CEYLON STANDARD 30:1968

UDC 621.888.2 : 669.14

SPECIFICATION FOR
STEEL HINGES

BUREAU OF CEYLON STANDARDS

- Blank Page -

SPECIFICATION FOR STEEL HINGES

CS 30:1968

(Incorporating AMD 42)

Gr.8

BUREAU OF CEYLON STANDARDS
53, Dharmapala Mawatha,
Colombo 3,
Sri Lanka.

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.

CEYLON STANDARD

SPECIFICATION FOR STEEL HINGES

FOREWORD

This Ceylon Standard Specification has been prepared by the Drafting Committee on Hinges. It was approved by the Mechanical Engineering Divisional Committee of the Bureau of Ceylon Standards and was authorised for adoption and publication by the Council of the Bureau on 4th October, 1968.

This specification is a revision of the tentative standard CS 40 of 1962 prepared by the Standards Advisory Committee of the former Department of Industries.

All dimensions in this specification have been given in SI units.

The British and Indian Standard Specifications have been consulted in the preparation of this specification and the assistance received is gratefully acknowledged.

1 SCOPE

This specification covers steel hinges of the following types:

a) Broad steel butt hinges; (see Fig.1)

b) Steel butt hinges (heavy gauge); (see Fig.1)

c) Steel butt hinges (light gauge); (see Fig.2)

d) Steel cabinet hinges ; (see Fig.3)

e) Steel parliament hinges; (see Fig.4)

f) Steel tee hinges; and (see Fig.5)

g) Steel strap hinges. (see Fig.6)

The butt and cabinet hinges may be of the cranked or uncranked types.

2 MATERIAL

2.1 The material used for the manufacture of hinges shall be mild steel sheets, plates or strips, and shall conform to the requirements laid down in 2.1.1 to 2.1.4.

2.1.1 The chemical composition (ladle analysis) of the steel plates shall comply with the following limits:

Carbon not to exceed	0.20%
Phosphorus not to exceed	0.06%
Sulphur not to exceed	0.06%

2.1.2 *Freedom from defects*

All finished sheets, plates or strips from which hinges are to be made shall be free from surface flaws, splits and other defects.

2.1.3 *Tensile strength*

Cold rolled sheets, plates or strips from which hinges are to be made shall have an ultimate tensile strength not less than 278 MPa.

2.1.4 *Bend test*

Suitable test pieces when cold shall withstand without fracture, being doubled over, either by pressure or by blows from a hammer until the internal radius is equal to the thickness of the test piece and the sides are parallel. Where the thickness of the sheet is over 6 mm the internal radius should be 1½ times the thickness.

2.2 Mild steel wire

Mild steel wire used in the manufacture of hinge pins shall have a tensile strength not less than 309 MPa nor more than 463 MPa.

3 DIMENSIONS

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

Table 3 - Dimensions of broad steel butt hinges;

Table 4 - Dimensions of steel butt hinges (heavy gauge);

Table 5 - Dimensions of steel butt hinges (light gauge);

Table 6 - Dimensions of steel cabinet hinges;

Table 7 - Dimensions of steel parliament hinges;

Table 8 - Dimensions of steel tee hinges; and

Table 9 - Dimensions of steel strap hinges.

3.2 Screw holes

3.2.1 The screw holes shall be suitable for countersunk head wood screws conforming to CS 6:1968, having 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 in the case of butt, cabinet and parliament hinges, 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 Figure 7. In the case of tee and strap hinges, the screw holes shall be distributed in the manner illustrated in Figure 5 and Figure 6.

3.2.4 Except in the case of cabinet hinges, the screw hole centre line shall not be within 3 mm of the flap margin for hinges under 50 mm, and 6 mm for hinges over 50 mm long.

3.2.5 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 Figure 7.

3.3 Knuckles

3.3.1 The knuckles shall equally divide the length of joint of each hinge in the case of butt, cabinet, parliament and strap hinges.

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 1 mm.

3.4 Hinge pins

The hinge pins for each type of hinge shall be of diameter specified in tables mentioned in 3.1.

4 TOLERANCES

The tolerances permitted on the dimensions of hinges shall be as given in the appropriate tables.

5 MANUFACTURE

5.1 All hinges shall be free from flaws and defects of all kinds 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 hinge shall be free and easy, and shall have no play or shake.

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

5.5 All hinge pins shall be riveted firm, with well formed countersunk or domed head.

5.6 All screw holes shall be cleanly countersunk with no sharp edges at the back.

6 FINISH

Unless otherwise specified by the purchaser, all steel hinges shall be smooth finished and shall be treated against rust development.

