SRI LANKA STANDARD 128 : 2002
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SPECIFICATION FOR
GALVANIZED STEEL BUCKETS
(FIRST REVISION)

SRI LANKA STANDARDS INSTITUTION

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SLS 128 : 2002

Gr. 7

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

SRI LANKA STANDARD
SPECIFICATION FOR GALVANIZED STEEL BUCKETS
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FOREWORD

This standard was approved by the Sectoral Committee Materials, Mechanical Systems and Manufacturing Engineering (SC/01), and authorised for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards institution 2002-08-08

This is the first revision of CS 128 : 1972 Specification for Galvanized Iron Buckets (hot dipped). This standard specifies requirements for materials, dimensions, construction, performance and marking for galvanized steel buckets.

In this revision dimensions are given only for one type (shape) of bucket. The Appendix A-1 and Appendix A-2 of the old version have not been incorporated, as they are only conversion tables.

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

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.

The Sri Lanka Standards Institution gratefully acknowledges the use of the following standards, in the preparation of this standard.

IS **726** : 1982 Specification for galvanized steel buckets for general use.

CSK **93** : 1967 Zinc coated steel buckets.

1 SCOPE

This standard specifies the requirements for materials, dimensions, manufacture, workmanship and performance of hot-dipped galvanized steel buckets for general use.

2 REFERENCES

CS 93 Method for simple bend testing of steel sheet and strip
CS 102 Presentation of numerical values
CS 121 Methods of testing mass, thickness and uniformity of coating on hot Dipped galvanised articles
CS 139 Mild steel wire for general engineering purposes
SLS 428 Random sampling methods
SLS 482 Code of practice for hot-dipped galvanising of iron and steel
SLS 1006 Steel for structural and general engineering purposes Part 1 : Structural steels

3 TYPE

The buckets shall be of two types, namely, “Light duty” and “Heavy duty”

4 DEFINITIONS

For the purpose of this standard the following definitions shall apply:

4.**1 nominal capacity** . The nominal capacity is the volume of liquid in litres it holds when full.

4.2 **nominal size**: The nominal size of a bucket is denoted by its internal diameter in millimetres at the top

5 REQUIREMENTS

5.1 Materials

5.1.1 *Mild steel sheet*

Mild steel sheet used for the body, bottom; bottom ring and ear shall be of cold-rolled (annealed) or hot-rolled, free from cracks, pitting, blisters, laminations, twists, scales and other surface defects. Sheet shall withstand the bend test given in **5.1.1.1.**

5.1.1.1 The test pieces shall not show any signs of fracture when bent cold through 180^0, either by pressure or by blows until the internal radius is equal to thickness of the sheet, when tested in accordance with **CS 93**.

5.1.1.2 The thickness of the mild steel sheet used for different parts of the bucket shall be as given in Table **1.**

TABLE 1 – Minimum thickness of steel sheet

Dimensions in millimetres

Part of the bucket	**Light duty**		**Heavy duty**	
	For nominal sizes up to and including 250 mm	For nominal sizes 275 mm and above	For nominal sizes up to and including 250 mm	For nominal sizes 275 mm and above
(1)	**(2)**	**(3)**	**(4)**	**(5)**
Body	0.45	0.50	0.63	0.63
Bottom	0.45	0.50	1.00	1.00
Bottom ring	0.45	0.50	1.60	1.60
Ear	2.00	2.65	2.50	3.15

5.1.2 Mild steel rods and wire

Mild steel rods used in the manufacture of handle shall conform to **SLS 1006 : Part 1**

For sizes of buckets up to and including 250 mm, steel rods of diameter 8 mm shall be used.

For sizes of buckets 275 mm and above, mild steel rods of diameter 10 mm shall be used.

Mild steel beading wire used for stiffening the top rim shall be of diameter 2.50 mm for buckets of sizes up to 250 mm and 3.15 mm for buckets of sizes 275 mm and above. Mild steel wire shall conform to **CS 139**.

5.2 Dimensions

The shape of the bucket is as shown in Figure **1.** the dimensions of the buckets shall be as given in Table **2**.

