DEAS 1180:2023

ICS: 53.120

DRAFT EAST AFRICAN STANDARD

Picks, beater picks, mattocks — Specification

EAST AFRICAN COMMUNITY

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

DEAS 1180:2023 was prepared by Technical Committee EASC/TC 042, *Production and general engineering*.

Picks, beater picks, mattocks — Specification

1 Scope

This draft East African Standard describes the specification for picks, beater picks and mattocks. It covers two types of picks, one type of beater pick and six types of mattocks.

2 Normative references

The following referenced documents are indispensable for the application 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.

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

3 Terms and definitions

For the purpose of this standard, the following terms and definitions apply

3.1 pick

a T-shaped hand tool for breaking hard surfaces or prying, with a long wooden handle and a curved metal bar with a sharp point.

3.2 beater pick

tool that has a diamond-pointed end, a tee end, and an eye at its centre for the insertion of a handle.

3.3 mattock

an agricultural hand tool used for loosening the soil, digging up and cutting roots but having one end broad instead of pointed (a chisel edge).

3.4 shaft

part of the handle which fits into the socket of the implement at one end and is attached to the hilt at the other end.

4. Requirements

4.1Type

Picks and mattocks shall be of one of the types listed in column 1 of table 1 and shown in figures 1 - 5.

Table 1 — Dimensions and masses of picks, beater picks and mattocks

1	2	3	4	5	6	7	8	9	10	11	12
Type of tool	Dimensions, (mm)										Mass Kg, min
	L	L1*	L2*	H(nom.)	h1*	h2*	$d_{\#}$	w^{*}	$t_{\#}$	b^{+}	
Type A pick having a diamond-pointed end and a chisel end	660	330	330	70	70	70	-	-	-	35	3.00
Type B pick having both ends diamond-pointed	660	330	330	70	70	70	-	-	-	-	3.00
Beater pick having a diamond pointed end and a tee end	600	320	280	70	70	55	40	-	25	75	3.60
Type A mattock having a diamond-pointed end and a mattock end	450	240	210	70	50	30	-	-	-	100	2.25
Type B mattock having a diamond-pointed end and a mattock end	510	270	240	70	50	30	-	-	-	115	2.75
Type C mattock having a diamond-pointed end and a mattock end	545	290	255	70	50	30	-	-	-	120	3.00
Type D mattock having a cutter end and a mattock end	380	180	200	70	25	-	-	65	-	100	2.25
Type E mattock having a cutter end and a mattock end	430	200	230	70	30	-	-	65	-	115	2.75
Type F mattock having a cutter end and a mattock end	450	210	240	70	40	-	-	65	-	120	3.00

* Subject to tolerance of ±10 mm.

+ Subject to a tolerance of ±5 mm.

Subject to a tolerance of ±3 mm.