7 PACKING

7.1 Butt, cabinet and parliament hinges shall be packed in cartons in accordance with Column 1 and Column 2 of Table 1.

TABLE 1 - Packing of hinges

Length (1)	Number of hinges per carton (2)
25 mm and below	24
Above 25 mm and up to and including 75 mm	12
Above 75 mm	12

8 MARKING

8.1 Hinges

Each hinge shall be clearly marked with the name or trade mark of the manufacturer.

8.2 Cartons

Each carton shall bear a label showing the following:

a) Name or trade mark of the manufacturer;
b) Type of hinge;
c) Size of hinge;
d) Quantity; and
e) Country of manufacture.

Where the hinges are treated or coated, the type of treatment or coating should be clearly indicated.

9 SAMPLING

9.1 Lot

In any consignment all hinges of the same type and size and manufactured at the same time shall be grouped together to constitute a lot.

9.2 Hinges for testing shall be selected at random from at least 10 per cent of cartons subject to a minimum of three, an equal number of hinges being selected from each such carton.

9.3 The number of hinges to be selected from a lot shall depend on the size of the lot and shall be in accordance with Column 1 and Column 2 of Table 2.

TABLE 2 - Scale of sampling and criterion for conformity

Lot size (1)	Sample size (2)	Permissible No. of defectives (3)
Up to 200	15	0
201 to 300	20	1
301 to 500	30	2
501 to 800	40	2
801 and over	55	3

10 INSPECTION

All hinges selected as in 9 shall be examined for the following:

a) Dimensional requirements (see Clause 3).

b) Defects in manufacture (see Clause 5).

c) Finish (see Clause 6).

Any hinge which fails to satisfy the general requirements of this specification in any of the above characteristics shall be considered as a defective hinge.

11 CONFORMITY TO STANDARD

The lot shall be considered as conforming to the requirements of this specification if the number of defective hinges does not exceed the corresponding number given in Column 3 of Table 2. Otherwise the lot shall be considered as not conforming to the requirements of this specification.

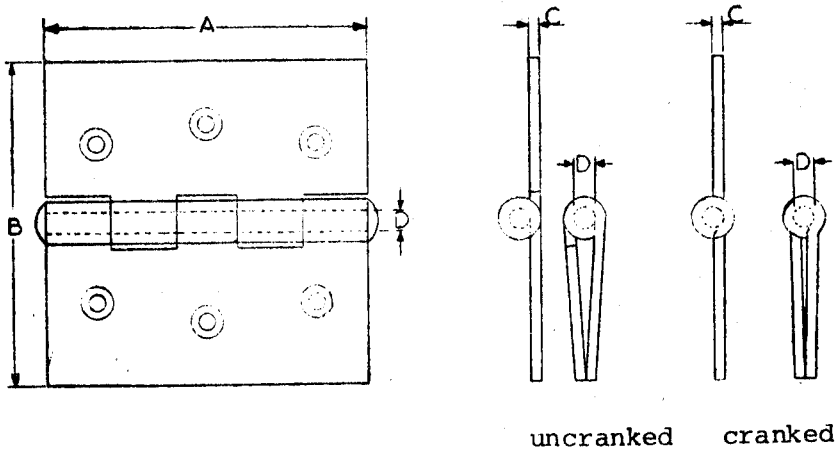


FIGURE 1 - Broad steel butt hinges

TABLE 3 - Broad steel butt hinges

Length of joint A (1)	Open width over flaps B (2)	Diameter of pin D min (3)	Thick-ness of flaps C min (4)	No. of knuckles (5)	No. of screw holes on each flap (6)	Screw gauge no.for holes (Clause 3.2.1) (7)
mm	mm	mm	mm			
50 ± 1	50 -1.5	5.0	1.80	3	2	7
62.5± 1	62.5-1.5	5.6	2.00	3	3	7
75 ± 1	75 -1.5	6.0	2.00	5	3	8
87.5± 1	87.5-1.5	6.0	2.36	5	3	8
100.0± 1	100.0-1.5	6.3	2.65	5	4	10

