

DRAFT UGANDA STANDARD

Second Edition
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Hoes — Specifications



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The Executive Director
Uganda National Bureau of Standards
P. O. Box 6329
Kampala
Uganda
Tel: +256 414 333 250/1/2/3
Fax: +256 414 286 123
E-mail: info@unbs.go.ug
Web: www.unbs.go.ug

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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to co-ordinate the elaboration of standards and is

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Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 4, Mechanical Engineering and Metallurgy

This second edition cancels and replaces the first edition (US 220:2003), which has been technically revised.

Hoes — Specifications

1 Scope

This Working Draft Uganda Standard specifies the requirements for forged jembes; both plain and fork jembes used for digging.

2 Normative references

The following referenced documents referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DUS ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Designation

A hoe shall be designated by the types of eye and the nominal weight given in Tables 1 to 5, for example plain hoe round eye 1.3 kg.

5 Type, dimensions and tolerances

5.1 Type

5.1.1 Plain hoes

A plain hoe may be one of the following types:

- a) Raised eye plain hoe



Figure 1 — Raised eye plain hoe

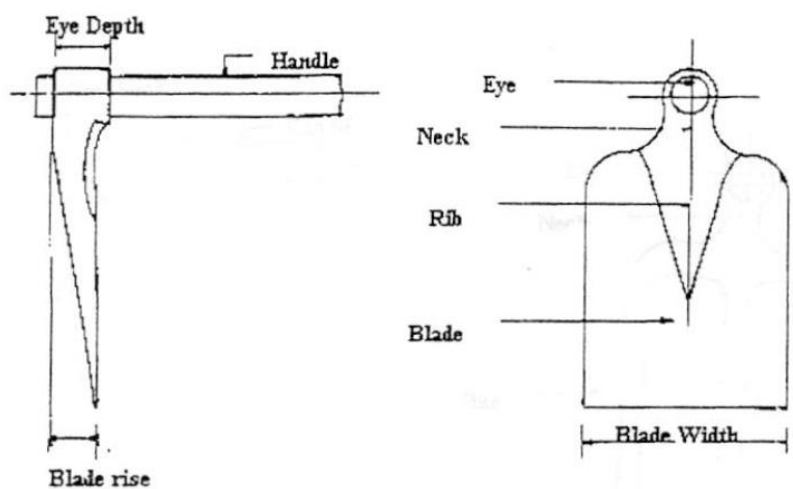


Figure 2 — Labelled raised eye plain hoe

by Sunken eye plain hoe



Figure 3 — Sunken eye plain hoe

c) Hammer head plain hoe



Figure 4 — Hammer head plain hoe

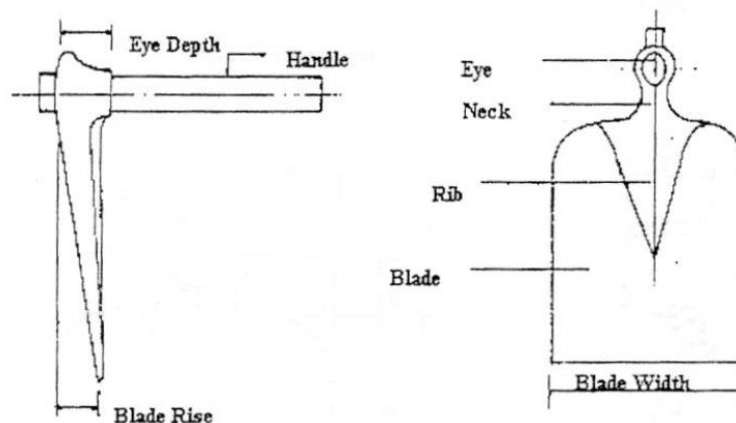


Figure 5 — Labelled hammer head plain hoe

5.1.2 Fork hoes

A fork hoe shall have 3 or 4 tines.



