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मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 1759 (1986): Powrahs [PGD 6: Earth, Metal And Wood Working Hand Tools]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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*Indian Standard*SPECIFICATION FOR *POWRAHS**(Second Revision)*

1. Scope — Covers the requirements for the following types of *powrahs* intended for general use, supplied in the hardened or unhardened conditions:

<i>Powrah Designation</i>	<i>Figure</i>
West India <i>Powrah</i> 1.6 kg	1
Agri <i>Powrah</i> 1.4 kg, 1.6 kg and 1.8 kg	2A, 2B and 2C
East India <i>Powrah</i> 1.8 kg	3
Bombay <i>Powrah</i> 1.2 kg and 1.4 kg	4A and 4B
Half Moon <i>Powrah</i> 1.4 kg	5
Mysore <i>Powrah</i> (Bent Neck) 1.6 kg	6A
Mysore <i>Powrah</i> 1.8 kg	6B
Swan neck <i>Powrah</i> 1.8 kg	7
Button head <i>Powrah</i> 1.8 kg	8
Kahi <i>Powrah</i> 2.2 kg	9A and 9B
Tanged <i>Powrah</i> 1.6 kg	10

2. Shapes and Dimensions

2.1 The general shapes of *powrahs* shall be as shown in Fig. 1 to 10. The dimensions of the different types of *powrahs* shall be as indicated on the respective figures.

2.1.1 The shape and dimensions of the eye of the *powrahs* (except Kahi *Powrah* which shall be as shown in Fig. 9A and 9B) shall be as given in Fig. 11. The manufacturer may have the option to make the eye slightly oval in which case major axis of the eye shall be along the longitudinal section of the implement and shall not be larger than the minor axis by more than 5 mm.

2.2 If handles are required to be supplied, they shall form a separate item in the enquiry and order. They shall be shaped before fitting to suit the eyes of the *powrahs*. Their shape and dimensions shall be as given in Fig. 12 except that the head portion of the handle should match with the type of eye, round or oval.

2.3 The thickness of the *powrahs* is measured at three places about 25 mm away from the side edges and about 50 mm from the working edge. The average value of these readings which are for the guidance of the manufacturers may be as follows:

<i>Designation</i>	<i>Blade Thickness</i>
West India <i>Powrah</i> 1.6 kg	3.25 mm
Agri <i>Powrah</i> 1.4 kg	3.00 mm
Agri <i>Powrah</i> 1.6 kg	3.25 mm
Agri <i>Powrah</i> 1.8 kg	3.50 mm
East India <i>Powrah</i> 1.8 kg	3.25 mm
Bombay <i>Powrah</i> 1.2 kg	2.25 mm
Bombay <i>Powrah</i> 1.4 kg	2.50 mm
Half Moon <i>Powrah</i> 1.4 kg	2.50 mm
Mysore <i>Powrah</i> (Bent Neck) 1.6 kg	2.50 mm
Mysore <i>Powrah</i> 1.8 kg	3.00 mm
Swan neck <i>Powrah</i> 1.8 kg	2.50 mm
Button head <i>Powrah</i> 1.8 kg	3.00 mm
Tanged <i>Powrah</i> 1.6 kg	3.00 mm
Kahi <i>Powrah</i> 2.2 kg	2.50 mm

Adopted 1 July 1986

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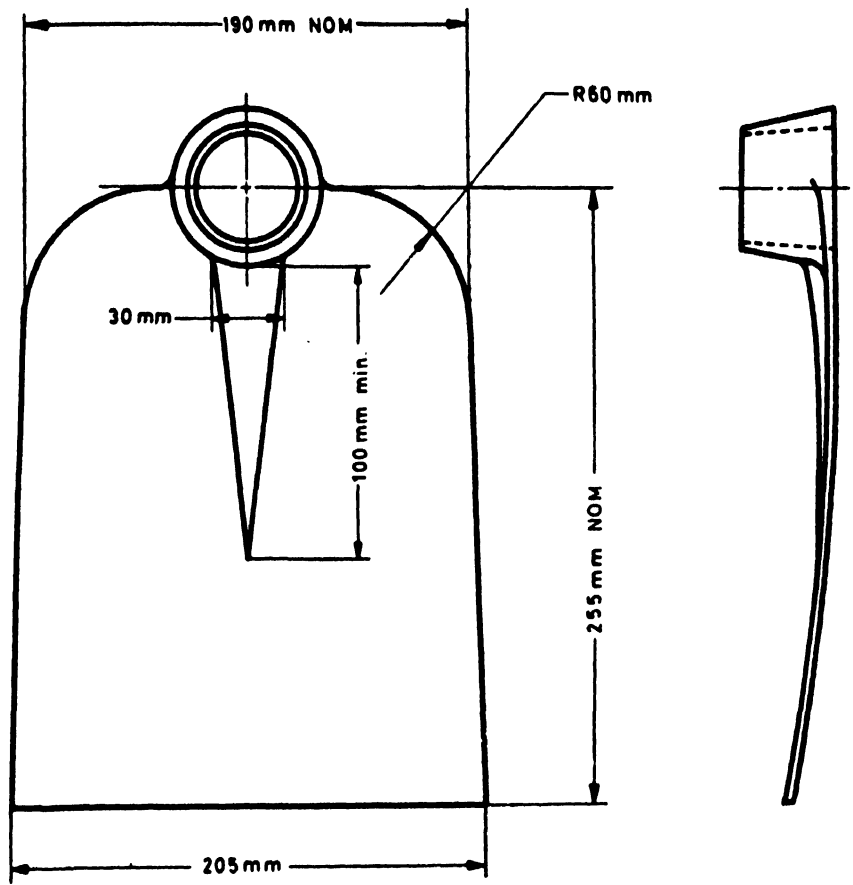


FIG. 1 WEST INDIA POWRAH 1.6 kg

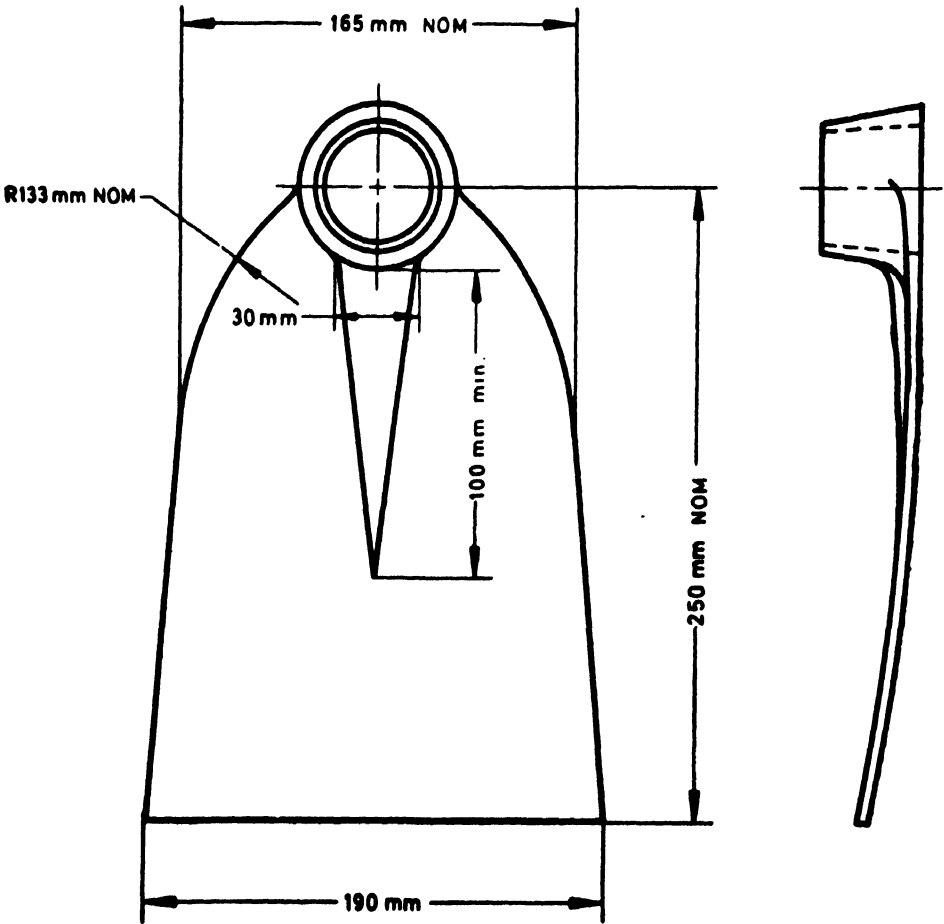


FIG. 2A AGRI POWRAH 1.4 kg

AMENDMENT NO. 1 APRIL 2001
TO
IS 1759 : 1986 SPECIFICATION FOR POWRAHS
(Second Revision)

