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IS 12861 (1989): Specification for double bit axe for forest fire [CED 22: Fire Fighting]



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“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

**FIRE FIGHTING — DOUBLE BIT AXE FOR
FOREST FIRES — SPECIFICATION**

भारतीय मानक

अग्नि शमन — दावाग्नि बुझाने के लिए दोहरो नोकदार कुल्हाड़ी — विशिष्ट

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards on 15 December 1989, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

Modern forest fire techniques in suppression of fires are being introduced in the country. Some of the important equipments which are required are relating to hand tools, water handling equipment, etc. On the request of Ministry of Environment and Forest, Indian Standards covering specification for some of the important tools are being formulated so that on the basis of the same, these could be indigenously manufactured in the country and also users could procure these tools of proper specification. This standard covers the specification for double bit axe used for chopping roots, bush and other material for preventing fire in the forest.

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 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

FIRE FIGHTING — DOUBLE BIT AXE FOR FOREST FIRES — SPECIFICATION

1 SCOPE

1.1 This standard covers requirements for double bit axe used for chopping roots, bush and other material for preventing fire in the forest.

2 REFERENCES

2.1 The Indian Standard IS 2992 : 1980 'Specification for wooden handles for bricks and heaters (*first revision*)' is a necessary adjunct to this standard.

3 MATERIALS

3.1 The axe 'Head' shall be forged from fully kilned, plain carbon steel containing 0.72 to 0.93 percent carbon, 0.30 to 0.90 percent manganese, not more than 0.04 percent phosphorus, and not more than 0.05 percent sulphur. The axe bits have a hardness of 54 to 58 on the Rockwell C scale. Bit hardness shall extend to a distance of 30 ± 5 mm back from cutting edges within 25 mm of the eye of the axe. The steel shall have a hardness of not more than 30 on the Rockwell C scale.

4 DIMENSIONS AND TOLERANCES

4.1 The dimensions and tolerances shall be as given in Fig. 1.

5 MASS

5.1 The mass of the axe head shall be 1.59 ± 0.06 kg.

6 PERFORMANCE TESTS

6.1 Alignment

Axe handles shall not be misaligned or warped more than 12 mm from a line formed by extension of the cutting edge of the bits over the knob end of handle when tested for alignment. Before clamping the blade the centre of knob end of axe handle shall be established, accurately as far as possible by usual sight, on its circular or elliptical surface. After clamping the blade vertically, one end of a piece of thread of approximately 4 kg tensile strength shall be taped directly over the cutting edge and the other end shall be fastened to the rule of an ordinary carpenter's square of equivalent. With the thread held tight, slide the square

back and forth until the thread falls directly over the full length of the cutting edge. At this point the distance (measured perpendicular to the handle) between the edge of the square to which the thread is tangent and the centre of the handle knob shall be measured to the nearest 3 mm. The maximum allowable distance shall be 12 mm to the left or right of the handle centre.

6.2 Cutting Test

6.2.1 The axe bit after sharpening shall cut easily through dry, hardwood knots. After striking a minimum of ten (10) heavy blows with each sample axe on hardwood that shall be no evidence of chipping, dulling, or turning over of the cutting edge.

