

Free running type wire thread inserts —

Part 1: Specification for ISO metric coarse pitch threads

ICS 21.040.10

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the General Mechanical Engineering Standards Policy Committee (GME/-) to Technical Committee GME/9, upon which the following bodies were represented:

BEAMA Ltd.

British Constructional Steelwork Association Ltd.

British Industrial Fasteners' Federation

British Steel Industry

British Steel Industry (Wire Section)

Gauge and Tool Makers' Association

Society of Motor Manufacturers and Traders Ltd.

Washer Manufacturers' Association of Great Britain

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

Defence Manufacturers' Association

General Municipal Boilermaker and Allied Trades Union

Screw Thread Tool Manufacturers' Association

Society of British Aerospace Companies Ltd.

This British Standard, having been prepared under the direction of the General Mechanical Engineering Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 October 1994

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Amendments/corrigenda issued since publication

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A1	30 September 2008	Tables 2 and 3 new thread size M2.2 added

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Foreword

This Part of BS 7752 has been prepared under the direction of the General Mechanical Engineering Standards Policy Committee.

It is a Part of a series for free running wire thread inserts.

BS 7752-2 provides a specification for ISO metric fine pitch threads.

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

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 7752 specifies requirements for free running wire thread inserts which, when fitted into an appropriately prepared hole, will:

- a) provide ISO metric coarse pitch female threads of tolerance class 5H or 6H with sizes from M2 to M39 inclusive;
- b) accept ISO metric male threads conforming to BS 3643-1:1981 and BS 3643-2:1981;
- c) operate successfully in the temperature range $-50\text{ }^{\circ}\text{C}$ to $+300\text{ }^{\circ}\text{C}$.

NOTE ISO metric MJ male threads conforming to BS 6293-1 and BS 6293-2 may be used with these inserts.

2 References

2.1 Normative references

This Part of BS 7752 incorporates, by dated or undated reference, provisions from other publications. These normative references are made at the appropriate places in the text and the cited publications are listed on the inside back cover. For dated references, only the edition cited applies; any subsequent amendments to or revisions of the cited publication apply to this Part of BS 7752 only when incorporated in the reference by amendment or revision. For undated references, the latest edition of the cited publication applies, together with any amendments.

2.2 Informative references

This Part of BS 7752 refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover, but reference should be made to the latest editions.

3 Dimensions

3.1 Insert wire profile

The dimensions of the insert wire profile when it is in the finished coiled state shall be in accordance with Table 1 and Figure 1.

3.2 Unfitted insert

The dimensions of an unfitted insert shall be in accordance with Table 2 and Figure 2.

The surface roughness of the insert wire in the finished coiled state shall not exceed $8\text{ }\mu\text{m}$.

NOTE 1 Minimum contact pressure is to be used when measuring the insert outside diameter to avoid distortion of the insert.

NOTE 2 Ignore any reduced leading coil if it is present when measuring the insert outside diameter.

NOTE 3 Since the relationship between the insert unfitted length and the number of coils is interdependent with coiling tension, the number of coils N is given for identification purposes only.

NOTE 4 The notch depth is to be sufficient to allow the tang to be broken off cleanly with a sharp blow after installation and then permit the free passage of a male threaded component.

4 Material

The insert wire shall be manufactured from austenitic stainless steel of the type characterized as 18 % chromium, 8 % nickel.

NOTE The precise composition is at the manufacturer's discretion.

5 Finish

The finished coiled insert shall be in the natural condition.

6 Insert selection

The length of insert selected shall be such that no stripping of the tapped hole in the parent metal into which the insert is fitted occurs before tensile failure of the male threaded part that is screwed into the fitted insert.

NOTE Annex A gives guidance on the selection of insert length required for different grades of bolt and tapped parent material strengths.

7 Installation

The inserts shall be capable of being installed into threaded holes prepared in accordance with BS 4377:1991.

NOTE 1 The class of fit produced by the installed insert, e.g. 5H or 6H, is dependent upon the class of fit of the threaded hole into which it is installed as well as the dimensioned accuracy of the insert. The user's attention is therefore drawn to the importance of maintaining the tolerance requirements of BS 4377:1991.

The insert fitted length shall be as given in Table 3 and Figure 3.

NOTE 2 It is recommended that the insert is fitted at least a distance equal to half of its thread pitch below the surface (see Figure 3).

Table 1 — Dimensions of insert wire profile in finished coiled state

Dimensions in millimetres

Thread size		<i>X</i>		<i>W</i>		<i>T</i>		<i>E</i>	
diameter	pitch	min.	max.	min.	max.	min.	max.	min.	max.
M2	0.4	0.295	0.302	0.395	0.432	0.287	0.351	0.241	0.259
M2.5	0.45	0.333	0.340	0.445	0.488	0.323	0.394	0.274	0.292
M3	0.5	0.368	0.378	0.490	0.541	0.358	0.437	0.307	0.325
M3.5	0.6	0.445	0.455	0.594	0.650	0.432	0.526	0.368	0.389
M4	0.7	0.521	0.531	0.691	0.757	0.503	0.612	0.434	0.455
M4.5	0.75	0.559	0.569	0.737	0.813	0.538	0.655	0.467	0.488
M5	0.8	0.597	0.607	0.785	0.866	0.574	0.701	0.500	0.521
M6	1	0.744	0.757	0.986	1.082	0.716	0.874	0.625	0.650
M7	1	0.744	0.757	0.986	1.082	0.716	0.874	0.625	0.650
M8	1.25	0.935	0.947	1.242	1.354	0.897	1.095	0.787	0.813
M10	1.5	1.125	1.138	1.501	1.623	1.077	1.313	0.950	0.975
M12	1.75	1.311	1.326	1.760	1.895	1.255	1.532	1.105	1.135
M14	2	1.501	1.516	2.002	2.164	1.435	1.750	1.267	1.298
M16	2	1.501	1.516	2.002	2.164	1.435	1.750	1.267	1.298
M18	2.5	1.880	1.895	2.497	2.705	1.793	2.187	1.590	1.623
M20	2.5	1.880	1.895	2.497	2.705	1.793	2.187	1.590	1.623
M22	2.5	1.880	1.895	2.497	2.705	1.793	2.187	1.590	1.623
M24	3	2.258	2.273	3.028	3.249	2.151	2.624	1.915	1.948
M27	3	2.258	2.273	3.028	3.249	2.151	2.624	1.915	1.948
M30	3.5	2.634	2.652	3.528	3.790	2.512	3.063	2.238	2.273
M33	3.5	2.634	2.652	3.528	3.790	2.512	3.063	2.238	2.273
M36	4	3.012	3.030	4.056	4.331	2.870	3.500	2.563	2.598
M39	4	3.012	3.030	4.056	4.331	2.870	3.500	2.563	2.598