

BS EN ISO 4035:2012



BSI Standards Publication

# Hexagon thin nuts chamfered (style 0) — Product grades A and B

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

*raising standards worldwide™*



**National foreword**

This British Standard is the UK implementation of EN ISO 4035:2012. It supersedes BS EN ISO 4035:2001 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee FME/9, Fasteners.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2013.  
Published by BSI Standards Limited 2013

ISBN 978 0 580 78560 3

ICS 21.060.20

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2013.

**Amendments issued since publication**

Date	Text affected
------	---------------

---

English Version

**Hexagon thin nuts chamfered (style 0) - Product grades A and B  
(ISO 4035:2012)**

Écrous bas hexagonaux chanfreinés (style 0) - Grades A et  
B (ISO 4035:2012)

Sechskantmuttern, niedrige Form (mit Fase) -  
Produktklassen A und B (ISO 4035:2012)

This European Standard was approved by CEN on 15 November 2012.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Foreword

This document (EN ISO 4035:2012) has been prepared by Technical Committee ISO/TC 2 "Fasteners" in collaboration with Technical Committee CEN/TC 185 "Fasteners", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2013, and conflicting national standards shall be withdrawn at the latest by June 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 4035:2000.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 4035:2012 has been approved by CEN as a EN ISO 4035:2012 without any modification.

## Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Dimensions</b> .....	<b>1</b>
<b>4 Requirements and reference International Standards</b> .....	<b>4</b>
<b>5 Designation</b> .....	<b>4</b>
<b>Bibliography</b> .....	<b>5</b>

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4035 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 12, *Fasteners with metric internal thread*.

This fourth edition cancels and replaces the third edition (ISO 4035:1999), of which it constitutes a minor revision.

## Introduction

This International Standard belongs to a complete group of product standards developed by ISO on external hexagon drive fasteners. It comprises the following:

- 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 7040, ISO 7041, ISO 7042, ISO 7719, ISO 7720, ISO 8673, ISO 8674, ISO 8675, ISO 10511, ISO 10512 and ISO 10513);
- d) hexagon bolts with flange (ISO 4162, ISO 15071 and ISO 15072);
- e) hexagon nuts with flange (ISO 4161, ISO 7043, ISO 7044, ISO 10663, ISO 12125, ISO 12126 and ISO 21670).



# Hexagon thin nuts chamfered (style 0) — Product grades A and B

## 1 Scope

This International Standard specifies the characteristics of chamfered hexagon thin nuts (style 0), with threads from M1,6 up to and including M64, with product grade A for threads  $D \leq M16$  and product grade B for threads  $D > M16$ .

If, in special cases, specifications other than those listed in this International Standard are required, they can be selected from existing International Standards, for example ISO 724, ISO 898-2, ISO 965-1, ISO 3506-2 and ISO 4759-1.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable to its application. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 225, *Fasteners — Bolts, screws, studs and nuts — Symbols and descriptions of dimensions*

ISO 724, *ISO general-purpose metric screw threads — Basic dimensions*

ISO 898-2, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 2: Nuts with specified property classes — Coarse thread and fine pitch thread*

ISO 965-1, *ISO general-purpose metric screw threads — Tolerances — Part 1: Principles and basic data*

ISO 3269, *Fasteners — Acceptance inspection*

ISO 3506-2, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 2: Nuts*

ISO 4042, *Fasteners — Electroplated coatings*

ISO 4759-1, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C*

ISO 6157-2, *Fasteners — Surface discontinuities — Part 2: Nuts*

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*

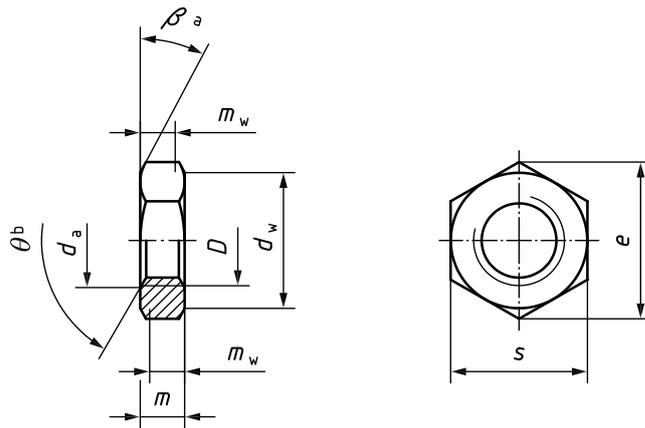
ISO 10683, *Fasteners — Non-electrolytically applied zinc flake coatings*

ISO 10684, *Fasteners — Hot dip galvanized coatings*

## 3 Dimensions

See Figure 1 and Tables 1 and 2.

