

DRAFT UGANDA STANDARD

Second Edition
2017-07-07

Spades — Specifications



Reference number
DUS 198: 2017

© UNBS 2017

Compliance with this standard does not, of itself confer immunity from legal obligations

A Uganda Standard does not purport to include all necessary provisions of a contract. Users are responsible for its correct application

© UNBS 2017

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilised in any form or by any means, electronic or mechanical, including photocopying and microfilm, without prior written permission from UNBS.

Requests for permission to reproduce this document should be addressed to

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

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Types and dimensions	1
5 Materials	2
5.1 Blades	2
5.2 Sockets	3
5.3 Rivets	3
5.4 Handles	3
6 Heat treatment and hardness	3
7 Construction	3
8 Dimensions	3
9 Finish	7
10 Marking	9
11 Test methods	8
11.1 Hardness	8
11.2 Mechanical test	8
Bibliography	11

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

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

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 198:2001), which has been technically revised.

Spades — Specifications

1 Scope

This draft Uganda standard specifies materials, construction, dimensions, finish and test methods for spades.

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

For the purposes of this document, the following terms and definitions apply.

3.1

spade

tool with a sharp-edged, typically rectangular, metal blade and a long handle, used for digging or cutting earth, sand, turf, etc

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 Types and dimensions

The following are the types of spades covered by this draft Uganda standard:

- a) garden spade,



- b) draining spade,



c) trenching spades, and



d) grafting spade

5 Materials

The materials used in the manufacture of spades shall have the chemical composition as follows:

5.1 Blades

The blades of spades shall be manufactured from steel, the analysis of which shall conform to the following specification as stated in the table below:

Table 1 — Chemical composition of required steel for spade blades

Element	Composition	
	min.	max.
Carbon	0.35 %	
Manganese	0.5 %	
Sulphur		0.06 %
Silicon		0.4 %
Phosphorous		0.06 %

NOTE 1 Carbon and manganese shall all together be greater than 1 %

5.2 Handles

The handle shall be made of a material that facilitates complete bonding with the blade and firm grip of the user. If it is made of wood, it shall be hardwood with a specific gravity of 0.66 to 0.80 after seasoning to not more than 20 % moisture content.

5.3 Jointing

The blade and the handle shall be firmly jointed and the joint shall not have any harmful protrusions such as burrs and sharp edges. Where rivets are used, they shall be countersunk into the handle and metal edges recessed into the handle

6 Heat treatment and hardness

6.1 The blades of spades shall be hardened and tempered to produce a hardness reading within a range of 39 HRC to 47 HRC when measured not less than 50 mm from the shoulder.

6.2 where alloy steels are used, it is permitted to increase the maximum hardness provided that the finished tool passes the tests in Clause 11.

7 Construction

7.1 Blade

The blades of spades shall either be forged integrally with or welded to the socket. The thickness of the blades shall be greatest at the frog, decreasing towards the sides and the mouth and shall not be less than 1.75 mm.

7.2 Socket and handle

7.2.1 The blades shall be well formed and free from cracks, seams, splits, laminations and other defects.

7.2.2 All sockets shall be smooth and shall be positively and permanently secured to the handles. The sockets shall be close fitting and finished flush with the handles. Rivets, where used, shall be given a smooth finish.

7.2.3 Handles shall be well shaped and fixed at the centre of the shoulders of the blade. Tee hilts shall be permanently secured to the handles and shall be either crutch or barrel shaped.

7.2.4 Wooden Y-Dee hilts shall be securely riveted or pegged at the bottom of the split.

7.2.5 The grips of all types of hilts shall be permanently secured against rotation. The length of the Y-Dee and metal Dee grips shall not be less than 95 mm.

7.2.6 Where handles of other materials suitably joined to the socket are in place of wooden handles, the socket may be shorter than specified provided that the finished tool complies with the requirements of 5.2.

8 Dimensions

The dimensions of spades shall be in accordance with figures 1 to 4 inclusive.