(Pages 2 and 3, Fig. 2A, 2B and 2C) — Substitute the following for the existing figures:

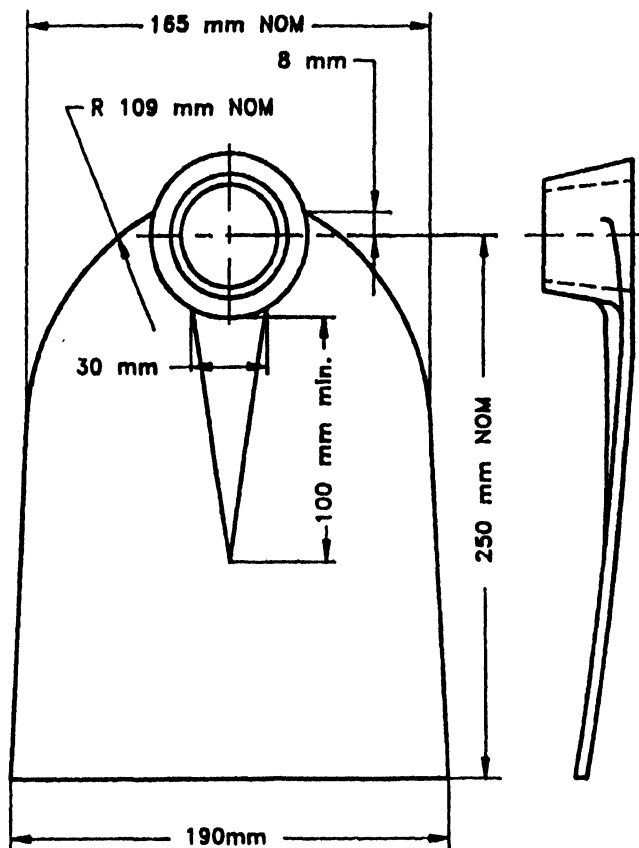


FIG. 2A AGRI POWRAH 1.4 kg

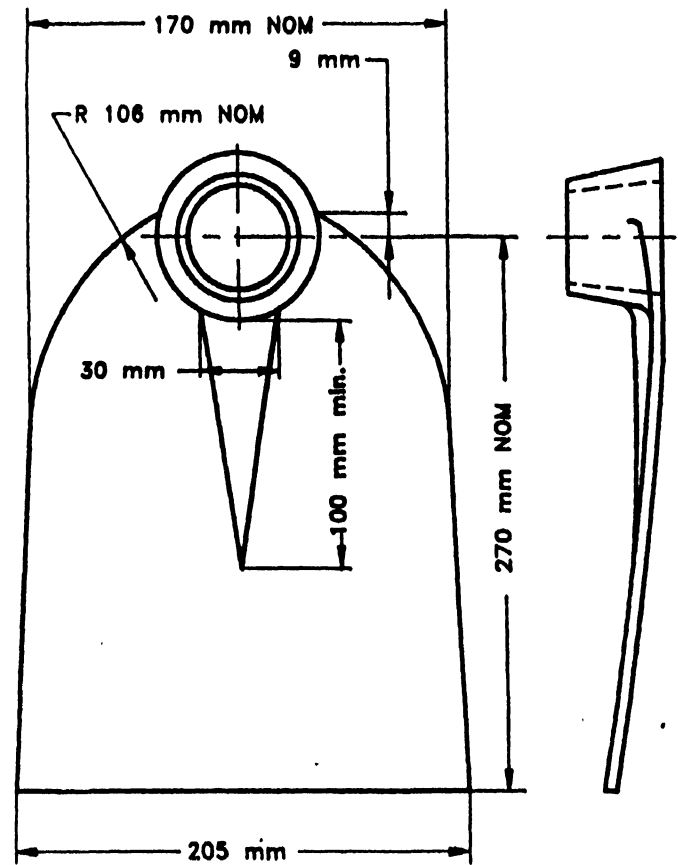


FIG. 2B AGRI POWRAH 1.6 kg

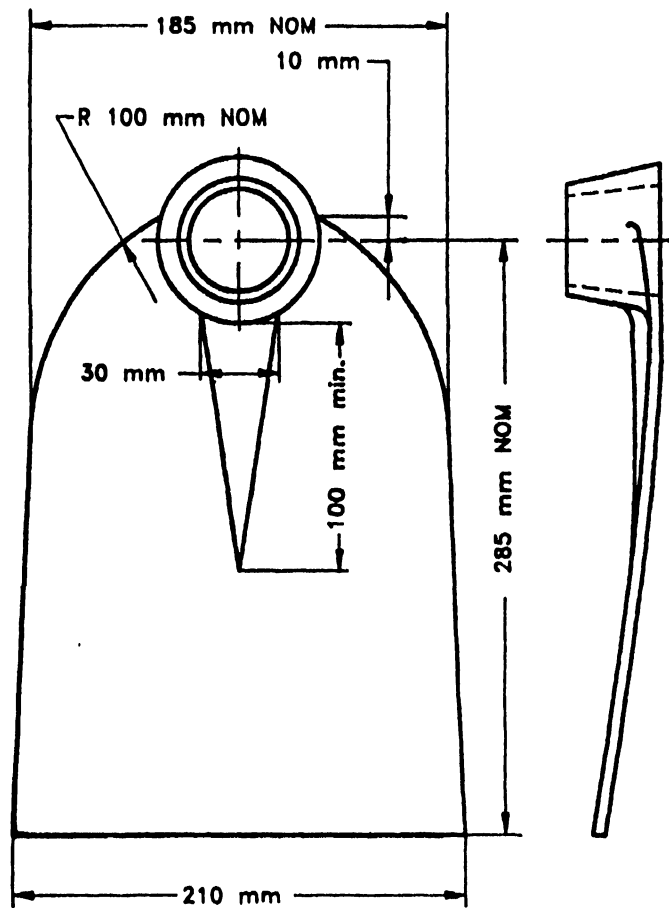


FIG. 2C AGRI POWRAH 1.8 kg

Amend No. 1 to IS 1759 : 1986

(*Page 12, clause 2.4.1, second sentence*) — Substitute the following for the existing:

'Tolerance on other dimensions shall be ± 6 mm.'

(*Page 12, clause 8*) — Substitute the following for the existing:

'8. Designation — *Powrahs* shall be designated by the commonly used name, nominal mass and heat treatment condition of the blade.

Example — *Agri Powrah* of nominal mass 1.8 kg partially hardened may be designated as:

Agri Powrah 1.8 kg Partially hardened IS 1759'

(*Page 13, clause 14*) — Substitute the following for the existing:

'14. Marking — Each *powrah* shall be clearly, legibly and indelibly marked with its nominal mass, the manufacturer's name, initials and/or recognised trade-mark and the heat treatment condition of the blade. In case of unhardened *powrah*, the heat treatment conditions need not be marked.'

