UDC 621.882.31 February 1992

Hexagon nuts, style 1
Product grades A and B
(ISO 4032 : 1986)
English version of DIN EN 24 032

DIN
EN 24 032

This standard incorporates the English version of ISO 4032.

Sechskantmuttern, Typ 1; Produktklassen A und B (ISO 4032 : 1986)

This standard, together with DIN EN 28 673, February 1992 edition, supersedes DIN 934, October 1987 edition, and DIN ISO 4032, October 1987 edition.

European Standard EN 24 032 : 1991 has the status of a DIN Standard.

A comma is used as the decimal marker.

National foreword

The publication of this standard is in keeping with a decision made by CEN/TC 185 to adopt, without alteration, a series of ISO Standards covering hexagon head bolts and nuts as European Standards. The responsible German body involved in their publication is the *Normenausschuß Mechanische Verbindungselemente* (Fasteners Standards Committee).

As a consequence, all DIN ISO Standards covering hexagon head bolts and nuts have been superseded by the corresponding DIN EN Standards (see table overleaf), with no alteration having been made to the former ISO designation.

The DIN Standards corresponding to the ISO Standards referred to in clause 2 of the EN are as follows:

ISO 225	DIN EN 20 225
ISO 898-2	DIN EN 20 898 Part 2
ISO 3269	DIN ISO 3269 (at present at the stage of draft)
ISO 3506	DIN ISO 3506 (at present at the stage of draft)
ISO 4042	DIN ISO 4042 (at present at the stage of draft)
ISO 4759-1	DIN ISO 4759 Part 1
ISO 8839	DIN EN 28 839
ISO 8992	DIN ISO 8992 (at present at the stage of draft)

Continued overleaf.

EN comprises 4 pages.

DIN EN Standard	Title	Previous DIN ISO Standard	Withdrawn DIN Standard
24 014	Hexagon head bolts; product grades A and B	4014	931 Part 1
24 016	Hexagon head bolts; product grade C	4016	601
24 017	Hexagon head screws; product grades A and B	4017	933
24 018	Hexagon head screws; product grade C	4018	558
24 032	Hexagon nuts, style 1; product grades A and B	4032	934
24 034	Hexagon nuts; product grade C	4034	555
24 035	Hexagon thin nuts (chamfered); product grades A and B	4035	439 Part 2
24 036	Hexagon thin nuts; product grade B (unchamfered)	4036	439 Part 1
28 673	Hexagon nuts, style 1, with metric fine pitch thread; product grades A and B	8673	971 Part 1 934
28 674	Hexagon nuts, style 2, with metric fine pitch thread; product grades A and B	8674	971 Part 2
28 675	Hexagon thin nuts with metric fine pitch thread; product grades A and B	8675	439 Part 2
28 676	Hexagon head screws with metric fine pitch thread; product grades A and B	8676	961
28 765	Hexagon head bolts with metric fine pitch thread; product grades A and B	8765	960

Standards referred to

See clauses 0 and 2.

Other relevant document

Supplement 2 to DIN 918 Fasteners; synopsis of available ISO Standards and DIN Standards

Previous editions

DIN 89 Part 1: 12.20, 12.21, 10.25; DIN 89 Part 2: 10.22; DIN 429: 12.20, 12.21; DIN 554: 10.29x; DIN KrK 113: 07.28, 07.29; DIN Kr 751: 12.34; DIN 934: 04.68, 07.82, 10.87; DIN 934 Part 1: 01.26, 04.29, 10.34, 06.37, 04.42, 06.53, 03.61, 03.63; DIN ISO 4032: 10.87.

Amendments

In comparison with the October 1987 edition of DIN 934 and the October 1987 edition of DIN ISO 4032, the following amendments have been made.

a) Thread sizes M 1, M 1,2, M 1,4 and those greater than M 64 have been deleted.

b) Some of the dimensions have been changed.

c) Nuts with fine pitch thread are now specified in DIN EN 28 673.

d) The widths across flats specified in ISO 272 have been adopted for thread sizes M 10, M 12, M 14 and M 22.

e) The technical delivery conditions have been revised.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 24 032

October 1991

UDC 621.882.31

Descriptors: Fasteners, nuts, hexagon nuts, requirements, dimensions, designation.