Symbols and descriptions of dimensions are specified in ISO 225.



- a  $\beta = 15^\circ$  to  $30^\circ$ .  
b  $\theta = 110^\circ$  to  $120^\circ$ .

Figure 1

Table 1 — Preferred threads

Dimensions in millimetres

Thread $D$		M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10	M12
$p^a$		0,35	0,4	0,45	0,5	0,7	0,8	1	1,25	1,5	1,75
$d_a$	max.	1,84	2,30	2,90	3,45	4,60	5,75	6,75	8,75	10,80	13,00
	min.	1,60	2,00	2,50	3,00	4,00	5,00	6,00	8,00	10,00	12,00
$d_w$	min.	2,40	3,10	4,1	4,60	5,90	6,90	8,90	11,60	14,60	16,60
$e$	min.	3,41	4,32	5,45	6,01	7,66	8,79	11,05	14,38	17,77	20,03
$m$	max.	1,00	1,20	1,60	1,80	2,20	2,70	3,20	4,00	5,00	6,00
	min.	0,75	0,95	1,35	1,55	1,95	2,45	2,90	3,70	4,70	5,70
$m_w$	min.	0,60	0,80	1,10	1,20	1,60	2,00	2,3	3,0	3,8	4,60
$s$	nom. = max.	3,20	4,00	5,00	5,50	7,00	8,00	10,00	13,00	16,00	18,00
	min.	3,02	3,82	4,82	5,32	6,78	7,78	9,78	12,73	15,73	17,73

Table 1 (continued)

Dimensions in millimetres

Thread <i>D</i>		M16	M20	M24	M30	M36	M42	M48	M56	M64
<i>p<sup>a</sup></i>		2	2,5	3	3,5	4	4,5	5	5,5	6
<i>d<sub>a</sub></i>	max.	17,30	21,60	25,90	32,40	38,90	45,40	51,80	60,50	69,10
	min.	16,00	20,00	24,00	30,00	36,00	42,00	48,00	56,00	64,00
<i>d<sub>w</sub></i>	min.	22,50	27,70	33,20	42,80	51,10	60,00	69,50	78,70	88,20
<i>e</i>	min.	26,75	32,95	39,55	50,85	60,79	71,30	82,60	93,56	104,86
<i>m</i>	max.	8,00	10,00	12,00	15,00	18,00	21,00	24,00	28,00	32,00
	min.	7,42	9,10	10,90	13,90	16,90	19,70	22,70	26,70	30,40
<i>m<sub>w</sub></i>	min.	5,90	7,30	8,70	11,10	13,50	15,80	18,20	21,40	24,30
<i>s</i>	nom. = max.	24,00	30,00	36,00	46,00	55,00	65,00	75,00	85,00	95,00
	min.	23,67	29,16	35,00	45,00	53,80	63,10	73,10	82,80	92,80

<sup>a</sup> *P* is the pitch of the thread.

Table 2 — Non-preferred threads

Dimensions in millimetres

Thread <i>D</i>		M3,5	M14	M18	M22	M27	M33	M39	M45	M52	M60
<i>p<sup>a</sup></i>		0,6	2	2,5	2,5	3	3,5	4	4,5	5	5,5
<i>d<sub>a</sub></i>	max.	4,00	15,10	19,50	23,70	29,10	35,60	42,10	48,60	56,20	64,80
	min.	3,50	14,00	18,00	22,00	27,00	33,00	39,00	45,00	52,00	60,00
<i>d<sub>w</sub></i>	min.	5,10	19,60	24,90	31,40	38,00	46,60	55,90	64,70	74,20	83,40
<i>e</i>	min.	6,58	23,36	29,56	37,29	45,20	55,37	66,44	76,95	88,25	99,21
<i>m</i>	max.	2,00	7,00	9,00	11,00	13,50	16,50	19,50	22,50	26,00	30,00
	min.	1,75	6,42	8,42	9,90	12,40	15,40	18,20	21,20	24,70	28,70
<i>m<sub>w</sub></i>	min.	1,40	5,10	6,70	7,90	9,90	12,30	14,60	17,00	19,80	23,00
<i>s</i>	nom. = max.	6,00	21,00	27,00	34,00	41,00	50,00	60,00	70,00	80,00	90,00
	min.	5,82	20,67	26,16	33,00	40,00	49,00	58,80	68,10	78,10	87,80

<sup>a</sup> *P* is the pitch of the thread.

