

**SRI LANKA STANDARD 865 : 1989**

UDC 684.45:651.2:669.1

SPECIFICATION FOR  
**STEEL STATIONERY CUPBOARDS**

**SRI LANKA STANDARDS INSTITUTION**



# SPECIFICATION FOR STEEL STATIONERY CUPBOARDS

SLS 865 : 1989

Gr. 7

*Copyright Reserved*

SRI LANKA STANDARDS INSTITUTION

53, Dharmapala Mawatha,

Colombo 3,

Sri Lanka.



# SRI LANKA STANDARD

## SPECIFICATION FOR STEEL STATIONERY CUPBOARDS

### FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1989-10-11, after the draft, finalized by the Drafting Committee on Steel Stationery Cupboards had been approved by the Mechanical Engineering Divisional Committee.

All values given in this standard are in SI units.

This standard was prepared to lay down specification for Steel Stationery Cupboards. In the preparation of the standard note has been taken of the specifications of Steel Stationery Cupboards presently being manufactured by leading local manufacturers.

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 assistance derived from the relevant publications of the British Standards Institution and the Bureau of Indian Standards in the preparation of this standard is gratefully acknowledged.

### 1 SCOPE

This standard specifies the requirements for material, manufacture and test methods of steel stationery cupboards.

## 2 REFERENCES

- CS 102 Presentation of numerical values
- SLS 428 Random sampling methods
- SLS 535 Methods of Test for paints ;  
Part 5 Mechanical tests on paint Films  
Part 6 Durability tests on paint Films
- BS 1140 Process of arc welding of carbon and carbon manganese steels
- BS 1449 Part 1 Carbon and carbon-manganese plate, sheet and strip
- BS 3189 Phosphate treatment of iron and steel
- BS 5135 Resistance spot welding of undercoated and coated low carbon steel
- IS 101 Methods of Test for ready mixed paints and enamels
- IS 2932 Enamel synthetic, exterior  
(a) Undercoating (b) Finishing

## 3 REQUIREMENTS

### 3.1 Material

Steel stationery cupboards shall be manufactured from mild steel sheets which conform to BS 1449 : Part 1 : 1983.

### 3.2 Construction

#### 3.2.1 Design

The internal lay out such as the number of shelves and the provision of vertical partition, drawers shall be as agreed between purchaser and the manufacturer.

