SRI LANKA STANDARD 380 : 1976
UDC: 643.333

SPECIFICATION FOR
KEROSENE COOKERS (NON-PRESSURE)

BUREAU OF CEYLON STANDARDS

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SLS 380 : 1976

Gr. 4

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.

SRI LANKA STANDARD

SPECIFICATION FOR KEROSENE COOKERS (NON-PRESSURE)

FOREWORD

This Sri Lanka Standard has been prepared by the Drafting Committee of the Bureau on Kerosene Cookers. 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 1976-05-05.

All quantities and units given in this specification are in SI units.

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*. The number of figures to be retained in the rounded off values shall be the same as that of the specified value in this standard.

An Appendix giving the relevant S.W.G. numbers and the equivalent millimetre values has been provided to assist the manufacturers in the switch over to the metric system.

**CS 102 Presentation of numerical values.*

Reference has been made to the publications of the British and Indian Standards Institutions in the preparation of this standard specification and the assistance gained therefrom is gratefully acknowledged.

1 SCOPE

This standard covers the requirements for non-pressured gravity fed kerosene cookers.

2 TERMINOLOGY

For the purpose of this standard, the nomenclature as indicated in the relevant figures shall apply.

3 GENERAL REQUIREMENTS

3.1 Construction

The cookers shall be of robust, construction. The flame shall be blue in colour and well-directed. Deep drawn components (fuel bowl and wick carrier) shall be suitably treated to withstand season cracking. The burners shall withstand normal heat generated when the cooker is in operation. The construction of the cooker shall be such that the temperature of the fuel container shall not rise beyond 60 °C during operation. The fuel shall not leak at any point of the fuel bowl, wick carrier, and rest of the fuel supply system. Fine adjustments of the regulating valve shall enable a smooth flow of fuel to the wick. Outer burner casing shall be provided with a handle for lifting so as to enable the wicks to be lighted. The handle shall consist of a strip of mild steel fixed to the outer burner casing and shall be such that the user is not exposed to injury when the burner is adjusted while the cooker is in operation. All components of cookers shall be so made as to provide for interchangeability.

3.2 Thermal efficiency

Thermal efficiency of a cooker may be defined as the ratio of heat available for actual utilisation to the heat theoretically produced by complete combustion of a given quantity of fuel (which is based on the calorific value of the fuel). Thermal efficiency when tested in accordance with the method described in Appendix A shall exceed 45 per cent for all cookers.

4 MANUFACTURE AND FINISH

4.1 Body

4.1.1 The parts of the body of the cooker shall be made of cold rolled mild steel of thickness not less than 0.45 mm and shall be stove enamelled.

4.1.2 The top plate shall be of minimum thickness 0.71 mm and shall be vitreous enamelled.

4.1.3 The grids shall be of mild steel wire of minimum diameter 5.00 mm conforming to CS 139*.

4.2 Burners

4.2.1 The outer burner casing shall be made of cold rolled mild steel sheet of thickness not less than 0.37 mm and shall be stove enamelled or vitreous enamelled.

4.2.2 The outer and inner perforated sleeves shall be made of cold rolled mild steel sheet of thickness not less than 0.55 mm. The sleeves shall be stove enamelled or vitreous enamelled. The diameters of the burner sleeves shall be as shown in Figure 1.

4.2.3 The height of the burner shall be 120 mm.

**CS 139 Mild steel wire for general engineering purposes.*

4.3 Fuel container

4.3.1 The fuel container shall be of glass or metal. If ferrous metal is used in its construction, the thickness shall be not less than 0.31 mm. If the container is of metal, it shall be adequately coated to render it corrosion resistant. The capacity of the fuel container shall be not less than 1.5 litres.

4.4 Fuel supply system

4.4.1 *Fuel pipe*

The fuel pipe shall be a drawn pipe of thickness as shown in Figure 3.

4.4.2 *Wick carrier*

The wick carrier shall be made of mild steel sheet of minimum thickness 0.55 mm and shall be deep drawn. The wick carrier shall be brazed to the fuel pipe.

4.4.3 *Fuel regulating valve*

The fuel regulating valve shall have a diameter of 6 mm and the threads shall have a pitch of 1.0 mm. The angle of taper, at the seat of the valve, shall be 45°.

4.4.4 *Fuel bowl*

The fuel bowl shall be made of mild steel sheet of minimum thickness 0.45 mm and shall be deep drawn. The bowl shall be brazed to one end of the fuel pipe whose other end shall be provided with screw threads so that it could be closed with a brass cap with threads. The dimensions of the fuel bowl shall be as given in Figure Figure 3.

