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Specification for  
**Hand hammers**

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Spécification des marteaux à main

Spezifikation für Handhämmer

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## Foreword

This British Standard has been prepared under the direction of the Mechanical Engineering Standards Committee.

BS 876 was first published in 1939 with revisions in 1949, 1957 and 1964. The current revision has been prepared in order to keep abreast of improvements in manufacture and design; to seek improvements in the standards of hammers; to metricate this British Standard; and to ensure that current types in demand are included. This standard combines the following previous British Standards: BS 876 : 1964 Hand hammers, and BS 3197 : 1960 Adze eye claw hammers, both of which are now withdrawn.

A number of errors have come to light in the 1979 edition of this standard. For the convenience of users, the necessary corrections are incorporated in this new revision.

The opportunity has also been taken to improve the presentation of the drawings and tables.

The British Standards Institution has always appreciated the element of risk attached to the use of striking tools and, in this respect, it has continued to work to establish a standard of manufacture in order to ensure that safe tools are available to the user.

However, it is strongly recommended that users should, in their own interest, ensure that these tools are used only for the purposes for which they are intended.

Particular emphasis is placed on the need to observe caution when striking objects that may have a hardness near to or above that of the hammer head, and to avoid striking glancing blows. In both instances the user may be seriously injured, or bystanders may be hit by fragments from the hammer or the object being struck.

The importance of maintaining hammers in a safe condition cannot be overstressed, and the user should ensure that striking faces comply with the requirements of this specification and that handles remain firmly fixed and in a satisfactory condition.

A leaflet dealing with the safe use of hammers, issued by the hammer manufacturers who are members of the Federation of British Hand Tool Manufacturers, is available, and users are recommended to consult it. For guidance, extracts from this leaflet are reproduced in appendix A of this standard.



**Documents**

Document Sharing Hub

Amendment No. 1  
published and effective from 28 February 1989  
to BS 876 : 1981

Specification for hand hammers

Revised text

AMD 5959  
February 1989

Contents

Delete the entry for table 2 and substitute the following.

'2. Bending test for glass fibre reinforced plastics handles'

Before the entry for figure 1 insert the following.

'0. Hardness pattern for the ball end of a  
ball pein hammer'

AMD 5959  
February 1989

Foreword

At the end of the foreword insert the following.

**'Compliance with a British Standard does not of itself  
confer immunity from legal obligations.'**

AMD 5959  
February 1989

Clause 6.3

Delete the clause and substitute the following.

**'6.3 The hardened zone of the striking face, except for  
ball pein hammers, when measured from any point on  
the face, shall extend to a depth of 3 mm, at which depth  
the hardness shall be not less than 46 HRC and not more  
than that of the surface.**

**In the case of ball pein hammers, the 3 mm depth of  
hardness shall apply only at the centre of the face along  
the centre-line XX of figure 4, tapering towards the  
perimeter of the ball, to avoid hardness creeping into  
the neck (see figure D).'**

AMD 5959  
February 1989

New figure 0

After clause 6.3 insert the following new figure.

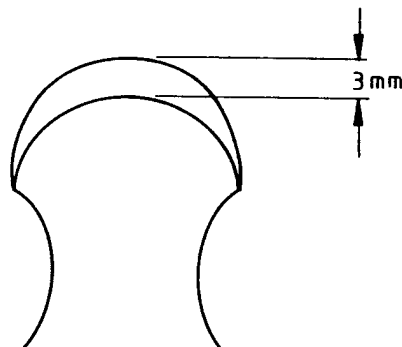


Figure 0. Hardness pattern for the ball end of a ball pein  
hammer



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**AMD 5959**  
**February 1989**

**Clause 9. Marking**

At the end of the clause insert the following.

'An appropriate durable mark or adhesive label shall be affixed to the handle of the hammer giving guidance on safe usage (see appendix A).'

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**AMD 5959**  
**February 1989**

**Clause 10.2 Wooden handles**

Delete the clause and substitute the following.

'**10.2 Wooden handles.** When wooden handles are supplied, hickory and ash woods only shall be used.

NOTE. It is strongly recommended that, for added safety, hickory should be used for all claw type hammers and hammers used for heavy-duty work.

Handles shall comply with BS 3823 : Part 1. All wooden handles shall have a chamfer at the heel.'

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**AMD 5959**  
**February 1989**

**Clause 17. Handle bending test**

Delete the third sentence and substitute the following:

'At a point on the handle 250 mm from the top of the head the following minimum load shall be applied to the hammer handle:

(a) *steel handles*: claw type: 880 N for all head masses;

(b) *glass fibre reinforced plastics handles*: as shown in table 2.'

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**AMD 5959**  
**February 1989**

**Clause 20. Nail pulling test: claw hammers**

Delete the first sentence of paragraph 2 and substitute the following:

'Three bright steel oval wire brad head nails 60 mm x 3.75 mm x 2.36 mm in accordance with table 12 of BS 1202 : Part 1 : 1974 shall be driven into a sound pine board, 25mm thick.'