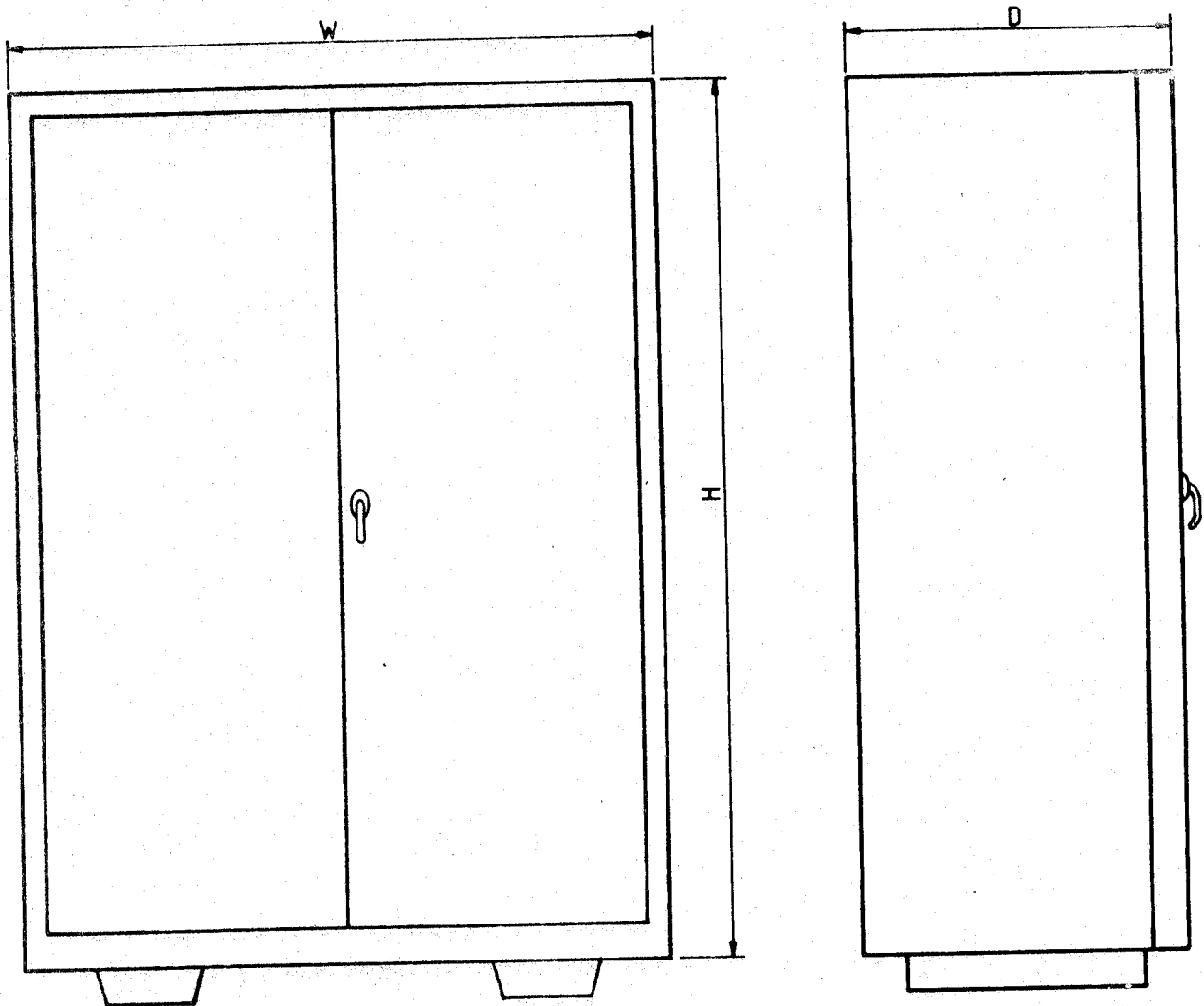


FIGURE 1 - Dimensions of steel stationery cupboard

### 3.2.2 Dimensions and Tolerances

3.2.2.1 Overall dimensions of steel stationery cupboards shall be as given in Figure 1 and Table 1.

Table 1 - Dimensions of steel stationery cupboards

*Dimensions in millimetres*

Size designation (1)	Height H (2)	Width W (3)	Depth D (4)
H 1	1830	915	460
H 2	1220	915	460
H 3	1030	915	460
H 4	915	915	460

3.2.2.2 Tolerances in dimensions specified in Table 1 shall be  $\pm 2$  mm.

### 3.2.3 Components

#### 3.2.3.1 Casings

Casings shall be made from mild steel sheet of thickness not less than 0.8 mm except in the case of back panel where a thickness of not less than 0.7 mm may be allowed.

Alternatively a sheet thickness of 0.7 mm to 0.8 mm may be used for sides, top and bottom with adequate stiffening incorporated to give a structural strength equivalent to the above.

#### 3.2.3.2 Doors

Doors shall be made from mild steel sheets of thickness not less than 0.8 mm.

The edge of each half, of the door except the vertical free edge of the left-hand door shall be bent in to a double return at least 15 mm deep, and at least 10 mm wide. The vertical free edge of the left-hand door shall be bent into an inverted Z to provide an edge at least 10 mm wide against which the right-hand door can seat when closed. Each half of the door shall be reinforced on the inside with at least one top hat stiffener, at least 70 mm wide and 10 mm deep made of sheet of thickness not less than 0.7 mm extending to the full height of the door.

The doors shall be made flush fitting and the clearance around the edge shall not exceed 2.0 mm. The doors shall be fitted with three hinges each.



**3.2.3.3 Shelves and vertical partitions**

Shelves and vertical partitions shall be made from mild steel sheet of thickness not less than 0.8 mm. The vertical partitions shall be flanged at the back, top and bottom and bent into a double return at the front. The shelves shall be flanged at the sides and back, and bent into a double return at the front in the case of non-adjustable types. In the adjustable types, the shelves shall be bent into a double return on all four sides.

Alternatively a sheet thickness of 0.7 mm to 0.8 mm may be used with adequate stiffening incorporated to give a structural strength equivalent to the above.

