SRI LANKA STANDARD 305:2002

SPECIFICATION FOR MAMMOTY BLADES (S*ECOND REVISION*)

SRI LANKA STANDARDS INSTITUTION

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(SECOND REVISION)

SLS 305 : 2002

Gr. 7

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SRI LANKA

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This standard does not purport to include all the necessary provisions of a contract.

Draft Sri Lanka Standard

SPECIFICATION FOR MAMMOTY BLADES
(Second Revision)

FOREWORD

This standard was approved by the Sectoral Committee on Materials, Mechanical Systems and Manufacturing Engineering and was authorized for adoption and publication as a Sri Lanka Standard by the council of the Sri Lanka Standards Institution on ..... .

This is the second revision of SLS 305 : 1974 Specification for mammoty blades which was first revised in 1985.

In this revision the weights of mammoties have been included in Table 1. The thickness of the rim of the eye has been specified. The dimensions 'D' and 'E' of Table 2 are changed and dimensions 'b', 'c' and 'f' of Table 3 are expressed as a function of 'a', 'd' and 'e' respectively to ensure a positive taper of the eye.

Guidelines for the determination of compliance of a lot with the requirements of this standard based on statistical sampling and inspection is given in Appendix B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or an analysis, shall be rounded off in accordance with CS 102. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this standard.

1 SCOPE

This standard covers the requirements and test methods for mammoty blades of the types specified in 3.

2 REFERENCE

CS 102	Presentation of numerical values
CS 145	Method for Rockwell hardness test
SLS 428	Random sampling methods.

3 TYPES

Mammoty blades covered in this standard are of the following types :

a) Rectangular ; and
b) Square.

4 REQUIREMENTS

4.1 Material

4.1.1 *Chemical composition*

Mammoty blades shall be manufactured from steel having the following chemical composition :

Constituent	Percent
Carbon	0.45 to 0.60
Manganese	0.50 to 0.60
Silicon	0.05 to 0.35
Phosphorus	0.06 max.
Sulphur	0.06 max.

4.2 Construction

4.2.1 The mammoty blade inclusive of the eye shall be forged in one piece from steel blanks and trimmed to get the correct shape and dimensions as shown in Figures 1 to 3 and specified in Tables 2 to 4.

NOTE

Any type of welding on the blade will not be permitted.

4.2.2 The mammoty blade shall be symmetrical about the axis YY (see Figure1).

4.2.3 The top surface of the eye (see Fig. 2) shall be in one plane within a tolerance of 1 mm.

4.2.4 The thickness of the rim of the eye (see Fig. 2) shall be not less than 3 mm at any point.

4.2.5 The weight of the mammoty blades shall be as given in Table 1.

TABLE 1 - Weight of mammoty blades

Size mm (1)	Weight g (2)
254 x 204	1700 ± 100
254 x 178	1600 ± 100
228 x 228	1400 ± 100

4.3 Finish

4.3.1 Mammoty blades shall have a smooth surface finish when observed visually. The cutting edge shall be bevelled.

4.3.2 Mammoty blades shall be free from flaws, seams and cracks and have a uniform surface except at the ridge. Stamping shall not deform the geometry nor impair the strength of the mammoty blade.

4.3.3 Mammoty blades shall be hardened and tempered to achieve the hardness values specified in 4.4.1 and the cutting edge ground to a satisfactory finish.

4.3.4 Mammoty blades, after manufacture shall be coated with suitable anti-corrosive paint.

4.4 Mechanical properties

4.4.1 When tested as specified in 6.1 the hardness of the mammoty blade at any point below the ridge up to the cutting edge shall be in the range 40 HRC to 48 HRC after hardening and tempering (see Figure 4 for recommended test points).