TABLE 1 Dimensions of fuel bowl and fuel pipe *(see Fig. 3)*

Dimensions of the fuel bowl						External and internal dimensions of the fuel pipe	
A mm	B mm	C mm	H_1 mm	H_2 mm	t mm	D_e mm	D_i mm
165	155	105	55	45	0.8	16	13

5 INSTRUCTIONS

Instructions for the safe use of the cookers shall be supplied with the cooker. These shall state that the cooker shall use kerosene and shall state the approximate maximum fuel consumption. A warning shall be included against the use of fuels other than kerosene. Any special precuations necessary for the safe use and operation of the appliance shall be included.

6 MARKING

The name or trade mark of the manufacturer shall be legibly and indelibly marked on the cooker.

APPENDIX A

TEST FOR THERMAL EFFICIENCY

A.1 METHOD

A.1.1 Take an aluminium cylindrical flat bottomed vessel, 200 mm in diameter, 125 mm high, made of 1.25 mm thick sheet, and provided with an aluminium lid. The lid should have two holes, one for inserting the cork for holding a thermometer and the other for a stirrer (made of aluminium wire) required for stirring the water.

A.1.2 Weigh the vessel with the lid and stirrer. Fill the vessel with 2 kg of water. Fill the fuel container with kerosene to nearly three-fourths of its capacity. After burning with a blue flame for five minutes, weigh the cooker and note the initial temperature of the water in the vessel. Fit the cork to the lid, cover the vessel with the lid and insert the thermometer into the cork in such a way that the bulb of the thermometer dips into the water in the vessel. The free end of the stirrer should come out of the lid.

A.1.3 Place the vessel on the cooker and start a stop watch immediately. The height of the vessel from the burner top shall be 19 mm. As soon as the temperature of the water reaches 95 °C stop the stop watch. Weigh the cooker again after one hour of its previous weighing.

NOTE - Care should be taken that the water is stirred gently during heating.

A.2 CALCULATION

A.2.1 Calculate as follows:

Heat taken by vessel = W x 0.214 (95-t) $kcal_{IT}$,

Heat utilized for heating water = 2 x 1 (95 - t)$kcal_{IT}$,

Total heat utilized = (W x 0.214 + 2) (95 - t) $kcal_{IT}$,

Heat produced by fuel = $\frac{X \times T}{60}$ x 10 500 $kcal_{IT}$, and

Thermal efficiency, per cent = $\frac{\text{Heat utilized}}{\text{Heat produced}}$ x 100

$$= \frac{(W \times 0.214 + 2)\ (95 - t)}{X \times T \times 10\ 500} \times 60 \times 100$$

where,

W = mass, in kg, of the vessel complete with lid and stirrer,

t = initial temperature of water ^{o}C,

X = mass, in kg, of fuel consumed in one hour, and

T = time, in minutes, taken to heat the water to 95 ^{o}C. (Specific heat of aluminium is 0.214. Calorific value of fuel is 10 500 $kcal_{IT}$/kg.)

APPENDIX B

Relevant S.W.G. numbers and millimetre equivalents

S.W.G. number	Millimetre equivalent
3	6.401
22	0.711
24	0.559
26	0.457
28	0.376

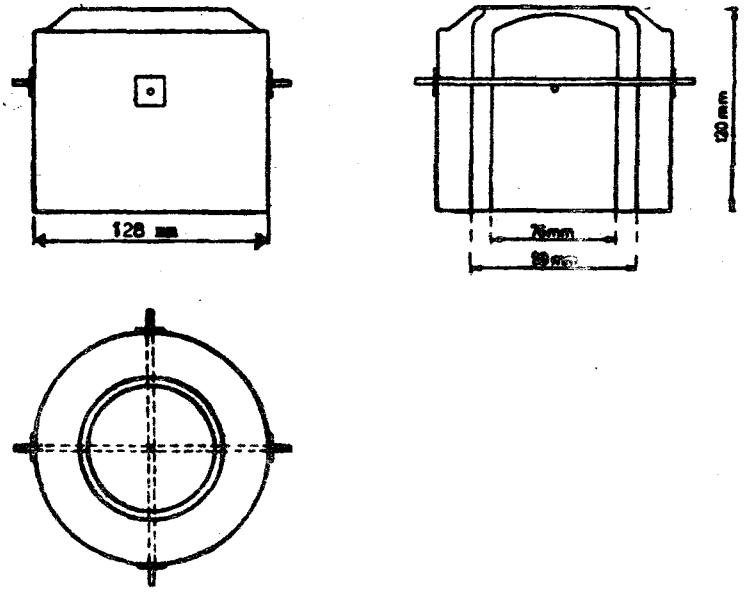


FIG. 1 Burner of the gravity-fed kerosene cooker (non-pressure)