**3.2.3.4 Adjusting strips for shelves**

Adjusting strips shall be made from mild steel sheet of thickness not less than 0.8 mm. The strips shall extend to full height of the casing except for 100 mm clearance at the top and at the bottom, and shall be positioned to provide adequate support for the shelves. The adjusting strip shall have provision for shelf positioning at a pitch not exceeding 50 mm.

**3.2.3.5 Shelf brackets**

Each shelf shall be supported by four brackets. The brackets shall be made from mild steel sheet of thickness not less than 1.50 mm. The brackets shall be so designed and constructed that the shelf is securely supported and adjustments can be made easily.

**3.2.3.6 Hinges**

The doors shall be fitted with three hinges each. The hinges shall be made of mild steel sheet, properly secured to the door and the casing, and be of robust construction.

**3.2.3.7 Locking arrangement**

Steel stationery cupboards shall be provided with a three-point locking device, operated by a handle with provision for locking. The locking arrangement shall be fitted to the right-hand door.

**3.2.3.8 (i) Lock**

The lock shall be of a type with not less than three-levers with duplicate keys of non-corrosive material. The lock may form an integral part of the door handle.

**3.2.3.8 (ii) Handle**

A metallic handle either chrome plated or with a high quality non-corrosive coating shall be used.

### 3.2.3.8 (iii) Latch Rod

A vertical latch rod, which operates in conjunction with the door handle to secure the door at the top and the bottom of the stationary cupboard, shall be fitted. The rod shall be made from mild steel round of diameter at least 6 mm or from mild steel flat at least 12.5 x 4 mm. It shall be in the released position when the door handle is horizontal and it shall be locked positively when the door handle is turned through 90° in the clockwise direction to a vertical position. The operation of the latch rod shall be smooth and easy and the construction shall be such that the latch cannot be released without operating the door handle.

### 3.2.3.8 (iv) Latch plate

Latch plate shall be made from mild steel sheet of thickness not less than 2.5 mm and shall be rigidly secured to the handle on the inside of the door. If the latch plate is secured by a nut and a bolt, a washer shall be provided under the nut and the bolt shall be riveted over.

### 3.2.3.9 Pedestal

This is an optional component.

Pedestal shall be made from mild steel sheet of thickness not less than 0.8 mm and shall be adequately stiffened. The pedestal shall be recessed inside on all sides by at least 5 mm and its height shall not be less than 75 mm.

### 3.2.4 Assembly

3.2.4.1 Casing shall be assembled using spot welding along seams, At the corners brazing or arc welding may be used to provide additional strength. Vertical partitions shall be fixed by spot welding along seams or by rivetting or bolting. Stiffeners and adjustable strips shall be assembled by spot welding. Hinges shall be firmly secured to the door and casing by either spot welding, brazing or arc welding to give adequate strength. Where a pedestal is used this may be spot welded.

3.2.4.2 The method of arc welding and spot welding shall conform to BS 5135 : 1984 and BS 1140 : 1980 respectively.

### 3.3 Finish

3.3.1 All dents, burrs and sharp edges shall be removed from the various components. The components shall be individually pickled, scrubbed and rinsed to remove grease, rust scale or any other foreign matter.

3.3.2 Immediately after pickling all the mild steel parts shall be given a phosphating treatment conforming to BS 3189 : 1973.

**3.3.3** A suitable type of stoving primer such as red oxide may then be applied and the components shall thereafter be baked at a specified temperature in an oven heated uniformly.

**NOTE**

*The application of primer, may be considered as optional.*

**3.3.4** Coat/Coats of stoving enamel paint shall then be applied conforming to **IS 2932**. The components shall there after be baked at a specified temperature in an oven heated uniformly.

When a primer is not used painting shall immediately follow the phosphating treatment.

The finish shall be smooth and uniform with a hard and tough film of enamel strongly adhering to the surface and free from visible defects.

#### **4 MARKING**

All steel stationery cupboards shall be marked with the following information.

- (i) Batch number and serial numbers.
- (ii) Name and address of the Manufacturer, or his trade mark.

#### **5 TEST METHODS**

##### **5.1 Steel sheet**

Steel sheets shall conform to the test requirements specified in **BS 1449 Part 1 : 1983**.

