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EAST AFRICAN STANDARD

Sickles — Specification

EAST AFRICAN COMMUNITY

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Contents

0 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.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. 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 Principles and procedures for development of East African Standards.

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.

The committee responsible for this document is Technical Committee EASC/TC 042, *Production and general engineering.*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

Sickles — Specification

1 Scope

This Draft East African Standard specifies technical requirements, test methods and sampling plan for plain and serrated blade sickles for harvesting of fodder, grasses, cereal crops, among other activities.

2 Normative references

The following documents are 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.

ISO 6508-1*, Metallic materials — Rockwell hardness test — Part 1: Test method*
ISO 24153, *Random sampling and randomization procedures*
WD/TC 042/007:2025, *Handle for hand tool — Specification*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.
ISO and IEC maintain terminological databases for use in standardization at the following addresses:
— IEC Electropedia: available at http://www.electropedia.org
— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
blade
main metallic part of the sickle used for cutting action

3.2
cutting edge
plain or serrated edge in the inner side of the sickle

3.3
blade reinforcing strip
strip of metal used as a reinforcement and fixing the blade

3.4
ferrule
protective metallic bush fitted at the junction of the blade and handle to keep the tang tight in the handle

3.5
handle
part for holding in operation of the sickle

3.6
tang
external portion of the blade or the reinforcement strip which is fixed into the handle

4 Types of sickles

For the purpose of this standard, the sickles may be of the following two types:

a) sickles with solid blade as shown in Figure 1; and
b) sickles with serrated blade as shown Figure 2.

Figure 1: Sickle with solid blade

Figure 2: Sickle with serrated blade

NOTE: Different shapes other than that shown in Figure 1 and Figure 2 may be accepted provided the sickle meets all the performance requirements of this standard.

5 Requirements

5.1 Blade

5.1.1 The blade shall be made or manufactured from steel with the chemical composition as given in Table 1.

Table 1: Chemical composition of the blade

Element	Requirement, %	
	Minimum	Maximum
Carbon	0.50	0.65
Manganese	0.60	1.5
Silicon	0.15	0.35
Sulphur	-	0.06
Phosphorous	-	0.06

5.1.2 The blade shall be forged.

5.1.3 Blade reinforcing strip

The blade reinforcing strip, wherever used shall be made of mild steel of minimum thickness of 1.5 mm.

5.2 Handle

5.3.1 The handle shall be according to WD/TC 042/007:2025.

5.3.2 All handles shall be shaped or profiled to match the human hand.

5.3 Ferrule

The ferrule, if provided, may be made from mild steel tube or mild steel sheet of minimum thickness of 1 mm.

5.4 Dimensions

5.4.1.1 Dimensions of the sickles shall be as given in Table 2, Figure 3 and Figure 4. Serrations in case of serrated sickles shall conform to the requirements given in Figure 5.

Table 2: Dimensions for sickles

Nominal size	L ± 5	A ± 2	B ± 3	C ± 0.5	D min.
170	170	10	22	3	1.25
225	225	12	28	4	1.25
280	280	15	35	5	1.25
NOTE 1: Dimension C is applicable for sickles having solid blade (see Figure 1) and D for sickles with reinforcing strip (see Figure 4). NOTE 2: Different dimensions may be agreed upon between the purchaser and the manufacturer provided the sickle meets all the performance requirements of this standard.					