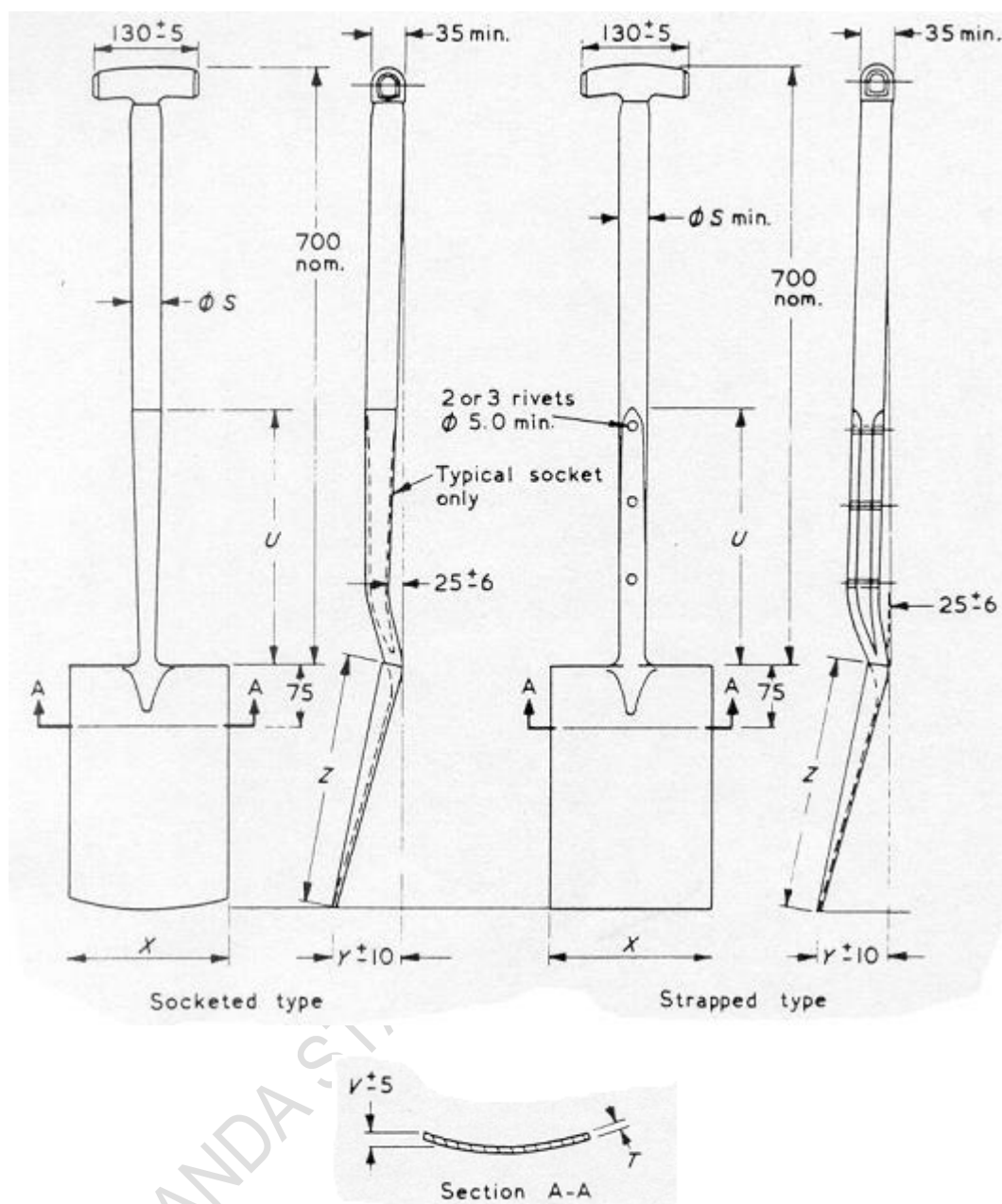


Figure 1 — Dimensions of a garden spade

Table 1 — Dimensions of different parts of a garden spade

Description	S mm min.	T mm min.	U mm min.	V mm	X mm min.	Y mm	Z mm min.
Digging	35	2.5	250	16	190	80	290
	35	2.5	250	6.5	200	90	290
Medium	30	2	200	6.5	160	80	230
Border	30	2	190	6.5	140	70	220

Variations in lengths of handles are permitted by agreement between the purchaser and manufacturer.

