

*Indian Standard*  
SPECIFICATION FOR FIREMAN'S AXE  
(*Second Revision*)

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INDIAN STANDARDS INSTITUTION  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

*Indian Standard*  
**SPECIFICATION FOR FIREMAN'S AXE**  
*( Second Revision )*

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# *Indian Standard*

## SPECIFICATION FOR FIREMAN'S AXE

### *( Second Revision )*

#### 0. FOREWORD

**0.1** This Indian Standard ( Second Revision ) was adopted by the Indian Standards Institution on 8 March 1985, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** Fireman's axe is one of important equipment to be maintained in fire stations and their vehicles. Though the axes are to be tested to 20 000 volts their use should be limited to 1 000 to 2 000 volts with precautions. The fact that the handle is covered with the insulating material does not guarantee the user safe working against electric shock. This standard was first published in 1959 and revised in 1970. Two types of fireman's axe were covered by this standard; one having a wooden handle and the other with insulated steel handle. Wooden handled fireman's axe provides no protection to the user against injury by electric shock except the limited insulation which wooden handle provides and hence it is felt that the fireman's axe with wooden handle should be deleted from this standard. Further additional safe guards such as wearing of insulation tested rubber gloves and wearing of shock proof boots should be mandatory while using this. This revision has been prepared on these lines besides updating its contents.

**0.3** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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\*Rules for rounding off numerical values ( revised ).

## 1. SCOPE

1.1 This standard lays down the requirements regarding material, shape and dimensions and construction of fireman's axe.

## 2. GENERAL

2.1 Fireman's axe covered by this standard shall be provided with insulated steel handle.

## 3. MATERIAL

3.1 **Axe Head** — Steel used in the forging of axe head shall comply with the following chemical requirements:

<i>Constituent</i>	<i>Percent</i>
Carbon	0.75 to 0.85
Manganese	0.50 to 0.80
Phosphorus, <i>Max</i>	0.050
Sulphur, <i>Max</i>	0.050
Silicon, <i>Max</i>	0.250

3.1.1 *Axe Handle* — Steel used for axe handle shall conform to IS : 1977-1975\*.

3.2 **Handle** — The insulated handle shall be of vulcanized rubber capable of withstanding an insulation test given in 6.

## 4. SHAPE, DIMENSIONS AND CONSTRUCTION

4.1 The shape and dimensions of fireman's axe shall be as shown in Fig. 1.

4.2 The axe head shall be soundly forged to shape as shown in Fig. 1 and the steel handle shall be welded to the head.

4.3 The pick and the blade shall be well and evenly hardened and tempered to a DPN of 500 to 575 which shall be measured within a distance of 3 mm from the cutting edge according to the method laid down in IS : 1501-1968†.

4.4 Handle grip shall be of non-slippery type, that is, provided with a knurled surface.

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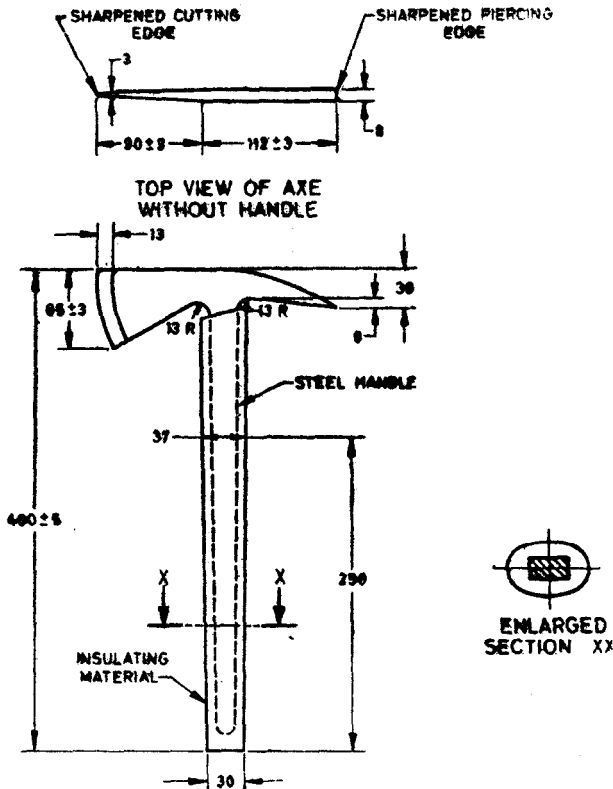
\*Specification for structural steel ( ordinary quality ) ( *second revision* ).

†Method for Vickers hardness test for steel ( *first revision* ).

## 5. WORKMANSHIP AND FINISH

5.1 The forging shall be free from seams, cracks and surface defects. The edges shall be well-shaped as shown in Fig. 1 and finished smooth.

