

Specification for

Hook spanners peg spanners coupling wrenches and the related slots, holes and horns

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The Government departments and 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 standard:—

Federation of British Hand Tool	National Physical Laboratory
Manufacturers	Society of British Aircraft Constructors
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Leicester Technical College	Development Committee
National Association of Drop Forgers and	Spanner manufacturers
Stampers	

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 26 February 1954

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Foreword

This standard makes reference to the following British Standards:—

BS 15, *Structural steel*.

BS 970, *Wrought steels*.

BS 1638, *Report on the selection of ranges of types and sizes (preferred numbers)*.

BS 2045, *Preferred numbers*.

BS 1782, *Couplings for suction and delivery hose, other than fire hose couplings*.

BS ¹⁾, *Couplings for petrol, oil and lubricants*.

This British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee and forms one of a series for various types of spanner.

The specification is divided into three parts, the first of which is concerned with hook spanners, for which a series of steps for the diameters of nuts has been used as a basis. The series is in accordance with the system of Preferred Numbers given in BS 1638²⁾ and BS 2045³⁾, first preference being the 20 series, second preference the 40 series. Adjacent steps in each are considered as a group and accorded similar dimensions, e.g.:

the 1.00 in. and 1.12 in. nuts in the 20 series are grouped with the 1.06 in. and 1.18 in. nuts in the 40 series and can all be produced from the same size blank; the 4.00 in. 20 series nut is grouped with the 4.25 in. 40 series nut and so on.

The basic design of the operating faces is that of two intersecting radii which are directly related to the diameters of the 20 series and 40 series nuts for which the spanner is intended.

To increase the functional range of the spanner series and to ensure that the needs of intermediate nut sizes are met, the operating arc is also undercut, thus not only permitting proper contact at the heel of the spanner, but ensuring that the spanner can, in most cases, be used with adequate safety and efficiency on nuts intermediate in diameter between the 20 and 40 series, although the fit in these cases is not perfect. This undercut has the further advantage that it can be blanked out and therefore reduces the amount of machining necessary during manufacture.

The dimensions and tolerances of the slots in the circular nuts are included in the specification in order to ensure that the spanners can function efficiently. For the same reason, clearances for the head and shank are specified, because, unless adequate clearance allowance is made, difficulties in engaging and disengaging the spanners in confined spaces will be encountered.

Part 2 relates to peg spanners and, as for hook spanners, simplification based on the 20 series of Preferred Numbers has been adopted. Additionally, the series has been placed in four groups in each of which only a single peg size is necessary. The dimensional details of the peg holes are given in the specification for the same reasons that those for the slots in the circular nuts were given, i.e. to ensure the safe and efficient functioning of the peg spanners.

The lengths of both hook and peg spanners are related to the nut diameter and, for the same nominal size, are similar. Only the fixed pattern is given in this specification; the adjustable forms are not included, despite their popularity because of the infinite varieties of design which are possible, many of which are intended for special applications.

NOTE When it is intended to employ adjustable types of hook or peg spanners, it is recommended that the slots and holes in the relevant nuts should be designed to comply with the details given in this British Standard.

¹⁾ In course of preparation.

²⁾ BS 1638, "*Report on the selection of ranges of types and sizes (Preferred Numbers)*".

³⁾ BS 2045, "*Preferred Numbers*".

Part 3 relates to coupling wrenches, all the details of which are taken from the specifications for the various hose couplings⁴⁾. These wrenches are for use on hoses intended for the transfer of various liquids, the working pressure of which does not exceed 100 lb/sq. in., but Part 3 does not include requirements for coupling wrenches for fire hoses. This part of the specification has been included at the express wish of those responsible for the couplings standards, in which detailed requirements of the horns are set down.

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 to iv, pages 1 to 18 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.

⁴⁾ BS 1782, "Couplings for suction and delivery hose other than fire hose couplings". BS, "Hose couplings for petrol, oil and lubricants" (in course of preparation).

1 Scope

Part 1. Hook spanners. Section 1 relates to the dimensional and clearance details of hook spanners. Clauses on material and hardness are included.

Section 2 relates to the slots on circular nuts with which the spanners are to operate.

Part 2. Peg spanners. Relates to the dimensions and materials for peg spanners and to the details of the peg holes in circular and other nuts with which this type of spanner is used.

Part 3. Coupling wrenches. Relates to the dimensions of coupling wrenches, together with the horns on which they function.

Part 1. Hook spanners and slots

Section 1. Spanners

2 Material

Hook spanners shall be manufactured from steel complying with Specification En 8 of BS 970⁵⁾, heat treated to produce the properties of Category R, giving a tensile strength of 45 tons.

Alternatively a steel with equivalent mechanical properties may be used by arrangement between purchaser and manufacturer.

3 Finish

All sharp corners shall be removed from the hook spanners and the tools shall be free from cracks and defects.

The spanners shall be subjected to an approved anti-corrosive treatment, such as plating, the details of which shall be by agreement between the purchaser and manufacturer.

4 Angle of application

The nominal working angle between the tongue and the opposing point of contact shall be 150 degrees. (See Figure 1.)

5 Range of sizes and dimensions

a) *Range of sizes.* The spanners shall be suitable for a range of circular nuts with nominal diameters from 1 inch to 10.6 inches. The first preference for the increments in diameter shall be the 20 series of Preferred Numbers, and the second preference the 40 series of Preferred Numbers⁶⁾.

