

SRI LANKA STANDARD 308 : 1974

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**SPECIFICATION FOR
DOUBLE - EDGED STAINLESS STEEL
SAFETY RAZOR BLADES
(METRIC UNITS)**

SPECIFICATION FOR DOUBLE EDGED STAINLESS STEEL
SAFETY RAZOR BLADES
(METRIC UNITS)

SLS 308:1974

(Incorporating AMD 82)

Gr. 6

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SRI LANKA STANDARDS INSTITUTION

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SRI LANKA STANDARD
SPECIFICATION FOR DOUBLE EDGED STAINLESS STEEL
SAFETY RAZOR BLADES
(METRIC UNITS)

FOREWORD

This Sri Lanka Standard has been prepared by the Drafting Committee on Stainless Steel Safety Razor Blades. It was approved by the Mechanical Engineering Divisional Committee of the Sri Lanka Standards Institution and was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1974-10-31.

SLS 5 : 1970 Sri Lanka Standard Specification for Double Edged Carbon Steel (Untreated) Safety Razor Blades (First Revision) has been used as a guide in the preparation of this standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the results of a test, shall be rounded off in accordance with SLS 102 : Presentation of Numerical Values. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

This specification relates to double edged stainless steel safety razor blades to fit safety razors of the three-pin, bar and end-located types.

2 DEFINITIONS

2.1 bevels: Sloping surfaces of the blade near the cutting edge. (see Fig. 1).

2.2 final angle: The final angle is the acute angle included between the straight lines joining the points P, Q, and P', Q' according to Fig. 2. OO' is the tangent to the cutting edge perpendicular to the flat sides of the blade. XX' and YY' are parallel to OO' and are at perpendicular distances 10 μm and 1 μm respectively. P, P', and Q, Q' are points on the surface of the blade and lying along XX' and YY' respectively.

2.3 nick: A nick on the cutting edge is a gap or a projection having a dimension greater than 0.01 mm, this being measured in the plane of the blade in a direction perpendicular to the cutting edge.

2.4 bent edge: An edge where the final surfaces forming it are such that their curvatures are in the same direction.

2.5 jagged edge: Waviness of the central region of the cutting edge, (excluding the region defined in 2.7), in a direction perpendicular to the plane of the blade.

2.6 serrated edge: Non-linearity in the form of a saw-edged condition for a length exceeding 7 mm along the central region of the cutting edge (excluding the region defined in 2.7), in the plane of the blade.

2.7 bent over edge: An edge where the curved portion at the end of the cutting edge extends over a distance of more than 3 mm measured from the end of the cutting edge in the direction of the cutting edge.

2.8 defective blade: A razor blade which does not comply with any one of the requirements for the following seven parameters shall be considered as a defective blade.

- a) Half width;
- b) Overall width;
- c) Cutting edge;
- d) Straightness and parallelism;
- e) Hardness;
- f) Flexibility; and
- g) Nicks.