5.2 The metal surfaces of axe shall be bright finished.



NOTE — The insulating handle shall have chequered surface for providing a firm grip.

All dimensions in millimetres.

FIG. 1 FIREMAN'S AXE

## **6. PERFORMANCE TEST**

**6.1** A mild steel bar of 5 mm dia shall be laid on a solid foundation. This bar then be served by a single heavy blow of the axe following which the cutting edge shall not show any sign of damage.

**6.2** The axe shall be fitted into the test jig illustrated in Fig. 2 with the cutting edge resting on the base plate between the two guides and the point held in the slot in the cap at the top. The handle shall be laid horizontally. A weight of 100 kg shall then be loaded on to the outer end of the handle following which the edge shall have received no damage.

**6.3** The insulated handle shall be capable of withstanding 20 000 volts for 60 seconds.

**NOTE 1** — The insulated handle shall be tested by a recognized laboratory.

**NOTE 2** — Initial testing of handle for 20 000 volts resistance is not always a guarantee of the handle being safe for use. It is necessary for the insulation resistance of the handle to be periodically tested at least every year or whenever the insulation is cracked or chipped. While using the axe, care shall be taken to see that it is not wet or smeared over with oil.

## **7. MARKING**

**7.1** Each axe shall be clearly and permanently marked with the following information:

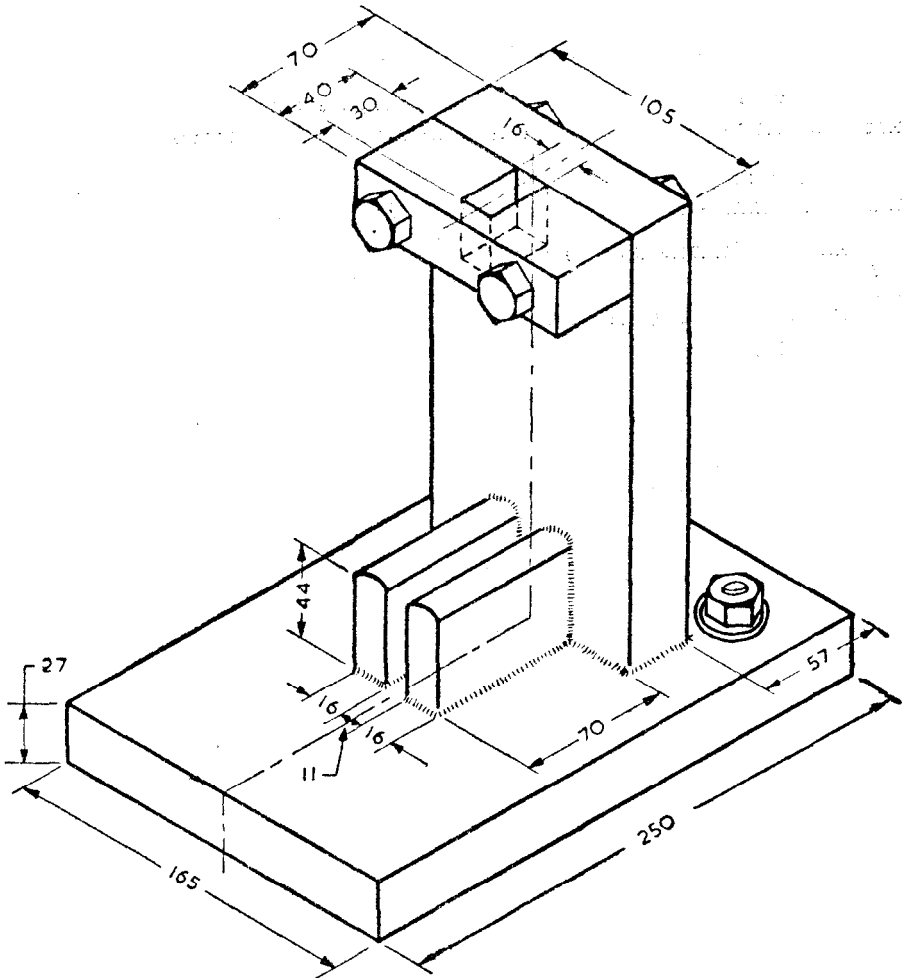
- a) Manufacturer's name or trade-mark, if any;
- b) Tested to 20 000 volts; and
- c) Year of manufacture.

**7.1.1** The axes may also be marked with the ISI Certification Mark.

**NOTE** — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution ( Certification Marks ) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

## **8. CRITERIA FOR CONFORMITY**

**8.1** Each sample shall be examined for the requirements given in this standard.



All dimensions in millimetres.

FIG. 2 DETAILS OF TESTING JIG



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