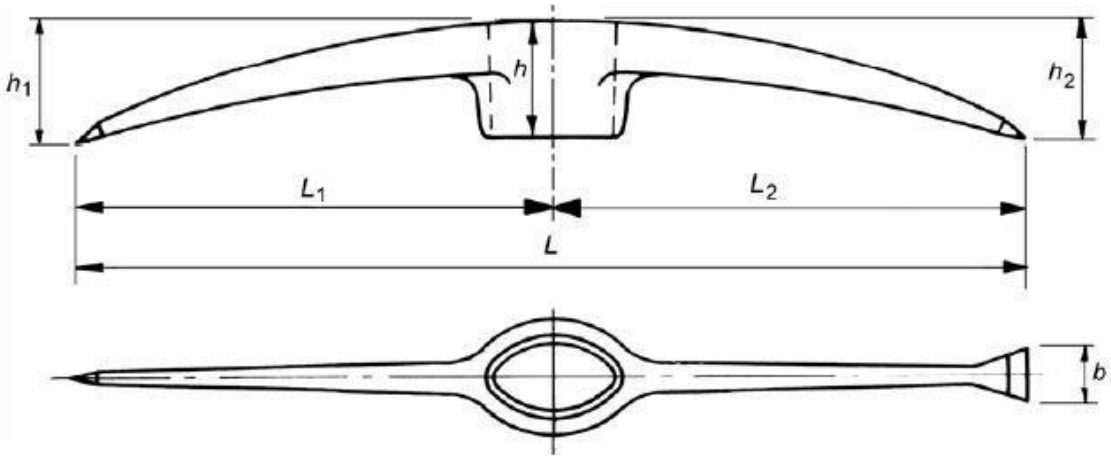


Figure 1 — Type A pick

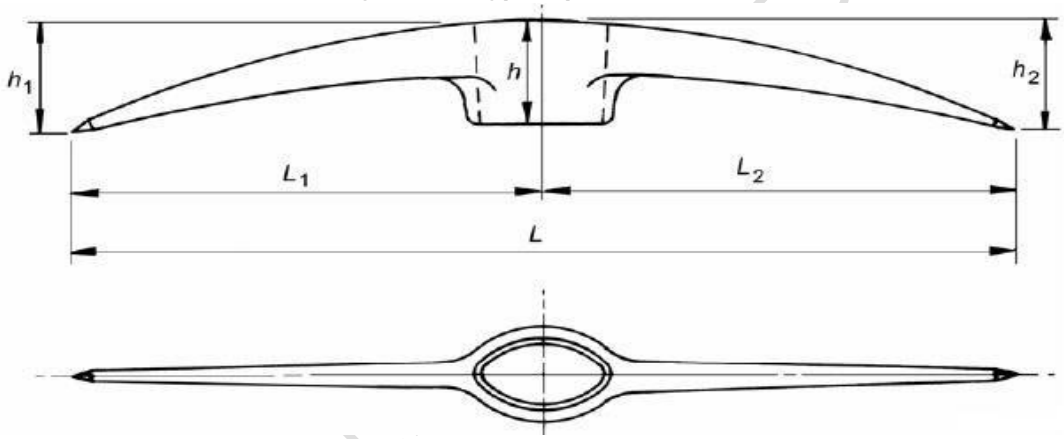


Figure 2 — Type B pick

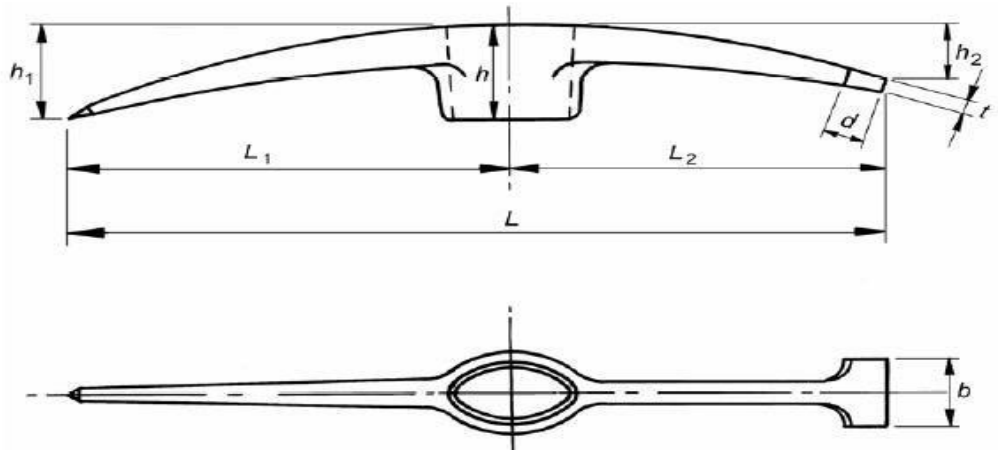


Figure 3 — Beater pick

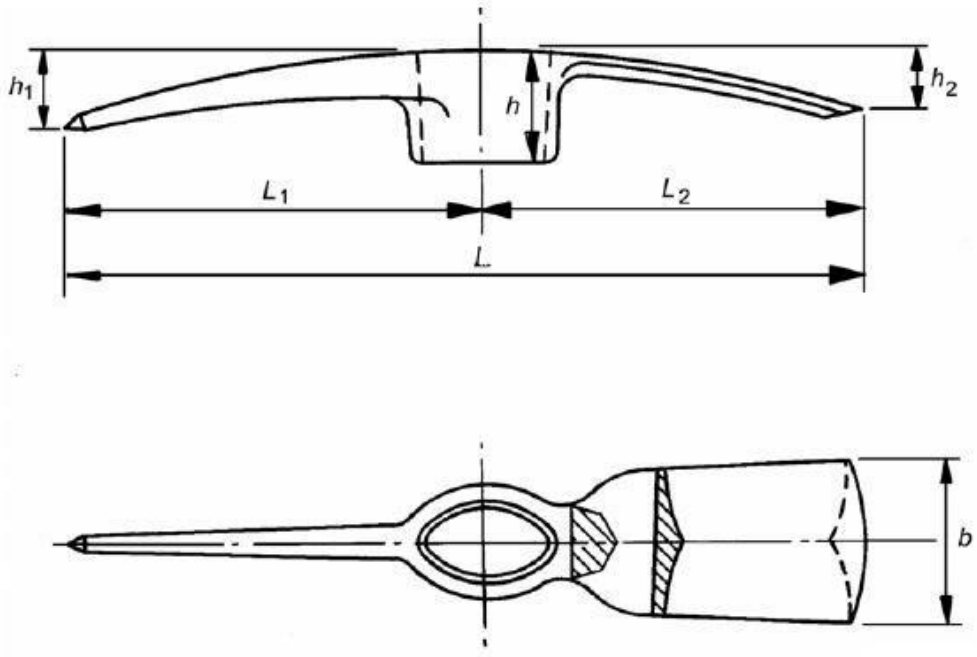


Figure 4 — Type A, B and C mattocks

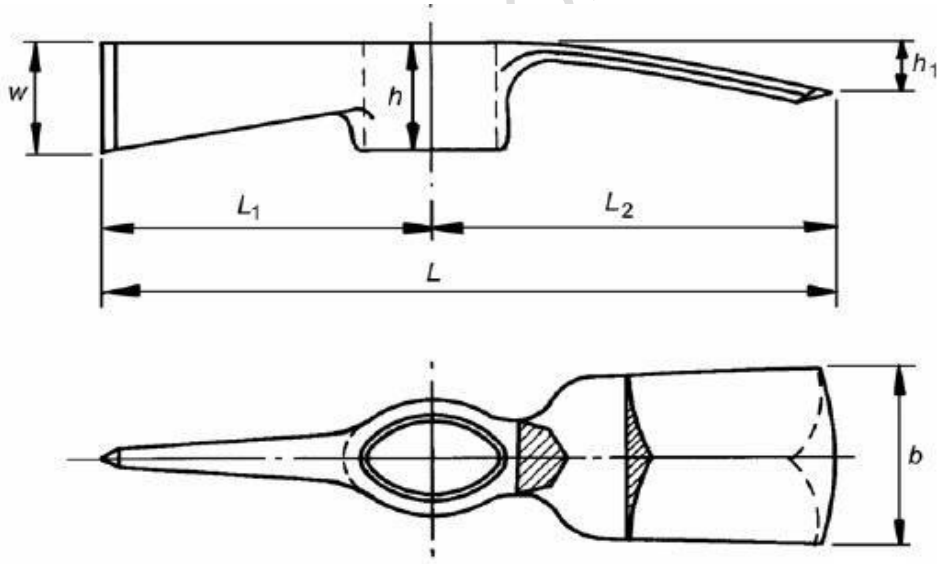


Figure 5 — Type D, E and F mattocks

4.2 Material

Picks, beater picks and mattocks shall be of carbon steel that has the chemical composition given in table 2.

Table 2 — Chemical composition

1	2	3
Element	**Requirement % (m/m)**	
	Min.	**Max.**
Carbon	0.45	0.55
manganese	0.70	1.00
phosphorus	-	0.05
sulphur	-	0.05

4.3 Design

4.3.1 The diamond point(s) of a pick, beater pick or type A, B or C mattock shall be pyramid -shaped, and shall have an included angle in the range 25° – 45°.

4.3.2 The chisel end of a type A pick shall have an included angle in the range 25° – 45°.

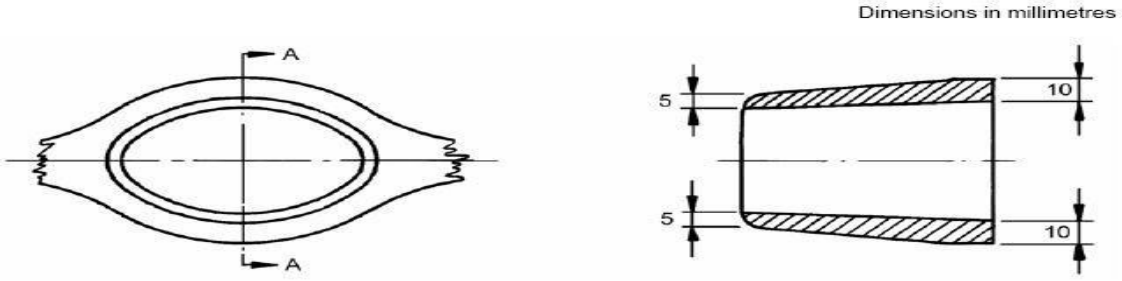
4.3.3 The mattock end of all mattocks and the cutter end of types D, E and F mattocks shall have an included angle in the range 25° – 45° between the faces that form the cutting edge, and shall have been sharpened.

4.3.4 The top and bottom surfaces of the tee end of a beater pick shall be flush with the adjoining faces of the pick and the striking face shall be square to the axis of the pick.

4.3.5 The major axis of the eye shall be within 3° of the axis of the tool.

4.4 Dimensions

4.4.1 The dimensions of each pick, beater pick and mattock shall conform to the appropriate values given in table 1 and figures 1 - 6.



Plan of eye **Section A-A Subject to tolerance of ±1 mm**

Figure 6 — Wall thickness of eyes

4.4.2 When the eye of the tool is gauged in accordance with 6.2, it shall lie between the end faces of the taper gauge.

4.5 Mass

The mass of each pick, beater pick and mattock shall be at least equal to the appropriate minimum given in column 12 of table 1.