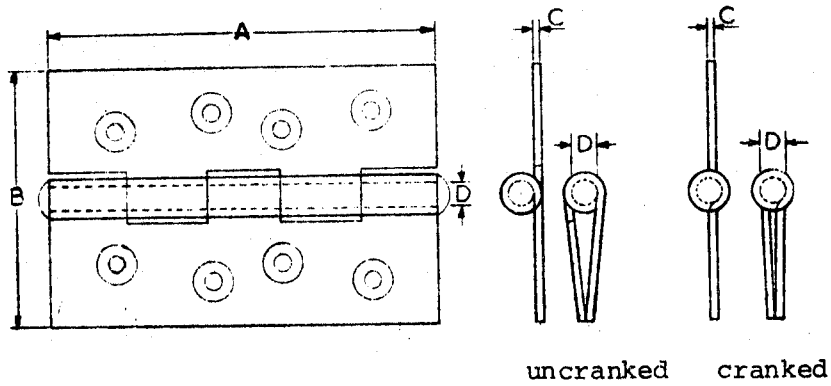


FIGURE 2 - Steel butt hinges (heavy gauge and light gauge)

TABLE 4 - Steel butt hinges (Heavy gauge)

Length of joint A (1)	Open width over flaps B (2)	Diameter of pin D min (3)	Thickness of flaps C min (4)	No. of knuckles (5)	No. of screw holes on each flap (6)	Screw gauge no. for holes (Clause 3.2.1) (7)
mm	mm	mm	mm			
50 ± 1	47 - 1.5	4.5	1.80	3	2	8
62.5± 1	50 - 1.5	4.5	2.00	3	3	8
75 ± 1	60 - 1.5	5.6	2.36	5	3	10
87.5± 1	70 - 1.5	5.6	2.80	5	3	10
100 ± 1	72.5 - 1.5	6.0	2.80	5	4	12
125 ± 1	87.5 - 1.5	7.1	3.55	5	4	12

TABLE 5 - Steel butt hinges (Light gauge)

Length of joint A (1)	Open width over flaps B (2)	Diameter of pin D min (3)	Thick-ness of flaps C min (4)	No.of knuckles (5)	No.of screw holes on each flap (6)	Screw gauge no. for holes (Clause 3.2.1) (7)
mm	mm	mm	mm			
37.5± 0.5	35 - 1.5	2.80	1.4	3	2	5
50 ± 0.5	37.5- 1.5	3.15	1.4	3	3	6
62.5± 1.0	45 - 1.5	3.55	1.6	5	3	6
75 ± 1.0	50 - 1.5	4.00	1.7	5	3	7
87.5± 1.0	60 - 1.5	5.00	1.8	5	3	8
100 ± 1.0	72.5- 1.5	6.00	2.0	5	4	8
125 ± 1.0	82 - 1.5	8.00	2.24	5	4	10

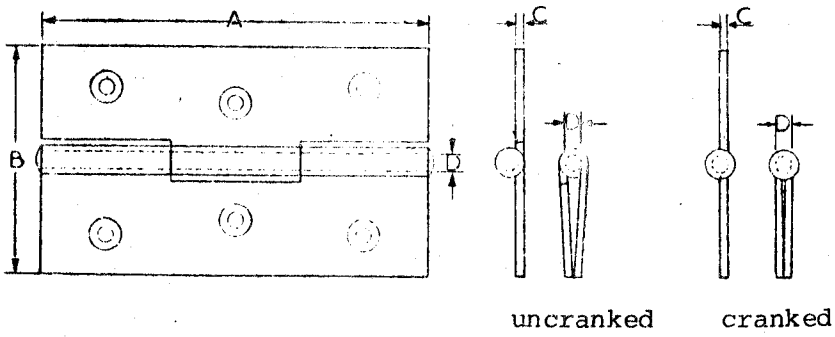


FIGURE 3 - Steel cabinet hinges

TABLE 6 - Mild steel cabinet hinges

Length of joint A (1)	Open width over flaps B (2)	Diameter of pin D min (3)	Thick-ness of flaps C min (4)	No.of knuckles (5)	No. of screw holes on each flap (6)	Screw gauge no. for holes (Clause 3.2.1) (7)
mm	mm	mm	mm			
25 ± 0.5	20 - 1.5	2.80	1.18	3	2	2
30 ± 0.5	22 - 1.5	2.80	1.18	3	2	4
37.5± 0.5	22 - 1.5	2.80	1.40	3	2	4
50 ± 1.0	28 - 1.5	3.15	1.40	3	2	4
50 ± 1.0	37.5- 1.5	3.15	1.40	3	3	6
62.5± 1.0	37.5- 1.5	3.55	1.8	5	3	6
62.5± 1.0	45 - 1.5	3.55	1.8	5	3	6

