

~~Draft~~ Sri Lanka Standard  
SPECIFICATION FOR STEEL FILING CABINETS  
(FIRST REVISION)

SLS 233 : 1994

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~~XXXXX~~ Sri Lanka Standard

SPECIFICATION FOR STEEL FILING CABINETS  
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FOREWORD

This standard was approved by the Sectoral Committee on Metal and Metal Products and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on .7.4/12/85

This standard is the first revision of SLS 233: 1973 'Specification for Steel Filing Cabinets for General Office Purposes'.

In this revision the provision for one-drawer cabinet has been removed as this type is rarely manufactured. Heights of two-drawer, three-drawer and four-drawer types have been increased by 20 mm, 30 mm and 40 mm respectively and depths of all types increased by 5 mm. A series of functional and performance tests have also been introduced.

For the purpose of deciding whether a particular requirements of this standard is complied with, the final value, observed or calculated, expressing the result of a test or an observation shall be rounded off in accordance with CS 102. 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.

The Sri Lanka Standards Institution gratefully acknowledges the use of the following standards as guidance documents in the preparation of this standard:

BS 4438 : 1969 Filing cabinets and suspended filing pockets.

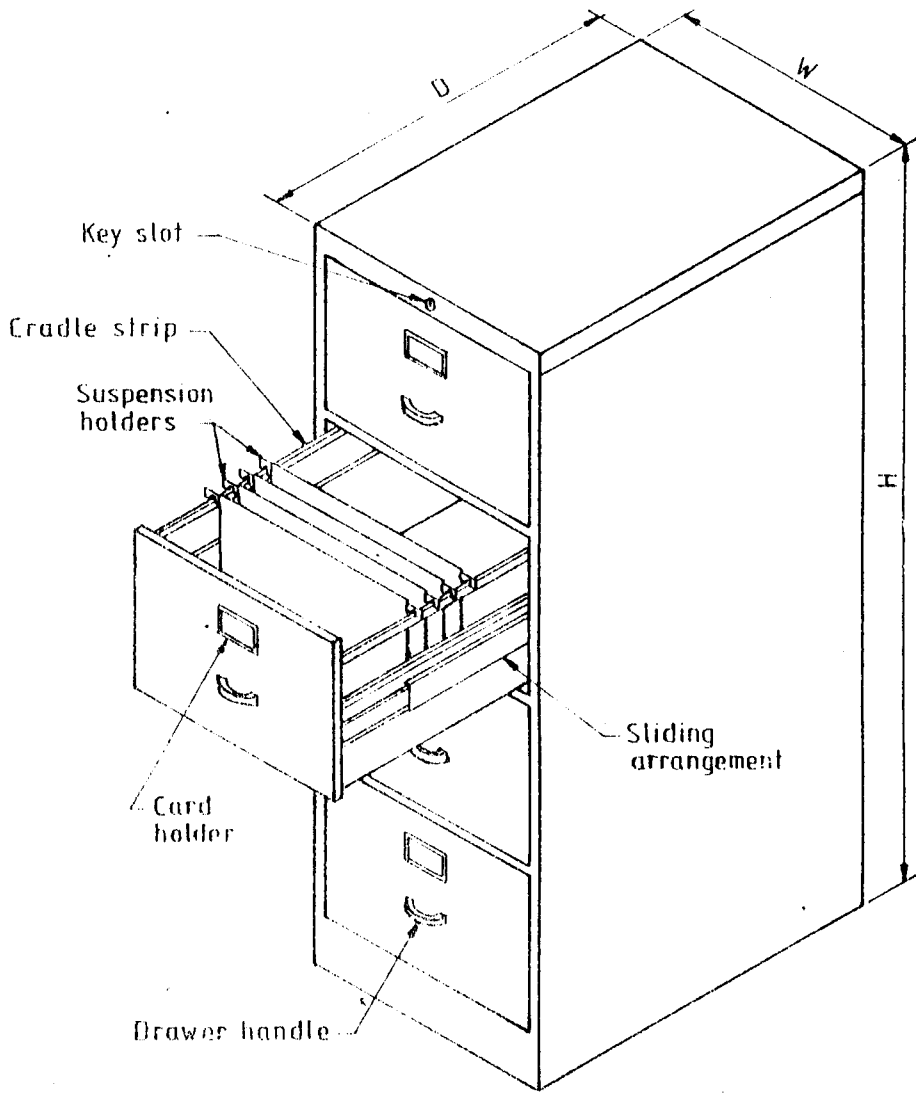
1 SCOPE

This standard specifies the requirements for materials, dimensions, construction, finish and methods of test of steel filing cabinets .

2 REFERENCES

- |          |   |
|----------|---|
| ISO 9717 | Phosphate conversion coating for metals<br>Method of specifying requirements  |
| CS 3     | Paper sizes   |
| CS 102   | Presentation of numerical values  |
| SLS 535  | Methods of test for paints<br>part 5 - Mechanical tests on paint films        |
| SLS 539  | Enamel paints for exterior use  |
| SLS 844  | Abrasive paper  |
| SLS 978  | Tensile testing of metallic materials   |
| SLS 995  | Method of reverse bend testing of metal sheet and strip<br>3 mm thick or less |
| SLS ...* | Specification for steel sheets  |

\* Under preparation



H - Height  
W - Width  
D - Depth

FIGURE 1 - Typical sketch of a four drawer type steel filing cabinet

### 3 TYPES

Steel filing cabinets shall be of the following types :

- a) Two drawer type