All dimensions in millimetres

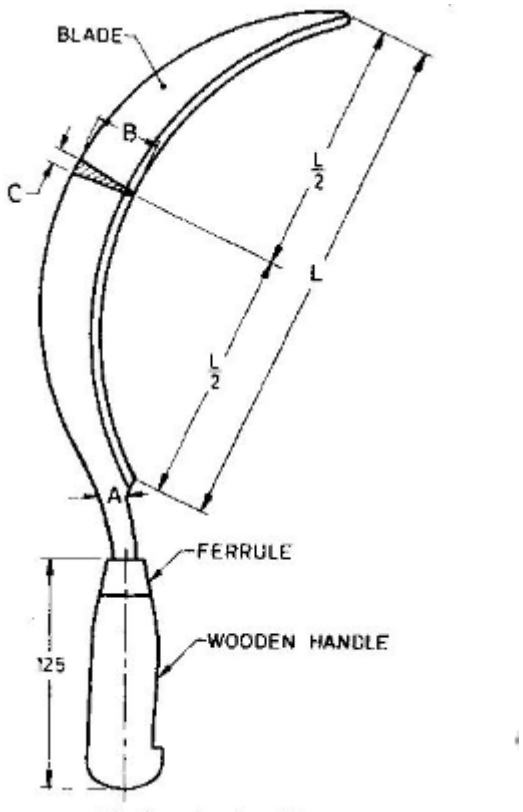

Figure 3: Dimensions for sickles

All dimensions in millimetres

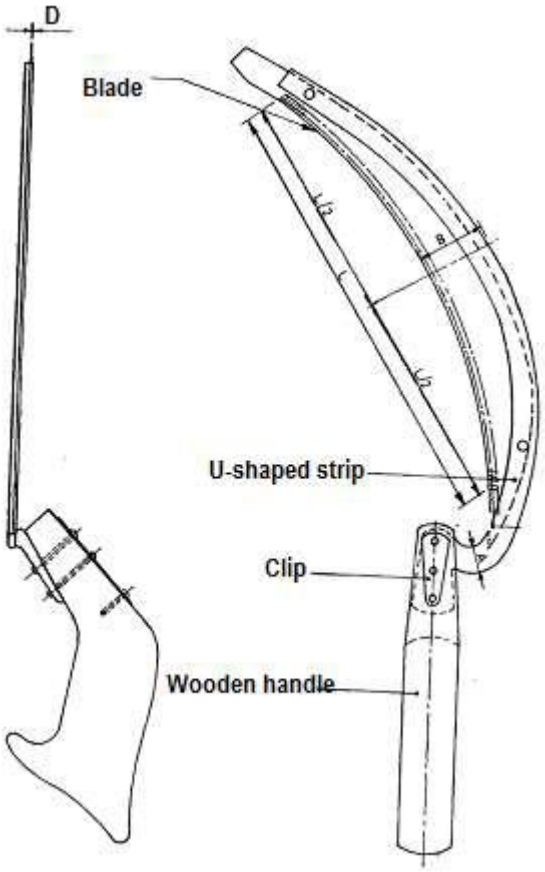

Figure 4: Dimensions for sickles with reinforcing strip in millimetres

All dimensions in millimetres

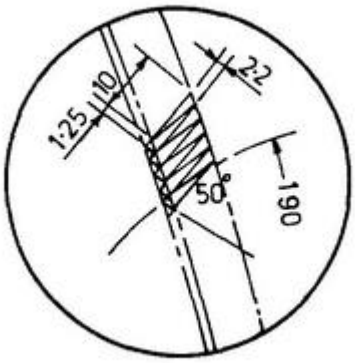

Figure 5: Details of serrations

5.4.2 The length of ferrule shall not be less than 20 mm.

5.4.3 The blade of the sickle shall be forged and cut to the shape as illustrated in Figure 1 and Figure 2.

5.5 Hardness
The blade of the sickle shall be hardened and tempered to the hardness range from 45 HRC to 50 HRC and shall be tested according to 6.2.

5.6 Impact strength
The cutting edge of the sickle shall be tested according to 6.1 and neither the cutting edge nor the fitting of the sickle shall show any sign of damage or loosening during or on completion of the test.

5.7 Workmanship and finish
5.7.1 The blade shall be free from cracks, seams, scales, pits, burrs, nicks and other defects. The blade shall be smoothly forged or cut without tear and blister and the cutting edge shall be sharpened to give a fine finish for immediate use in case of plain type sickles. All sharp edges, except the cutting edge shall be rounded off. There shall be no sign of deformation due to heat treatment, twist, strain, rust, etc.

5.7.2 The teeth of the serrated sickle blade shall have a uniform pitch and shall be finished smooth and sharpened pointing towards the handle.

5.7.3 The reinforcing strip shall be tightly fitted into the handle with or without ferrule in position. Normally the handle shall be fitted with tangs centred to the entire length of the handle and fixed at the large end rigidly. The blade reinforcement strip shall be free from burrs and sharp edges and shall be finished smooth on the handle side. The riveting should be done properly by tightening in a press or with a riveting machine.

5.7.4 The ferrule shall be free from cracks, burrs and other defects and shall be finished smooth and bright all over. The brazing or welding shall be continuous and even.

5.7.5 Where applicable the blade, except the cutting edge, shall be coated for corrosion protection. The cutting edge shall be protected by a temporary coating such as a thin film of oil and a protective sleeve, or by a temporary corrosion-inhibitive coating that is easily removed upon first use.

6 Test methods

6.1 Impact test
The cutting edge of the sickle shall be tested by striking six continuous sharp blows on hard timber such as dry eucalyptus from a height of 30 cm.

6.2 Hardness test
The hardness shall be tested at a point 10 mm away from the cutting edge, in at least at three places along the blade in accordance with ISO 6508-1 (B and C scales).

7 Sampling

7.1 Lot
A lot shall comprise a collection of sickles of the same type. These shall be identical in type, size, and condition and time of production and samples shall be taken at random according to ISO 24153 from each “lot” for inspection.

7.2 Sample size
A zero-based acceptance sample shall be selected based on an Acceptable Quality Level of 2.5 % as given in Table 3.

Table 3: Sample size based on 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 1200	19
1201 to 3200	23
3201 to 10000	29
10 001 to 35 000	35
35 001 and over	40

8 Packaging

The sickles of one type and size shall be packed in bundles of five or multiples of five, convenient for handling in transit or as specified by the purchaser.

9 Marking

Each sickle shall be marked with the following particulars on the blade:

a) manufacturer’s name and registered trade-mark,

b) nominal size,

c) batch number or code number.

Bibliography

[1] US 1869:2018, Sickles — Specification

[2] IS 4358:1996, Specification for sickles