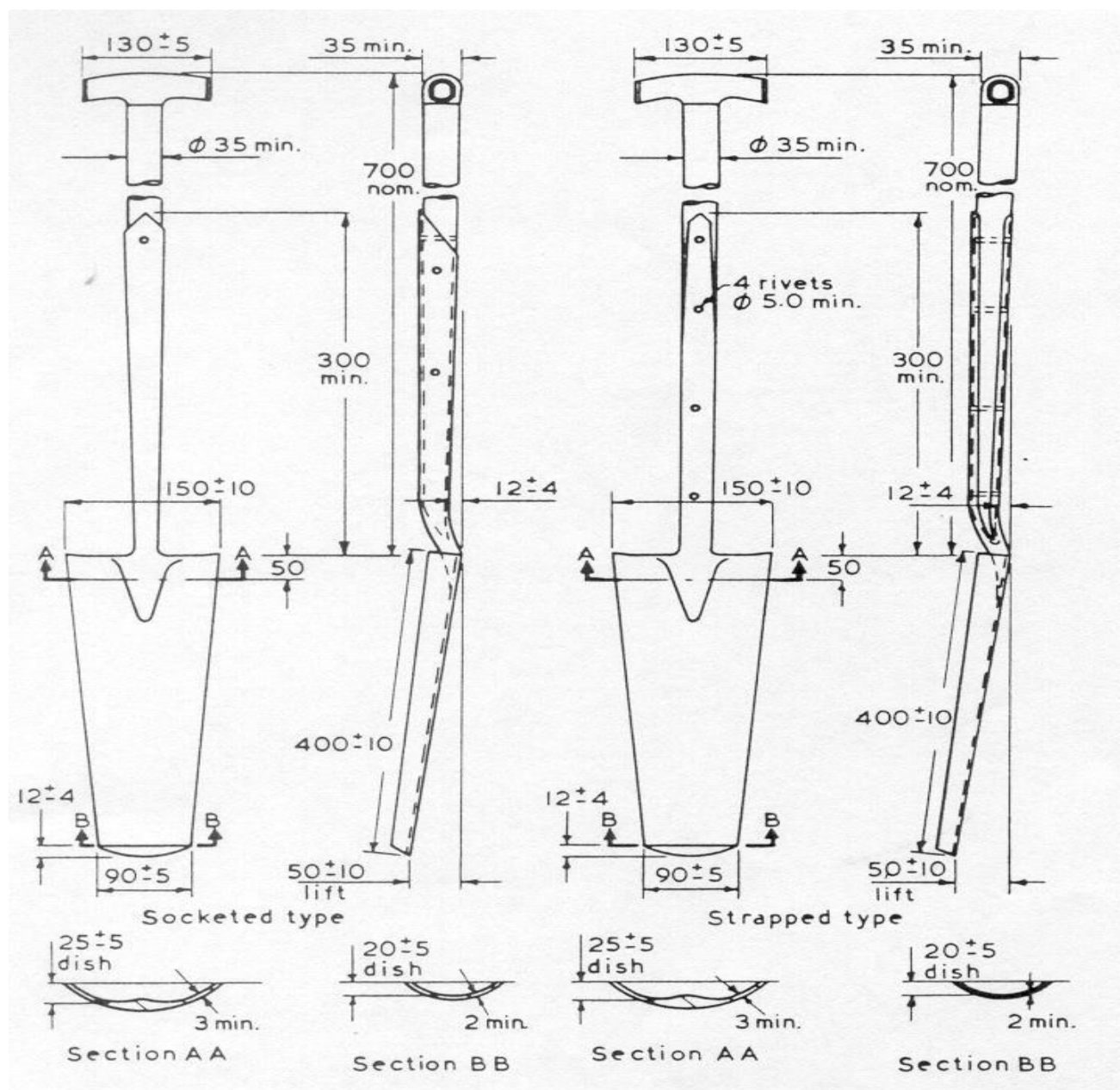


Figure 2 — Dimensions of a draining spade in mm

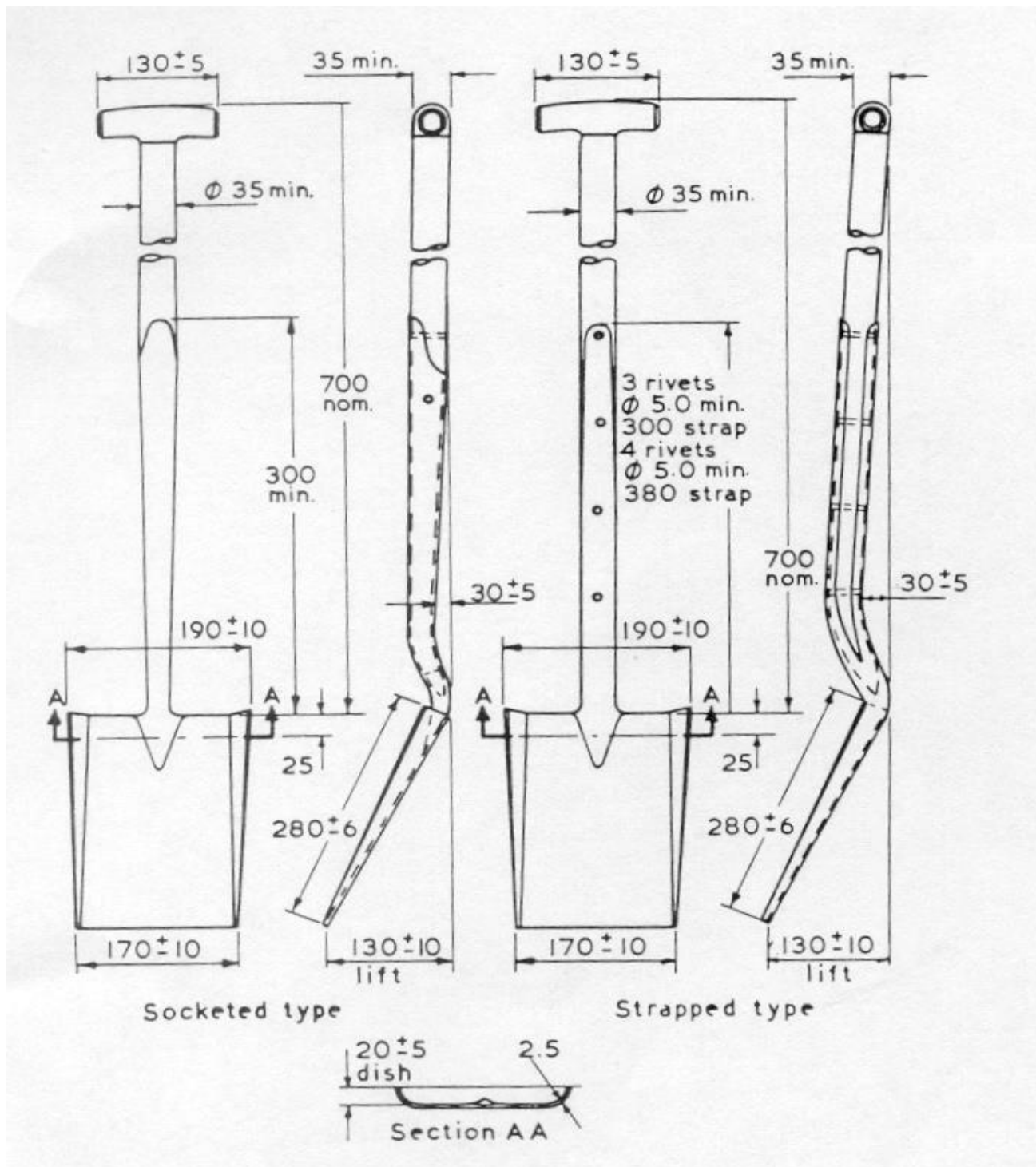


Figure 3 — Dimensions of a trenching spade

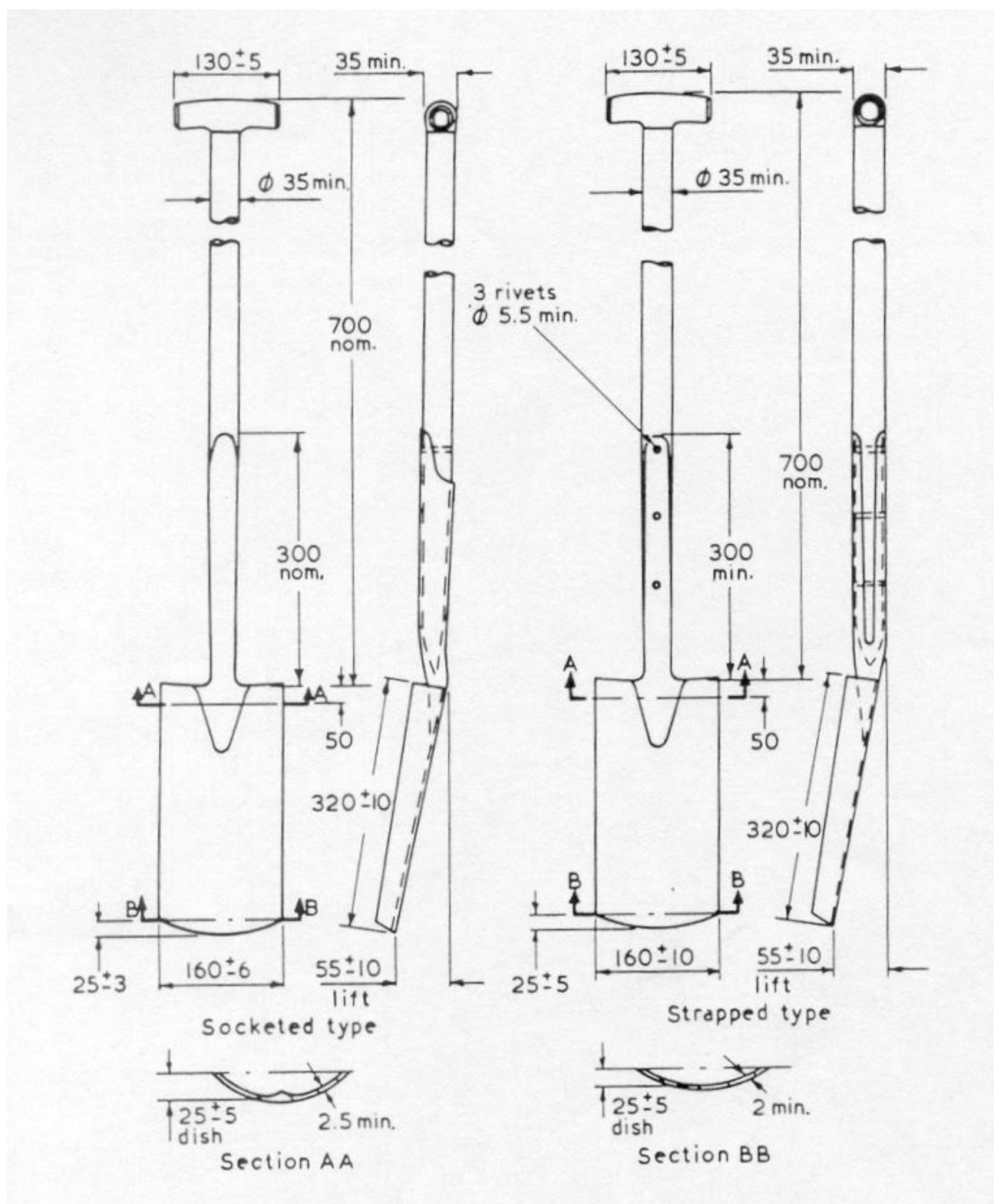


Figure 4 — Dimensions of a grafting spade

9 Finish

9.1 Handles shall be finished smooth and all radii, rough edges and surfaces shall be blended to provide a smooth finish to prevent injury to hands.

9.2 The sockets of all spades shall be polished smooth and shall be bright finished and painted. The remaining areas of metal shall either be bright finished, self-coloured or paint finished.

