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SPECIFICATION FOR CAST BRASS HINGES

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BUREAU OF CEYLON STANDARDS

SPECIFICATION FOR CAST BRASS HINGES

S. L. S. 381 : 1976

Gr. 4

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Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

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

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SRI LANKA STANDARD SPECIFICATION FOR CAST BRASS HINGES

FOREWORD

This Sri Lanka Standard Specification has been prepared by the Drafting Committee of the Bureau of Ceylon Standards on Brass Hinges. It was approved by the Mechanical Engineering Divisional Committee of the Bureau and was authorized for adoption and publication by the Council of the Bureau on 5th May, 1976.

In keeping with the current manufacturing practices only cast brass hinges of butt and parliament types have been specified.

Dimensions of hinges are given in both SI and imperial units. In the case of quantities given in imperial units, the SI equivalents are provided in parentheses for guidance. These equivalents have been calculated in accordance with CS 116 : 1971*.

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 observation shall be rounded off in accordance with CS 102 : 1971†. The number of figures to be retained in the rounded off value shall be the same as that of the specified value in this standard.

In order to assist those who have been accustomed to the inch system, an Appendix has been provided giving the S.W.G. numbers together with their corresponding inch values and the metric equivalents, to serve as a guide in choosing the hinge pin of the appropriate diameter.

The assistance gained from CS 30 : 1968‡ and publications of the British Standards Institution in the preparation of this specification, is gratefully acknowledged.

1. SCOPE

This standard covers brass hinges of the following types :

(i) Cast brass butt hinges.
(ii) Cast brass parliament hinges.

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* C.S. 116 : 1971 — Principles of Conversion.

† C.S. 102 : 1971 — Presentation of Numerical Values.

‡ C.S. 30 : 1968 — Specification on Steel Hinges.

2. MATERIAL

2.1 (*a*) Cast brass used in the manufacture of hinges shall have the following chemical composition :

Constituent	*Percentage*
Copper	60 — 65
Tin	0·5 — 1·50
Lead	0·75 — 1·50
Zinc	Remainder
Impurities	1·25 (max.)

(*b*) Physical Properties — The minimum tensile strength of brass shall be 22·0 tons f/in^2 (340 MPa).

2.2 Mild steel wire used in the manufacture of hinge pins shall have an ultimate tensile strength of 27·0 tons f/in^2 (415 MPa) to 34·0 tons f/in^2 (525 MPa).

3. DIMENSIONS

3.1 Dimensions of hinges shall be as set out in the following Tables :

Table 1 or 1M — Dimensions of cast brass butt hinges.
Table 2 or 2M — Dimensions of cast brass parliament hinges.

3.2 Screw Holes

3.2.1 The screw holes shall be suitable for countersunk head wood screws conforming to CS 6 : 1968*, and shall have screw gauge numbers specified in the appropriate Tables.

3.2.2 When only two screw holes are required they shall be in a line parallel to the hinge pin.

3.2.3 When more than two screw holes are required, they shall be distributed so that a line parallel to the hinge pin runs tangential to the periphery of the screw holes in the manner shown in Figs. 1 and 2.

3.2.4 The screw holes shall be equally spaced with the end screw holes spaced away from the flap margin such that the dimension between the flap margin and the end screw hole centre is half the dimension between two successive screw hole centres as illustrated in Figs. 1 and 2.

* CS 6 : 1968 — Specification for Wood Screws.

3.2.5 The screw holes centre line shall not be within 0·25 in (6·4 mm) of flap margin.

3.3 Knuckles

3.3.1 The knuckles shall equally divide the length of joint of each hinge.

3.3.2 The number of knuckles shall be as specified in the appropriate Tables.

3.3.3 The clearance for paint between knuckle and inner edges of flaps shall be not less than 0·04 in (1·0 mm).

3.4 Hinge Pins — The hinge pins for each type of hinge shall be of diameter specified in Tables mentioned in Clause 3·1.

4. TOLERANCES

4.1 A general manufacturing tolerance of $\pm$ 0·040 in (1·00 mm) shall be allowed on dimensions of length of joint, height and open width over flaps.

