
International Standard



7380

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

Hexagon socket button head screws — Metric series

Vis à métaux, à tête cylindrique bombée plate à six pans creux — Série métrique

First edition — 1983-09-01

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[ISO 7380:1983](#)

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Descriptors : fasteners, screws, socket head screws, dimensions, specifications, designation.

Price based on 4 pages

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 7380 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	India	Romania
Belgium	Ireland	South Africa, Rep. of
Brazil	Italy	Spain
China	Japan	Sweden
Czechoslovakia	Korea, Dem. P. Rep. of	Switzerland
Denmark	Korea, Rep. of	United Kingdom
Egypt, Arab Rep. of	Mexico	USA
Finland	New Zealand	USSR
Hungary	Norway	

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

Germany, F.R.
Netherlands

Hexagon socket button head screws — Metric series

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1 Scope and field of application

This International Standard lays down the specification for hexagon socket button head screws with thread sizes from M 3 to M 16 inclusive.

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NOTE — Particular attention is drawn to the note in clause 4 concerning the limitation on ultimate tensile strength.

If other specifications are required, it is recommended that they should be selected from existing International Standards, for example ISO 261, ISO 888, ISO 898, ISO 965, ISO 4759/1.

2 References

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

ISO 888, *Bolts, screws and studs — Nominal lengths, and thread lengths for general purpose bolts.*

ISO 898, *Mechanical properties of fasteners.*

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

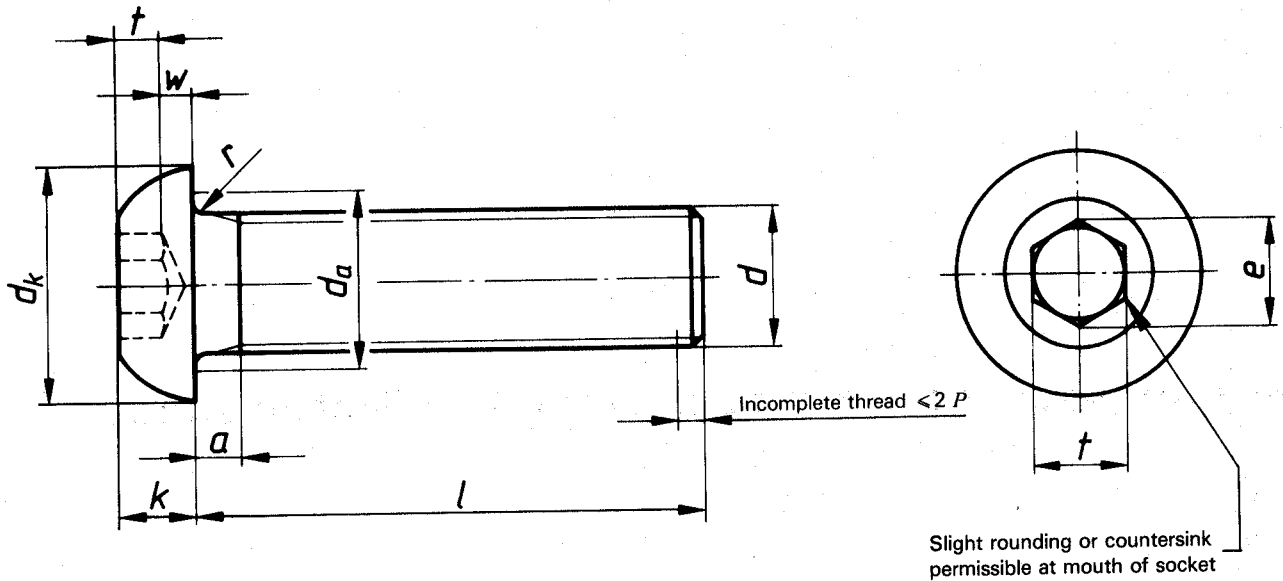
ISO 3269, *Fasteners — Acceptance inspection.*¹⁾

ISO 4042, *Threaded components — Electroplated coatings components.*¹⁾

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.*

1) At present at the stage of draft.