9.3 Any exposed unpainted metal shall be given anti –corrosion treatment.

9.4 Alternative finishes to those specified above (Clause 9.1 to 9.3) shall be as agreed between the purchaser and manufacturer.

10 Test methods

10.1 Hardness

The blades of spades shall satisfy the requirements of hardness specified in clause 5 when tested in accordance with DUS ISO 6508-1

10.2 Mechanical test

Spades shall satisfy the requirement of the following mechanical test

10.2.1 With the tool clamped as shown in Figure 5, a respective load given in Table 2 shall be gradually applied by suspension of the grip. The load shall be maintained in this manner for one minute and then removed.

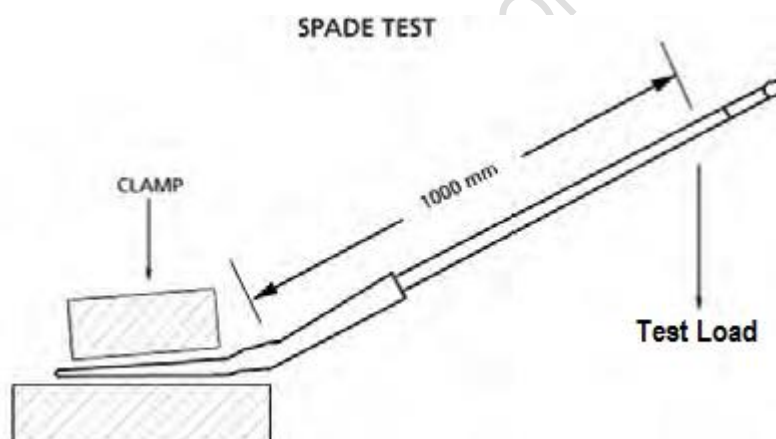


Figure 5 — Spade test

The test load as shown in Table 2 (see figure 1 to 4) shall be applied and maintained for two minutes. On removal of the test load, the tool shall show no signs of damage or loosening of any component part, nor shall there be any permanent set in excess of 25 mm when measured at the centre of the hilt.

Table 2 — Test loads applied to different types of spades

Reference figure	Description		Test load (kg)
Figure 1	Garden spade	Digging	55
		Medium border and	40
Figure 2	Draining		65
Figure 3	Grafting		65
Figure 4	Trenching		65

10.2.2 If modifications are introduced which affect the protruding length of the tool under test, i.e. from the shoulder of the blade to the hilt, the test load shall be adjusted so that the moment is equal to the moment applied to tools of the preferred dimensions.

11 Sampling

11.1 Lot

11.1.1 If the entire shipment is of homogenous quality then in effect, the shipment shall comprise a single lot. A sample of specified size given in Table 4 may then be selected directly upon opening the shipment.

11.1.2 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 spades from within each selected box.

11.1.3 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.