##### **5.2 Paint coating**

Test samples painted under same conditions as those used in the manufacture, shall be used in the following tests.

###### **5.2.1 Scratch hardness test**

The test shall be performed in accordance with **SLS 535 : Part 5 Section 5.2**. A scratch showing the bare metal shall not be produced on the test sample.

###### **5.2.2 Cross cut test**

The test shall be performed in accordance with **SLS 535 : Part 5 Section 5.4**. The cross cut area produced shall not be distinctly greater than 15 per cent.

###### **5.2.3 Bend test**

The test shall be performed in accordance with **SLS 535 : Part 5 Section 5.3**. The coating shall not show cracking or detachment.

#### 5.2.4 Pressure test

The test shall be performed in accordance with IS 101 Cl. 15.2. The metal surface shall not be rendered visible when the test pieces are separated after the test.

5.2.5 The tests given below may be carried out as agreed between the purchaser and the manufacturer.

##### 5.2.5.1 Protection against corrosion under conditions of condensation.

The test shall be performed in accordance with IS 101 Cl. 18.

There shall be no signs of corrosion after the test.

##### 5.2.5.2 Natural Weathering Tests

These tests shall be performed in accordance with SLS 535 : Part 6 Section 6.4. The conditions for acceptance would be those agreed between the manufacturer and purchaser.

## 6 SAMPLING AND CRITERIA FOR CONFORMITY

### 6.1 Routine inspection

#### 6.1.1 Batch

All steel stationery cupboards of one size manufactured under same conditions of manufacture shall constitute a batch.

6.1.2 All batches of steel stationery cupboards shall be subjected to routine inspection by the manufacture in accordance with this standard.

6.1.3 Each cupboard of a batch shall be inspected for requirements given in 3.2.2 and 3.3. Only those complying with the requirements shall be accepted.

6.1.4 Test specimens conforming to BS 1449 shall be prepared from steel sheets used to manufacture same batch of steel stationery cupboards and shall be subjected to the tests specified in 5.1. Each test shall be performed on three specimens.

The batch shall be deemed to comply with this standard if all test pieces satisfy the requirements specified in BS 1449.

6.1.5 Test specimen of required sizes shall be prepared from steel sheets used to manufacture same batch of steel stationery cupboards and shall be subjected to the tests specified in 5.2.

Each test shall be performed on three specimens.

The batch shall be deemed to comply with this standard if all test pieces satisfy the relevant requirements.

## 6.2 Lot inspection

6.2.1 All steel stationery cupboards of one size and belonging to one batch of manufacture shall constitute a lot.

### 6.2.2 Scale of sampling

6.2.2.1 Samples shall be tested from each lot to ascertain conformity of a lot to the requirements of this standard.

6.2.2.2 The number of steel stationery cupboards to be selected from a lot shall be in accordance with Table 2.

Table 2 - Scale of sampling

Number of steel stationery cupboards in a lot (1)	Number of cupboards to be selected (2)
up to 25	2
26 - 50	4
51 - 100	6
101 - 150	8
151 - 500	10
501 and above	15

6.2.2.3 The steel stationery cupboards shall be selected at random. In order to ensure randomness of selection random number tables as given in SLS 428 shall be used.

### 6.2.3 Number of tests

6.2.3.1 Each cupboard selected as in 6.2.2.2 shall be inspected for requirements given in 3.2.2 and 3.3.

6.2.3.2 Test specimens conforming to BS 1449 shall be prepared from steel sheets used to manufacture same batch of steel cupboards and shall be submitted with the lot. The specimens thus obtained shall be tested as specified in 5.1.

Each test shall be performed on three specimens.

6.2.3.3 Test specimens of required sizes shall be prepared from steel sheets used to manufacture same batch of steel cupboards and shall be submitted with the lot. The specimens thus obtained shall be tested as specified in 5.2.

Each test shall be performed on three specimens.

6.2.4 *Criteria for conformity*

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

6.2.4.1 Each steel cupboard inspected as in 6.2.3.1 satisfies the relevant requirements.

6.2.4.2 Each test specimen tested as in 6.2.3.2 and 6.2.3.3 satisfies the relevant test requirements.

## **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.

## **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.*

