

Specification for

Steel hexagon prevailing-torque type nuts —

Part 1: Metric series

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The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Black Bolt and Nut association of Great Britain	Power Generation Association
British Bolt, Nut, Screw and Rivet Federation	Precision Bolt and Nut Institute
British Constructional Steelwork Association	Rolled Thread Screw Association
British Railways Board	Scientific Instrument Manufacturers Association of Great Britain
Constructional Steel Research and Development Organisation	Society of Motor Manufacturers and Traders Ltd.
Fasteners and Turned Parts Institute	Washer Manufacturers Association of Great Britain
Institute of Iron and Steel Wire Manufacturers	Individual Manufacturers
Ministry of Defence, Navy Department	
Post Office	

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Foreword

This Part of this British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee as a result of requests received from industry for the provision of a new standard covering steel hexagon prevailing-torque type nuts.

This type of product has been standardized in the USA over a period of many years and the USA has submitted a draft ISO proposal, covering both metric and inch series products, which has been adopted by ISO/TC2, “Bolts, nuts and accessories”, as the basis for ISO draft Recommendations. Where possible, the provisions of the following ISO Recommendations and ISO Standard have also been incorporated in the text of this standard:

ISO Recommendation R 272,	<i>“Hexagon bolts and nuts. Metric series. Widths across flats, heights of heads, thicknesses of nuts”.</i>
ISO Recommendation R 733,	<i>“Hexagon bolts and nuts. Metric series. Tolerances on widths across flats. Widths across corners”.</i>
ISO Recommendation R 898/I,	<i>“Mechanical properties of fasteners. Part I. Bolts, screws and studs”.</i>
ISO Recommendation R 898/II,	<i>“Mechanical properties of fasteners. Part II. Nuts with specified proof load values”.</i>
ISO Recommendation R 898/III,	<i>“Mechanical properties of fasteners. Part III. Marking of bolts, screws, studs and nuts”.</i>
ISO Standard ISO 2320,	<i>“Prevailing-torque type steel hexagon locknuts. Mechanical and performance properties”.</i>
ISO Standard ISO 2358,	<i>“Prevailing-torque type steel hexagon locknuts. Dimensions. Metric units”.</i>

This standard purposely relates to metric series products only, since it was felt that confusion might arise if inch series products having similar performance, functional and material requirements (but differing with regard to dimensional and identification characteristics), were included in a composite document. Thus, notwithstanding the amount of duplication involved, it was considered advisable to prepare similar but separate documents for the metric and inch series products. The dimensional and identification requirements in this document are based on current ISO metric practice.

NOTE Two property classes, 8 and 12 from ISO/R 898/II have been included in this standard. 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 8, 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

1.1 This part of this British Standard specifies the general dimensions and tolerances of prevailing-torque type nuts with ISO metric threads in diameters from 3 mm to 36 mm inclusive.

1.2 Mechanical properties and performance requirements are given only in respect of steel nuts, with or without non-metallic inserts such as nylon, which are not to be used for special applications such as those requiring weldability, corrosion resistance or the ability to withstand temperatures above 300 °C (120 °C for nuts with non-metallic inserts) or below – 50 °C.

1.3 Two nut heights are specified, designated “normal” and “high” respectively. The particular design used by the nut manufacturer will determine which of these height categories is applicable.

1.4 Unless otherwise specified by the purchaser either normal or high nuts, with or without non-metallic inserts, may be supplied.

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

2 Definition

For the purposes of this British Standard the following definition applies:

prevailing-torque type nut

a nut which is frictionally resistant to rotation due to a self-contained prevailing-torque feature and not because of a compressive load developed at assembly against the bearing surface of the nut. The term prevailing-torque is not intended to imply an indefinite permanence of fixity

3 Property class designation system

3.1 This standard includes property classes specified in this standard for metric series steel hexagon prevailing-torque type nuts which shall be designated by the numbers “8” and “12” as shown below. The designation number of the property class is equal to one tenth of the specified proof load stress in kilogrammes-force per square millimetre (SI units given for reference). This proof load stress corresponds to the minimum tensile strength of a bolt or screw with which the nut should be assembled so as to ensure the loading capacity of the bolted connection up to the minimum tensile strength of the bolt.

NOTE The designation system adopted is identical with that used for steel nuts in BS 3692 and ISO/R 898/II.

Property class	Proof load stress (S_p) N/mm ² ^a
8	785
12	1 177

NOTE If in exceptional circumstances it is necessary to combine one of these quality classes of nuts with a bolt of lower class, the performance characteristics may be significantly altered.

^a 1 N/mm² = 1 MN/m² = 1MPa

4 Material and manufacture of steel nuts

4.1 Material. Nuts shall be made of carbon or alloy steel of a grade adequate for the nut to meet the mechanical and performance requirements of this standard. The prevailing-torque element of insert design nuts may be of a material other than steel.

4.2 Heat treatment. Class 8 nuts may be heat treated as necessary. Class 12 nuts shall be heat treated to meet the mechanical and performance requirements of this standard.

4.3 Finish. Nuts shall be finished plain (bare metal) or with a protective coating (electro-deposited plating or chemical conversion coating) as specified on the order. Plating shall be in accordance with BS 3382 or BS 1706.

In order to comply with the stated performance requirements of this standard nuts shall, where necessary, be provided with a supplementary lubricant which shall be clean and dry to the touch.

5 Dimensional requirements

5.1 Basic dimensions. Nuts shall be in accordance with the dimensions given in Table 2. The portion of the nut containing the prevailing-torque feature may have a special contour within the maximum permitted width across flats and thickness. The minimum width across flats shall not apply at a depressed portion of the nut at the prevailing-torque feature.