5. MANUFACTURE

5.1 All hinges shall be free from defects that may adversely affect the appearance or service.

5.2 All edges shall be smooth and square without burrs or sharp projections.

5.3 The movement of the hinges shall be free and easy and shall have no excessive play or shake.

5.4 The holes for the hinges pin shall be central and square to the knuckles.

5.5 The hinge pin shall be positioned so that it rests at the bottom of the joint and the open end of the joint shall be welded or soldered (see Fig. 3). The length of the hinge pin shall be less than the length of the joint by 3 times the diameter of the pin.

5.6 All screw holes shall be clearly countersunk concentric with the hole and, without sharp edges at the back.

5.7 All castings shall be free from discolourations, blow-holes, porosity, hard spots, shrinkage defects or cracks, or other injurious defects.

5.8 The hinge pins shall be of mild steel unless otherwise specified in Clause 5·9.

5.9 Where salts or other substances will adversely affect the life of the pin, a non-corrodible pin of strength characteristics equivalent to the pins specified as in Clause 5·8 and in Clause 2·2 may be used, and shall be known as " Corrosion Resistance Pin ".

6. FINISH

6.1 As a minimum requirement, and unless otherwise specified hinges shall be finished bright and smooth on all visible and working surfaces.

6.2 Other finishes can be obtained to suit purchaser's requirement.

7. PACKING

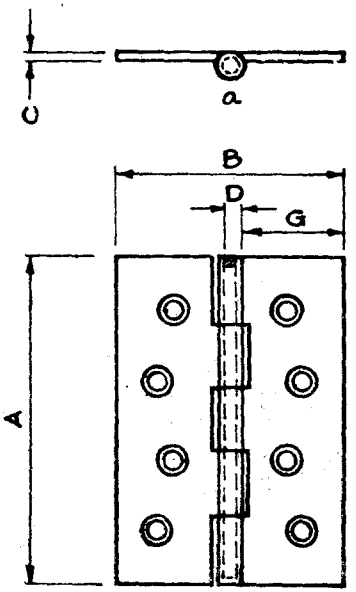
7.1 Hinges shall be packed in suitable containers.

7.2 The containers shall be uniform and shall bear or be labelled with the trade mark and the name of the manufacturer, a description of the contents and size.

7.3 A protection for finish shall be provided, if necessary.

8. MARKING

8.1 All hinges shall bear the name or trade mark of the manufacturer. Such trade mark shall be stamped in such a way that it will not be visible when the hinge is fixed in position.



a — cast

A — Length of joints

B — Open width over flaps

C — Thickness of flaps

D — Diameter of pin

G — Flat knuckles to edge

FIG. 1 — CAST BRASS BUTT HINGE

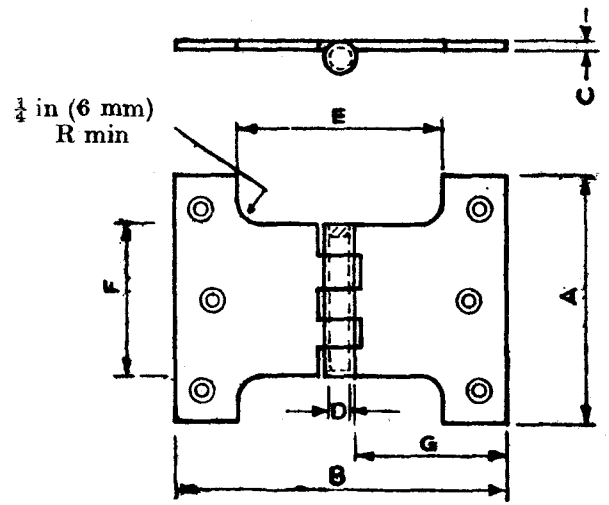
Table 1 — Dimensions of Cast Brass Butt Hinges
(Imperial System)