6.3 Handle

6.3.1 The handle shall conform to IS 2992 : 1980 and the requirements given in 6.3.2.

6.3.2 Mallet Test

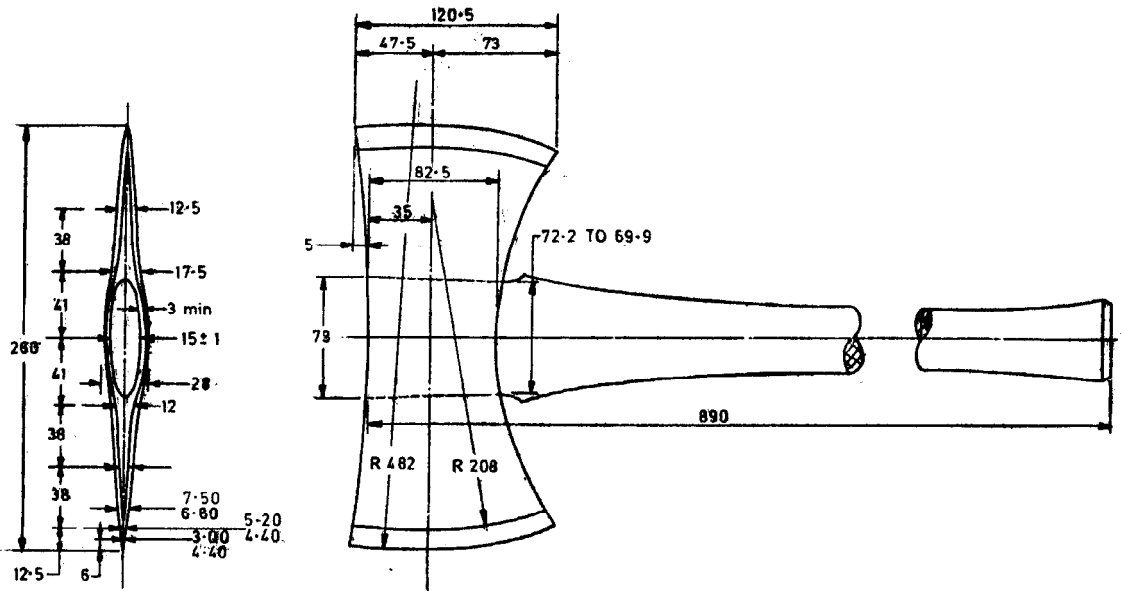
The axe shall be placed flat on a bench or other flat support so that the axe bit overhangs the edge of the support to 75 mm, the remainder of the axe being held manually or mechanically. Two hard blows shall be struck with 175 kg wooden mallet on the overhanging bit. This test shall be made on each side of the bit and any evidence of fracture or deformation of metal resulting from this test shall constitute failure of the sample.

7 WORKMANSHIP AND FINISH

7.1 The axe head shall be free of cracks, laps, cupping and similar defects. The exposed surface except cutting edges shall be ground to a finish having an average roughness of not more than 3 micro-metre. Cutting edges shall be ground to a finish having an average roughness of not more than 75 micro-metre. Axe head, except for bevel parts, shall be painted or enamelled. The bevelled surfaces shall be coated with light oil or wax.

8 MARKING

8.1 Double bit axe shall be marked with the nominal mass and indication of source of manufacture.



All dimensions in millimetres.

FIG. 1 DOUBLE BIT AXE FOR FOREST FIRES

9 SAMPLING AND CRITERIA FOR CONFORMITY

9.1 Sampling

9.1.1 Lot

The tool of the same type produced by the same manufacturer shall be grouped together to constitute a lot.

9.1.2 Each lot shall be considered individually for the purpose of evaluation of quality in accordance with the specification.

9.1.2.1 The number of sample for testing to be taken at random from a lot and the criteria for conformity shall be as given in 9.1.2.2 and 9.1.2.3.

9.1.2.2 From each lot, a number of samples as indicated in column 2 of Table 1 shall be selected at random. They shall be examined visually as far as possible in respect of requirement specified in 4, 7 and 8. All the samples tested shall pass these requirements for the lot to be declared to conform to these requirements.

Table 1 For Lots Produced Under Quality Control System

(Clause 9.1.2.2)

No. of Items in the Lot	Sample Size
(1)	(2)
Up to 25	3
26 to 50	5
51 to 100	6

9.1.2.3 In respect of mass (see 5) and performance test (see 6.1, 6.2 and 6.3.2). One sample shall be tested for each of the property and shall pass the test for the lot to be declared to conform to the requirements.

9.1.2.4 In the absence of a certificate from manufacturer about the conformity of the specification for the material (see 3.1 and 6.3.1), one item shall be taken from each consignment separately and examined individually in respect of the relevant requirement of the specification.

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