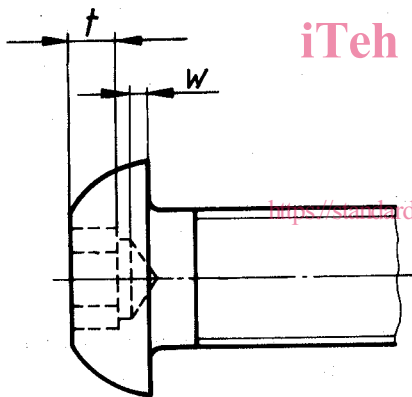
3 Dimensions



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Alternative form of socket permissible

For broached sockets which are at the maximum limit of size, the overcut resulting from drilling shall not exceed 20 % of the length of any flat of the socket.

Dimensions in millimetres

Thread size <i>d</i>		M 3	M 4	M 5	M 6	M 8	M 10	M 12	M 16
<i>p</i> ¹⁾		0,5	0,7	0,8	1	1,25	1,5	1,75	2
<i>a</i>	max.	1	1,4	1,6	2	2,5	3	3,5	4
	min.	0,5	0,7	0,8	1	1,25	1,5	1,75	2
<i>d_a</i>		max. 3,6	4,7	5,7	6,8	9,2	11,2	13,7	17,7
<i>d_k</i>	max.	5,7	7,6	9,5	10,5	14	17,5	21	28
	min.	5,4	7,24	9,14	10,07	13,57	17,07	20,48	27,48
<i>e</i>		min. 2,3	2,87	3,44	4,58	5,72	6,86	9,15	11,43
<i>k</i>	max.	1,65	2,2	2,75	3,3	4,4	5,5	6,6	8,8
	min.	1,4	1,95	2,5	3	4,1	5,2	6,24	8,44
<i>r</i>		min. 0,1	0,2	0,2	0,25	0,4	0,4	0,6	0,6
<i>s</i>	nom.	2	2,5	3	4	5	6	8	10
	max.	2,045	2,56	3,08	4,095	5,095	6,095	8,115	10,115
	min.	2,02	2,52	3,02	4,02	5,02	6,02	8,025	10,025
<i>t</i>		min. 1,04	1,3	1,56	2,08	2,6	3,12	4,16	5,20
<i>w</i>		min. 0,2	0,3	0,38	0,74	1,05	1,45	1,63	2,25
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		²⁾							
nom.	min.	max.							
6	5,76	6,24							
8	7,71	8,29							
10	9,71	10,29							
12	11,65	12,35							
16	15,65	16,35			Range				
20	19,58	20,42			of				
25	24,58	25,42			commercial				
30	29,58	30,42					lengths		
35	34,5	35,5							
40	39,5	40,5							
45	44,5	45,5							
50	49,5	50,5							

1) *P* = pitch of the thread.

2) For lengths below the bottom stepped line, the thread lengths, at the option of the manufacturer, can be between a minimum of $2d + 12$ mm and a maximum which is within $2P$ of the thread.

Intermediate lengths according to ISO 888 are permissible.

4 Specifications and reference International Standards

Material		Steel
Thread	Tolerance	5g - 6g
	International Standards	ISO 261, ISO 965
Mechanical properties	Class	12.9 ¹⁾
	International Standard	ISO 898/1
Tolerances	Product grade	A
	International Standard	ISO 4759/1
Finish		Black oxide (thermal or chemical) Requirements for electroplating are covered in ISO 4042. If different electroplating requirements are needed for other finishes, they should be negotiated between customer and supplier.
Acceptability		The acceptance procedure is covered in ISO 3269.

1) Because of their head configurations, these screws may not meet the minimum ultimate tensile load for property class 12.9, specified in ISO 898/1, table 6, when tested in accordance with test programme B.

They are nevertheless required to meet the other material and property requirements for property class 12.9 in ISO 898/1.

In addition, when normally loaded with the head supported on a parallel collar using the type of testing fixture illustrated in ISO 898/1, figure 2, they shall withstand the following loads without fracture:

Thread size d	M 3	M 4	M 5	M 6	M 8	M 10	M 12	M 16
Test load, kN	5,2	9,1	14,8	20,9	38,1	60,3	87,7	163

If tested to failure, the fracture may occur in the threaded section, the head or at the head-shank junction.

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5 Designation

Example for the designation of a hexagon socket button head screw with thread size $d = M12$ and nominal length $l = 40$ mm.
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Hexagon socket button head screw ISO 7380 - M12 × 40