11.2 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 6

Table 2 — 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

12 Marking

12.1 All spades shall be legibly and indelibly marked on the metal portion of the tool with the following:

- a) manufacturers name and/or trade mark; and

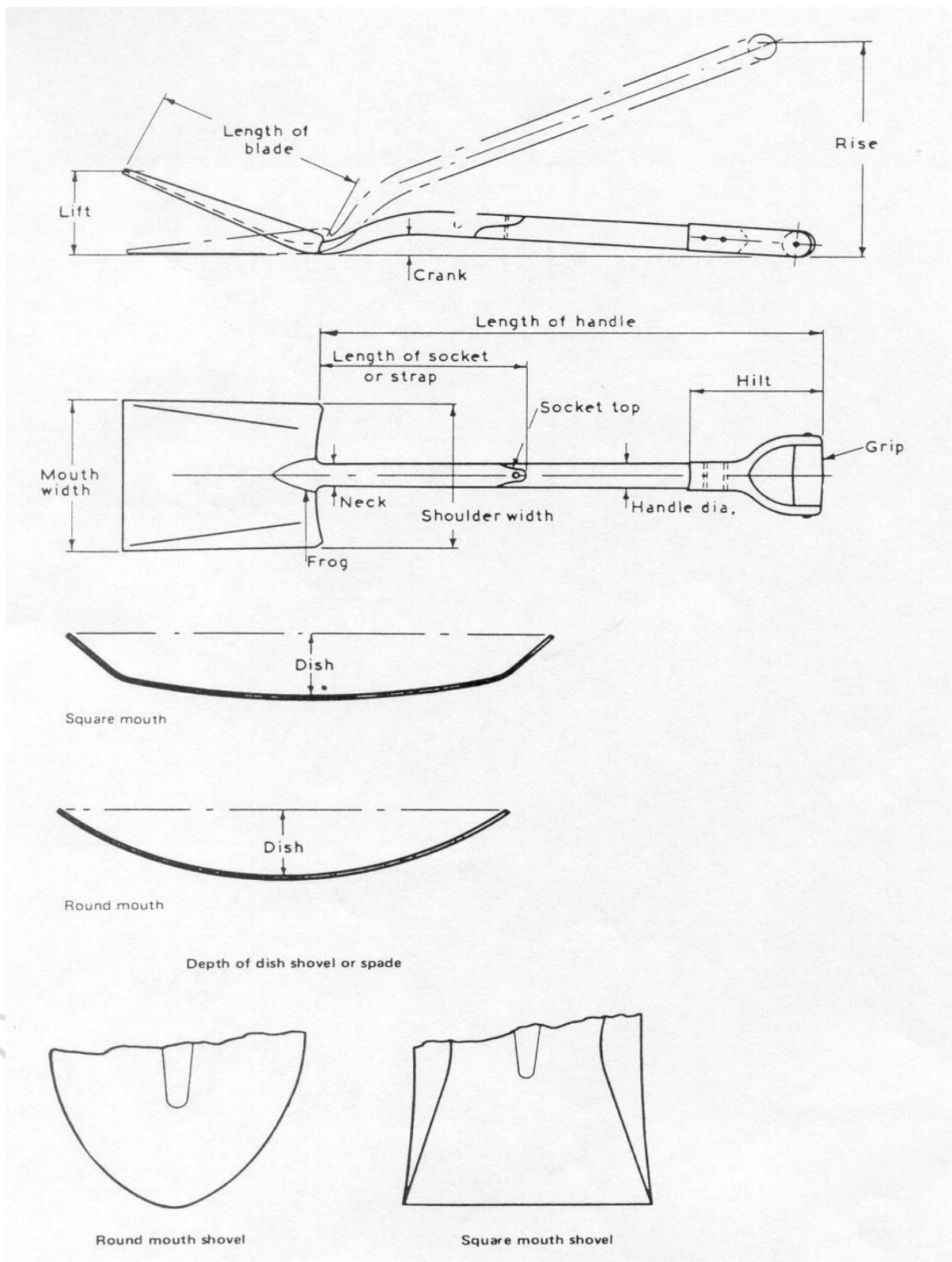
b) batch or code number.

12.2 Any additional marking shall be as agreed between the purchaser and the manufacturer.

12.3 Spades which are marked on the blade shall not be marked more than 50 mm from the shoulder.

DRAFT UGANDA STANDARD FOR PUBLIC REVIEW

Annex A (informative) Parts and different shapes of a spade



Bibliography

- 1 Agricultural hand tools in emergencies — Guidelines for technical and field officers
- 2 US 198:2003, Specification for spades

DRAFT UGANDA STANDARD FOR PUBLIC REVIEW

Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

The use of the UNBS Certification Mark is governed by the Standards Act, and the Regulations made thereunder. This mark can be used only by those licensed under the certification mark scheme operated by the Uganda National Bureau of Standards and in conjunction with the relevant Uganda Standard. The presence of this mark on a product or in relation to a product is an assurance that the goods comply with the requirements of that standard under a system of supervision, control and testing in accordance with the certification mark scheme of the Uganda National Bureau of Standards. UNBS marked products are continually checked by UNBS for conformity to that standard.

Further particulars of the terms and conditions of licensing may be obtained from the Director, Uganda National Bureau of Standards.



DRAFT UGANDA STANDARD FOR PUBLIC REVIEW

ICS nn.nnn.nn

Price based on nn pages