- b) Three drawer type
- c) Four drawer type

### 4 REQUIREMENTS

#### 4.1 Material

The filing cabinets shall be manufactured from mild steel sheets conforming to SLS ....\* and having tensile strength and bending properties as specified in 4.1.1 and 4.1.2.

##### 4.1.1 *Tensile strength*

When tested according to 6.1 the minimum tensile strength of steel sheets shall be 265 MPa.

##### 4.1.2 *Bending properties*

When tested according to 6.2 the specimens of steel sheets shall be free from visible cracks to the naked eye.

#### 4.2 Dimensions

##### 4.2.1 *Overall dimensions*

The overall dimensions of the frame of the cabinet and the drawer shall be as given in Table 1 and Table 2 respectively.

\* Specification for steel sheets (under preparation)

### 4.2.2 Tolerances

The tolerance on dimensions specified in Table 1 and Table 2 shall be  $\pm 2$  mm.

TABLE 1 - Overall dimensions of cabinet

All dimensions in millimeters

Dimension (1)	Two drawer type (2)	Three drawer type (3)	Four drawer type (4)
Height (H)	730	1045	1360
Width (W)	470	470	470
Depth (D)	625	625	625

TABLE 2 - Minimum internal dimensions of drawer  
(for all types)

All dimensions in millimeters

Height	270
Width	385
Depth (unobstructed)	560

### 4.3 Construction

#### 4.3.1 Frame

Frame of the cabinet 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 cabinets made with 0.8 mm thick sheets.

#### 4.3.2 *Drawer*

The drawer shall be made from steel sheet not less than 0.7 mm thick. The drawer front shall have a back cover secured to increase stiffness and to make it box-type as well. The drawer shall have an arrangement to remain in a closed position whether locked or otherwise.

#### 4.3.3 *Drawer suspension*

4.3.3.1 The suspension slides shall be of sturdy construction so that they do not distort or fail to operate when subjected to the test described in 6.3. Nor shall the drawer handle be adversely affected by this test.

4.3.3.2 The drawer suspension shall be such that, with a drawer loaded as specified in 6.4 a force of not more than 45 N is required to move it from rest.

4.3.3.3 All components of the drawer suspension shall be suitably protected against corrosion.

4.3.3.4 Each drawer shall be removable but shall be fitted with a stop or stops to prevent accidental removal. The stops shall not fail to arrest the drawer when the cabinet is subjected to the procedure described in 6.5.

