INTERNATIONAL STANDARD

ISO 12474

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Hexagon socket head cap screws with metric fine pitch thread

Vis à tête cylindrique à six pans creux à pas fin

Reference number
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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 12474 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 10, *Product standards for fasteners*.

Introduction

This International Standard is based on ISO 21269, which has been withdrawn. The range of approval has been brought into line with the scope of ISO 898-1. ISO 21269 specified also fine pitch thread screws of $d \geqslant \mathrm{M42} \times 3$. Certain dimensions of $d \geqslant \mathrm{M42} \times 3$ were considered as screws with reduced loadability. Therefore, the dimensions $d \geqslant \mathrm{M42} \times 3$ have been omitted from this International Standard because the smallest cross-sectional area for some sizes is not located in the thread, but in the shear area between the head and the shank.

Hexagon socket head cap screws with metric fine pitch thread

1 Scope

This International Standard specifies the characteristics of hexagon socket head cap screws with metric fine pitch thread with nominal thread diameters, d, from 8 mm up to 36 mm and product grade A.

For approximate masses of screws, see Annex A.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. 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 261, *ISO general purpose metric screw threads — General plan*

ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread*

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 965-3, *ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads*

ISO 3269, *Fasteners — Acceptance inspection*

ISO 3506-1, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 1: Bolts, screws and studs*

ISO 4042, *Fasteners — Electroplated coatings*

ISO 4753, *Fasteners — Ends of parts with external ISO metric thread*

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

ISO 6157-1, *Fasteners — Surface discontinuities — Part 1: Bolts, screws and studs for general requirements*

ISO 6157-3, *Fasteners — Surface discontinuities — Part 3: Bolts, screws and studs for special requirements*

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

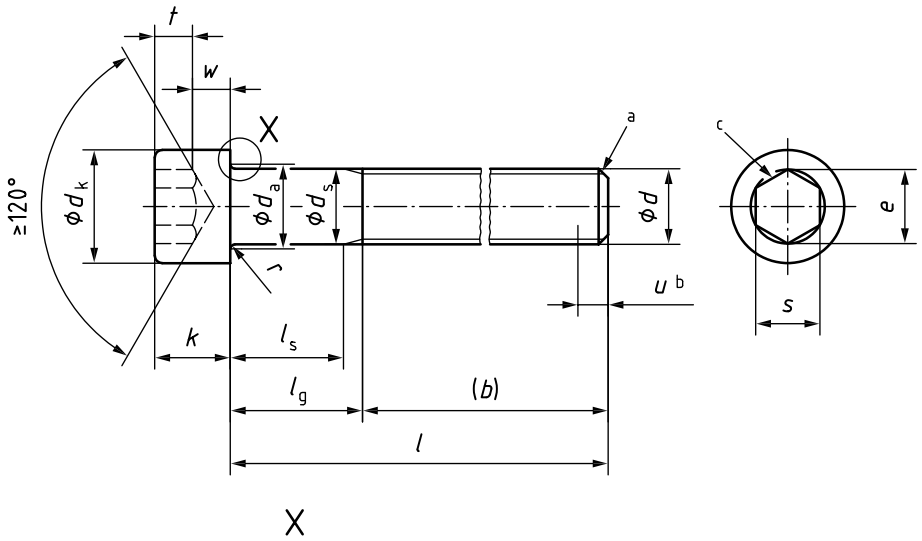
ISO 8992, *Fasteners — General requirements for bolts, screws, studs and nuts*

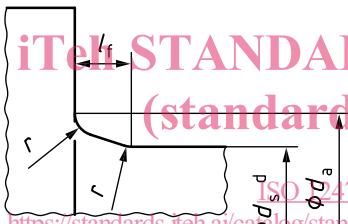
ISO 10683, *Fasteners — Non-electrolytically applied zinc flake coatings*

3 Dimensions

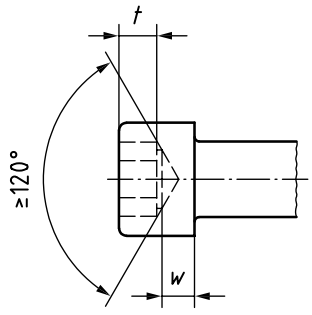
See Figure 1 and Table 1.

Symbols and descriptions of dimensions are specified in ISO 225.

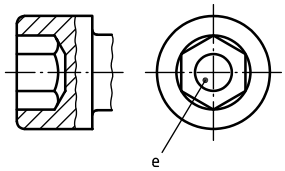




a) Hexagon socket head cap screw

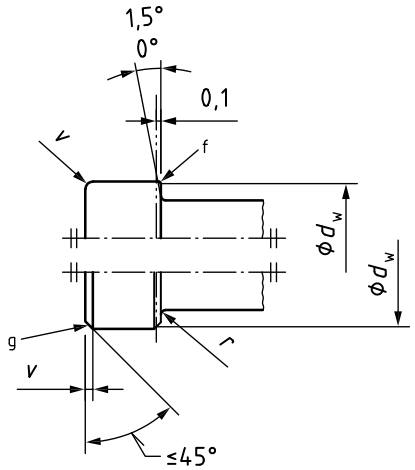


b) Permissible alternative form of socket

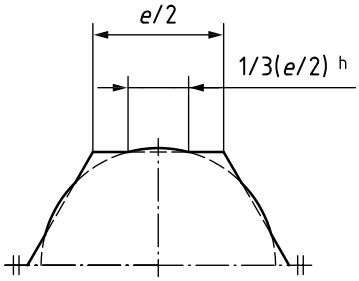


c) Permissible alternative form of socket bottom

Figure 1 (*continued*)



d) Top and bottom edge of the head



e) Broached socket

Key

$l_{\text{f maximum underhead fillet}} = 1{,}7\ r_{\max}$

$r_{\max} = \dfrac{d_{\text{a,max}} - d_{\text{s,max}}}{2}$

$r_{\min}$ see Table 1

a Point chamfered in accordance with ISO 4753.

b Incomplete thread $u \leqslant 2\ P$.

c A slight rounding or countersink at the mouth of the socket is permissible.

d d_s applies if values of $l_{s,\ min}$ are specified.

e Flat area, use for indented marking permitted.

f Bottom edge of head may be rounded or chamfered, but in every case shall be free of burrs.

g Top edge of head may be rounded or chamfered as shown at the manufacturer's discretion.

h For broached sockets which are at the maximum limit of size, the overcut resulting from drilling shall not exceed one third of the length of any flat of the socket which is $e/2$.

Figure 1 — Hexagon socket head cap screw with metric fine pitch thread