(BP 06)

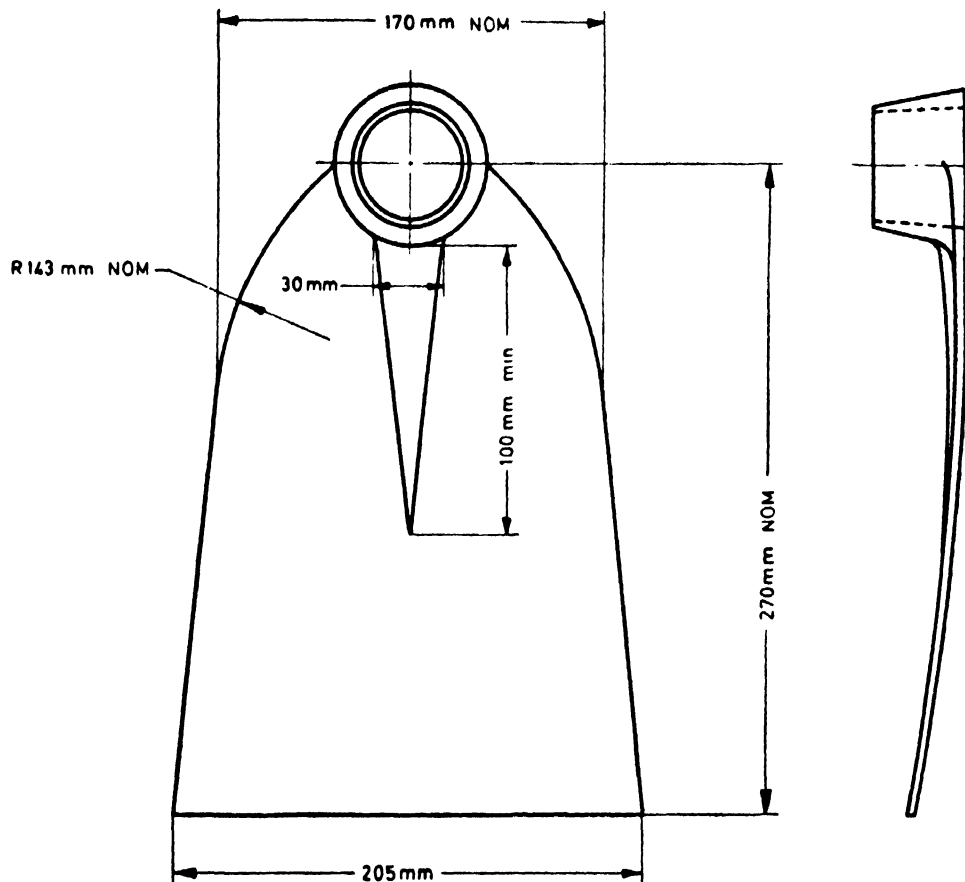


FIG. 2B AGRI POWRAH 1.6 kg

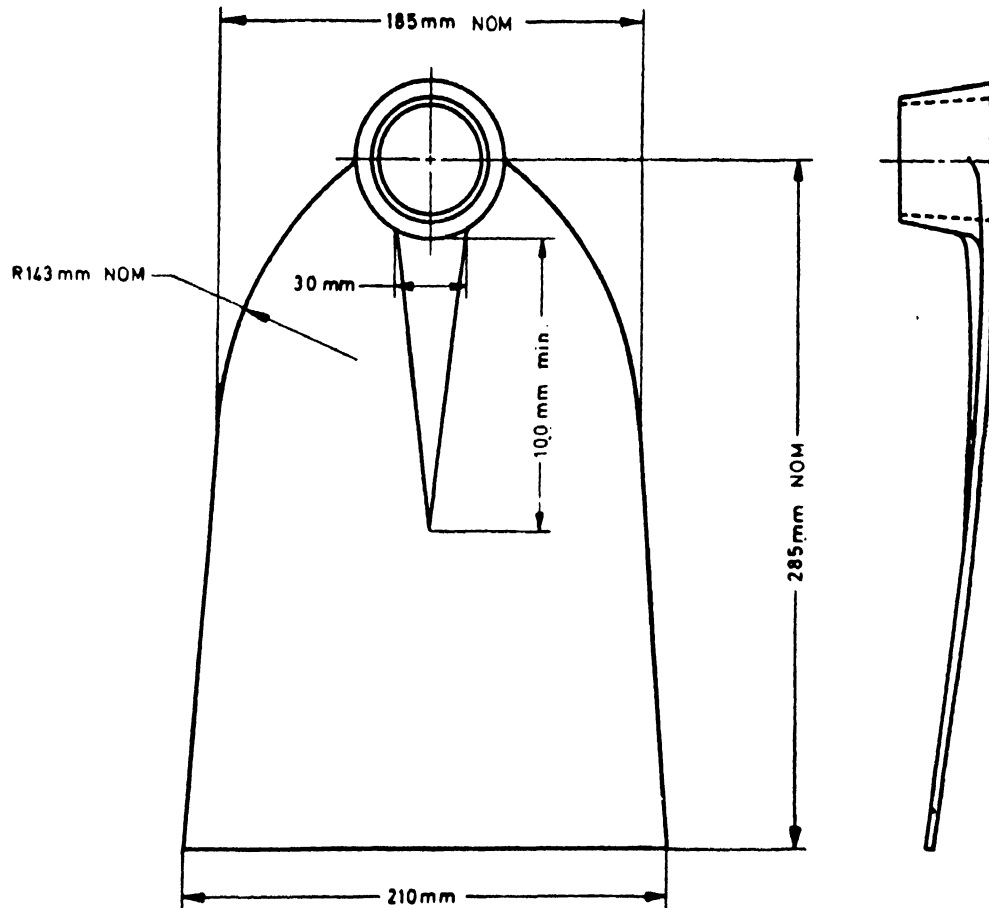


FIG. 2C AGRI POWRAH 1.8 kg

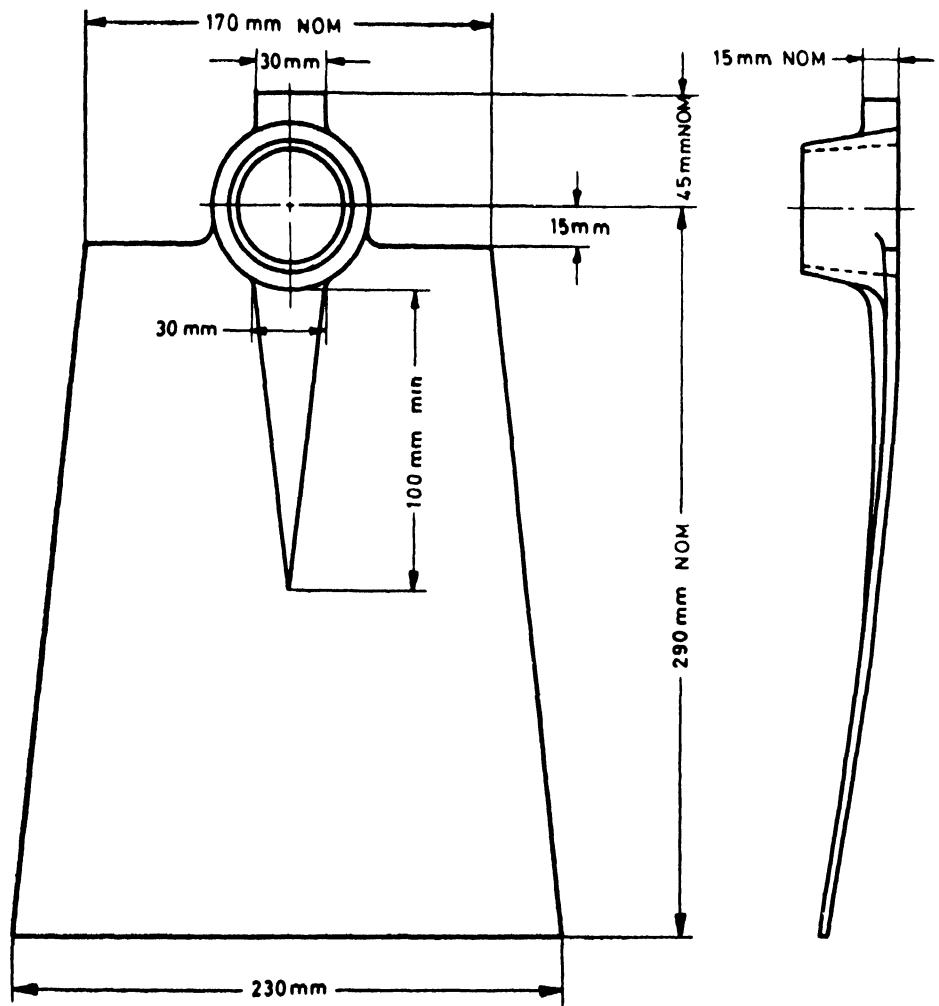