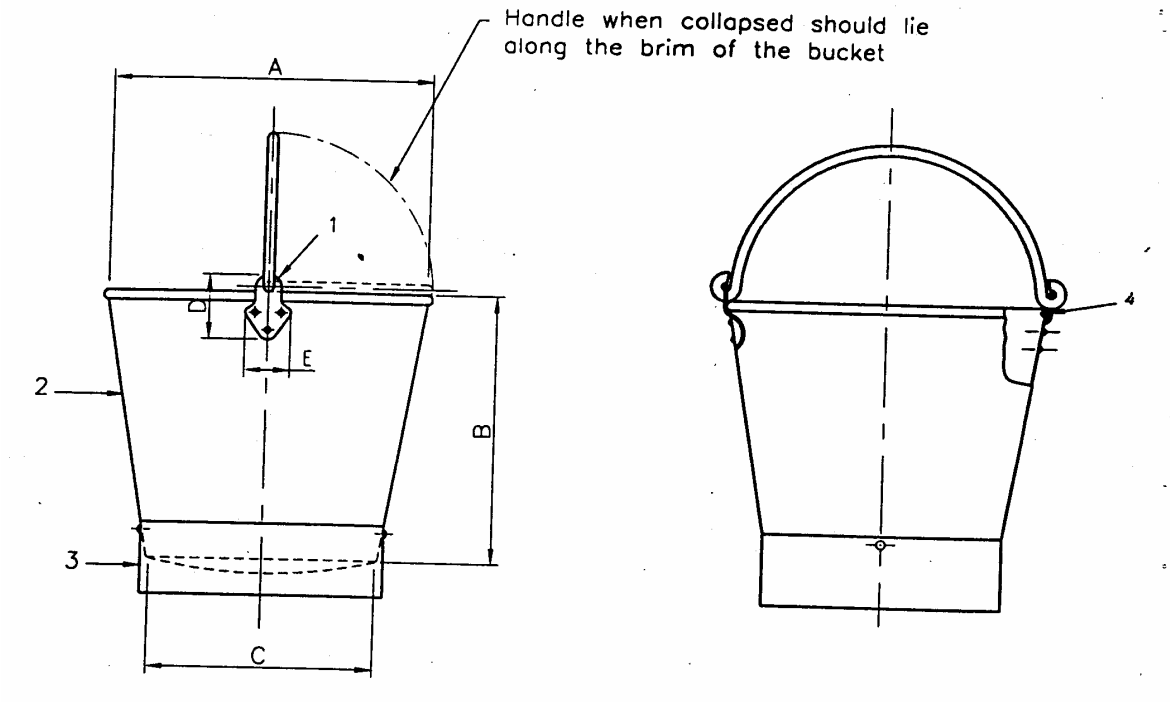
TABLE 2 - Essential dimensions and nominal capacities of galvanized steel buckets (see Fig 1)

Nominal size	**Body**			**ear**		**Nominal [*] capacity**
	Diameter at top (A)	**Depth (B)**	**Diameter at Bottom (C)**	**Height (D)**	**Width (E)**	
mm (1)	**mm (2)**	**mm (3)**	**mm (4)**	**mm (5)**	**mm (6)**	**l (7)**
175	175+5	150+5	125+5	55+3	35+3	2.7
200	200+5	175+5	135+5	55+3	35+3	4.0
225	225+5	200+5	150+5	55+3	35+3	5.5
250	250+5	225+5	170+5	55+3	35+3	8.0
275	275+5	250+5	190+5	63+3	40+3	11.0
300	300+5	275+5	210+5	63+3	40+3	14.0
325	325+4	300+5	230+5	63+3	40+3	18.0
350	350+5	325+5	250+5	63+3	40+3	23.0

[*] The capacity shall be calculated when the bucket is full up to the brim

5.3 Construction

5.3.1 For light duty and heavy duty buckets, the constructional requirements given in **5.3.1.1** to **5.3.1.4** shall apply :