4.4.2 When tested as specified in 6.2, the mammoty blades shall not have suffered any permanent deformation or damage.

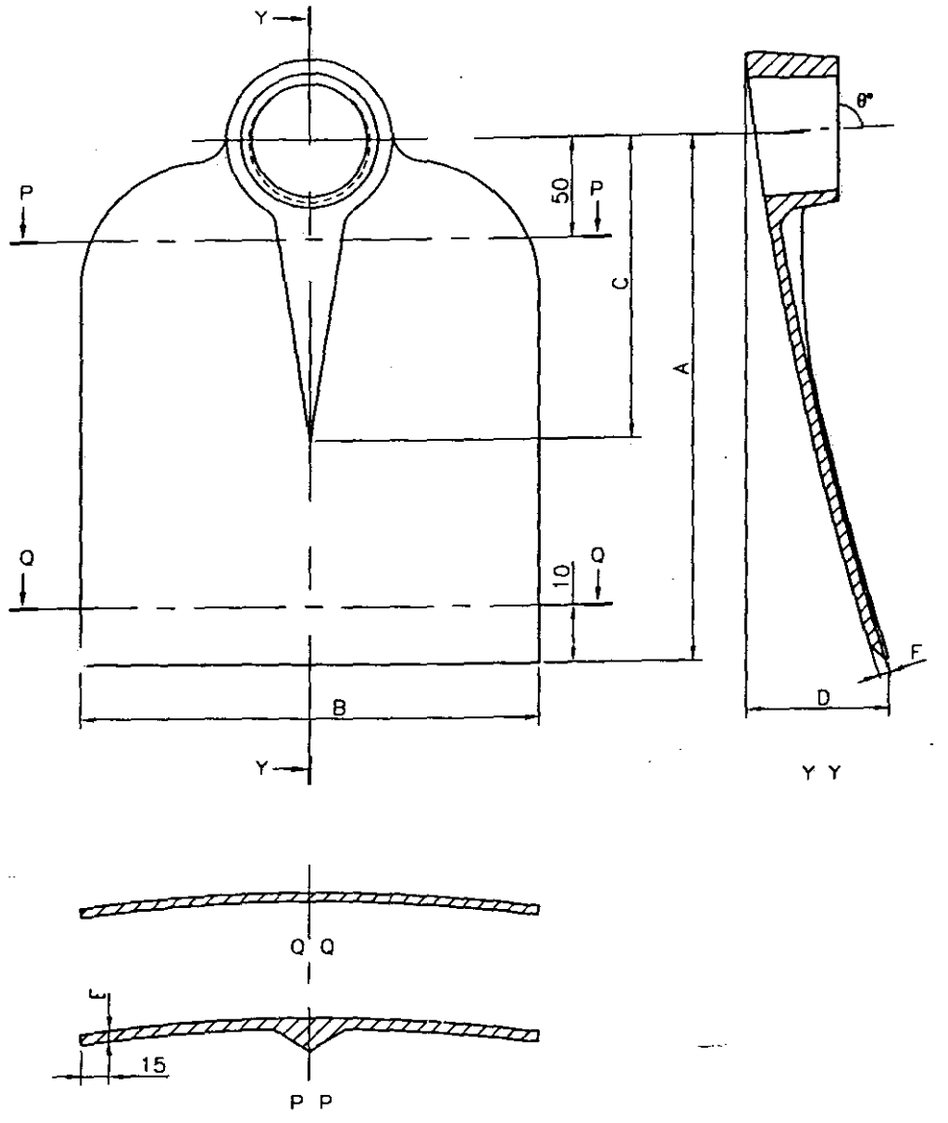


FIGURE 1 - Basic dimensions of mammoty blades

Table 2 - Basic dimensions of mammoty blades

Dimensions in millimetres

Size	A	B	C	D*		E	F	θ** Angle
				min	max			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
254 x 204	254 ± 5	204 ± 5	150 ± 15	30	70	4.0 ± 0.5	2.5 ± 0.3	90 ± 2^0
254 x 178	254 ± 5	178 ± 5	150 ± 15	30	70	4.0 ± 0.5	2.5 ± 0.3	90 ± 2^0
228 x 228	228 ± 5	228 ± 5	120 ± 10	35	60	2.7 ± 0.3	2.0 ± 0.3	90 ± 2^0

* See Appendix A.1 for method of measurement.

** See Appendix A.2 for method of measurement.

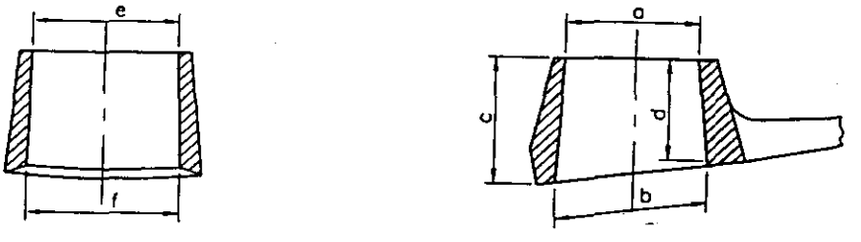


FIGURE 2 - Basic dimensions of eye of the mammoty blades

TABLE 3 - Basic dimensions of the eye of mammoty blades

Dimensions in millimetres

Size (1)	a (2)	b (3)	c (4)	d (5)	e (6)	f (7)
254 x 204	50 ± 2	a $^{+5}_{+3}$	d $^{+6}_{+2}$	40 ± 2	50 ± 2	e $^{+5}_{+3}$
254 x 178	50 ± 2	a $^{+5}_{+3}$	d $^{+6}_{+2}$	40 ± 2	50 ± 2	e $^{+5}_{+3}$
228 x 228	48 ± 2	a $^{+5}_{+3}$	d $^{+6}_{+2}$	37 ± 2	42 ± 2	e $^{+5}_{+3}$