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AMD 5959  
February 1989

Table 2. Bending test for handles of materials other than wood  
Delete the table and substitute the following.

**'Table 2. Bending test for glass fibre reinforced plastics handles**

| Mass of head:<br>claw type | Minimum<br>applied load<br>on handle |
|----------------------------|--------------------------------------|
| kg                         | N                                    |
| 0.455                      | 900                                  |
| 0.565                      | 1350                                 |
| 0.680                      | 1350                                 |

| Mass of head:<br>non-claw type | Minimum<br>applied load<br>on handle | Mass of head:<br>non-claw type | Minimum<br>applied load<br>on handle |
|--------------------------------|--------------------------------------|--------------------------------|--------------------------------------|
| kg                             | N                                    | kg                             | N                                    |
| 0.100                          | 300                                  | 0.910                          | 1775                                 |
| 0.115                          | 300                                  | 1.100                          | 1775                                 |
| 0.170                          | 300                                  | 1.135                          | 1775                                 |
| 0.200                          | 300                                  | 1.360                          | 1775                                 |
| 0.225                          | 450                                  | 1.400                          | 1775                                 |
| 0.285                          | 450                                  | 1.800                          | 1775                                 |
| 0.340                          | 675                                  | 2.700                          | 2700                                 |
| 0.395                          | 675                                  | 3.200                          | 2700                                 |
| 0.455                          | 900                                  | 4.500                          | 2700                                 |
| 0.680                          | 2350                                 | 6.300                          | 2700                                 |

AMD 5959  
February 1989

#### Back cover

At the bottom of the page and in the paragraph relating to BSI references, delete 'MEE/20' and substitute 'MTE/15' and 'MTE/15 (formerly MEE/20)' respectively.



British Standard Specification for

# Hand hammers

## Section one. General

### 1. Scope

This British Standard specifies the quality and dimensions of hammers of the following types, together with the dimensions of the handles, where appropriate:

- Joiners' (or Warrington) hammers
- Engineers' ball pein hammers
- Engineers' cross pein hammers
- Boiler scaling hammers
- Double-face sledge hammers
- Straight-peined sledge hammers
- Club hammers
- Railway track keying hammers
- Cross and ball pein pin hammers
- Welders' chipping hammers
- Adze eye claw hammers
- Brick hammers

Tests for hammers are also included.

### 2. References

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

### 3. Material

All hammer heads shall be manufactured from fully killed forging quality steel within the following basic analysis range.

|      | Carbon | Manganese | Silicon | Phosphorus | Sulphur |
|------|--------|-----------|---------|------------|---------|
| Min. | 0.50 % | 0.50 %    | 0.10 %  | —          | —       |
| Max. | 0.60 % | 0.90 %    | 0.40 %  | 0.05 %     | 0.05 %  |

NOTE. It is recommended that, for heads of mass over 1.8 kg, the material specification should include a chromium content of 0.20 % to 0.30 %.

The steel shall have a controlled grain size within the range 5 to 8 (McQuaid Ehn). The chemical composition and the heat treatment techniques employed shall be such as to produce tools that comply with the requirements of this standard.

NOTE. Steels complying with the requirements of 060A52, 080A52, 060A57, 080A57, or 070M55 as specified in BS 970 : Part 1 are generally suitable.

### 4. Forms and dimensions

The forms of the hammer heads shall be as shown in figures 3 to 18. The eye shall be centrally located in the width of the head, its F axis (see figure 1) being within  $\pm 3^\circ$  (twist) and its J axis at an angle of  $90 \pm 1^\circ$  to both axes of the head.

The eye for wooden-handled hammers shall be drifted from one or both sides as illustrated in figure 1, to leave a central waist. The sizes shall be as given in tables 3 to 18. The waist of oval eyes shall be approximately proportional to dimensions *E* and *F*, according to figure 1. The dimensions given for *E* and *F* shall, except where otherwise shown, be subject to a tolerance of  $\pm 5\%$ . Where handles made from materials other than wood are fitted by the manufacturer, the dimensions of the eyes and the techniques employed in the fitting may be modified, provided that the assembly withstands the relevant tests.

### 5. Forgings

Hammer heads shall be cleanly forged or stamped. They shall be well shaped and free from flaws and seams. All fins and flashes shall be dressed to surface level. Forgings shall be manufactured in accordance with the requirements of BS 4114.

### 6. Heat treatment and hardness

6.1 All hammer heads shall be normalized and the striking faces shall be dressed to remove decarburization prior to hardening.

6.2 After normalizing, the heads shall be hardened on the striking faces and peins in order to achieve a martensitic structure and they shall be so tempered that the hardness is not less than 50 HRC and not more than 58 HRC.