FIG. 3 EAST INDIA POWRAH 1.8 kg

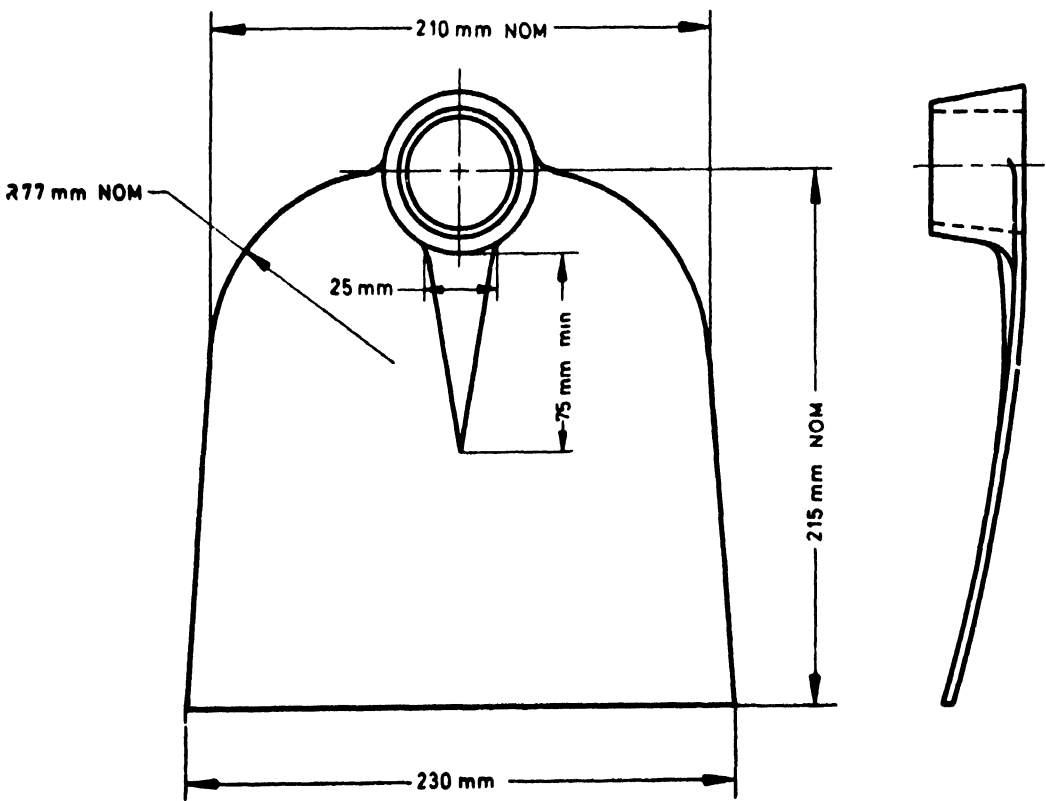


FIG. 4A BOMBAY POWRAH 1.2 kg

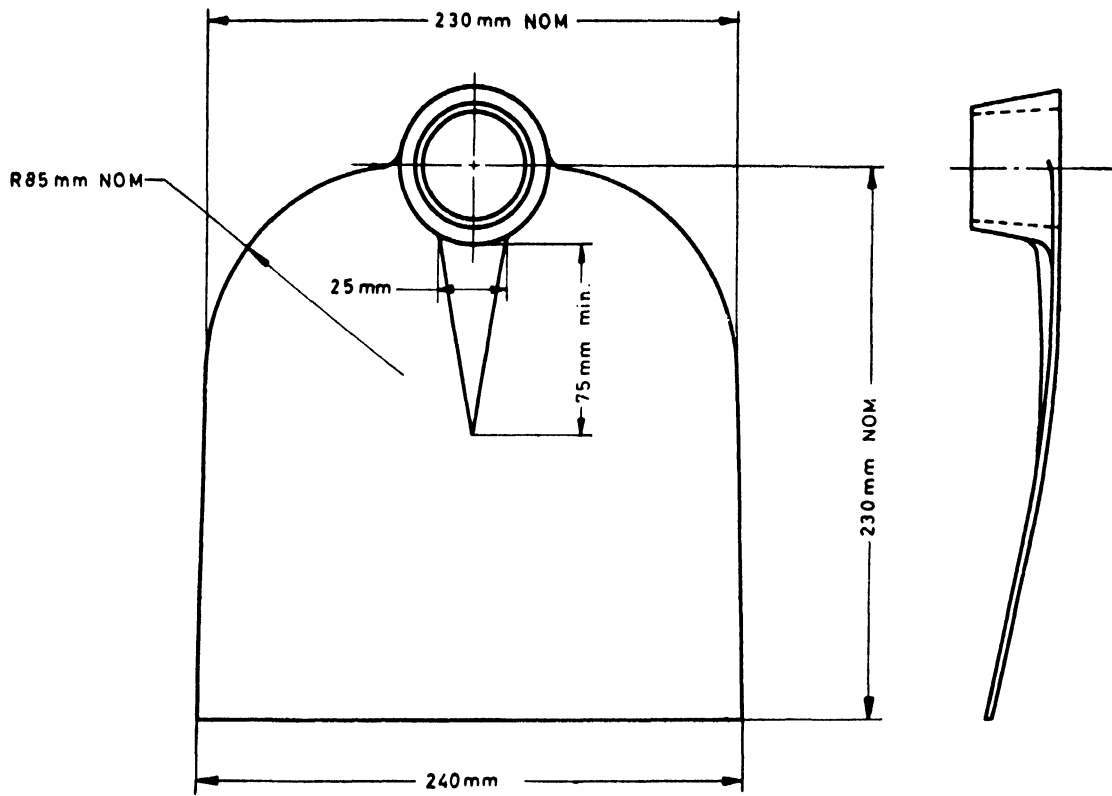


FIG. 4B BOMBAY POWRAH 1.4 kg

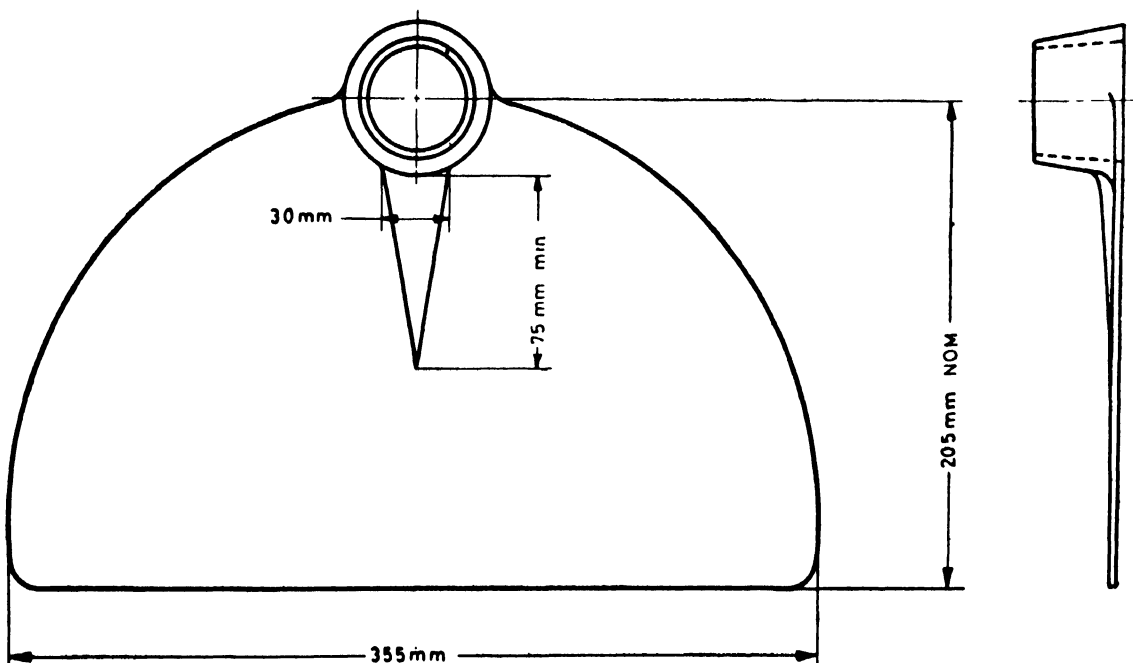


