

Specification for

Pipe wrenches —

Part 2: Footprint type wrenches

Confirmed
January 2011

Co-operating organizations

The Mechanical Engineering Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and Industrial organizations:

Associated Offices' Technical Committee	Institution of Gas Engineers*
Association of Consulting Engineers	Institution of Heating and Ventilating Engineers
Association of Mining Electrical and Mechanical Engineers	Institution of Mechanical Engineers
Board of Trade	Institution of Mechanical Engineers (Automobile Division)
British Chemical Plant Manufacturers' Association	Institution of Production Engineers
British Compressed Air Society	Locomotive and Allied Manufacturers' Association of Great Britain
British Electrical and Allied Manufacturers' Association	London Transport Board
British Gear Manufacturers' Association	Machine Tool Trades Association*
British Internal Combustion Engine Manufacturers' Association	Ministry of Defence, Army Department*
British Iron and Steel Federation	Ministry of Defence, Navy Department*
British Mechanical Engineering Federation*	Ministry of Labour (H.M. Factory Inspectorate)
British Railways Board*	Ministry of Power
Crown Agents for Oversea Governments and Administrations	Ministry of Public Building and Works
Electricity Council, The Generating Board and the Area Boards in England and Wales	Ministry of Technology, National Engineering Laboratory
Engineering Equipment Users' Association	Ministry of Transport
Gas Council*	National Coal Board*
Institute of Marine Engineers	National Physical Laboratory (Ministry of Technology)
Institution of Civil Engineers	Radio Industry Council
	Royal Institute of British Architects

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:

Association of U.K. Plier Manufacturers Engineers and Allied Hand Tool Manufacturers' Association	Ministry of Aviation
Federation of British Hand Tool Manufacturers	National Association of Tool Dealers
Institution of Engineering Inspection	National Union of Furniture Trade Operatives
J.E.S.C. Sub-committee on Hand Tools	Post Office
Light Edge Tool and Allied Trades Association	Saw Trades Association
Manufacturers of Edge Tools	Society of British Aerospace Companies
	Society of Motor Manufacturers and Traders Ltd.
	Co-opted Manufacturers

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 22 November 1965

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Foreword

This standard makes reference to the following British Standards:

BS 427, *Method for Vickers hardness test — Part 1: Testing of metals*.

BS 970, *Wrought steels — En series*.

BS 1133, *Packaging code — Section 6: Temporary prevention of corrosion of metal surfaces (during transportation and storage)*.

BS 1387, *Steel tubes and tubulars suitable for screwing to BS 21 pipe threads*.

This British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee. It forms a companion work to BS 3594-1, “*Stillson type wrenches*”.

Apart from dimensional considerations, manufacturing requirements are laid down together with a proof torque test which the finished wrench should be capable of passing.

NOTE Tables from which metric equivalents can be calculated are given in an Appendix. The figures given in British units are to be regarded as the standard. More accurate conversions should be based on the tables in BS 350 “*Conversion factors and tables*”.

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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

This British Standard relates to the dimensions, quality, finish, testing and marking of pipe wrenches of the Footprint type as illustrated in Figure 1 in nominal sizes as follows:

6 in; 7 in; 9 in; 12 in and 14 in.

2 Nomenclature and definitions

For the purposes of this British Standard the nomenclature of Figure 1 has been adopted together with the following definitions:

- a) *Nominal size*. The overall length of the hook (see Figure 1).
- b) *Maximum safe capacity*. A value which is equal to the maximum diameter of pipe that can be safely gripped (see Table 1).

3 Materials

The components of Footprint type wrenches shall be manufactured from the following materials:

- a) Frame
 - b) Distance piece
 - c) Hook
- } from steel conforming to BS 970^a En 43 J or G.
- d) Rivets from low carbon steel
 - e) Pivot pin from steel conforming to BS 970^a En 8.

^a BS 970, "Wrought steels. En series".

4 Heat treatment and hardness

The heat treatment and hardness of Footprint type wrenches shall be as follows:

- a) *Frame and distance piece*. The assembled frame and distance piece shall be normalized after machining and prior to hardening.
- b) *Hook*. The hook shall be normalized after machining and prior to hardening.
- c) *Jaws*. The teeth of the jaws of the frame assembly and the hook shall be locally hardened and tempered in order to provide hardness values within the range 550 to 620 HV30¹⁾ when measured at a spot nearest the apex of any one tooth. The hardness within this range shall not extend beyond a point defined as twice the height of tooth measured back from the tooth root. Beyond this point the hardness shall gradually reduce.
- d) *Shanks*. At no point on the shank of the frame, nor on the shank of the hook shall hardness be in excess of 300 HV30.
- e) *Pivot pin*. The pivot pin shall be normalized after machining.

¹⁾ BS 427, "Method for Vickers hardness test" — Part 1, "Testing of metals".