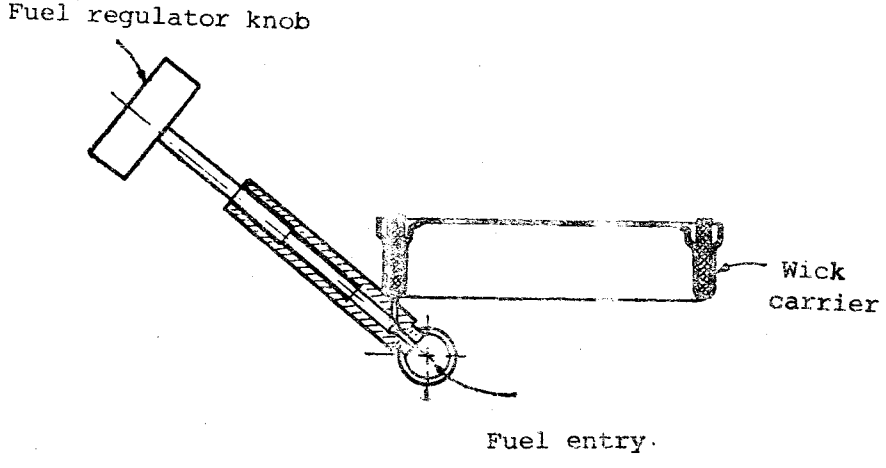


FIG. 2 Sectional view showing arrangement of fuel regulator and wick carrier

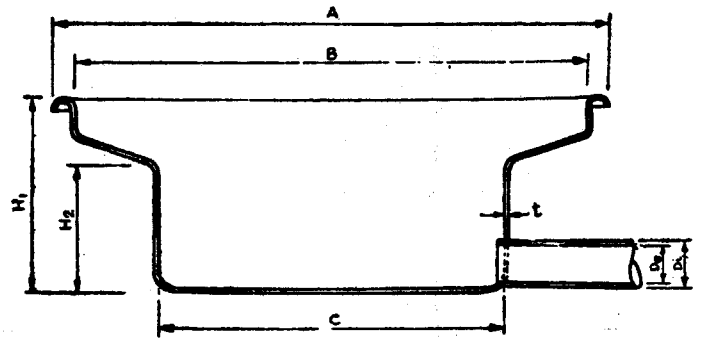


FIG. 3 Dimensions of fuel bowl and fuel pipe (see Table 1)

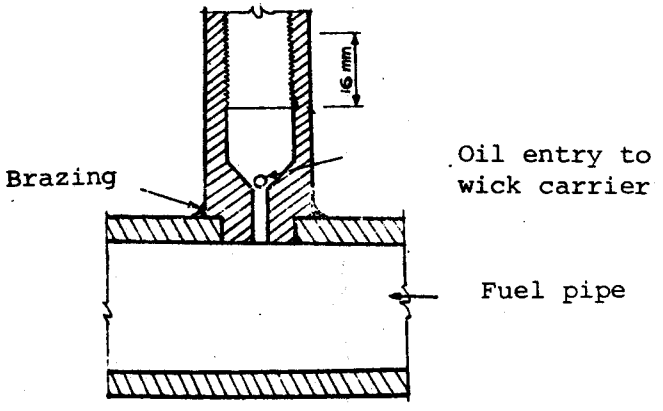
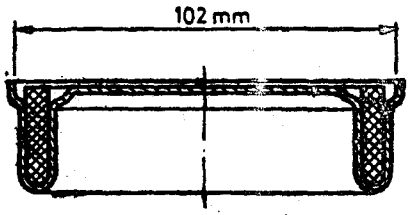
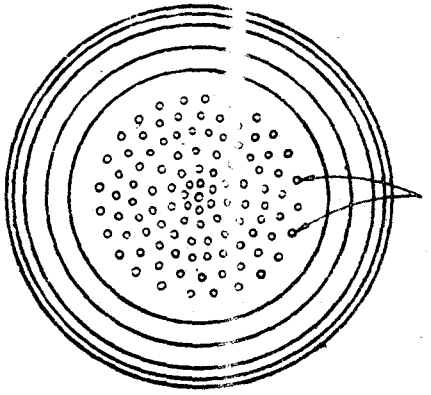


FIG. 4 Diagram showing arrangement between fuel regulating valve and fuel pipe



Sectional view



Plan

FIG. 5 Wick carrier

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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.*

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