FIG. 5 HALF MOON POWRAH, 1.4 kg

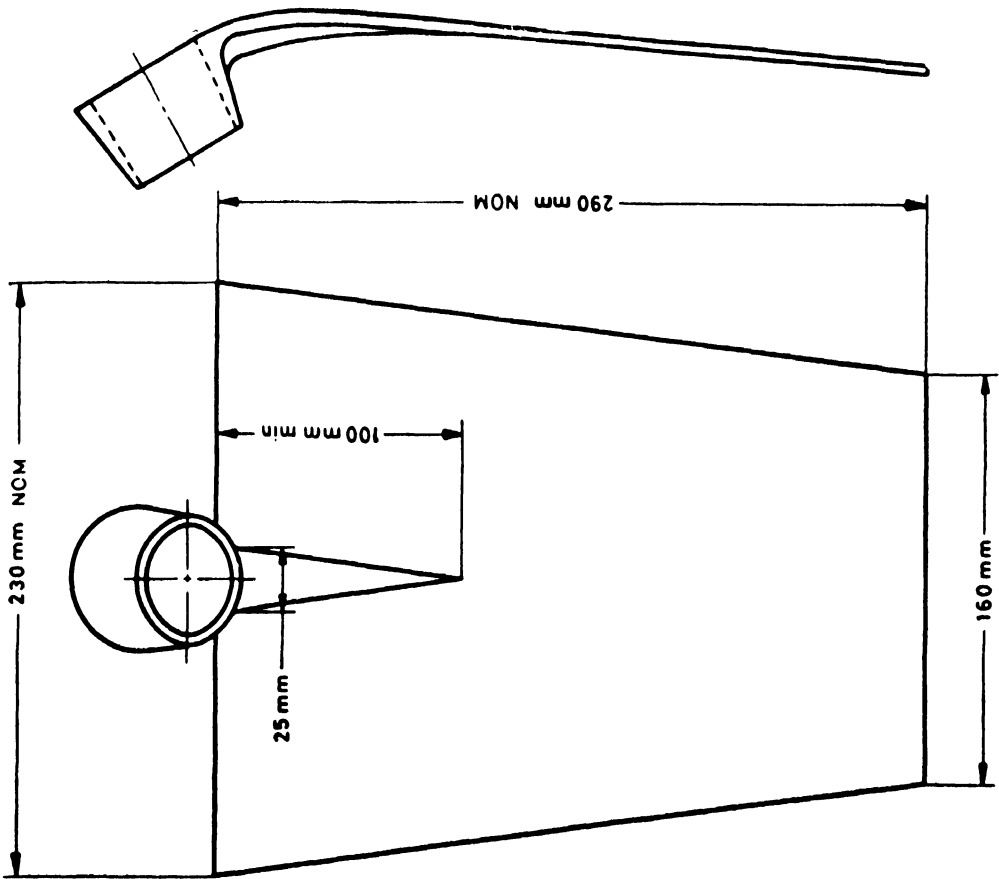


FIG. 6B MYSORE POWRAH 1.8 kg

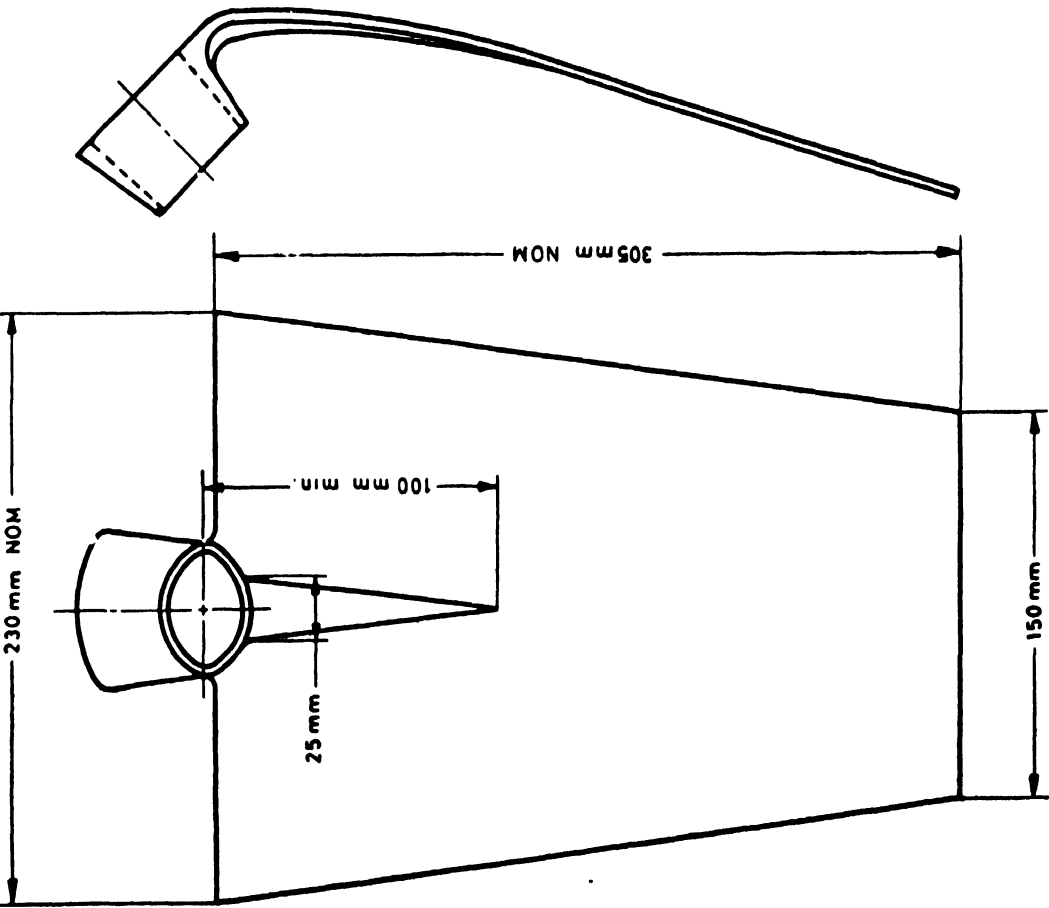


FIG. 6A MYSORE POWRAH, BENT NECK 1.6 kg

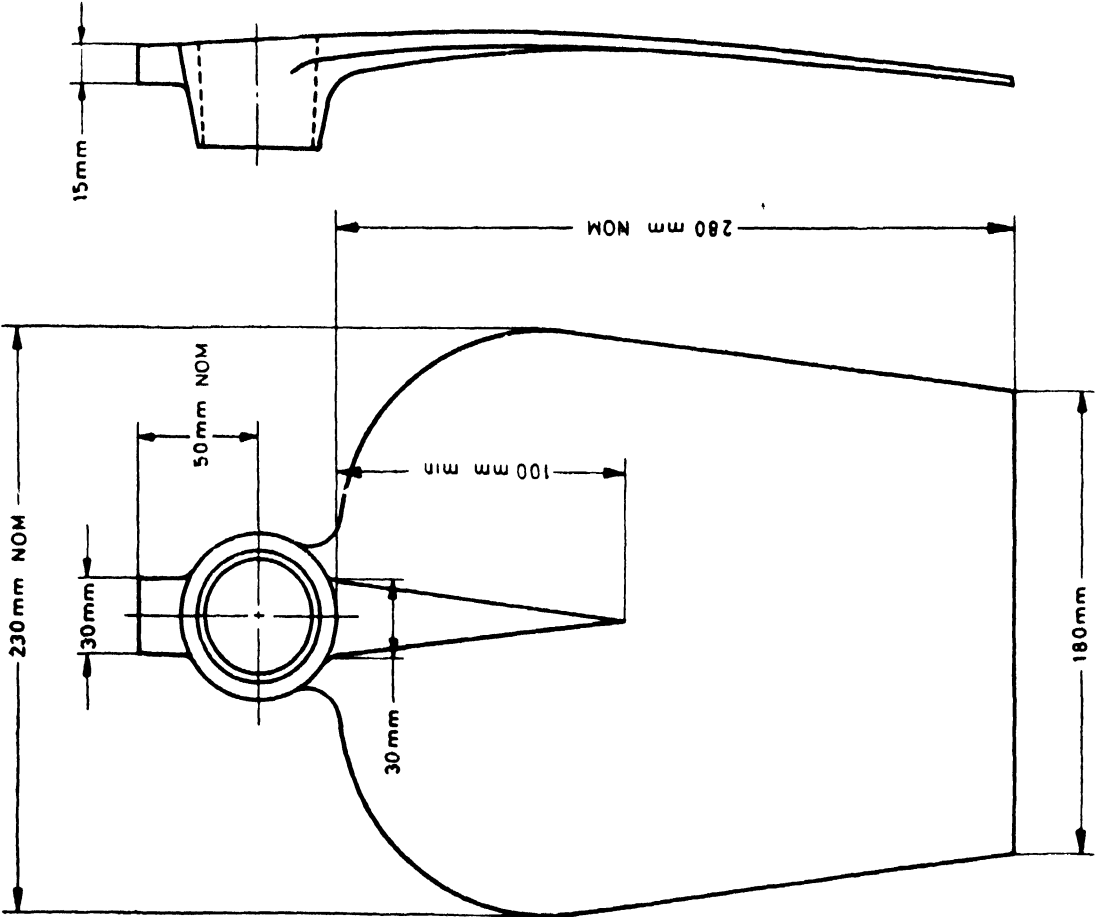