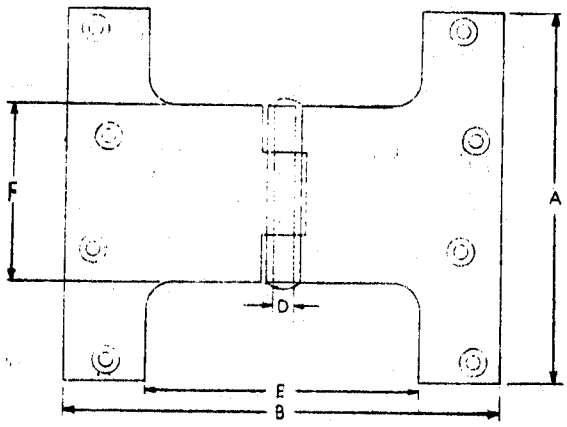


FIGURE 4 - Steel parliament hinge

TABLE 7 - Steel parliament hinges

Height A (1)	Open width over flaps B (2)	Width of opening E (3)	Diameter of pin D min (4)	Thickness of flaps C min (5)	Length of joint F (6)	No. of knuckles (7)	No. of holes in each flap (8)	Screw gauge no. for holes (Clause 3.2.1) (9)
mm	mm	mm	mm	mm	mm			
75±2	90-4	50±2	5.0	2.0	37.5	5	3	8
100±2	90-4	50±2	5.0	2.24	45	5	3	8
100±2	115-4	75±2	5.6	2.24	45	5	3	8
100±2	155-4	100±2	6.3	2.50	45	5	3	10
125±2	155-4	125±2	6.3	2.50	62.5	5	3	10
125±2	180-4	125±2	8.0	2.50	62.5	5	4	10
125±2	200-4	125±2	8.0	2.50	62.5	5	4	10
125±2	225-4	125±2	8.0	2.80	62.5	5	4	10

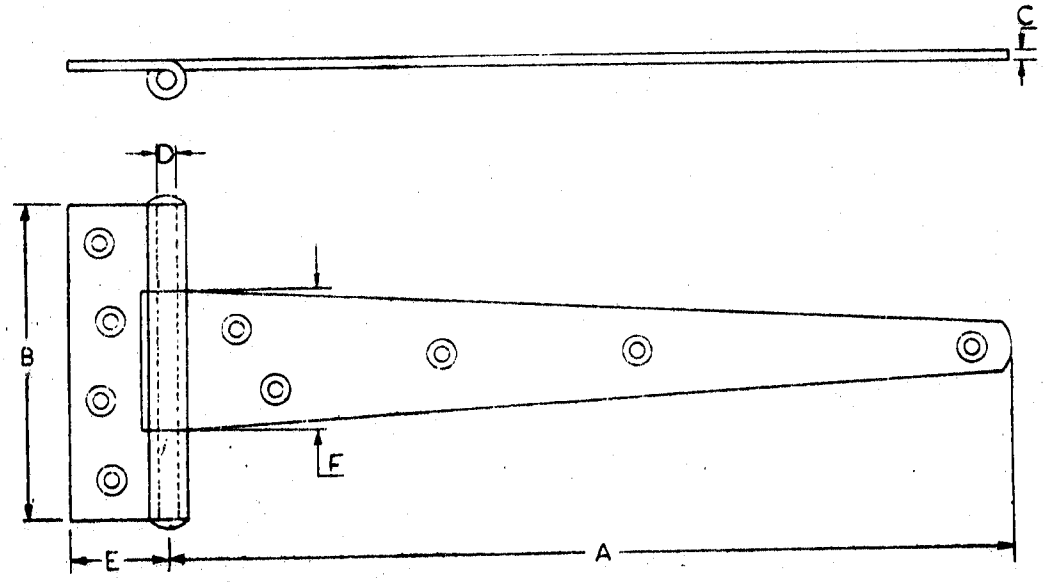


FIGURE 5 - Steel tee hinge

TABLE 8 - Steel tee hinges

Length of tail from centre of pin A (1)	Length of tee head B (2)	Width of tee head from centre of pin E (3)	Height of tail at joint F (4)	Thickness of flaps C min (5)	Diameter of pin D min (6)	No. of screw holes in each hinge (7)	Screw gauge no. for holes (Clause 3.2.1) (8)
mm	mm	mm	mm	mm	mm		
100 ± 2	80 ± 2	30 -0.8	37.5	2.65	5.6	6	8
150 ± 2	90 ± 2	30 -0.8	45	2.65	6.3	7	8
200 ± 4	100 ± 2	35 -0.8	45	2.80	7.10	7	10
250 ± 4	115 ± 2	37.5-0.8	50	2.80	7.10	7	10
300 ± 4	125 ± 2	37.5-0.8	55	3.15	8.00	9	12
350 ± 4	140 ± 2	45 -0.8	60	3.15	9.00	9	12
400 ± 4	150 ± 2	50 -0.8	60	3.55	9.00	9	12
450 ± 4	180 ± 2	50 -0.8	60	3.55	11.2	9	14
500 ± 4	200 ± 2	60 -0.8	70	3.55	11.2	10	14
600 ± 4	240 ± 2	70 -0.8	70	3.55	11.2	11	14

