

Specification for

Tapping of holes to receive wire thread inserts (ISO metric threads)

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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 Railways Board
- British Steel Industry
- British Steel Industry (Wire Section)
- Gauge and Tool Makers' Association
- Ministry of Defence
- Society of Motor Manufacturers and Traders Limited
- 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 Limited

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 31 May 1991

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The following BSI references relate to the work on this standard:
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Foreword

This British Standard has been prepared under the direction of the General Mechanical Engineering Standards Policy Committee. It is a revision of BS 4377:1980 which is withdrawn.

It differs from the 1980 edition in the following respects.

- a) Amendments have been made to certain tap features that are already included in BS 949-1, together with new tap pitch diameter formulae and values.

These changes do not affect interchangeability with existing stocks of taps produced to BS 4377:1980.

- b) This edition now includes the following spark plug designations.

M14 × 1.25

M10 × 1

- c) Details have been included of the following additional sizes.

M1.6 × 0.35

M2.2 × 0.45

M12 × 1.5

M12 × 1

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself 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 16, 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 British Standard specifies requirements for:

- a) limits of size for tapped holes to accommodate wire thread inserts which provide ISO metric thread sizes from M1.6 (1.6 mm diameter) to M39 (39 mm diameter) inclusive;
- b) screwing taps intended to produce holes to the limits of size specified;
- c) a gauging system for checking the tapped holes.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Form of thread and limits of size for tapped holes

2.1 Holes shall be threaded to provide class 5H or class 6H limits in accordance with BS 3643 when assembled with the wire thread inserts, and shall be of ISO metric form as illustrated in Figure 1.

NOTE It is recommended that class 5H limits be specified for use with prevailing torque type wire thread inserts.

2.2 Holes to provide class 5H limits for ISO metric thread sizes M1.6 to M39 inclusive shall be tapped to the limits specified in Table 1.

2.3 Holes to provide class 6H limits for ISO metric thread sizes M1.6 to M39 inclusive shall be tapped to the limits specified in Table 2.

NOTE 1 The limits given in Table 1 and Table 2 are designed to permit the production, under normal conditions, of holes to suit the classes of threads stated. Under ideal conditions it may be possible to achieve a closer class of fit on the final installation than those indicated in the tables.

NOTE 2 In order to distinguish requirements for holes intended to receive inserts from those intended to receive threaded components, it is recommended that the former be clearly identified on drawings and specifications. This may be done by specifying the actual major, pitch and minor diameters of the hole and their limits, or by the addition of the words "wire insert" and number of this British Standard to the designation of the thread.

Example: "M5 × 0.8 – 5H, wire insert BS 4377"