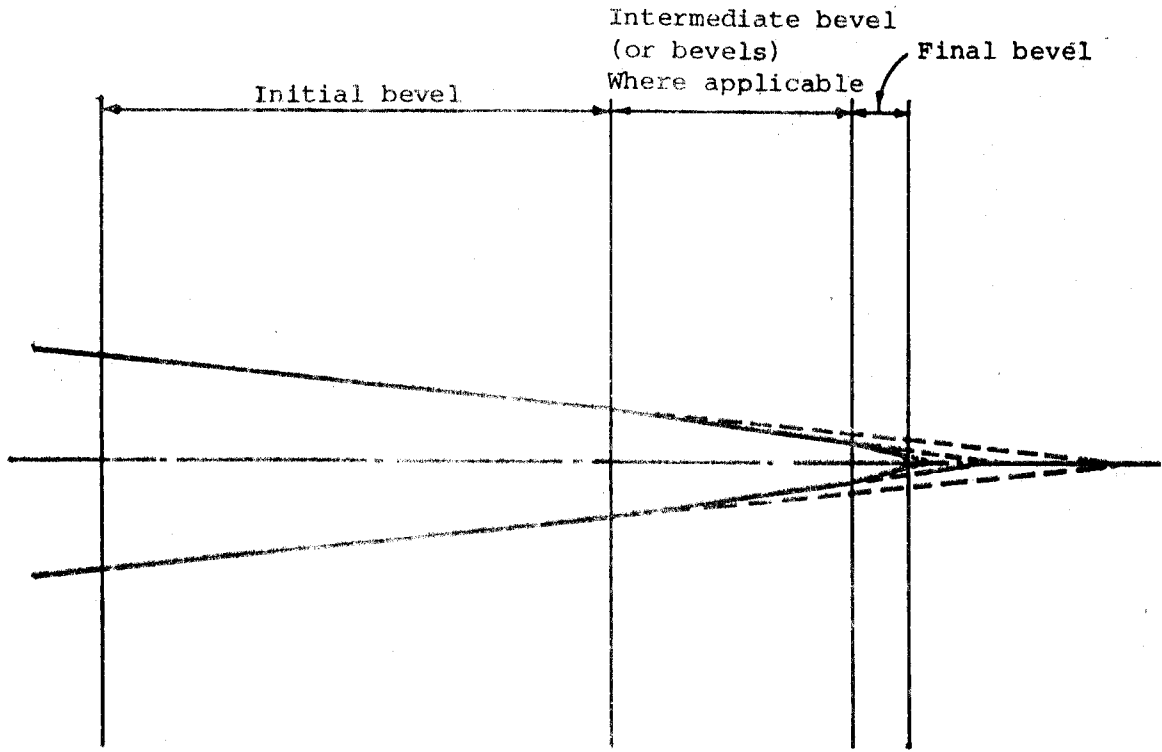
2.9 lot

Razor blades of the same nominal thickness drawn from a single run of continuous production shall be grouped together to constitute a lot. A lot shall constitute a minimum of 5 000 blades and a maximum of 50 000 blades.

3 REQUIREMENTS

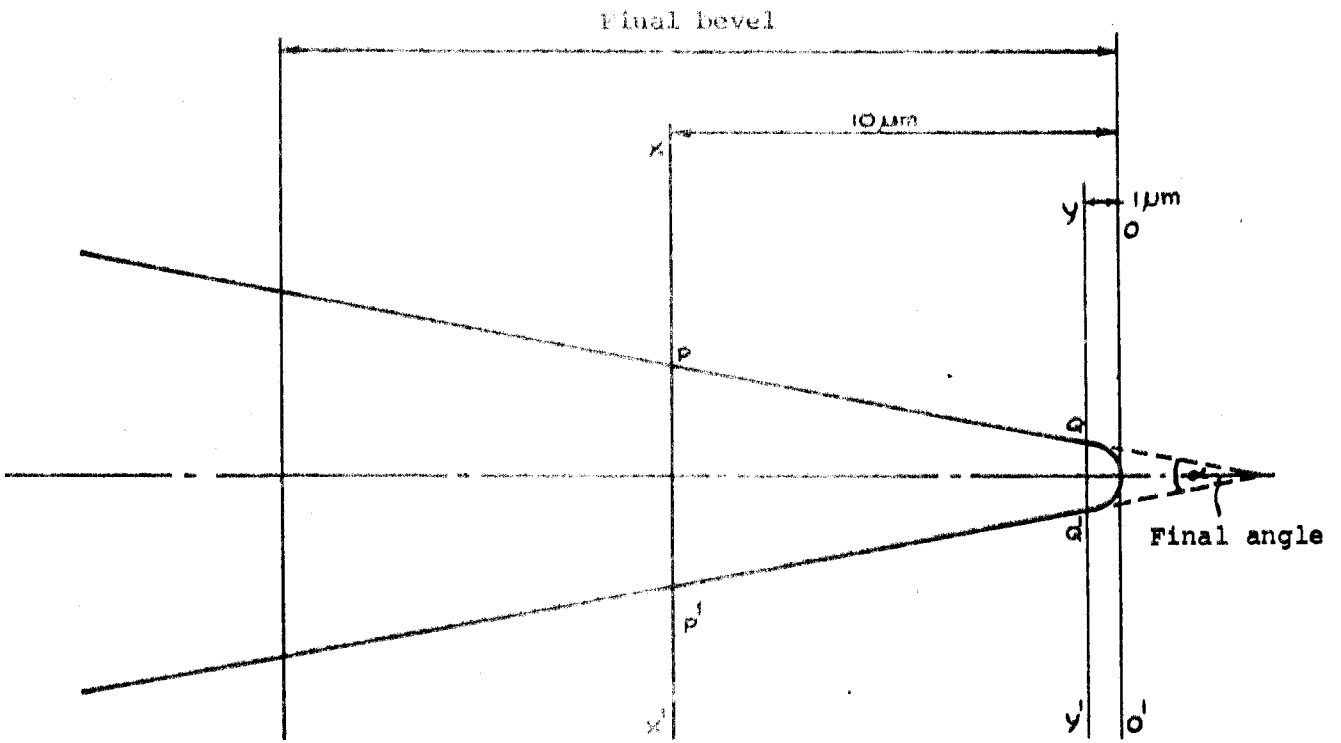
3.1 Material

Razor blades shall be manufactured from stainless steel specially made for the manufacture of stainless steel razor blades. The steel shall contain 0.40 per cent to 1.05 per cent of carbon and at least 12.0 per cent of chromium.