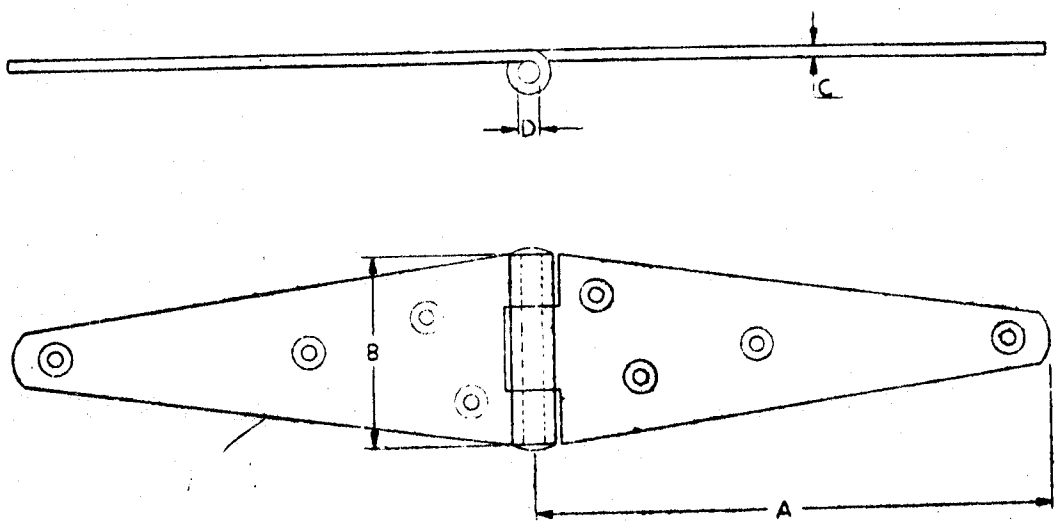


FIGURE 6 - Steel strap hinges

TABLE 9 - Steel strap hinges

Length of flap from centre of pin A (1)	Length of joint B (2)	Diameter of pin D min (3)	Thick-ness of flaps C min (4)	No. of knuckles (5)	No. of screw holes in each hinge (6)	Screw gauge no. for holes (Clause 3.2.1) (7)
mm	mm	mm	mm			
200 ± 3	80 ± 1.5	7.10	2.80	3	8	12
250 ± 3	90 ± 1.5	8.00	3.15	3	10	14
300 ± 3	100 ± 1.5	9.00	3.55	3	12	14

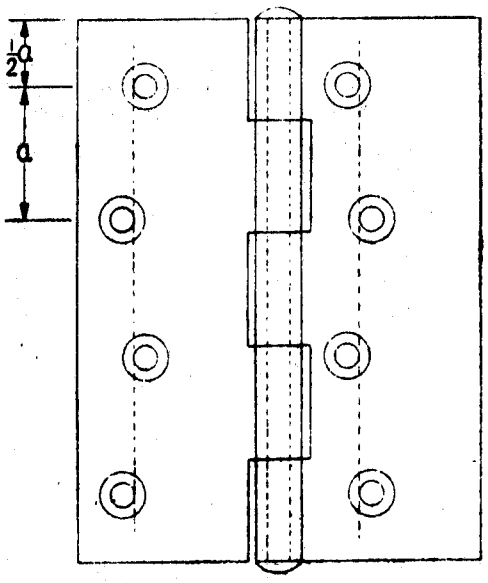
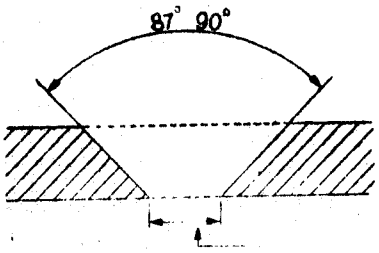


FIGURE 7 - Distribution of screw holes



Diameter of CSK hole

FIGURE 8 - Countersunk hole for screw

SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

Printed at SLSI (Printing Unit)