English version

Hexagon nuts, style 1
Product grades A and B
(ISO 4032 : 1986)

Écrous hexagonaux, style 1; grades A et B (ISO 4032 : 1986)

Sechskantmuttern, Typ 1; Produktklassen A und B (ISO 4032 : 1986)

This European Standard was approved by CEN on 1991-10-10 and is identical to the ISO Standard as referred to. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

In 1990, ISO 4032 : 1986 was submitted to the CEN PQ procedure. Following the positive result of the PQ, CEN/BT agreed to submit ISO 4032 : 1986, with the following modifications, to Formal Vote.

In the French version, replace:

- 'boulon' by 'vis partiellement filetée',
- 'vis' by 'vis entièrement filetée'.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of the International Standard ISO 4032 : 1986 was approved by CEN as a European Standard with agreed common modifications as given above.

0 Introduction

This International Standard is part of the complete ISO product standard series on hexagon drive fasteners. The series comprises:

a) hexagon head bolts (ISO 4014, ISO 4015, ISO 4016 and ISO 8765);

b) hexagon head screws (ISO 4017, ISO 4018 and ISO 8676);

c) hexagon nuts (ISO 4032, ISO 4033, ISO 4034, ISO 4035, ISO 4036, ISO 8673, ISO 8674 and ISO 8675);

d) hexagon flange bolts (ISO 4162, ISO 8100, ISO 8102 and ISO 8104);

e) hexagon flange screws;[1)]

f) hexagon flange nuts (ISO 4161, ISO 7043 and ISO 7044);

g) structural bolting (ISO 4775 and ISO 7411 to ISO 7417).

1 Scope and field of application

This International Standard gives specifications for hexagon nuts, style 1, with thread diameters from M1,6 to M64 inclusive, with product grade A for sizes $d \leq$ M16 and product grade B for sizes $d >$ M16.

If, in special cases, specifications other than those listed in this International Standard are required, they should be selected from existing International Standards, e.g. ISO 261, ISO 898/2, ISO 965, ISO 4759/1.

NOTE — For hexagon nuts style 2, see ISO 4033.

2 References

ISO 225, *Fasteners — Bolts, screws and nuts — Symbols and designation of dimensions.*

ISO 261, *ISO general purpose metric screw threads — General plan.*

ISO 898/2, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values.*

ISO 965, *ISO general purpose metric screw threads — Tolerances.*

ISO 3269, *Fasteners — Acceptance inspection.*

ISO 3506, *Corrosion-resistant stainless steel fasteners — Specifications.*

ISO 4042, *Threaded components — Electroplated coatings.*[2)]

ISO 4759/1, *Tolerances for fasteners — Part 1: Bolts, screws and nuts with thread diameters ≥ 1,6 and ≤ 150 mm and product grades A, B and C.*

ISO 8839, *Mechanical properties of fasteners — Bolts, screws, studs and nuts made of non-ferrous metals.*

ISO 8992, *Fasteners — General requirements for bolts, screws, studs and nuts.*

1) These will form the subjects of future International Standards.

2) At present at the stage of draft.

3 Dimensions

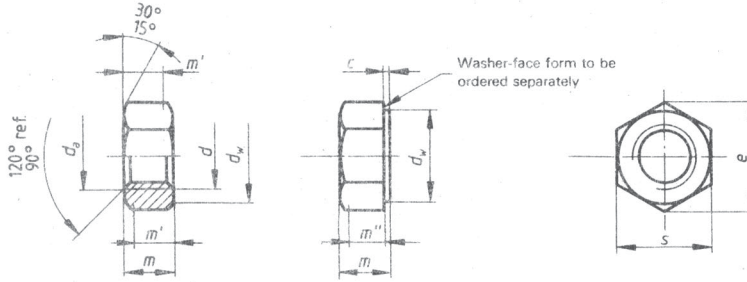

Table 1 — Preferred sizes

Thread size, d		M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10	M12
P[1]		0,35	0,4	0,45	0,5	0,7	0,8	1	1,25	1,5	1,75
c	max.	0,2	0,2	0,3	0,4	0,4	0,5	0,5	0,6	0,6	0,6
	min.	0,1	0,1	0,1	0,15	0,15	0,15	0,15	0,15	0,15	0,15
d_a	min.	1,6	2	2,5	3	4	5	6	8	10	12
	max.	1,84	2,3	2,9	3,45	4,6	5,75	6,75	8,75	10,8	13
d_w	min.	2,4	3,1	4,1	4,6	5,9	6,9	8,9	11,6	14,6	16,6
e	min.	3,41	4,32	5,45	6,01	7,66	8,79	11,05	14,38	17,77	20,03
m	max.	1,3	1,6	2	2,4	3,2	4,7	5,2	6,8	8,4	10,8
	min.	1,05	1,35	1,75	2,15	2,9	4,4	4,9	6,44	8,04	10,37
m'	min.	0,8	1,1	1,4	1,7	2,3	3,5	3,9	5,2	6,4	8,3
m''	min.	0,7	1	1,2	1,5	2	3,1	3,4	4,5	5,6	7,3
s	nom. = max.	3,2	4	5	5,5	7	8	10	13	16	18
	min.	3,02	3,82	4,82	5,32	6,78	7,78	9,78	12,73	15,73	17,73