FIG. 8 BUTTON HEAD POWRAH 1.8 kg

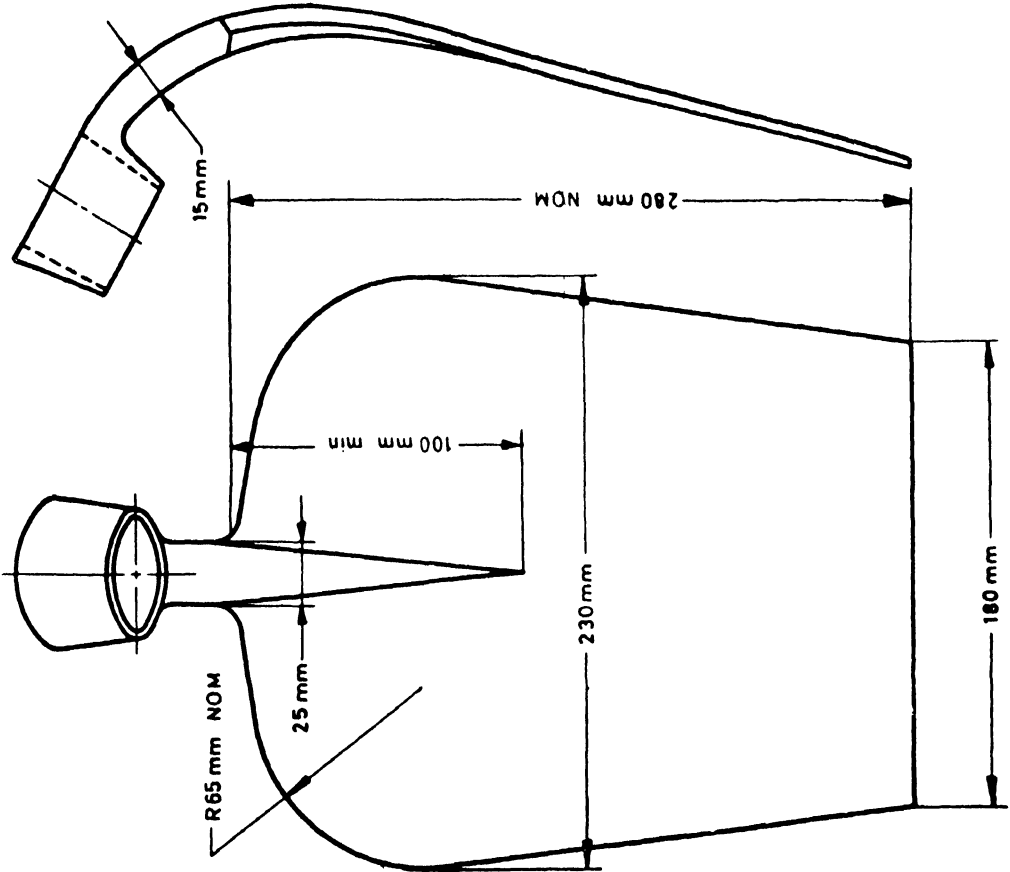


FIG. 7 SWAN NECK POWRAH 1.8 kg

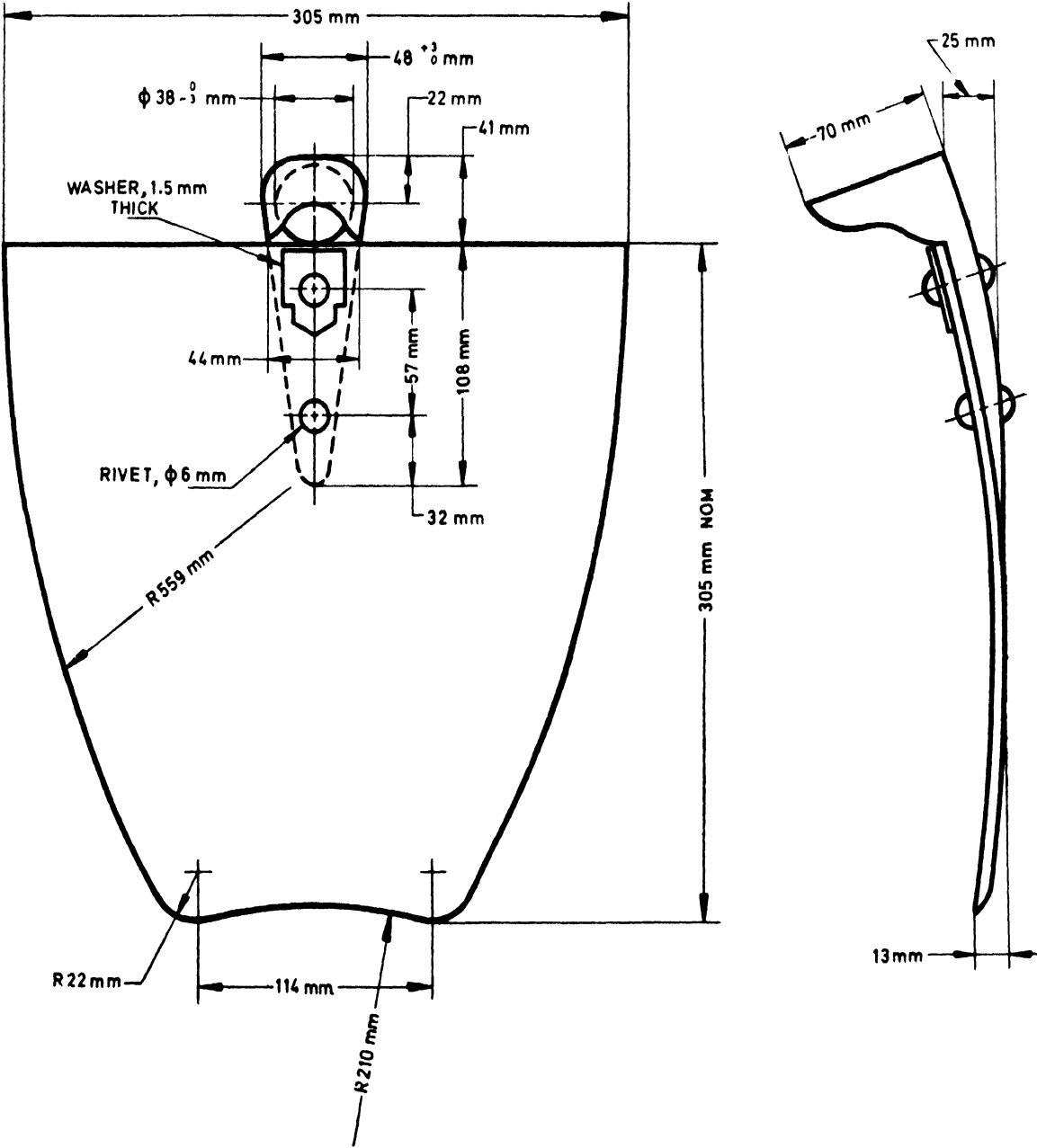
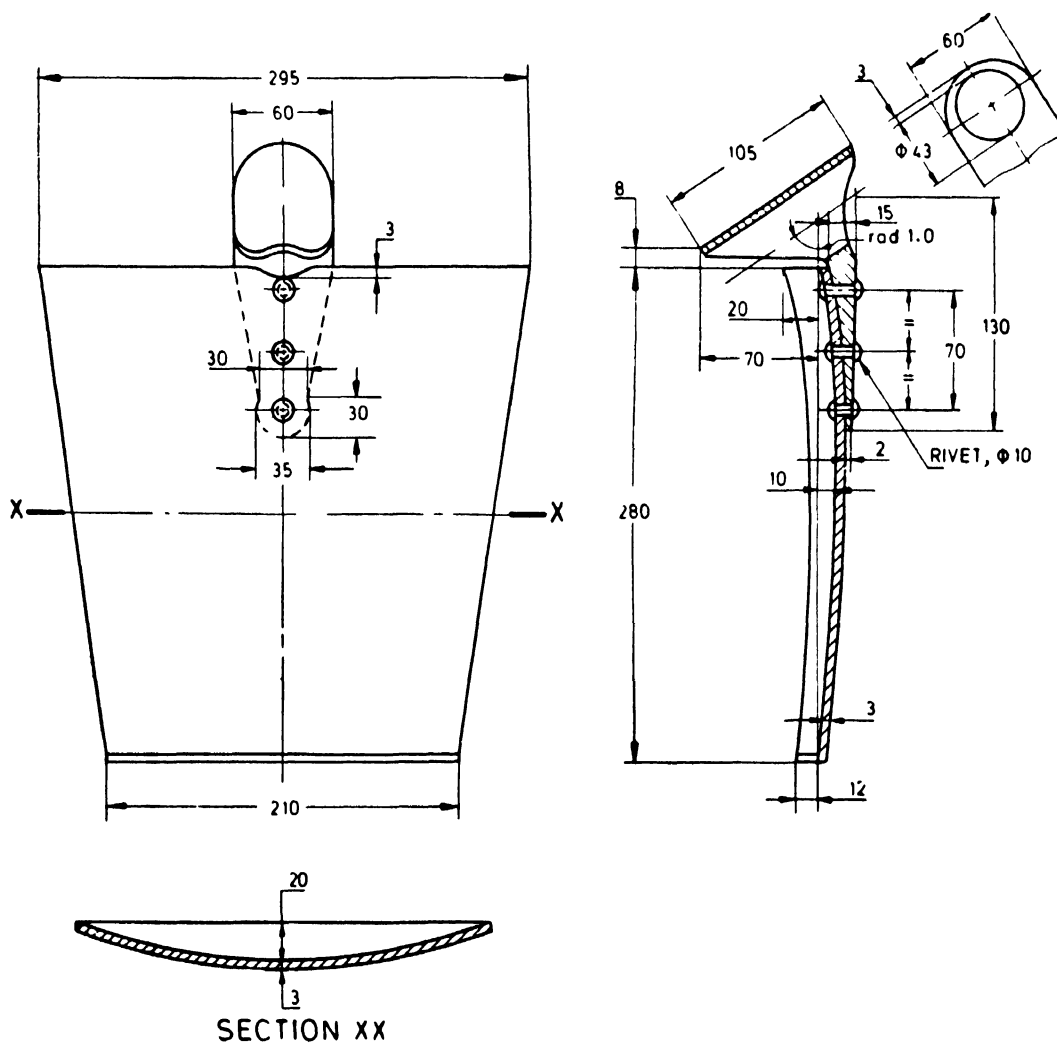