1 - Ear
2 - Body
3 – Bottom ring
4 – Beading wire

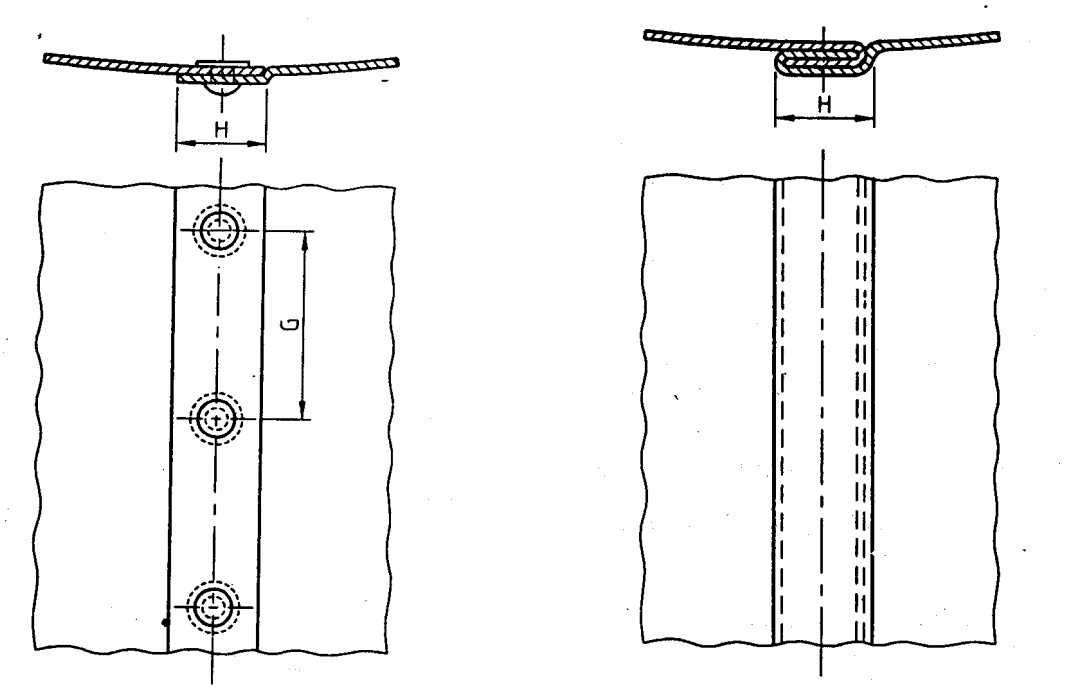
FIGURE 1 – Typical galvanized bucket

5.3.1.1 Body

a) The two halves of the body shall be joined together either by riveting or by a lock joints as shown in Figure **2 (a)** and or **2 (b**) or by but welding or seam welding. For buckets of sizes 225 mm and above, the width of the seam lock shall be not less than 12 mm and for all other sizes it shall be not less than
8 mm. The brim of the bucket shall be formed by completely enclosing the bead wire at the top edge of the body.

b) In case of light duty buckets the two halves of the body may be joined together

either as described in **5.3.1.1 (a)** or by or by means of flat head rivets as shown in **Figure 2 (a**) with the flat head on the inside and with a maximum pitch of 255 mm (G of **Figure 2**). When riveted the length of the overlap (H of **Figure 2**) shall be not less than 10 mm for buckets of sizes 225 mm and below, and it shall be not less than 12 mm for all the other sizes.