Each spanner is designed to fit two (nominal) sizes of circular nut although the operating face is so formed that a spanner will also function on intermediate sizes of nut.

b) *Blanks.* A range of sizes of blanks from which the hook spanners may be cut is included in Table 1.

The blanks shall be serially numbered according to the spanners which may be cut from them, numbers 1, 2, 3 and 4 being suitable for four nominal nut sizes and numbers 5 to 17 inclusive being suitable for two nominal nut sizes.

NOTE As mentioned in the Foreword, because of the undercut provided on the operating face, a spanner may also be used with safety on sizes intermediate to those given in Table 1.

c) *Dimensions.* The dimensions of hook spanners shall be as given in Table 1.

The form radius, A, Figure 1, for the smaller size nut shall be struck from the theoretical centre of the nut.

The form radius, B, Figure 1, for the larger size nut shall be struck from a position offset from the theoretical centre of the nut by dimension D in Table 1.

6 Clearance

The main clearance dimensions necessary to allow the outer edge of the spanner to move freely when changed from one slot to another by lifting the tongue in confined spaces, and those necessary to provide sufficient room for a hand-grip under the same circumstances, are given in Table 2.

7 Marking

Every hook spanner shall be plainly and indelibly marked on the handle with the two actual nominal sizes for which it is suitable. The nominal sizes of the spanner shall be the nominal maximum and minimum diameters of nuts in the appropriate group.

⁵⁾ BS 970, "Wrought steels".

⁶⁾ BS 1638, "Report on the selection of ranges of types and sizes (Preferred Numbers)".
BS 2045, "Preferred Numbers".

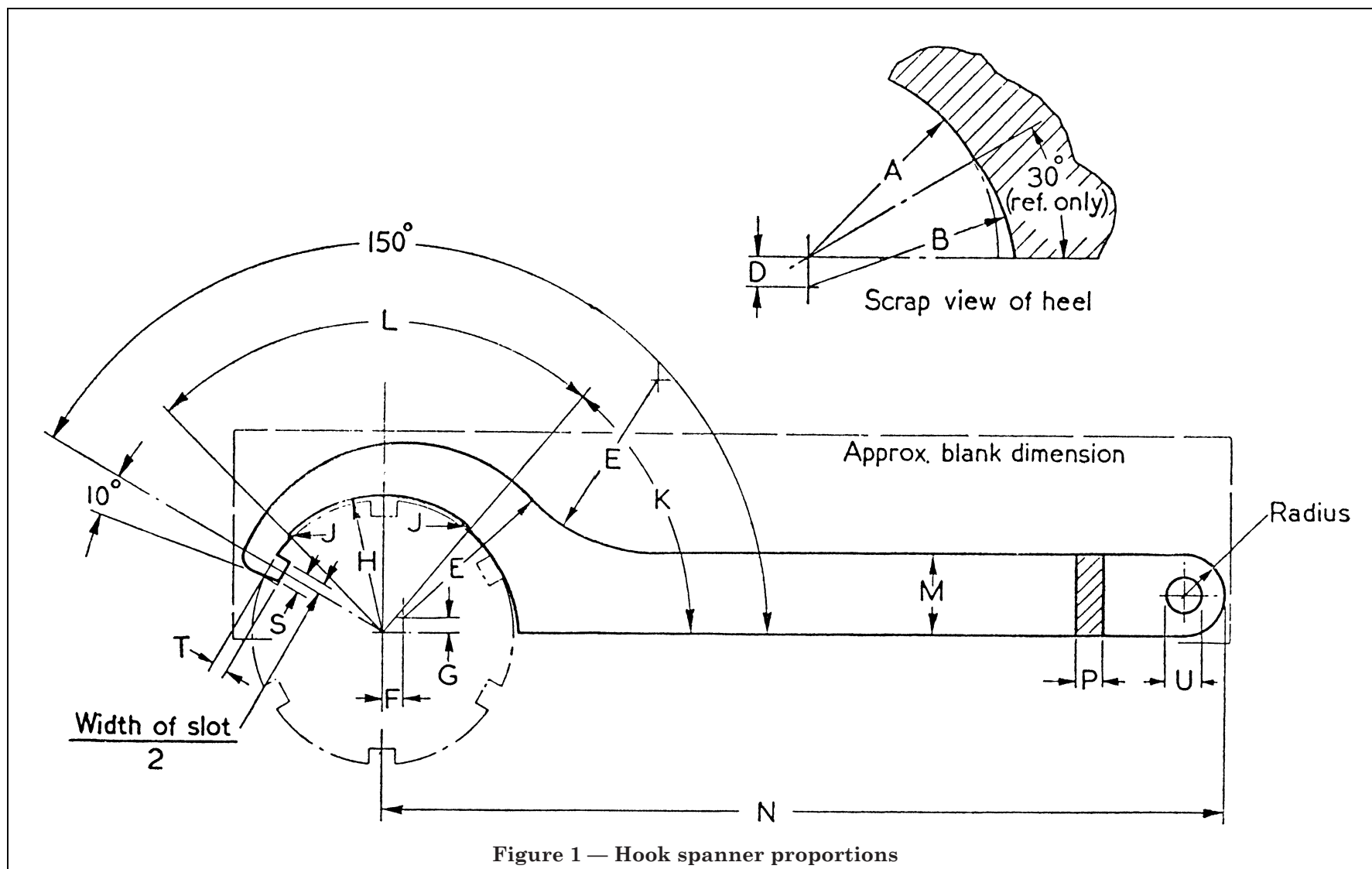


Figure 1 — Hook spanner proportions