4.3.3.5 The suspension shall be equipped with an automatic device to prevent rebound when the drawer is closed.

#### 4.3.4 *Size of card*

Each drawer shall be fitted in front with a suitable card holder to hold a card of size 52 mm X 74 mm ( A8 of CS 3)

#### 4.3.5 *Locks*

4.3.5.1 A suitable lock shall be provided to lock all the drawers of the cabinet simultaneously. It shall be so designed that it will not be possible to manipulate the locking mechanism by inserting a tool or a metal strip through the head of the frame or by any other means.

#### 4.4 *Performance*

The cabinet shall be so constructed that it will stand firmly on a level surface and will not sustain permanent distortion or damage when subjected to the test described in 6.6. Moreover, the sideways deflection of the top of the cabinet shall not exceed the values shown below during the test:

4 drawer cabinet	12 mm
3 drawer cabinet	6 mm
2 drawer cabinet	3 mm

## 4.5 Finish

4.5.1 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.

4.5.2 Immediately after pickling all the mild steel parts shall be given a phosphating treatment conforming to ISO 9717.

4.5.3 A suitable type of stoving primer such as red oxide may then be applied and the components shall thereafter be baked in an oven heated uniformly.

### **NOTE**

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

4.5.4 Coat/coats of stoving enamel paint, conforming to SLS 539, shall then be applied. The components shall thereafter be baked 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 tough film of enamel strongly adhering to the surface and free from visible defects.

## 5 MARKING

Each filing cabinet shall be legibly and permanently marked on the frame or on drawer of the cabinet with the following:

- a) Batch number and serial number ; and
- b) Name and address of the manufacturer, or his trade mark.

## 6 METHODS OF TEST

6.1 Tensile test shall be carried out in accordance with SLS 978.

6.2 Bend test shall be carried out in accordance with SLS 995.



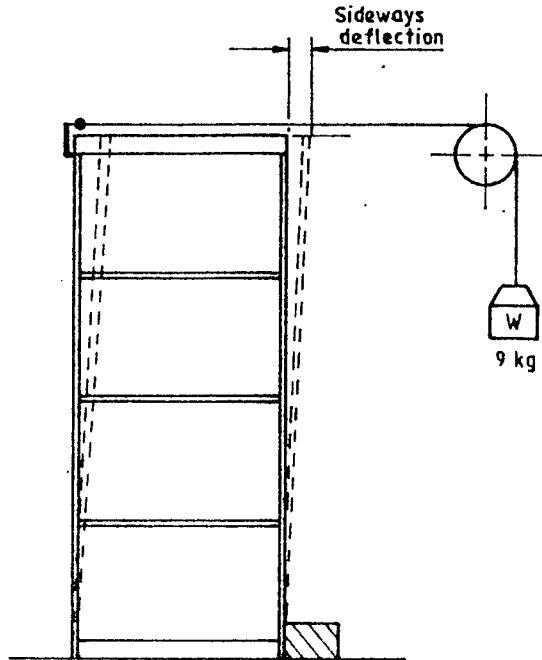


FIGURE 2 - Arrangement for rigidity test

### 6.3 Drawer suspension

Load any one of the drawers of the cabinet with an evenly distributed weight of 30 kg. Using an actuating mechanism attached to the handle of the drawer, open and close the drawer 50,000 times at a rate of approximately 1000 cycles per hour. Check the suspension slides for distortion or failure to operate in a normally smooth manner.

### 6.4 Ease of movement of drawers

Load any drawer with an evenly distributed weight of 30 kg and measure the force required to move it from rest at various points along its full length of travel in the cabinet.

## 6.5 Drawer stop(s)

Load any drawer with an evenly distributed weight of 30 kg. Raise the rear of the cabinet until the vertical faces are at an angle of 10 ° to the perpendicular. Allow the loaded drawer to move forward freely from the fully closed position until it contacts the stop(s). Repeat this procedure 20 times. The stop(s) shall function effectively throughout the test and show no visible sign of damage at the end of it.

