SRI LANKA STANDARD 770 : 1986

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SPECIFICATION FOR

SPRAY LANCE FOR MANUALLY OPERATED SPRAYERS

SRI LANKA STANDARDS INSTITUTION

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SLS 770 : 1986

Gr. 5

SRI LANKA STANDARDS INSTITUTION
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SRI LANKA STANDARD

SPECIFICATION FOR SPRAY LANCE FOR MANUALLY OPERATED SPRAYERS

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 86-12-17, after the draft, finalised by the Drafting Committee on Spray Lance, had been approved by the Mechanical Engineering Divisional Committee.

The lance is an important component in the discharge line of the manually operated sprayer. The sppray liquid after being released by the cut-off device reaches the nozzle through the lance. This standard is being published to ensure interchangeability and to maintain desired performance characteristics of lances.

All values in this standard 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 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 publications of the International Organization for Standardization and the Indian Standards Institution in the preparation of this standard is gratefully acknowledged.

1 SCOPE

This specification lays down material, dimensional, workmanship, marking and sampling requirements for spray lance used in discharge line of manually operated sprayer.

2 REFERENCES

ISO 228	Pipe threads where pressure-tight joints are not made on the thread.
CS 102	Presentation of numerical values.
SLS 428	Random sampling methods.

3 DEFINITIONS

For the purpose of this standard the following definition shall apply :

3.1 spray lance : The tube through which the liquid, after being released from cut-off device, reaches to spray nozzle.

4 TYPES

The lance shall be of the following types (see Fig. 1):

4.1 Straight type (Type A)

Total length of this type of lance shall be straight.

4.2 Goose-neck type (Type B)

One end of the lance of this type shall be bent to form a goose-neck shape and the other end shall be straight. Such lance may be of two types as follows:

4.2.1 *Single piece (Type B_1)*

Straight portion and bent portion shall be of one piece.

4.2.2 *Two piece (Type B_2)*

Straight portion and bent portion shall be of two separate pieces and attached through a threaded connection.

NOTE

Type A lance may be converted into Type B_2 by attaching the bent portion.

5 REQUIREMENTS

5.1 Materials

5.1.1 The tube shall be brass, stainless steel or plastic.

5.1.2 When a plastic material is used it shall be capable of withstanding a temperature of at least up to 60 °C without any visible deformation. It shall not be deteriorated by chemical action or otherwise of pesticides or agrochemicals.