Dimensions in millimetres

Thread size, d		M16	M20	M24	M30	M36	M42	M48	M56	M64
P[1]		2	2,5	3	3,5	4	4,5	5	5,5	6
c	max.	0,8	0,8	0,8	0,8	0,8	1	1	1	1
	min.	0,2	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3
d_a	min.	16	20	24	30	36	42	48	56	64
	max.	17,3	21,6	25,9	32,4	38,9	45,4	51,8	60,5	69,1
d_w	min.	22,5	27,7	33,3	42,8	51,1	60	69,5	78,7	88,2
e	min.	26,75	32,95	39,55	50,85	60,79	71,3	82,6	93,56	104,86
m	max.	14,8	18	21,5	25,6	31	34	38	45	51
	min.	14,1	16,9	20,2	24,3	29,4	32,4	36,4	43,4	49,1
m'	min.	11,3	13,5	16,2	19,4	23,5	25,9	29,1	34,7	39,3
m''	min.	9,9	11,8	14,1	17	20,6	22,7	25,5	30,4	34,4
s	nom. = max.	24	30	36	46	55	65	75	85	95
	min.	23,67	29,16	35	45	53,8	63,1	73,1	82,8	92,8

1) P = pitch of the thread.

Table 2 — Non-preferred sizes

Dimensions in millimetres

Thread size, d		M3,5	M14	M18	M22	M27	M33	M39	M45	M52	M60
P[1]		0,6	2	2,5	2,5	3	3,5	4	4,5	5	5,5
c	max.	0,4	0,6	0,8	0,8	0,8	0,8	1	1	1	1
	min.	0,15	0,15	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3
d_a	min.	3,5	14	18	22	27	33	39	45	52	60
	max.	4	15,1	19,5	23,7	29,1	35,6	42,1	48,6	56,2	64,8
d_w	min.	5	19,6	24,9	31,4	38	46,6	55,9	64,7	74,2	83,4
e	min.	6,58	23,35	29,56	37,29	45,2	55,37	66,44	76,95	88,25	99,21
m	max.	2,8	12,8	15,8	19,4	23,8	28,7	33,4	36	42	48
	min.	2,55	12,1	15,1	18,1	22,5	27,4	31,8	34,4	40,4	46,4
m'	min.	2	9,7	12,1	14,5	18	21,9	25,4	27,5	32,3	37,1
m''	min.	1,8	8,5	10,6	12,7	15,8	19,2	22,3	24,1	28,3	32,5
s	nom. = max.	6	21	27	34	41	50	60	70	80	90
	min.	5,82	20,67	26,16	33	40	49	58,8	68,1	78,1	87,8

1) P = pitch of the thread.

4 Specifications and reference standards

Table 3 — Specifications and reference standards

Material		Steel	Stainless steel	Non-ferrous metal
General requirements	International Standard	ISO 8992		
Thread	Tolerance	6H		
	International Standards	ISO 261, ISO 965		
Mechanical properties	Class	d < M3: as agreed M3 < d < M39: 6 8 10 d > M39: as agreed	d < M20: A2-70 M20 < d < M39: A2-50 d > M39: as agreed	.....
	International Standards	M3 < d < M39: ISO 898/2 d < M3 and d > M39: as agreed	d < M39: ISO 3506 d > M39: as agreed	ISO 8839
Tolerances	Product grade	d < M16 : A d > M16 : B		
	International Standard	ISO 4759/1		
Finish		as processed	plain	plain
		Requirements for electroplating are covered in ISO 4042. If different electroplating requirements are desired or if requirements are needed for other finishes, they should be negotiated between customer and supplier.		
Acceptability		For acceptance procedure see ISO 3269.		

5 Designation

Example for the designation of a hexagon nut, style 1, with thread size d = M12 and property class[1] 8:

Hexagon nut ISO 4032 - M12 - 8

1) The designation symbols for the property classes according to ISO 898/2 can also be used for thread sizes above M39 provided that the finished product has all the properties assigned to the designation symbols in ISO 898/2.