Cross section perpendicular to cutting edge

FIGURE 1

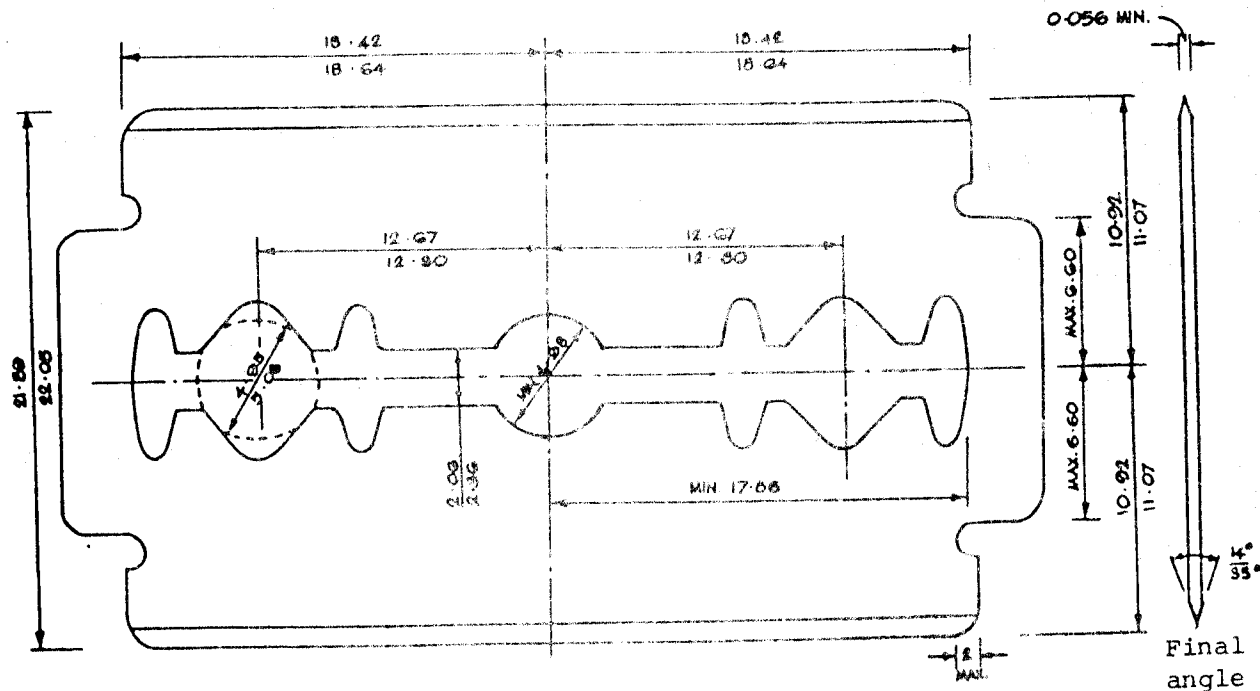


Cross section perpendicular to cutting edge

FIGURE 2

3.2 Dimensions

The dimensions of blades and the permissible variations therefrom shall be as specified in Fig. 3.



All dimensions are in mm units

FIGURE 3 - Dimensions of double-edged razor blades

3.3 Cutting edges

Both sides of the blade at the cutting edge (excluding the region defined in 2.7) shall be honed and/or stropped. The final honing bevels shall be smooth and continuous throughout the length of each edge when viewed under a linear magnification of 100 as specified in 7.4. The initial, intermediate (if present) and final bevels shall be generally, separate, distinct and parallel to the edge of the blade. When viewed under a linear magnification of 100, the cutting edge shall be free from the following defects.

- a) Bent edges;
- b) Jagged edges;
- c) Serrated edges; and
- d) Bent over edges.

The blades shall not have more than 7 nicks (see Note) on any edge.

NOTE - Any nick appearing within 3 mm from the end of the cutting edge shall not be counted.

3.4 Straightness and parallelism

When checked along the full length of the blade, each cutting edge shall be straight to within 38 μm . The two cutting edges shall be parallel to within 80 μm when measured as described in 7.5. There shall not be a variation in excess of 80 μm in the maximum and the minimum perpendicular measurements between the two cutting edges.

3.5 Hardness

The hardness of the blades when tested on Vickers Hardness Tester with a load of 2.5 kgf by the method given in 7.6, shall not be less than 400 HV. It shall not be less than 80.8 on Rockwell N superficial scale with a load of 15 kgf.

3.6 Flexibility

The blades shall be flexible and shall not break or crack when subjected to the flexibility test (see 7.7).

3.7 Freedom from corrosion

The finished surface of each blade including the bevelled cutting edges, shall be free from rust when examined visually.