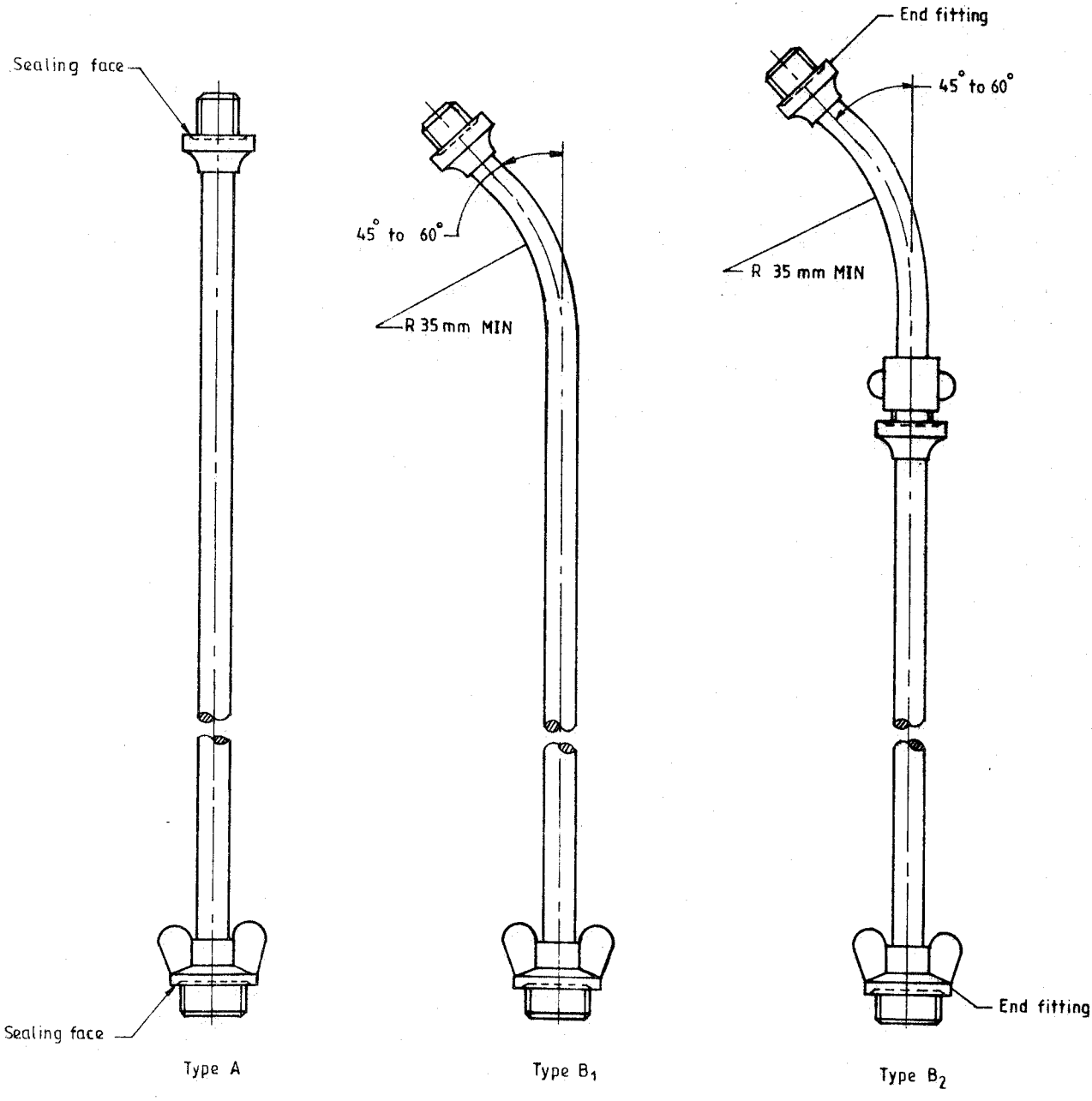

FIGURE 1 - Lances

5.2 Construction

5.2.1 The lance tube shall be of a seamless construction.

5.2.2 The two end-fittings shall be permanantly attached to the lance tube. The fittings shall have screw thread as given in 5.2.2.1 to 5.2.2.4.

5.2.2.1 The fittings for nozzle shall have the external thread of size designation pipe thread G 1/4 B or G 3/8 B (see ISO 228).

5.2.2.2 The fittings for cut-off device outlet shall have the internal thread of size designation pipe thread G 1/4 or pipe thread G 3/8 (see ISO 228).

5.2.2.3 In case of Type B_2 lance the end-fitting of bent portion to be attached with straight portion shall have the internal thread of size designation pipe thread G 1/4 or pipe thread G 3/8 (see ISO 228).

5.2.2.4 The end-fittings shall have the same thread size designation and the length of the thread shall be not less than 10 mm.

5.2.3 The sealing face of the end-fittings shall be machined flat. The fittings shall have hexagonal or flattened faces. Knurled faced or wing nuts of adequate shape and size may also be provided.

5.2.4 Gaskets shall be used at the end-fittings to ensure liquid and gastight joints of nozzle and cut-off device.

5.3 Workmanship and finish

5.3.1 The tube of the lance shall be smooth and free from pits, burrs, cracks and other visual defects which may be detrimental to its use.

5.3.2 The exposed metallic parts shall have a protective coating which will prevent deterioration of the surface.

5.4 Dimensions

5.4.1 Minimum thickness of the wall of the tube forming the lance shall be as given below :

a)	Brass tube and stainless steel tube	0.65 mm
b)	Plastic tube	3.0 mm

5.4.2 Inside diameter of the tube shall be not less than 6 mm.

5.4.3 When measured vertically from sealing face to sealing face, the length of the lance shall be between 500 mm and 900 mm.