Figure 6 — Fork hoe with four tines

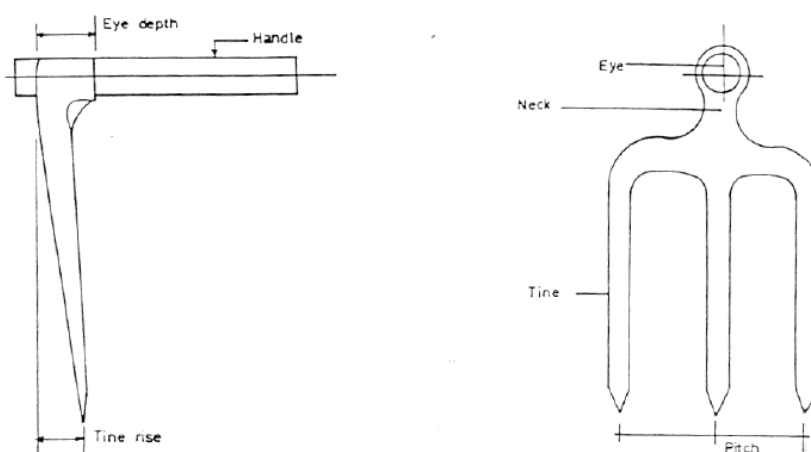


Figure 7 — Labelled fork hoe

5.2 Dimensions and tolerances

The dimensions and tolerances shall be as specified in Figures 8 to 11 and Tables 1 to 4

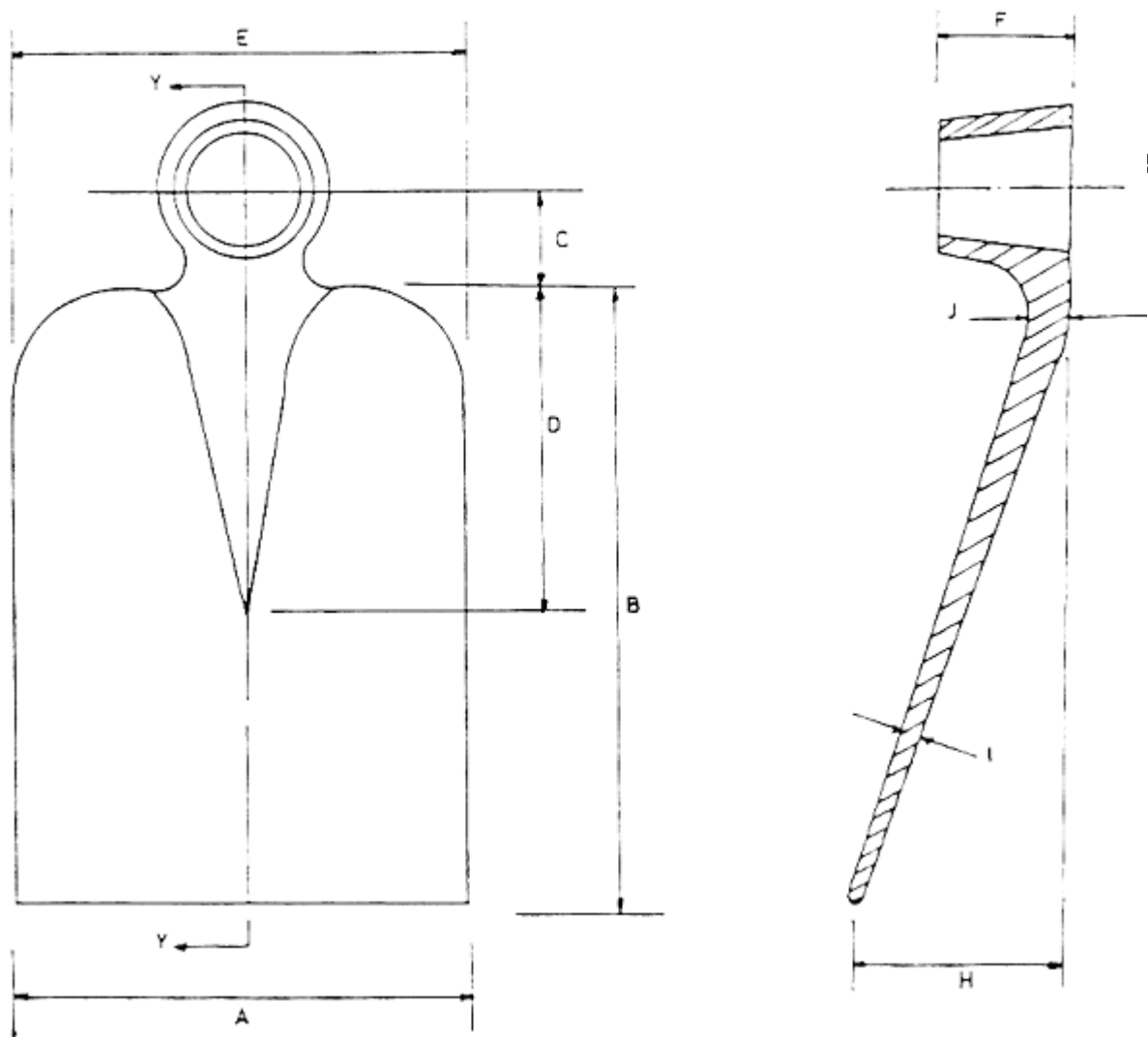


Figure 8 — Raised eye plain hoe showing dimensions

Table 1 — Minimum dimensions of plain hoe

Designated weight kg	Dimensions mm								
	A	B	C	D	E	F	H	J	t
0.7	115	175	30	110	115	38	40	7.0	2.5
1.2	150	210	35	110	140	40	40	9.0	2.5
1.3	165	225	35	110	160	40	40	9.0	2.5
NOTE – For details of the eye see figure 5 table 5									