## 6.6 Rigidity

With the cabinet standing on a level surface, apply a sideways load of 9 kg to either top front corner as illustrated in Fig.2. The base of the cabinet shall be weighted down or clamped or otherwise secured to prevent lifting. The drawers shall be empty but they need not be removed from the cabinet providing they are open sufficiently to ensure that their fronts do not prevent or reduce distortion of the frame of the cabinet during the test. Measure the sideways deflection of the top of the cabinet when the weight is applied and inspect on completion for damage and permanent distortion (see 4.4).

## 6.7 Paint coating

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

### 6.7.1 *Scratch hardness test*

The test shall be performed in accordance with Section 5.2 of SLS 535 : Part 5 : 1981. A scratch showing the bare metal shall not be produced on the test sample.

### 6.7.2 *Cross-cut test*

The test shall be performed in accordance with Section 5.4 of SLS 535 : Part 5 : 1981. The cross-cut area produced shall not be distinctly greater than 15 per cent.

### 6.7.3 *Bend test*

The test shall be performed in accordance with Section 5.3 of SLS 535 : Part 5 : 1981. The coating shall not show cracking or detachment.

### 6.7.4 *Pressure test*

The test shall be performed in accordance with the method given in Appendix A. The metal surface shall not be rendered visible when the test pieces are separated after the test.

**6.7.5 Protection against corrosion under conditions of condensation**

The test shall be performed in accordance with the method given in Appendix A. There shall be no signs of corrosion after the test.

**NOTE**

*This test may be considered optional.*

**6.7.6 Natural weathering tests**

These tests shall be performed in accordance with Section 6.4 of SLS 535 : Part 6 : 1981.

**NOTE**

*This test may be considered optional.*

APPENDIX A

METHODS OF TEST FOR PAINT COATING

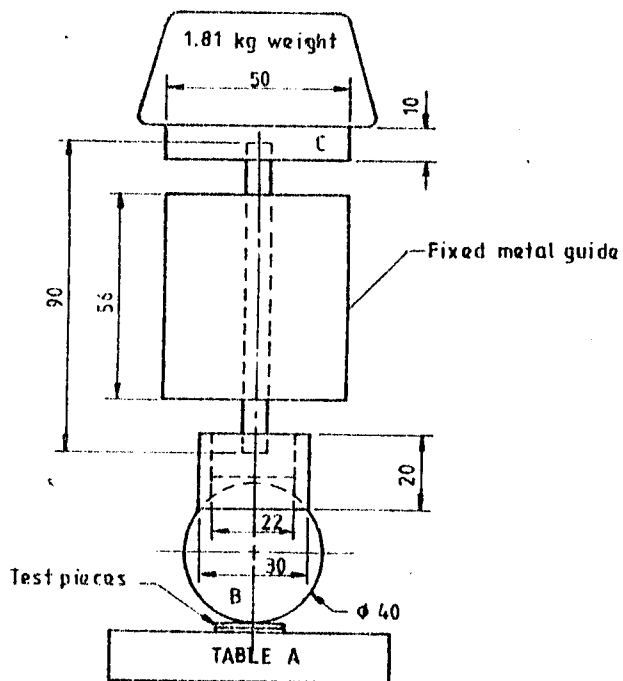
A.1 Pressure Test

A.1.1 Outline of the method

In this test two painted films after specified drying period, facing each other and in close contact, are tested under pressure.

A.1.2 Apparatus

A suitable apparatus for carrying out this test is illustrated in Figure 3.



Dimensions in millimetres

FIGURE 3- Apparatus for pressure test (Weight of ball and moving parts 340 g Approx.)

### **A.1.3 Procedure**

Apply a coat of the material, on a tinned panel 0.315 mm thick prepared as described under A.2.3 to give a dry film weight commensurate with the weight per 10 litres of the materials as specified in A.2.5. Allow it to air-dry under laboratory conditions in a horizontal position for a period, cut two test pieces approximately 20 mm<sup>2</sup>, superimpose them so that the paint films are in close contact, and place on the metal table A. Lower the steel ball B and plunger C to the centre of the metal test pieces and place a 1.81 kg weight on the top of the plunger. Maintain the pressure on the paint film for 5 minutes. At the end of this period, separate and examine the test pieces.