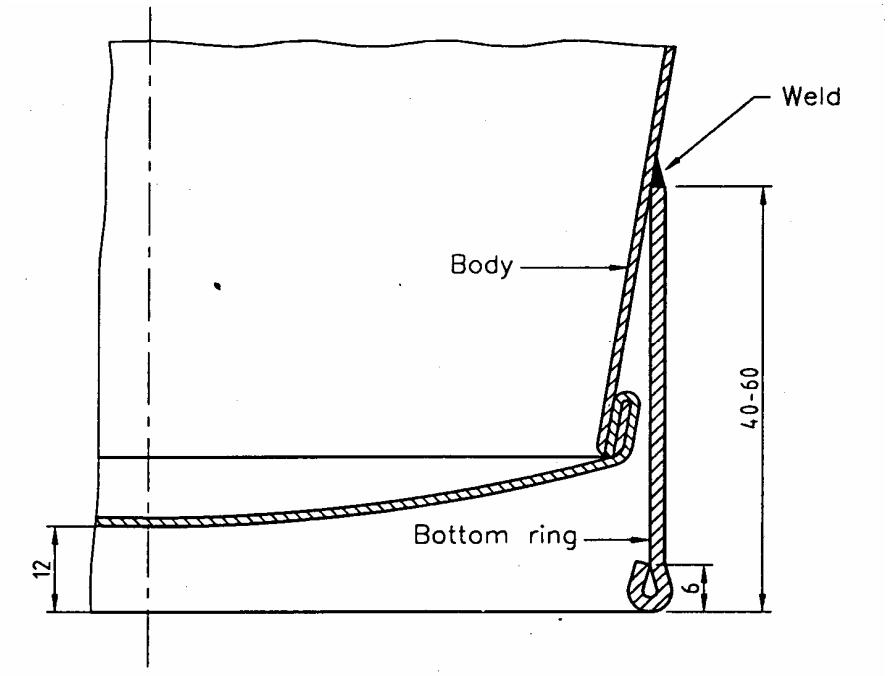
a) Riveted joint b) Lock joint

G – Pitch
H – Length of overlap

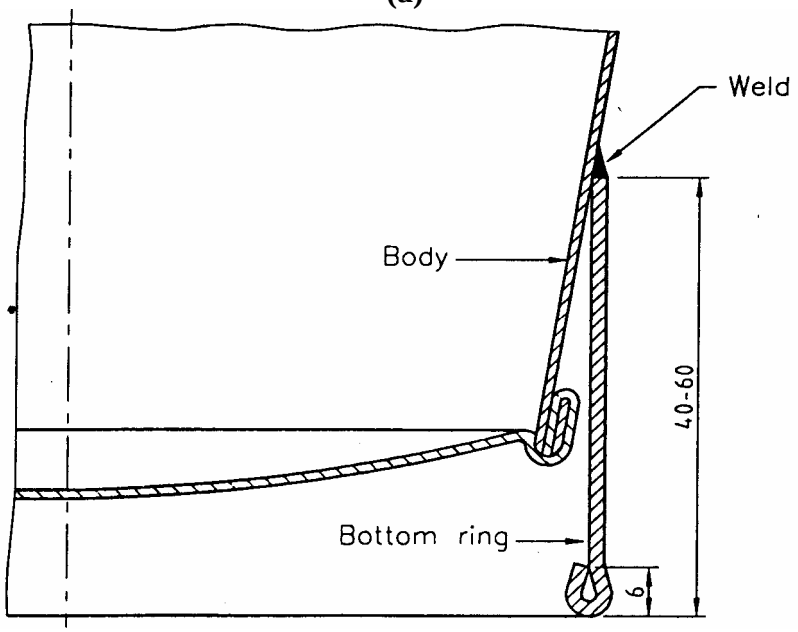
FIGURE 2 – Joints for the bottom to body and ring to body

5.3.1.2 Bottom

The bottom shall be dished and shall be joined to the body either by a lock joint, as shown in **Figure 3** or lap welding or seaming.



(a)



(b)

FIGURE 3 – Methods of joining bottom to body and ring to body

5.3.1.3 Ears and handles

The ears shall be punched to receive the handle and it shall be fitted to the body by riveting as shown in Figure **4**. The ears shall be fitted to the body at the joints of the body by means of flat head rivets, with the flat head on the inside

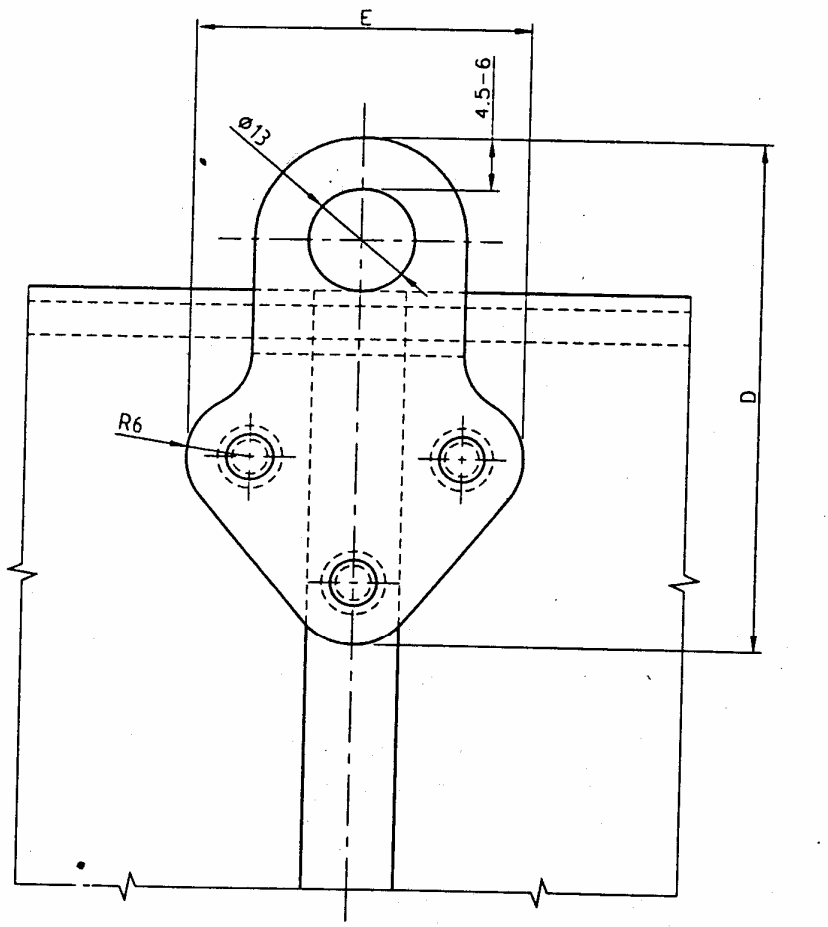


FIGURE 4 - Details of ear

5.3.1.4 Bottom ring

a) The bottom ring shall be made in one piece either by welding or riveting together with at-least two rivets with a minimum lap of 25 mm to from a continuous band. The lower edge of the bottom ring shall be folded inside so that the width of the inside fold shall be not less than 6 mm. The bottom ring shall be joined to the body welding as shown in Figure 3.