4.6 Hardness

The ends of picks, beater picks and mattocks shall be so heat-treated that the Rockwell C hardness, determined in accordance with 6.3, within a distance of 75 mm from the working edge/point is not less than 35 and not more than 46.

4.7 Handles

When picks, beater picks and mattocks are supplied with handles, the handles shall be of suitable materials such as wood, plastic or metals.

4.8 Finish

4.8.1 Picks, beater picks and mattocks shall be free from fins, seams, burrs, sharp edges and other defects.

4.8.2 Chisel ends of type A picks, and diamond points of picks, beater picks and types A, B and C mattocks shall be sharpened by grinding or forging.

4.8.3 Picks, beater picks and mattocks shall be so acceptably coated as to prevent corrosion during transportation and storage.

5 Marking

Each pick, beater pick or mattock shall bear the following information, legibly and indelibly stamped or embossed, in letters and numerals of height at least 5 mm:

a) manufacturer's name or trade name or trade mark, and

b) mass, in kilograms.

c) model

d) country of origin

6 Inspection and methods of test

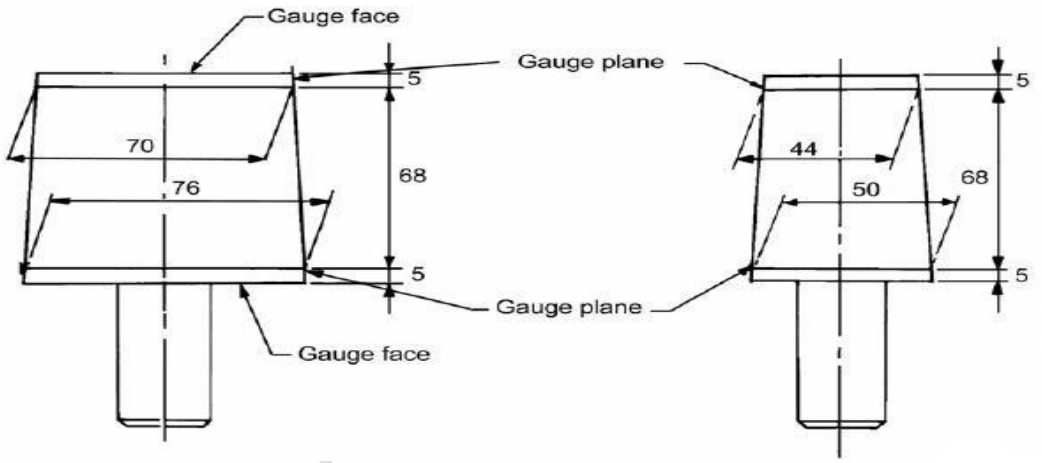
6.1 Inspection

Visually examine and measure each tool in the sample for compliance with all the relevant requirements in Clause 3 and Clause 4 for which tests to assess compliance are not given in 6.2 - 6.4 (inclusive).

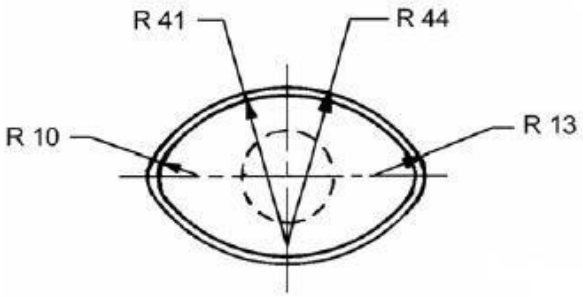
6.2 Gauging of eyes

6.2.1 Apparatus

A taper plug gauge having the dimensions given in figure 7.



View on major diameter of gauge **View on minor diameter of gauge**



Plan of gauge

NOTE 1 Subject to a tolerance of ± 0.05 mm.

NOTE 2 Radii shown are the appropriate values at the two gauge planes

Figure 7 — Taper plug gauge for the eye

6.2.2 Procedure

Insert the taper gauge into the eye of each tool in the sample and note the position of the eye in relation to the end faces of the taper gauge. Check for compliance with the requirement of 4.4.

6.3 Hardness test

Determine the hardness of each tool in the sample by using the relevant method described in ISO 6508-1. Take at least three readings on each surface. Check for compliance with the requirements of 4.6.

6.4 Composition of material

Using any recognized method of analysis, test each tool in the sample for compliance with the relevant requirements of 4.2.

BIBLIOGRAPHY

KS 73:1980 Specification for picks and mattocks

RS 177:2013 Picks, beater picks and mattocks — Specification

BS 1421:1995 Specification for picks, beater picks and mattocks