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# International Standard



# 4161

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Hexagon nuts with flange — Product grade A

*Écrous hexagonaux à embase cylindro-tronconique — Grade A*

First edition — 1983-10-01

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ISO 4161:1983

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Descriptors : fasteners, nuts (fasteners), hexagonal nuts with flange, hexagonal nuts, specifications, dimensions, designation.

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4161 was developed by Technical Committee ISO/TC 2, *Fasteners*, and was circulated to the member bodies in December 1981.

It has been approved by the member bodies of the following countries:

Australia	Germany, F.R.	Norway
Belgium	Hungary	Poland
Brazil	India	Romania
Canada	Ireland	South Africa, Rep. of
China	Italy	Spain
Czechoslovakia	Korea, Dem. P. Rep. of	Sri Lanka
Denmark	Korea, Rep. of	Sweden
Egypt, Arab Rep. of	Mexico	Switzerland
Finland	Netherlands	USA
France	New Zealand	

The member bodies of the following countries expressed disapproval of the document on technical grounds:

Japan  
United Kingdom  
USSR

# Hexagon nuts with flange — Product grade A

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## 1 Scope and field of application

This International Standard specifies the characteristics of hexagon nuts with flange with thread sizes from M 5 to M 20 inclusive, in product grade A.

If other specifications are required, it is recommended that they should be selected from existing International Standards, for example ISO 261, ISO 898, ISO 965, ISO 3506.

## 2 References

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

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

ISO 898, *Mechanical properties of fasteners.*

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

ISO 3269, *Fasteners — Acceptance inspection.*<sup>1)</sup>

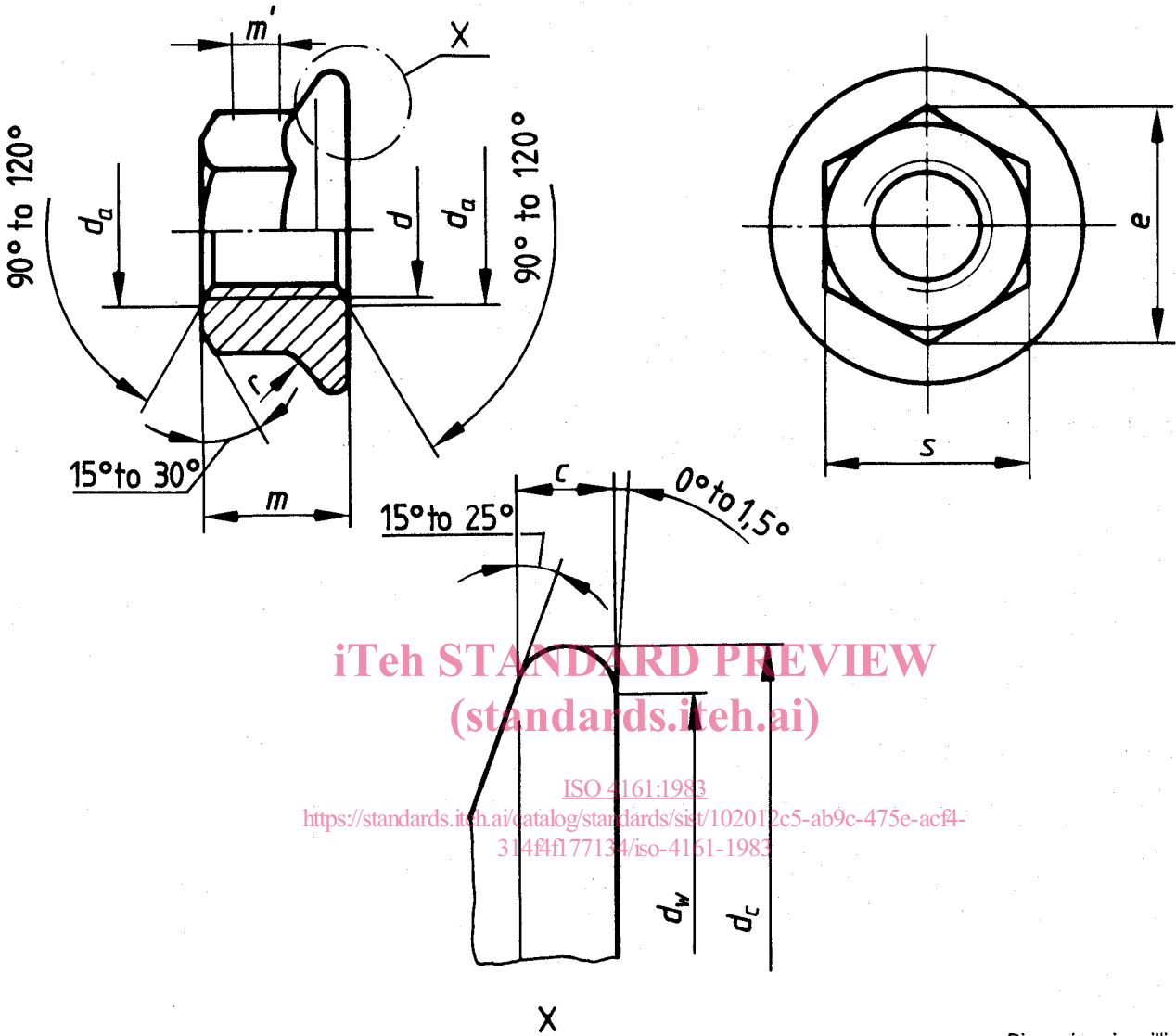
ISO 3506, *Corrosion-resistant stainless steel fasteners — Specifications.*