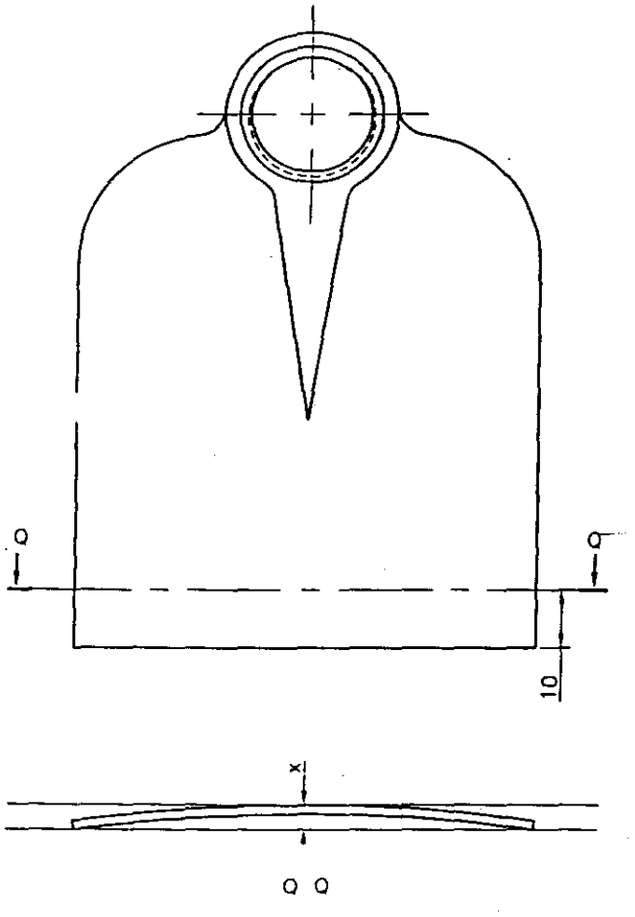
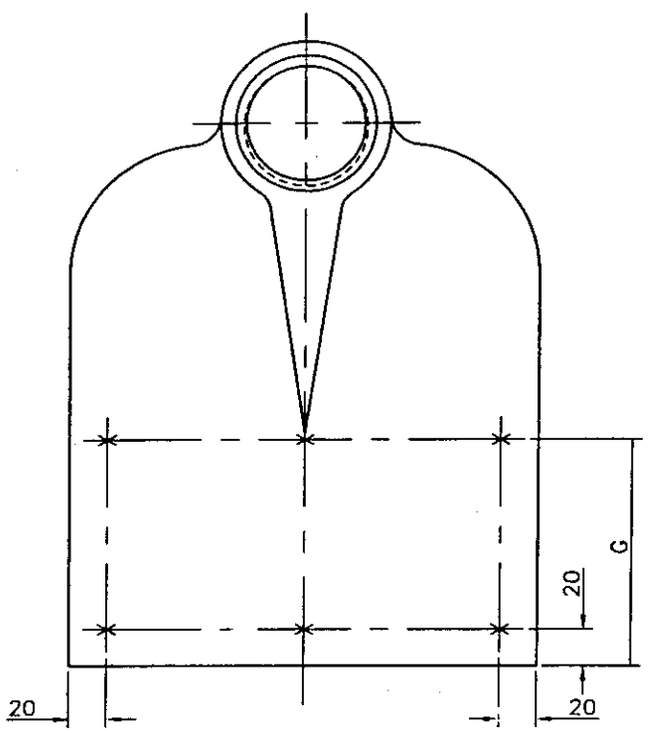


FIGURE 3 - Positions to determine the dip of the profile of mammoty blades

TABLE 4 - Dip of the profile of mammoty blades

Dimensions in millimetres

Type (1)	Size (2)	X at section QQ (3)
Rectangular	254 x 204	4 ± 1
	254 x 178	4 ± 1
Square	228 x 228	8 ± 1



* – Test points

Dimensions in millimeters

Dimension: G = 80mm for rectangular mammoty blade; and
= 90mm for square mammoty blade

FIGURE 4 - Positions of recommended test points to determine hardness of mammoty blades

5 MARKING

Mammoty blades shall be marked legibly and indelibly with the following :

a) The name of the manufacturer and/or registered trade mark;
b) Size of the mammoty blade; and
c) Batch number or code number

6 TEST METHODS

6.1 Hardness test

The hardness of the mammoty blades shall be tested according to the method specified in CS 145.