NOTE

In case a straight lance (Type A) is to be converted into a goose-neck type (Type B_2) the length of the goose-neck portion shall be over and above the length specified in 5.4.3.

5.4.4 At least three quarter length of Type B lance shall be straight and the remaining length then bent to a radius of not less than 35 mm and at an angle of 45 °C to 60 °C (see Fig. 1).

5.5 Mechanical performance

5.5.1 When tested according to the procedure described in 7.1 the lance shall not show any sign of leak, crack or burst.

5.5.2 When tested according to the procedure described in 7.2 the lance shall satisfy the relevent requirements.

6 MARKING

6.1 Each lance shall be marked legibly and indelibly with the following:

a) Manufacturer's name or trade mark ;
b) Thread size designation ;
c) Length in mm ; and
d) Batch or code number.

NOTE

The marking of b), c) and d) above is optional for the sprayer manufacturers who produce their own lances.

6.2 Each lance may also be marked with the Certification Mark of the Sri Lanka Standards Institution illustrated below on permission being granted for such marking by the Sri Lanka Standards Institution:

NOTE

The use of the Sri Lanka Standards Institution Certification Mark (SLS Mark) is governed by the provisions of the Sri Lanka Standards Institution Act and the regulations framed thereunder. The SLS Mark on products covered by a Sri Lanka Standard is an assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by the Institution and operated by the producer. SLS marked products are also continuously checked by the Institution for conformity to that standard as a further safeguard. Details of condition under which a permit for the use of the Certification Mark may be granted to manufacturers or processors may be obtained from the Sri Lanka Standards Institution.

7 METHODS OF TEST

7.1 Pressure test

The lance shall be attached with the cut-off device and the nozzle by its end-fittings and shall be coupled to a hydraulic pump. The nozzle tip shall be closed, that is, no discharge shall be allowed through the nozzle. A hydrostatic pressure of 1 MPa or two-and-a-half times of the normal working pressure of the sprayer (for which the lance is meant), whichever is more, shall be applied to the lance up to a period of 5 minutes.

NOTE

Plastic lances shall be tested at 60 ^{o}C.

7.2 Test for gaskets

7.2.1 All the gaskets in the lance shall be immersed in a test mixture of 60 per cent kerosene, 5 per cent toluene and 15 per cent xylene by routine in water for a period of 73 hours at a temperature range of 27 ^{o}C to 33 ^{o}C and then dried in air at the same temperature range for 24 hours. The gaskets shall then be placed in their original positions.

7.2.2 The lance complete with its discharge line shall be operated at its normal working conditions for 8 hours.

7.2.3 The gaskets shall be deemed to have passed this test if no leakage from the points where they are fitted is observed.

NOTE

Gasket test shall be conducted at the end of all the tests with new set of gaskets.

8 SAMPLING

8.1 Lot

In any consignment all spray lances of one type and belonging to one batch of manufacture shall constitute a lot.

8.2 Scale of sampling

8.2.1 Samples shall be tested from each lot for ascertaining its conformity to the requirements of this specification.

8.2.2 The number of spray lances to be selected from a lot shall be in accordance with Table 1.

TABLE 1 - Scale of sampling

Number of lances in the lot (1)	Number of lances to be selected (2)
Up to 150	3
151 to 300	4
301 to 500	5
501 and above	8

8.2.3 The lances shall be selected at random. In order to ensure randomness of selection random number tables as given in SLS 428 shall be used.

8.3 Number of tests

8.3.1 Each lance selected as in 8.2.2 shall be inspected for 5.2, 5.3, 5.4 and 6.

8.3.2 Two lances in case of lots having less than 500 lances and four lances otherwise shall be selected from the samples selected as in 8.2.2 and tested for mechanical performance.

9 CRITERIA FOR CONFORMITY

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

9.1 Each lance inspected as in 8.3.1 satisfies the relevant requirments.

9.2 Each lance tested as in 8.3.2 satisfies the relevant tests.

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.*

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SRI LANKA STANDARDS INSTITUTION

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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.