ISO 4042, *Threaded components — Electroplated coatings components.*<sup>1)</sup>

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.*

<sup>1)</sup> At present at the stage of draft.

3 Dimensions



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Dimensions in millimetres

Thread size <i>d</i>		M 5	M 6	M 8	M 10	M 12	(M 14) <sup>1)</sup>	M 16	M 20
<i>p</i> <sup>2)</sup>		0,8	1	1,25	1,5	1,75	2	2	2,5
<i>c</i>	min.	1	1,1	1,2	1,5	1,8	2,1	2,4	3
<i>d<sub>a</sub></i>	min.	5	6	8	10	12	14	16	20
	max.	5,75	6,75	8,75	10,8	13	15,1	17,3	21,6
<i>d<sub>c</sub></i>	max.	11,8	14,2	17,9	21,8	26	29,9	34,5	42,8
<i>d<sub>w</sub></i>	min.	9,8	12,2	15,8	19,6	23,8	27,6	31,9	39,9
<i>e</i>	min.	8,79	11,05	14,38	16,64	20,03	23,36	26,75	32,95
	max.	5	6	8	10	12	14	16	20
<i>m</i>	min.	4,7	5,7	7,6	9,6	11,6	13,3	15,3	18,9
	max.	2,2	3,1	4,5	5,5	6,7	7,8	9	11,1
<i>m'</i> <sup>3)</sup>	min.	2,2	3,1	4,5	5,5	6,7	7,8	9	11,1
	max.	8	10	13	15	18	21	24	30
<i>s</i>	min.	7,78	9,78	12,73	14,73	17,73	20,67	23,67	29,16
	max.	0,3	0,36	0,48	0,6	0,72	0,88	0,96	1,2

- 1) The size in brackets should be avoided if possible.
- 2) *P* = pitch of the thread.
- 3) Minimum wrenching height.
- 4) Radius *r* applies both at the corners and the flats of the hexagon.

#### 4 Specifications and reference International Standards

Material		Steel	Stainless steel
Thread	Tolerance	6H	
	International Standards	ISO 261, ISO 965	
Mechanical properties	Class	8 to 12	A 2-70
	International Standards	ISO 898/2	ISO 3506
Tolerances	Product grade	A	
	International Standard	ISO 4759/1	
Finish		As processed	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 supplier and customer.	
Acceptability		For acceptance procedure, see ISO 3269.	

#### 5 Designation

Example for the designation of a hexagon nut with flange with thread size  $d = M12$  and property class 10:

Hexagon nut with flange ISO 4161 - M12 - 10

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