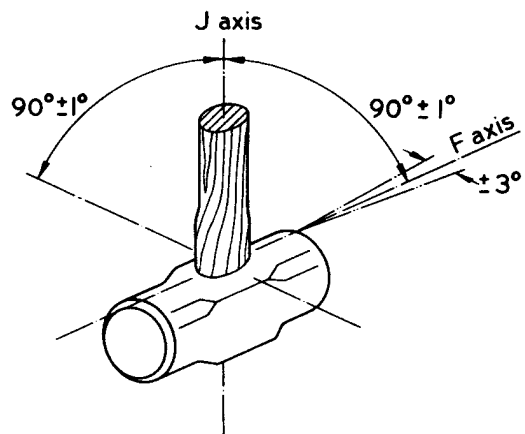
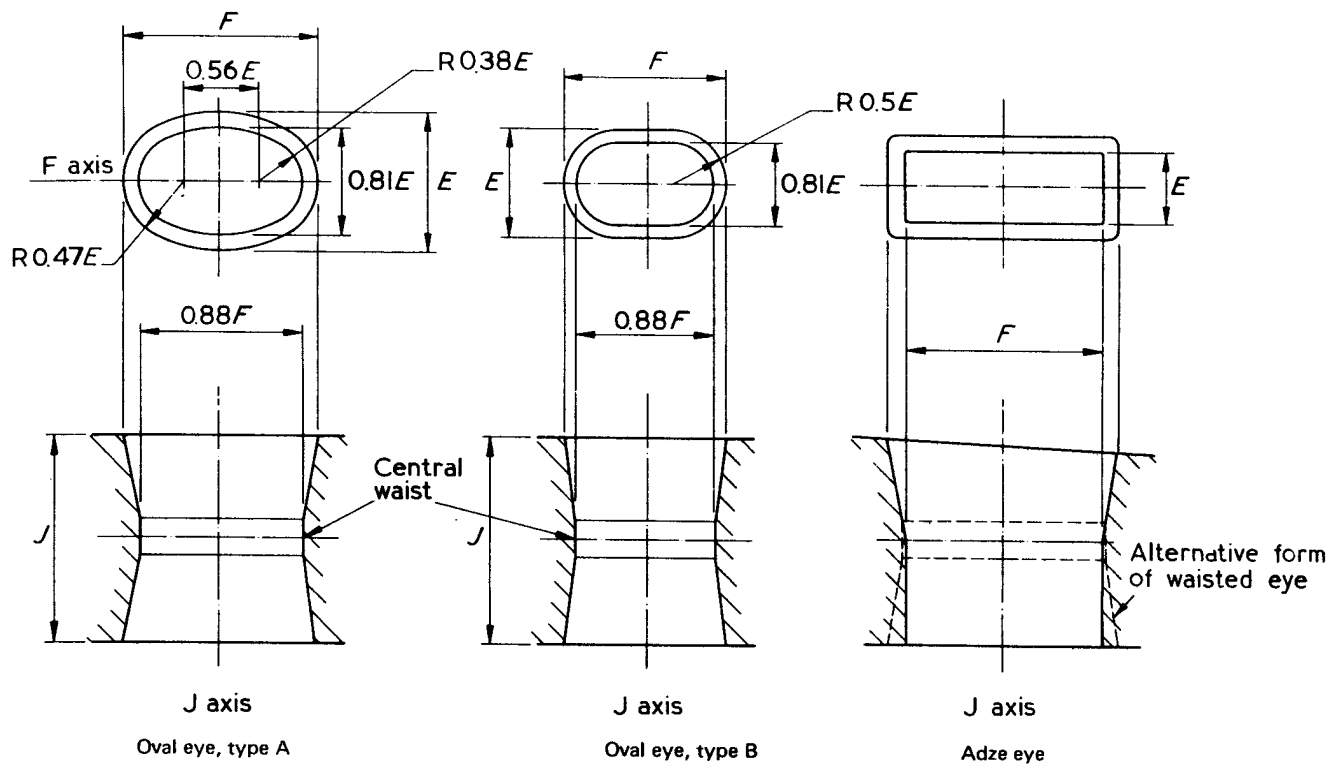
6.3 The hardened zone of the striking faces when measured from any point on that face, shall extend to a minimum depth of 3 mm, at which depth the hardness shall be not less than 46 HRC and not more than that of the surface.

6.4 The hardened zones shall not extend into a neck or, where there is no neck, to more than half-way to the near edge of the eye.

6.5 Claws shall be hardened and tempered to enable the test requirements of 13.3 to be complied with. The hardness shall diminish from the claw tip to the crotch and it shall not reach nearer the eye than 12 mm.

6.6 Striking points and edges shall be hardened and tempered to enable the test requirements of clause 15 to be complied with.

NOTE. Comparative values of Vickers hardness (HV) are given in BS 860.



Handle fitting angles and tolerances

Figure 1. Forms and proportions of eyes; fitting of handle