## 4 Requirements and reference International Standards

See Table 3.

**Table 3 — Requirements and reference International Standards**

Material		Steel	Stainless steel	Non-ferrous metal
<b>General requirements</b>	International Standard	ISO 8992		
	Tolerance class	6H		
<b>Thread</b>	International Standards	ISO 724, ISO 965-1		
	Property class	$D < M5$ : as agreed $M5 \leq D \leq M39$ : 04, 05 $D > M39$ : as agreed	$D \leq M24$ : A2-035, A4-035 $M24 < D \leq M39$ : A2-025, A4-025 $D > M39$ : as agreed	Materials specified in ISO 8839
<b>Mechanical properties</b>	International Standards $D < M5$ : as agreed $M5 \leq D \leq M39$ : ISO 898-2 $D > M39$ : as agreed (specified in ISO 898-2:2012, Annex A)	$D \leq M39$ : ISO 3506-2 $D > M39$ : as agreed		
<b>Tolerance</b>	Product grade	$D \leq M16$ : A $D > M16$ : B		
	International Standard	ISO 4759-1		
<b>Finish — Coating</b>		As processed Requirements for electroplating are specified in ISO 4042. Requirements for non-electrolytically applied zinc flake coatings are specified in ISO 10683. Requirements for hot dip galvanized coatings are specified in ISO 10684. Additional requirements or other finishes or coatings shall be agreed between the supplier and the purchaser.	Clean and bright A method for passivation is specified in ISO 16048.	As processed Requirements for electroplating are specified in ISO 4042.
<b>Surface integrity</b>		Limits for surface discontinuities are specified in ISO 6157-2		
<b>Acceptability</b>		Acceptance inspection is specified in ISO 3269.		

## 5 Designation

EXAMPLE A chamfered hexagon thin nut (style 0) with thread M12 and property class 05 is designated as follows:

**Hexagon thin nut ISO 4035 - M12 - 05**

## Bibliography

- [1] ISO 4014, *Hexagon head bolts — Product grades A and B*
- [2] ISO 4015, *Hexagon head bolts — Product grade B — Reduced shank (shank diameter approximately equal to pitch diameter)*
- [3] ISO 4016, *Hexagon head bolts — Product grade C*
- [4] ISO 4017, *Hexagon head screws — Product grades A and B*
- [5] ISO 4018, *Hexagon head screws — Product grade C*
- [6] ISO 4032, *Hexagon regular nuts (style 1) — Product grades A and B*
- [7] ISO 4033, *Hexagon high nuts (style 2) — Product grades A and B*
- [8] ISO 4034, *Hexagon regular nuts (style 1) — Product grade C*
- [9] ISO 4036, *Hexagon thin nuts unchamfered (style 0) — Product grade B*
- [10] ISO 4161, *Hexagon nuts with flange, style 2 — Coarse thread*
- [11] ISO 4162, *Hexagon flange bolts — Small series — Product grade A with driving feature of product grade B*
- [12] ISO 7040, *Prevailing torque type hexagon regular nuts (with non-metallic insert) — Property classes 5, 8 and 10*
- [13] ISO 7041, *Prevailing torque type hexagon nuts (with non-metallic insert), style 2 — Property classes 9 and 12*
- [14] ISO 7042, *Prevailing torque type all-metal hexagon high nuts — Property classes 5, 8, 10 and 12*
- [15] ISO 7043, *Prevailing torque type hexagon nuts with flange (with non-metallic insert), style 2 — Product grades A and B*
- [16] ISO 7044, *Prevailing torque type all-metal hexagon nuts with flange, style 2 — Product grades A and B*
- [17] ISO 7719, *Prevailing torque type all-metal hexagon regular nuts — Property classes 5, 8 and 10*
- [18] ISO 7720, *Prevailing torque type all-metal hexagon nuts, style 2 — Property class 9*
- [19] ISO 8673, *Hexagon regular nuts (style 1) with metric fine pitch thread — Product grades A and B*
- [20] ISO 8674, *Hexagon high nuts (style 2) with metric fine pitch thread — Product grades A and B*
- [21] ISO 8675, *Hexagon thin nuts chamfered (style 0) with metric fine pitch thread — Product grades A and B*
- [22] ISO 8676, *Hexagon head screws with metric fine pitch thread — Product grades A and B*
- [23] ISO 8765, *Hexagon head bolts with metric fine pitch thread — Product grades A and B*
- [24] ISO 10511, *Prevailing torque type hexagon thin nuts (with non-metallic insert)*
- [25] ISO 10512, *Prevailing torque type hexagon regular nuts (with non-metallic insert) with metric fine pitch thread — Property classes 6, 8 and 10*
- [26] ISO 10513, *Prevailing torque type all-metal hexagon high nuts with metric fine pitch thread — Property classes 8, 10 and 12*
- [27] ISO 10663, *Hexagon nuts with flange, style 2 — Fine pitch thread*