FIG. 9A KAHI POWRAH 2.2 kg



All dimensions in millimetres.
FIG. 9B KAH I POWRAH 2.2 kg TYPE B

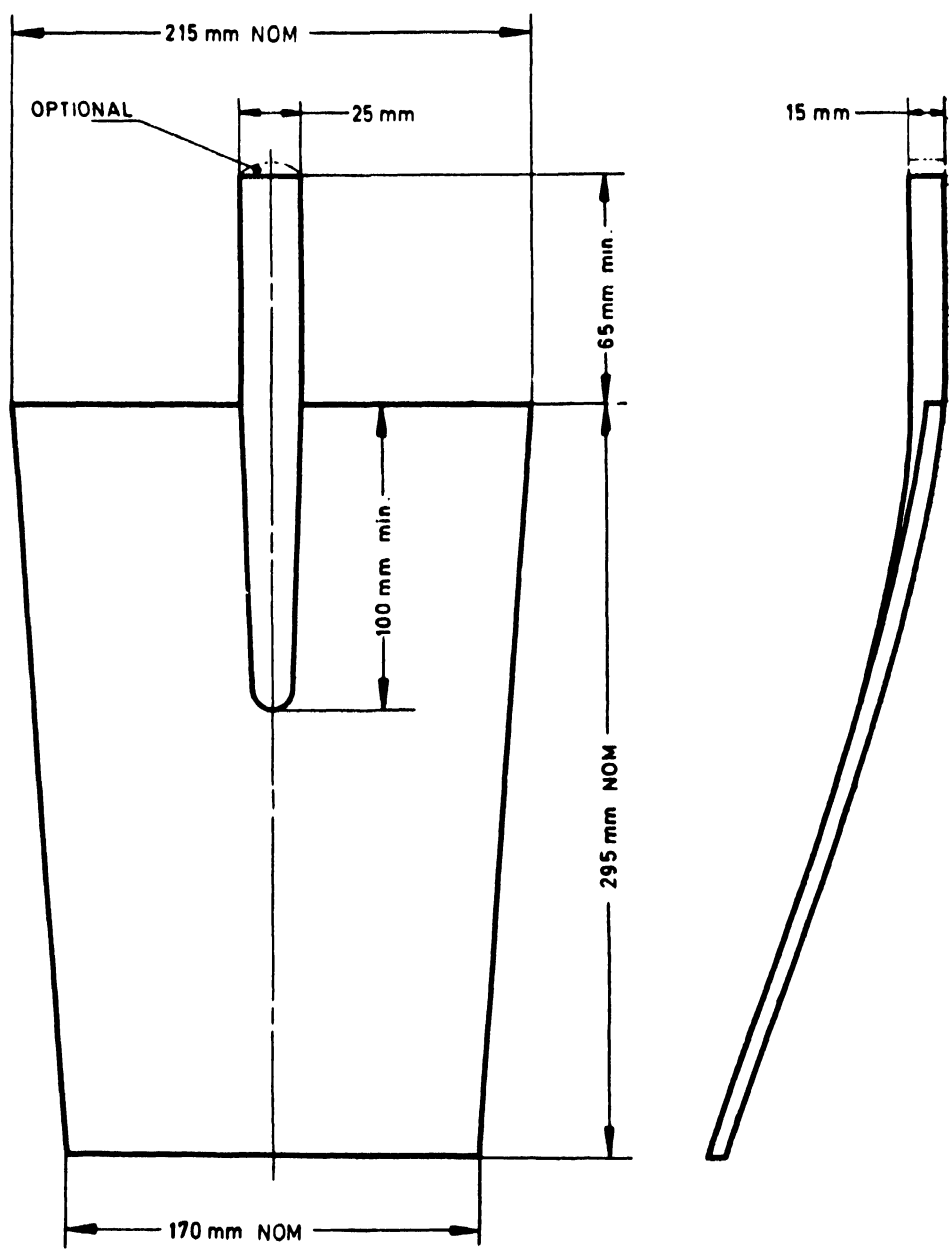


FIG. 10 TANGED POWRAH 1.6 kg

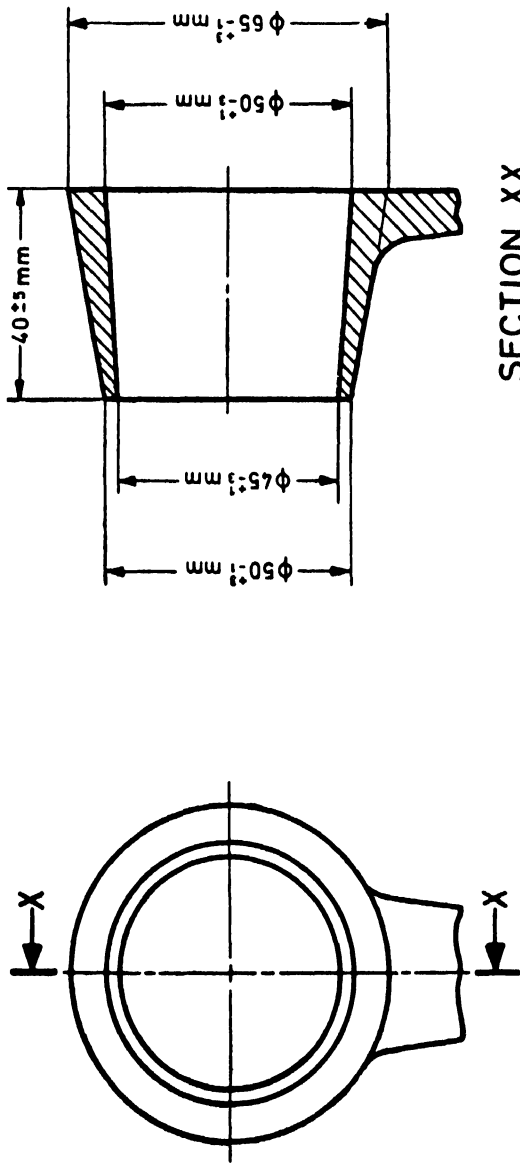


FIG. 11 SHAPE AND DIMENSIONS OF EYE FOR POWRAH
(EXCEPT FOR KAH I POWRAH)