## **A.2 Protection against corrosion under conditions of condensation**

### **A.2.1 Outline of the method**

This test is carried by suspending the painted panel after specified period of drying in a corrosion cabinet maintained at 100 per cent relative humidity and a temperature cycle of 42 °C to 48 °C for seven days and examining it for any signs of deterioration and corrosion of metal surface.

### **A.2.2 Corrosion cabinet**

The apparatus consists essentially of a closed chest in which the relative humidity is maintained at about 100 per cent and the temperature continuously cycles over a range from 42 °C to 48 °C. There shall be copious condensation of water on test panels positioned vertically within the chest. The apparatus may be of any design, but it shall satisfy the following essential conditions:

#### **a) Humidification**

Humidity shall be maintained by evaporation of water from a reservoir situated at the bottom of the cabinet. The water shall be kept free from grease or oil.

#### **b) Heating**

The cabinet shall be heated through the medium of water by a heater placed immediately below the water reservoir or a heater completely immersed in water.

#### **c) Temperature cycles**

The heating arrangement shall be thermostatically controlled in such a way that the temperature of the air space cycles vary continuously from 42 °C to 48 °C and back to 42 °C in a total period of not less than 45 minutes and not more than 75 minutes. The time required for heating and cooling shall be approximately equal.

d) Air circulation

The air in the cabinet shall be kept in circulation by means of a fan to ensure that the temperature in any part of the air space does not differ by more than 0.5 °C at any given moment.

e) Spacing of test panels

Test panels shall not be placed less than 37 mm apart, or less than 37 mm from any side of the cabinet.

f) If suspended, supports of test panels the panels shall be held by non-metallic supports. If placed on metal racks, the panels shall be suitably insulated at points of contact with the metal surface.

*A.2.3 Preparation of metal panels*

A.2.3.1 The mild steel panels, freed from mill scale by any suitable means, shall be adequately rubbed with steel wool or coarse emery and cleaned with petroleum hydrocarbon solvent (low aromatic) or any other suitable solvent. Rust and signs of corrosion shall be removed with flint paper of Grade 0 specified in 5.4.1 of SLS 844 : 1984 after which the panels shall be rinsed with benzene and wiped dry with a clean rag.

A.2.3.2 Tinned mild steel panel shall be cleaned with suitable solvent and shall be roughened with flint paper of Grade 0 specified in 5.4.1 of SLS 844 : 1984 after which the panels shall be rinsed with benzene and wiped dry with a cleaned rag.

*A.2.4 Procedure*

Apply one coat of the material on both sides of a 150 mm x 100 mm x 1.25 mm mild steel panel, prepared as described in A.2.3.1 by either brushing or spraying, whichever is specified in the material specification, to give a dry film weight commensurate with the weight per 10 litres of the material as specified in A.2.5. Allow it to air-dry for 24 hours and then at a temperature of 60 °C to 65 °C for one hour or stove for the specified period. Cool the panel to room temperature and protect the edges to a depth of 5 mm with a suitable protective substance such as paraffin wax and then suspend it vertically in the corrosion cabinet satisfying the conditions prescribed under A.2.2. After exposure under these conditions for seven days, remove the panel and examine for signs of deterioration of the paint film. Remove 25 mm strip of the film from the centre of the panel carefully with a suitable paint remover and examine the exposed metal for signs of corrosion neglecting 25 mm portions of the exposed surface from each end.

A.2.5 *Dry film weight for test purposes*

The weight of the dry film of a single coat of the material applied to test panels either by brushing or spraying shall vary with the weight per 10 litres of the material as given in Table 3.

TABLE 3 - Weight of the dry film

Weight of the wet material kg/10 litres (1)	Limits of dry film weight g/m <sup>2</sup> (2)
Up to 12	27 to 34
Over 12 and up to 14	34 to 44
" 14 " " " 16	44 to 54
" 16 " " " 18	54 to 68
" 18	68 to 80