- [28] ISO 12125, *Prevailing torque type hexagon nuts with flange (with non-metallic insert) with metric fine pitch thread, style 2 — Product grades A and B*
- [29] ISO 12126, *Prevailing torque type all-metal hexagon nuts with flange with metric fine pitch thread, style 2 — Product grades A and B*
- [30] ISO 15071, *Hexagon bolts with flange — Small series — Product grade A*
- [31] ISO 15072, *Hexagon bolts with flange with metric fine pitch thread — Small series — Product grade A*
- [32] ISO 21670, *Hexagon weld nuts with flange*







# British Standards Institution (BSI)

BSI is the independent national body responsible for preparing British Standards and other standards-related publications, information and services. It presents the UK view on standards in Europe and at the international level.

BSI is incorporated by Royal Charter. British Standards and other standardisation products are published by BSI Standards Limited.

## Revisions

British Standards and PASs are periodically updated by amendment or revision. Users of British Standards and PASs should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using British Standards would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Similar for PASs, please notify BSI Customer Services.

**Tel: +44 (0)20 8996 9001 Fax: +44 (0)20 8996 7001**

BSI offers BSI Subscribing Members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of British Standards and PASs.

**Tel: +44 (0)20 8996 7669 Fax: +44 (0)20 8996 7001**

**Email: [plus@bsigroup.com](mailto:plus@bsigroup.com)**

## Buying standards

You may buy PDF and hard copy versions of standards directly using a credit card from the BSI Shop on the website [www.bsigroup.com/shop](http://www.bsigroup.com/shop). In addition all orders for BSI, international and foreign standards publications can be addressed to BSI Customer Services.

**Tel: +44 (0)20 8996 9001 Fax: +44 (0)20 8996 7001**

**Email: [orders@bsigroup.com](mailto:orders@bsigroup.com)**

In response to orders for international standards, BSI will supply the British Standard implementation of the relevant international standard, unless otherwise requested.

## Information on standards

BSI provides a wide range of information on national, European and international standards through its Knowledge Centre.

**Tel: +44 (0)20 8996 7004 Fax: +44 (0)20 8996 7005**

**Email: [knowledgecentre@bsigroup.com](mailto:knowledgecentre@bsigroup.com)**

BSI Subscribing Members are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration.

**Tel: +44 (0)20 8996 7002 Fax: +44 (0)20 8996 7001**

**Email: [membership@bsigroup.com](mailto:membership@bsigroup.com)**

Information regarding online access to British Standards and PASs via British Standards Online can be found at [www.bsigroup.com/BSOL](http://www.bsigroup.com/BSOL)

Further information about British Standards is available on the BSI website at [www.bsi-group.com/standards](http://www.bsi-group.com/standards)

## Copyright

All the data, software and documentation set out in all British Standards and other BSI publications are the property of and copyrighted by BSI, or some person or entity that own copyright in the information used (such as the international standardisation bodies) has formally licensed such information to BSI for commercial publication and use. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained. Details and advice can be obtained from the Copyright & Licensing Department.

**Tel: +44 (0)20 8996 7070**

**Email: [copyright@bsigroup.com](mailto:copyright@bsigroup.com)**

## BSI

389 Chiswick High Road London W4 4AL UK

Tel +44 (0)20 8996 9001

Fax +44 (0)20 8996 7001

[www.bsigroup.com/standards](http://www.bsigroup.com/standards)