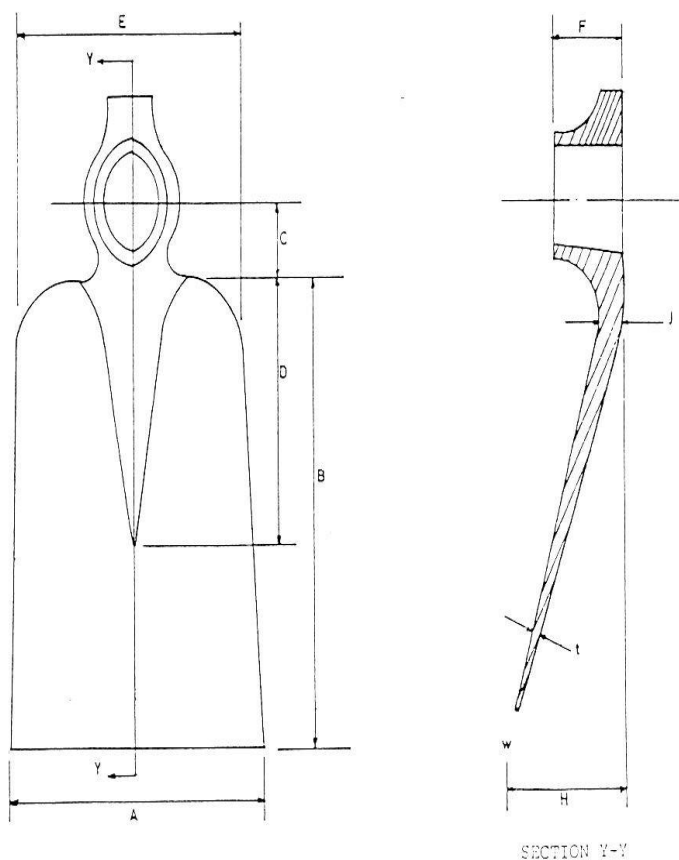


Figure 9 — Hammer head plain hoes showing dimensions

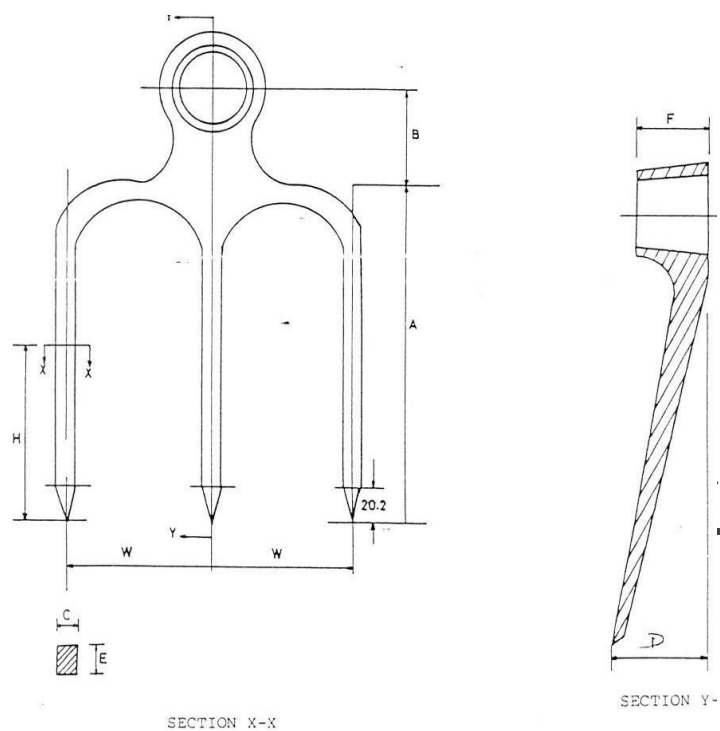


Figure 10 — Fork hoe dimensions

Table 2 — Minimum dimensions of fully forged fork hoes

Designates weight kg	Dimensions mm								
	A	B	C	D	E	F	H	W	
								3 tines	4 tines
1.2	200	35	8	45	13	32	100	70	46
1.7	290	35	10	55	16	40	145	85	50
NOTE – For details of the eye see figure 11 table 4									