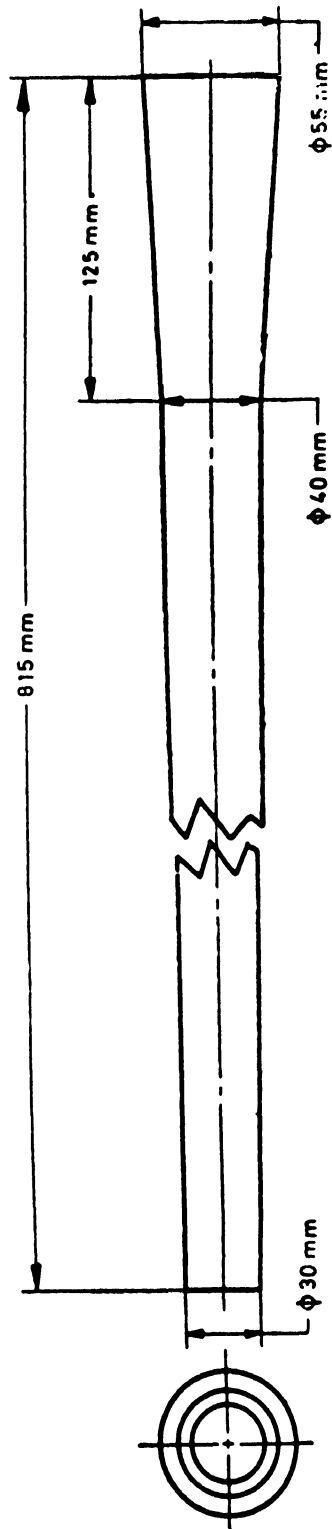


FIG. 12 WOODEN HANDLE FOR POWRAH

2.4 Tolerances on Dimensions

2.4.1 The permissible tolerances on the dimensions of the eye of *powrahs* shall be as indicated in Fig. 9A, 9B and 11. Tolerances on other dimensions shall be in accordance with the general forging practice and shall not exceed ± 6 mm.

2.4.2 Warpage of the blade of the *powrah*, when hardened, shall not exceed 5 mm when measured on the working edge with a straight edge.

2.4.3 The following tolerances shall be permissible on the handles:

- a) Handle end where the eye of the *powrah* fits $+ 6$ mm
0 mm
- b) Overall length $+ 10$ mm
- 5 mm
- c) Length of the tapered portion ± 3 mm
- d) Dia of the handle top $+ 5$ mm
0 mm
- e) Other dimensions ± 5 mm

3. Material

3.1 *Powrahs* — Suitable steels meeting the requirements given in 5.2 and 10.

3.2 *Handles* — When supplied, these shall conform to the requirements of Class 4 specified in IS : 620-1975 'General requirements for wooden tool handles (*second revision*)'.

4. Mass — The mass of *powrahs* shall be as indicated in the respective figures subject to a tolerance of -10 percent.

5. Manufacture

5.1 *Powrahs* shall be forged or rolled in one piece except in case of Kahi *Powrah* in which the eye portion may be separately made and riveted to the blade.

5.2 *Powrahs* shall be supplied either in the hardened (partially or fully) or unhardened condition as specified by the purchaser. When *Powrahs* are supplied in hardened condition, they shall have a hardness of 370 to 470 HV (38 to 47 HRC approx) measured within a distance of about 25 mm from the working edge.

6. Workmanship and Finish

6.1 *Powrahs* shall be well shaped, symmetrical and reasonably free from defects. All fins and flashes produced during forging or rolling shall be dressed to a reasonably level surface. The cutting edge shall be finished ground except East India and Tanged *Powrahs* which may be supplied without grinding on the edges. The manufacturer may, at his option, supply *powrahs* with bright ground surfaces above the cutting edges.

6.2 The handles, when supplied, shall be properly formed and smoothly finished.

7. Preservative Treatment

7.1 The *powrahs* shall be varnished all over, or shall be coated with standard quality anti-corrosive paints. The manufacturer may at his option coat the inside of the eye with an anti-corrosive paint.

7.2 Handles of *powrahs* shall be given a preservative treatment before assembly when specifically required by the purchaser and stated in the enquiry/order.

8. Designation — *Powrahs* shall be designated by the commonly used name and nominal mass.

Example :

Agri Powrah 1.8 kg IS: 1759

9. Sampling — Unless otherwise agreed to between the purchaser and the supplier for sampling inspection, the methods given in IS : 2500 (Part 1)-1973 'Sampling inspection tables: Part 1 Inspection by attributes and by count of defects (*first revision*)' shall be followed. The inspection level and acceptable quality level (AQL) for various characteristics shall be as given in 9.1 and 9.2.

9.1 For dimensions and visual examination, the single sampling plan with inspection level IV and AQL 4 percent as given in Tables 1 and 2 of IS : 2500 (Part 1)-1973, shall be followed.

9.2 For hardness and drop test, the sampling plan with inspection level I and AQL 2.5 percent as given in Tables 1 and 2 of IS : 2500 (Part 1)-1973 shall be followed.

10. Tests

10.1 Drop Test — The samples of *powrahs* drawn in accordance with 9.2 shall be tested by dropping them, under gravity, from a height of about 600 mm on a mild steel plate of not less than 25 mm thickness. The working edge shall as far as possible strike the mild steel plate squarely and shall not show any sign of fracture or deformation.

11. Retests — Should samples selected as described under 9.2 and tested, as described in 5.2 and 10.1 or samples selected as described in 9.1, fail to meet the requirements, the bulk represented by them shall be liable for rejection; but at the option of the manufacturer retest with double the number of original samples may be conducted. If the retest fails, the lot is deemed to be rejected, unless the customer and the manufacturer agree that the defects are rectifiable, in which case, after rectification, the material be subjected to fresh tests.

12. Works Inspection — The manufacturer shall maintain a system of works inspection at all stages of manufacture to ensure that the *powrahs* are free from all manufacturing defects and comply in all respect with the requirements of this specification.

13. Testing and Inspection Facilities

13.1 The manufacturer shall supply, free of cost, the required sample, or samples, the labour and appliances for such testing as may be carried out by the purchaser or his authorized representative in accordance with this specification, at the premises of the manufacturer or at any other place mutually agreed upon.

13.2 The purchaser or his authorized representative shall normally have free access to the works of the manufacturer at all reasonable times to inspect the manufacture of *powrahs* at any stage. The manufacturer shall, however, have the option, subject to mutual agreement prior to the acceptance of an order, to impose limitations on the foregoing.

14. Marking — Each *powrah* shall be clearly, legibly and indelibly marked with its nominal mass, the manufacturer's name, initials and/or recognized trade-mark.

14.1 ISI Certification Marking — Details available with the Indian Standards Institution.

15. Packing — The *powrahs* shall be securely packed in suitable packing cases, or crates, of a size convenient for handling in transit, or bundled and secured suitably with wire as may be mutually agreed upon between the purchaser and the manufacturer. Each type and size of *powrahs* shall be kept separate when packed, and no package shall contain more than one variety of *powrahs*.

EXPLANATORY NOTE

This standard was first published in 1961. Its first revision was taken in 1980, when the following types of *powrahs*:

- a) *Agri Powrah*, 1.4 kg;
- b) *Bombay Powrah*, 1.2 kg;
- c) *Kahi Powrah*, 2.2 kg; and
- d) *Tanged Powrah*, 1.6 kg.

were included whereas *Bombay Powrah* 1.1 kg was deleted.

This revision has been taken up to bring the standard in line with the current manufacturing practices prevalent in the country. The thickness of the blade has been declared nominal and the mass of the *powrah* is toleranced as per the prevalent practices. Another type of *Kahi Powrah* 2.2 kg is also included and the dimensions on curve of the *powrah* has been declared nominal, since it is difficult to measure the exact dimensions. Eye dimensions have also been modified.