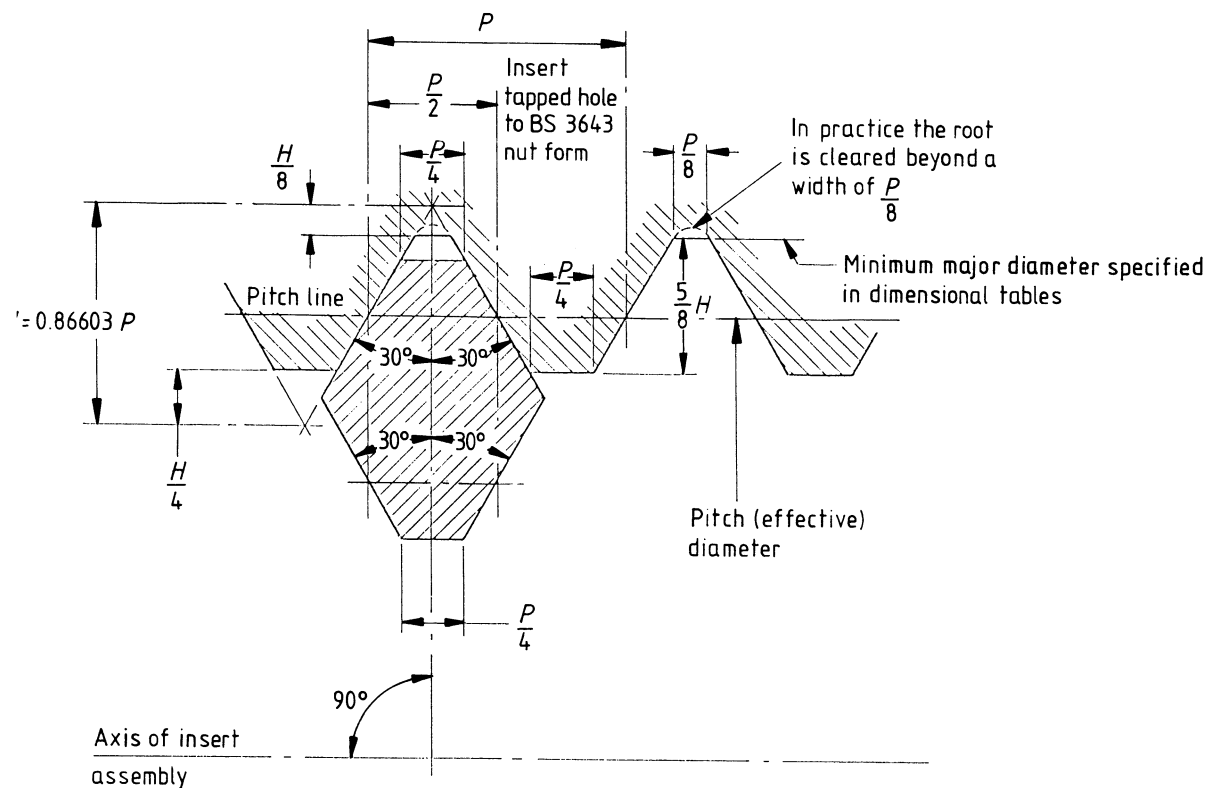


Figure 1 — Basic form of ISO metric assembly

Table 1 — Limits and tolerances for tapped holes for inserts: ISO metric threads, class 5H^a

1	2	3	4	5	6	7	8
Size designation	Major diameter	Pitch diameter			Minor diameter		
	Minimum	Maximum	Minimum	Tolerance ^b	Maximum	Minimum	Tolerance ^b
	mm	mm	mm	mm	mm	mm	mm
M1.6 × 0.35	2.055	1.860	1.827	0.033	1.756	1.676	0.080
M2 × 0.4	2.520	2.296	2.260	0.036	2.177	2.087	0.090
M2.2 × 0.45	2.785	2.532	2.492	0.040	2.397	2.297	0.100
M2.5 × 0.45	3.085	2.832	2.792	0.040	2.697	2.597	0.100
M3 × 0.5	3.650	3.367	3.325	0.042	3.220	3.108	0.112
M3.5 × 0.6	4.279	3.940	3.890	0.050	3.755	3.630	0.125
M4 × 0.7	4.909	4.509	4.455	0.054	4.292	4.152	0.140
M4.5 × 0.75	5.474	5.039	4.987	0.052	4.812	4.662	0.150
M5 × 0.8	6.039	5.577	5.520	0.057	5.333	5.173	0.160
M6 × 1	7.299	6.719	6.650	0.069	6.406	6.216	0.190
M7 × 1	8.299	7.719	7.650	0.069	7.406	7.216	0.190
M8 × 1.25	9.624	8.886	8.812	0.074	8.483	8.271	0.212
M8 × 1	9.299	8.719	8.650	0.069	8.406	8.216	0.190
M10 × 1.5	11.949	11.061	10.974	0.087	10.561	10.325	0.236
M10 × 1.25	11.624	10.886	10.812	0.074	10.483	10.271	0.212
M10 × 1	11.299	10.724	10.650	0.074	10.406	10.216	0.190
M12 × 1.75	14.273	13.236	13.137	0.099	12.644	12.379	0.265
M12 × 1.5	13.949	13.067	12.974	0.093	12.561	12.325	0.236
M12 × 1.25	13.624	12.898	12.812	0.086	12.483	12.271	0.212
M12 × 1	13.299	12.724	12.650	0.074	12.406	12.216	0.190
M14 × 2	16.598	15.406	15.299	0.107	14.733	14.433	0.300
M14 × 1.5	15.949	15.067	14.974	0.093	14.561	14.325	0.236
M14 × 1.25	15.624	14.898	14.812	0.086	14.483	14.271	0.212
M16 × 2	18.598	17.406	17.299	0.107	16.733	16.433	0.300
M16 × 1.5	17.949	17.067	16.974	0.093	16.561	16.325	0.236
M18 × 2.5	21.248	19.738	19.624	0.114	18.896	18.541	0.355
M18 × 2	20.598	19.406	19.299	0.107	18.733	18.433	0.300
M18 × 1.5	19.949	19.067	18.974	0.093	18.561	18.325	0.236
M20 × 2.5	23.248	21.738	21.624	0.114	20.896	20.541	0.355
M20 × 2	22.598	21.406	21.299	0.107	20.733	20.433	0.300
M20 × 1.5	21.949	21.067	20.974	0.093	20.561	20.325	0.236

^a See note 1 to 2.3.^b The tolerance column gives the difference between the maximum and minimum diameters: it does not give a tolerance on the diameters.