6.2 Impact test

The eye of the blade shall be clamped on to an anvil in such a way that the upper plane of the eye is horizontal (see Figure 6). The hardened portion of the blade shall be away from the anvil and not supported.

A 3 kg steel striker with a hardened hemispherical face of radius 25mm (approximately) shall be dropped on to the edge of the blade from a vertical height of 2 m. This shall be repeated three times.

APPENDIX A

METHODS OF MEASUREMENT OF THE CURVATURE OF THE BLADE AND THE ANGLE OF THE EYE

A.1 CURVATURE OF THE BLADE (D)

A–1 Curvature of the blade. (D)

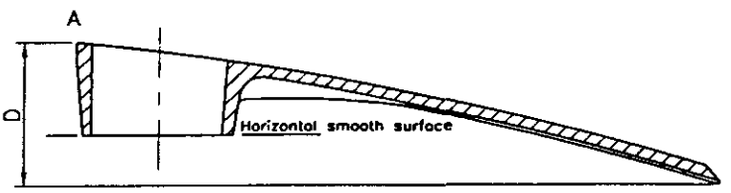


FIGURE 5 - Measurement of the curvature of the blade

Place the mammoty blade on a smooth surface with the upper plane of the eye resting on the surface, and measure the distance (marked D) of the cutting edge from the bottom edge (marked A) of the eye.

A.2 ANGLE OF THE EYE (θ)

A–2 Angle of the eye

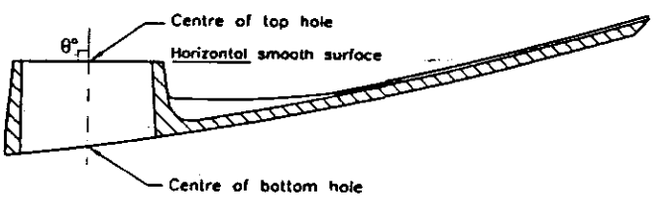


FIGURE 6 - Measurement of the angle of the eye

Clamp the mammoty blade in such a way to keep the upper plane of the eye in a horizontal plane. Then measure the angle between this horizontal plane and the line joining the top and bottom centres of the bore of the eye.

APPENDIX B
COMPLIANCE OF A LOT

The sampling scheme given in this appendix should be applied where compliance of a lot to the requirement of this standard is to be assessed based on statistical sampling and inspection.

Where compliance with this standard is to be assured based on manufacturer's control systems coupled with type testing and check tests or any other procedure, appropriate schemes of sampling and inspection should be adopted.

B.1 Lot

In any consignment all mammoty blades of same type and dimensions, belonging to one batch of supply or manufacture shall constitute a lot.

B.2 Scale of sampling

B.2.1 Samples shall be tested from each lot separately for ascertaining conformity of the lot to the requirements of this specification.

B.2.2 The number of mammoty blades to be selected from the lot shall be in accordance with Column 1 and Column 2 of Table 5.

B.2.3 The blades shall be selected at random. In order to ensure randomness of selection random number tables as given in SLS 428 shall be used.

TABLE 5 - Scale of sampling

Number of mammoty blades in the lot (1)	Number of mammoty blades to be selected (2)	Acceptance number (3)	Sub-sample1 (4)	Sub-sample2 (5)
up to 150	5	0	1	2
151 to 280	8	1	2	3
281 to 500	13	2	2	3
501 to 1200	17	2	3	3
1201 and above	20	3	4	4

B.3 Number of tests

B.3.1 Each blade selected as in **B.2.2** shall be examined for the following requirements :

a) Marking (5);
b) Construction (4.2) : and
c) Finish (4.3).

B.3.2 A sub sample 1 of size as given in Column 4 of Table 5 shall be drawn from samples already examined as in B.3.1 and tested for the requirement 4.4.1.

B.3.3 A sub sample 2 of size as given in Column 4 of Table 5 shall be drawn from samples already examined as in B.3.1 and tested for the requirement 4.4.2.

B.4 Conformity to standard

The lot shall be declared as conforming to the requirements of this specification if the following are satisfied:

B.4.1 The number of blades not conforming to any one or more requirements when tested as in B.3.1 does not exceed the corresponding acceptance number given in Column 3 of Table 5.

B.4.2 Each blades when tested as in **B.3.2** and **B.3.3** satisfies the relevant requirements.

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SRI LANKA STANDARDS INSTITUTION

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