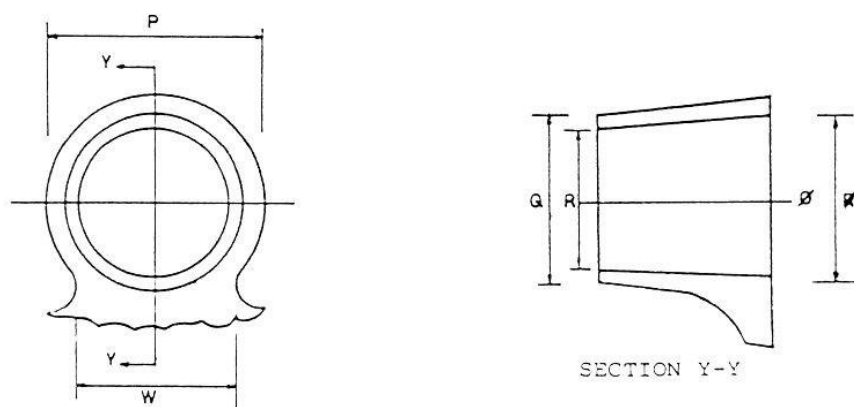


Figure 11 — The eye: Round eye for plain and forked hoes

Table 3 — The eye: Round eye for plain and fork hoes

Designate weight kg	Dimensions mm		
	Q	P	R
	± 2	± 2	± 2
0.7	38	36	31
1.2	40	43	31
1.3	40	43	31

6 Material

6.1 Chemical composition

The material used for making both the plain and fork hoes shall be from carbon steel complying with the chemical composition by weight given in Table 5

Table 5 — Chemical composition by weight of carbon steel

Constituent	Specified range	
	min.	max.
Carbon	0.55	0.80
Manganese	0.60	1.5
Silicon	0.15	0.35
Phosphorous	-	0.06
Sulphur	-	0.06

6.2 Impact Strength

The hoe shall not show any permanent set, crack or sign of failure when tested in accordance to methods described in 8.1

6.3 Hardness

The blade of plain hoes and tines of fork hoes shall undergo suitable heat treatment and shall have hardness values ranging from 45 to 50 HRC

A minimum 40 mm from the working end shall be fully hardened and tempered. Testing shall be done in accordance with 8.2

7 Construction and finish

7.1 The plain hoes and fork hoes shall be fully forged.

7.2 Forging shall be symmetrical, well-shaped and free from flaws, seams, cracks, and any other surface defect. All fins and flashes produced during forging shall be dressed to a reasonably smooth surface. The eye shall be symmetrical.

7.3 The blade of the plain hoes and tine tip of fork hoes shall be given a ground working edge and shape as shown in Figures 8 to 12.

7.4 The plain and fork hoes shall be suitably protected against corrosion while in storage.

8 Tests

8.1 Impact test

8.1.1 Plain hoes

The tool is fitted with a temporary handle made from a metal tube and clamped as shown in Figure 13. A load of 30 kg is applied in increments of 5 kg, suspended from the handle at a distance of 1 000 mm from the eye (the handle may not necessarily be horizontal). On removal of the load, the tool must not show any permanent set, crack or sign of failure.