b) In the case of light duty buckets the bottom ring may be joined to the body either as described in **5.3.1.4 (a)** or by means of two to four flat head rivets equally spaced apart with the flat head on the inside using and ordinary lap joint. (two plates at the joint should be perfectly overlapped, without any clearance in between)

5.3.2 Finish

5.3.2.1 Each bucket and handle after fabrication and assembly shall be completely covered by hot dipped galvanized coating in accordance with SLS **482**. The galvanized coating shall be free

from blisters, grittiness, stains, and bare spots. The galvanizing shall withstand four immersions of one minute duration when tested in accordance with
CS **121**.

5.3.2.2 All exposed sharp edges formed during manufacture or galvanizing liable to cause injury to persons shall be removed.

5.3.3 Galvanized coating

The coating of zinc on any part shall not be less than 300 g/m^2 (single surface)

5.4 Performance

5.4.1 *Leak test 1*

The buckets shall not show any sign of leakage during a period of 15 minutes when it is full of water.

5.4.2 Leak test 2

The dry empty bucket shall be pressed down vertically in a tank of water with the top facing upwards and until it is about 6 mm above the water level. If water enters the bucket it shall be considered to have failed the test.

A similar test shall be carryout with the top facing downwards till the bottom is completely immersed in water. If any entrapped air escapes as bubbles through the water, the bucket shall be considered to have failed the test.

6 MARKING

Each bucket shall be legibly marked (labelled or embossed) on its side with the following:

a) Name of the manufacturer or trade mark;
b) Nominal size of the bucket;
c) Type of the bucket; and
d) Batch number.

NOTES

1. *In case or embossing it shall be done before it is hot dip galvanised. Additional markings shall not be stamped or embossed on the buckets after galvanising.*
2. *Attention is drawn to the certification marking facilities offered by the Sri Lanka Standards Institution. See the inside back cover of this standard.*

APPENDIX A
COMPLIANCE OF A LOT

This sampling scheme shall be applied where compliance of a lot to the requirements of this standard is to be assessed based on statistical sampling and inspection.

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

A.1 Lot

In any consignment all the buckets of same quality and size belonging to one batch of manufacture or supply shall constitute a lot.

A.2 Scale of sampling

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

A.2.2 The number of buckets to be selected from a lot shall be in accordance with column 1 and column **2** of Table **3.**

TABLE 3 - Scale of sampling

No of buckets in the lot (1)	No. of buckets to be selected (2)	Size of Sub group (3)	Acceptance number (4)	Acceptance number for sub group (5)
Up to 25	5	2	0	0
26 to 90	10	3	1	0
91 to 150	15	3	1	0
151 to 500	25	4	2	0
501 to 1200	35	5	3	0
1201 to 3200	35	5	5	0
3201 and above	100	8	8	1

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

A.3 Number of tests

A.3.1 All buckets selected as in **A.2.2** shall be inspected for marking requirements **(6**) and finish (**5.3.2)**

A.3.2 All buckets selected as in **A2.2** shall be examined for dimensional requirements **(5.2**) and performance (**5.4**) .

A.3.3 A sub sample of size as given in column **3** of Table **3** shall be drawn from the buckets selected as **A.2.2** and each bucket so selected shall be tested for sheet thickness (**5.1.1.2)** and galvanized coating **(5.3.3**).

A.4 Criteria for conformity

A lot shall be declared as conforming to the requirements of this specification if the following conditions are satisfied.

A.4.1 Each bucket inspected as in **A.3.1** satisfies the relevant requirements.

A.4.2 The number of buckets not conforming to the relevant requirements when examined separately as in **A.3.2** is less than or equal to the corresponding acceptances number given in Column **4** of Table **3.**

A.4.3 The number of buckets not conforming to the relevant requirements when examine separately as in **A.3.3** is less than or equal to the corresponding acceptance number given in column **5** of Table 3.

SRI LANKA STANDARDS INSTITUTION

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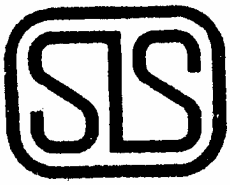

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