	M 100 x 6
		(M 68 x 4)	M 72 x 4	(M 76 x 4)	M 80 x 4	(M 85 x 4)	M 90 x 4	M 100 x 4
$P^1)$		6	-	-	-	-	-	-
d_a	min.	68	72	76	80	85	90	100
	max.	73,4	77,8	82,1	86,4	91,8	97,2	108
d_w	min.	92,9	97,7	102,4	107,2	111,9	121,1	135,4
e	min.	110,51	116,16	121,81	127,46	133,11	144,08	161,02
m	max. = nominal size	54	58	61	64	68	72	80
	min.	52,1	56,1	59,1	62,1	66,1	70,1	78,1
m'	min.	41,7	44,9	47,3	49,7	52,9	56,1	62,5
s	max. = nominal size	100	105	110	115	120	130	145
	min.	97,8	102,8	107,8	112,8	117,8	127,5	142,5

For ¹⁾, see page 4.

Table 1. (concluded)

Thread size (<i>d</i>)		M 110 x 6	M 125 x 6	M 140 x 6	M 160 x 6
		M 110 x 4	M 125 x 4	—	—
<i>d_a</i>	min.	110	125	140	160
	max.	119	135	151	171
<i>d_w</i>	min.	144,9	168,6	185,6	214,1
<i>e</i>	min.	172,32	200,57	220,80	254,70
<i>e₂</i>		170	196	216	248
<i>m</i>	max. = nominal size	88	100	112	128
	min.	85,8	97,8	109,8	125,5
<i>m'</i>	min.	68,6	78,2	87,8	100
<i>s</i>	max. = nominal size	155	180	200	230
	min.	152,5	177,5	195,4	225,4

Sizes in brackets should be avoided if possible.

1) *P* = pitch of coarse thread as specified in DIN 13 Part 12.

2) As a deviation from ISO 4759 Part 1, tolerance zone h12 instead of h13 shall apply for widths across flats up to and including 4 mm. Minimum dimensions corresponding to tolerance zone h14 instead of h13 shall be permissible for M 5 to M 16 hot dip galvanized nuts.

3 Technical delivery conditions

Material		Steel	Stainless steel	Non-ferrous metals
General requirements		As specified in DIN 267 Part 1.		
Thread	Tolerance	6H ¹⁾		
	As specified in	DIN 13 Parts 12 and 15.		
Mechanical properties	Property class (material)	For size M 2,5 or less: 6; for sizes between M 3 and M 39: 6, 8 or 10; for sizes above M 39: subject to agreement.	For sizes up to M 39: A 2-70 or A 4-70; for sizes above M 39: subject to agreement.	Subject to agreement.
	As specified in	DIN 267 Part 4	DIN 267 Part 11	DIN 267 Part 18
Limit deviations, geometrical tolerances	Product grade	For sizes up to M 16: A; for larger sizes: B.		
	As specified in	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 21 shall apply with regard to the widening test. DIN 267 Part 9 shall apply with regard to electroplating. ¹⁾ 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⁾ Where a protective coating is applied, e.g. an electroplated coating complying with DIN 267 Part 9, depending on the coating thickness required, it may be necessary, particularly in the case of tolerance class 6H nuts, to select a larger fundamental deviation than that assigned to the H position (see DIN 267 Part 9). This, however, might impair the resistance of the bolt/nut assembly to stripping.

4 Designation

Designation of an M12 chamfered hexagon nut assigned to property class 8:

Hexagon nut DIN 943 – M12 – 8

If product grade A is required for size M16 or more, the product grade shall be included in the designation, e.g.:

Hexagon nut DIN 934 – M20 – 8 – A

If hexagon nuts shall be supplied with radiused edges (Gr), the designation shall read:

Hexagon nut DIN 934 – M110 × 6 – 8 – Gr

Hexagon nuts as specified in this standard may be supplied in free cutting steel if, in the order details, symbol AU has been added to the symbol denoting the property class, e.g.:

Hexagon nut DIN 934 – M12 – 6 AU

DIN 962 shall apply with regard to the designation of designs and types, with additional details to be given when ordering. The DIN 4000-2-7 tabular layout of article characteristics shall apply for nuts covered in this standard.

5 Mass

The values of mass given for steel nuts are for guidance only.

Table 3.

Thread size (<i>d</i>)	M 1	M 1,2	M 1,4	M 1,6	M 2	M 2,5	M 3	M 3,5
Mass (7,85kg/dm ³), for 1000 units, in kg ≈	0,03	0,054	0,063	0,076	0,142	0,28	0,384	0,514

Thread size (<i>d</i>)	M 4	M 5	M 6	M 7	M 8	M 10	M 12	M 14
Mass (7,85kg/dm ³), for 1000 units, in kg ≈	0,81	1,23	2,5	3,12	5,2	11,6	17,3	25

Thread size (<i>d</i>)	M 16	M 18	M 20	M 22	M 24	M 27	M 30	M 33
Mass (7,85kg/dm ³), for 1000 units, in kg ≈	33,3	49,4	64,4	79	110	165	223	288

Thread size (<i>d</i>)	M 36	M 39	M 42	M 45	M 48	M 52	M 56	M 60
Mass (7,85kg/dm ³), for 1000 units, in kg ≈	393	502	652	800	977	1220	1420	1690

Thread size (<i>d</i>)	M 64	M 68	M 72 x 6	M 76 x 6	M 80 x 6	M 85 x 6	M 90 x 6	M 100 x 6
Mass (7,85kg/dm ³), for 1000 units, in kg ≈	1980	2300	2670	3040	3440	3930	4930	6820

Thread size (<i>d</i>)	M 110 x 6	M 125 x 6	M 140 x 6	M 160 x 6
Mass (7,85kg/dm ³), for 1000 units, in kg ≈	8200	13 000	17 500	26 500

Approximately the same values of mass may be assumed for fine pitch nuts.

6 Marking

The specifications given in DIN 267 Parts 4, 11 and 18 shall apply for the marking of nuts.

Nuts manufactured by machining, of property classes above 6 as specified in DIN 267 Part 4, shall only be marked subject to particular agreement.