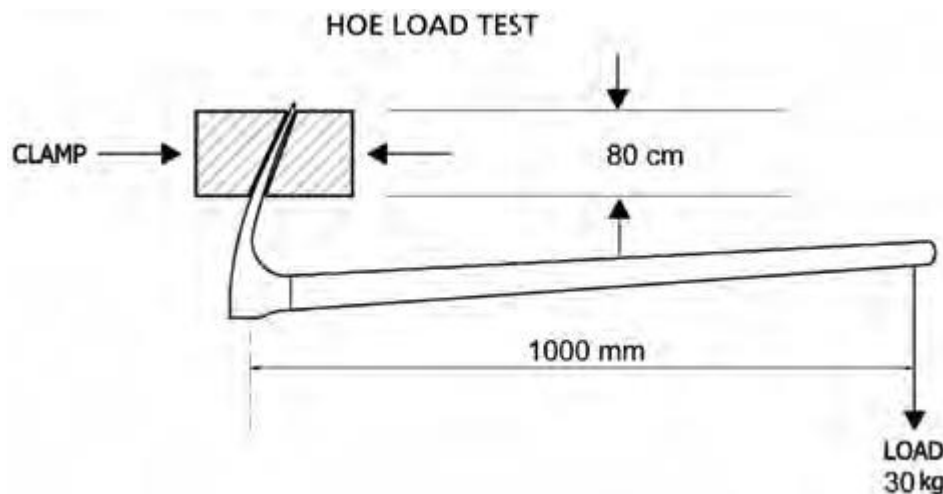


Figure 12 — Clamping arrangement for hoes

8.1.2 Fork hoes

The fork hoe is fitted with a temporary handle made from a metal tube and clamped with the handle vertical and supported below the head as shown in Figure 14. A load of 30 kg is applied in increments of 5 kg, suspended from one of the tines at a distance of 15 mm from the tip. On removal of the load, the tine must not show any permanent set, crack or any sign of failure. Each tine is tested in a similar manner.

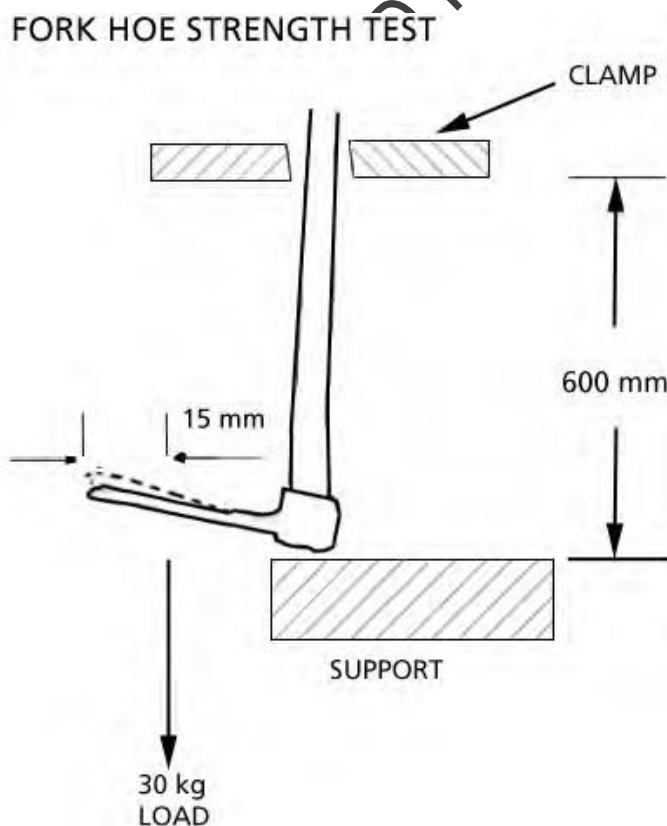


Figure 13 — Clamping arrangement for fork hoes

8.1.3 Double-headed hoe

The tool is tested in two stages. Firstly the hoe blade is tested as indicated above in 8.1.1. Then the fork tines are tested as described above in 8.1.2.

8.2 Hardness test

Hardness of hoes shall be tested in accordance with the standard DUS ISO 6508-1.

9 Sampling

9.1 Lot

9.1.1 If the entire shipment is of homogenous quality then in effect, the shipment shall comprise a single lot. A sample of specified size may then be selected directly upon opening the shipment.

9.1.2 If the lot is composed of boxes (for instance, each from a different manufacturer) then sampling shall be conducted in two stages. First select a sample number of boxes and then select a sample of hoes from within each selected box.

9.1.3 Once the samples have been selected, they shall be legibly marked (for example 1, 2, 3, etc.) and the box from which they were taken also marked so that each can be sourced back to the box from which it was taken.

9.2 Sample size

A Zero-based Acceptance Sample shall be selected based on an Acceptable Quality Value of 2.5 %. The sample sizes to be selected are as indicated in Table 4.

Table 4 — Acceptable Quality Level (AQL) of 2.5%

Lot size	Sample size
Less than 90	7
91 to 150	11
151 to 280	13
281 to 500	16
501 to 1 200	19
1 201 to 3 200	23
3 201 to 10 000	29
10 001 to 35 000	35
35 001 and above	40

10 Marking

10.1 Each hoe shall be marked with the following particulars:

- a) manufacturers name and/or trade mark;
- b) batch or code number; and

10.2 Each packaging material shall have the following information legibly marked on it;

- a) manufacturers name and/or trade mark;
- b) batch or code number;
- c) country of origin

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Bibliography

- [1] *Agricultural hand tools in emergencies — Guidelines for technical and field officers*
- [2] *US 220:2003, Hoes — Specifications*

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