Length of joint A in (mm)	Open width over flaps B in (mm)	Thickness of flap C in (mm)	Diameter of pin D in (mm)	Flat-knuckle to edge G in (mm)	Screw gauge no. for holes (see CS 6)	No. of screw holes in each flap	Number of knuckles
1 (30)	1 (30)	0·050 (1·26)	0·064 (1·63)	0·418 (10·62)	4	2	3
1½ (38·0)	1 (30)	0·063 (1·60)	0·080 (2·03)	0·397 (10·08)	6	3	3
2 (50)	1 (30)	0·063 (1·60)	0·128 (3·25)	0·373 (9·47)	6	3	5
2 (50)	1½ (38·0)	0·063 (1·60)	0·128 (3·25)	0·623 (15·82)	6	3	5
2 (50)	1¾ (44·5)	0·079 (2·00)	0·128 (3·25)	0·732 (18·59)	6	3	5
3 (80)	2 (50)	0·099 (2·52)	0·160 (4·06)	0·821 (20·85)	8	3	5
3 (80)	2½ (63·5)	0·099 (2·52)	0·160 (4·06)	1·071 (27·20)	8	3	5
3½ (89·0)	4 (100)	0·125 (3·18)	0·160 (4·06)	1·795 (45·59)	8	4	5
4 (100)	2½ (63·5)	0·157 (3·99)	0·160 (4·06)	1·013 (25·73)	8	4	5
4 (100)	3 (80)	0·157 (3·99)	0·160 (4·06)	1·263 (32·08)	10	4	5
4 (100)	4 (100)	0·198 (5·03)	0·192 (4·88)	1·706 (43·33)	10	4	5
5 (130)	2½ (63·5)	0·198 (5·03)	0·192 (4·88)	0·806 (20·47)	10	5	7
5 (130)	4½ (114·0)	0·198 (5·03)	0·192 (4·88)	1·956 (49·68)	10	5	7
6 (150)	4½ (114·0)	0·198 (5·03)	0·232 (5·90)	1·686 (42·82)	12	6	7
6 (150)	6 (150)	0·198 (5·03)	0·232 (5·90)	2·686 (68·22)	12	6	7

Table 1M — Dimensions of Cast Brass Butt Hinges

(Metric System)

Length of Joint A mm	Open width Over flaps B mm	Thickness of flaps C mm	Diameter of pin D mm	Flat knuckle to edge G mm	Screw gauge No. for holes (see CS6)	No. of screw holes in each flap	Number of knuckles
25	25	1·25	1·60	10·44	4	2	3
40	25	1·60	2·00	9·88	6	3	3
50	25	1·60	3·15	9·28	6	3	5
50	40	1·60	3·15	16·78	6	3	5
50	45	2·00	3·15	18·88	6	3	5
75	50	2·50	4·00	20·47	8	3	5
75	65	2·50	4·00	27·97	8	3	5
90	100	3·15	4·00	44·82	8	4	5
100	65	4·00	4·00	26·47	8	4	5
100	75	4·00	4·00	31·47	10	4	5
100	100	5·00	5·00	42·56	10	4	5
125	165	5·00	5·00	25·06	10	5	7
125	115	5·00	5·00	50·06	10	5	7
150	115	5·00	6·00	49·55	12	6	7
150	150	5·00	6·00	67·05	12	6	7



A — Height
B — Open width over flaps
C — Thickness of flap
D — Diameter of pin
E — Width of opening
F — Length of joint
G — Knuckle to edge

FIG. 2 — CAST BRASS PARLIAMENT HINGE

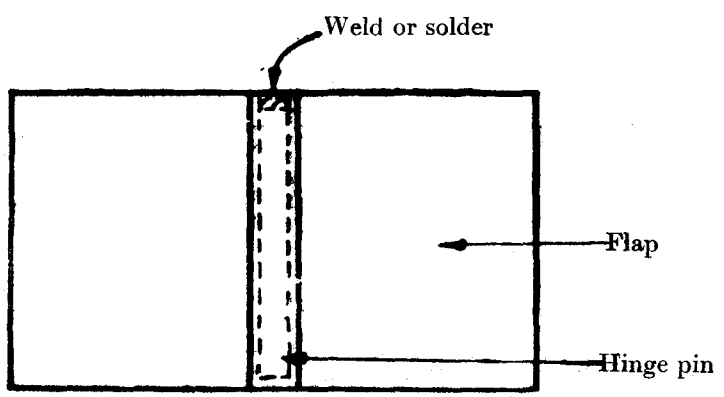


FIG 3 — POSITION OF HINGE PIN (see Clause 5.5)

Table 2 — Dimensions of Cast Brass Parliament Hinges
(Imperial System)

Height A in (mm)	Open width over flaps B in (mm)	Thickness of flaps C in (mm)	Diameter of pin D in (mm)	Width of opening E in (mm)	Length of joints F in (mm)	Knuckle to edge G in (mm)	Screw gauge for holes (CS 6)	Number of screw holes in each flap	Number of knuckles
3 (80)	3 5/8 (92·1)	0·125 (3·18)	0·187 (4·76)	2 (50)	1·50 (38·1)	1·594 (40·49)	8	3	5
4 (100)	4 5/8 (117·5)	0·125 (3·18)	0·250 (6·35)	3 (80)	1·88 (47·6)	2·062 (52·37)	8	3	5
4 (100)	6 1/8 (155·6)	0·125 (3·18)	0·250 (6·35)	4 (100)	2·50 (63·5)	2·812 (71·42)	10	3	5
4 (100)	6 1/8 (155·6)	0·125 (3·18)	0·250 (6·35)	4 (100)	2·50 (63·5)	2·812 (71·42)	10	3	5
5 (130)	7 1/8 (181·0)	0·176 (4·48)	0·312 (7·94)	5 (130)	2·50 (63·5)	3·230 (82·04)	10	4	5
5 (130)	8 1/8 (206·4)	0·176 (4·48)	0·312 (7·94)	6 (150)	2·50 (63·5)	3·730 (94·74)	10	4	5

Table 2M — Dimensions of Cast Brass Parliament Hinges
(Metric System)

Height A mm	Open width over flaps B mm	Thickness of flaps C mm	Diameter of pin D mm	Width of opening E mm	Length of joint F mm	Knuckle to edge G mm	Screw gauge No. of holes (see CS 6)	No. of screw holes in each flap	Number of knuckles
75	90	3·15	5·0	50	37·5	39·35	8	3	5
100	115	3·15	5·6	75	45·0	51·55	8	3	5
100	155	3·15	6·3	100	45·0	71·20	10	3	5
125	155	3·15	6·3	125	62·5	71·20	10	3	5
125	180	4·50	8·0	125	62·5	163·00	10	4	5
125	200	4·50	8·0	125	62·5	163·00	10	4	5

APPENDIX A
Relevant S.W.G. sizes and Metric Equivalents

S.W.G. Number	Inch Size	Millimetre Equivalent
0	0·324	8·230
[illegible]	[illegible]	[illegible]
8	0·160	4·064
10	0·128	3·251
14	0·080	2·032
16	0·064	1·626

BUREAU OF CEYLON STANDARDS

The Bureau of Ceylon Standards (BCS) is the national standards organisation of Sri Lanka and was established by the Hon. Minister of Industries & Fisheries, as provided for by the Bureau of Ceylon Standards Act No. 38 of 1964.

The principal objects of the Bureau as set in the Act are to promote standards in industry and commerce, prepare national Standard Specifications and Codes of Practice and operate a Standardisation Marks Scheme and provide testing facilities, as the need arises.

The Bureau is financed by Government grants and the sale of its publications. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The detailed preparation of Standard Specifications is done by Drafting Committees composed of experts in each particular field assisted by permanent officers of the Bureau. These Committees are appointed by Divisional Committees, which are appointed by the Council. All members of the Drafting and Divisional Committees render their services in an honorary capacity. In preparing the Standard Specifications, the Bureau endeavours to ensure adequate representation of all view points.

In the international field the Bureau represents Sri Lanka in the International Organisation for Standardisation (ISO) and will participate in such fields of Standardisation as are of special interest to Sri Lanka.

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