3.8 The difference between the thickness of the thinnest and the thickest blade in the lot shall not exceed 0.01 mm.

4 MARKING

4.1 Each blade shall be marked in a plain manner with the manufacturer's name or trade mark or any other mark, sufficient for ready identification of the source of manufacture.

4.2 Each packet or wrapper of an individual blade shall carry the batch code or batch number.

5 PACKING

5.1 Razor blades may be individually sheathed in grease resistant paper in such a manner that no cutting edge shall contact any surface of the packaging material in transit and storage. Each sheathed blade may then be completely enclosed in a snug fitting paper wrapper.

6 SAMPLING

6.1 Two samples as specified below shall be taken for the purpose of testing for conformity to this standard, within one year of manufacture.

6.2 10's packets, 5's packets, 3's packets

Serially number the packets and select 40 packets at random (using a table of random numbers) from the lot. Two blades shall be taken from each packet to form two samples of 40 blades.

6.3 Single blades

If single blades are marketed without packets, then they shall be divided into 40 equal strata and two blades shall be drawn from each stratum at random to form two samples of 40 blades each.

6.4 Each of the 40 blades in the sample shall be subjected to test given in 7. The other sample shall be subjected to the performance test given in Appendix A.

7 TESTS

7.1 Examination for packing

Each edge of the sheathed blade when held against a bright background and examined visually shall not touch the folded edge of the sheath.

7.2 Material

The material of the blade shall be examined for the carbon and chromium contents. Wet chemical analysis, spectroscopy, electron probe micro analysis or any other method which ensures a minimum accuracy of 0.01 per cent for carbon and 0.1 per cent for chromium respectively may be employed.

7.3 Dimensional accuracy

7.3.1 Each blade shall be checked for conformity to the dimensions and tolerances specified in Fig. 1.

7.3.2 The final angle of the blade edge shall be measured by a suitable method, preferably by projecting the cross section of the cutting edge on a microscope screen at a linear magnification of 500 or more. An alternative method would be the measurements made with an interference microscope.

7.4 Microscopic examination

Oil, grease and lint shall be removed from the cutting edges of the blade by washing in a suitable solvent without damaging the cutting edge. The cutting edge shall be placed in a microscopic field and adequately illuminated for clear vision. The size of the nicks in the edge shall be measured by a suitable microscope at a linear magnification of 100. Nicks shall be counted for each edge.

7.5 Straightness and parallelism

Measurements of overall width of the blade (Fig. 1) shall be taken at the centre and at positions 10 mm from the centre on either side. The difference between the maximum and minimum of these measurements shall be determined.

7.6 Hardness test

The hardness shall be tested as close as possible to the cutting edge, and hardness readings shall be taken at three places per edge. The hardness of a blade shall be determined by placing a second blade of the same batch underneath the blades to be tested, so as to minimise the anvil effect.

7.7 Flexibility

The blades shall be tested for flexibility by bending around a smooth steel bar 38 mm in diameter when flexed along the axis of the blades and around a smooth steel bar 32 mm in diameter when flexed along the shorter axis.

8 CONFORMITY TO STANDARD

8.1 The lot as defined in 2.9 shall be considered as conforming to this standard, if the two samples drawn in accordance with 6, satisfy the following conditions:

8.1.1 The sample of blades tested according to 7 shall comply with the following:

a) the average number of nicks per blade edge, obtained by dividing the total number of nicks observed, by twice the sample size examined is less than or equal to 3, and the maximum number of nicks that need be used in this computation is 7 per blade edge.

b) the number of blades defective in any one of the parameters specified in 2.8 does not exceed 4, or, number of blades defective in all the parameters taken together does not exceed 8.

Otherwise the lot shall be considered as not conforming to this specification.

8.1.2 The blades of the other sample when tested according to the method given in Appendix A, shall fulfil all the criteria in A.4.3.

APPENDIX A

PERFORMANCE TEST FOR STAINLESS STEEL BLADES

A.1 GENERAL

A.1.1 The test shall be carried out on 24 ± 2 hours old human 'stubble'.

A.2 PROCEDURE

A.2.1 The blade shall be fitted to a safety razor and the operator shall shave using his usual shaving technique and following the guidelines for the use of the blades given by the manufacturer.

A.3 SIZE OF THE PANEL OF OPERATORS AND THE NUMBER OF BLADES TO BE TESTED

A.3.1 For evaluating the performance, a panel consisting of five operators shall be formed. Each operator shall be given eight blades (see 6 on Sampling) and shall be required to shave on consecutive days till the blade has become unsatisfactory for use.

A.4 EXPRESSION OF RESULTS AND EVALUATION OF THE PERFORMANCE

A.4.1 The operator shall grade the shaving satisfaction (with regard to smoothness and closeness of the shave) on each day by awarding points in a scale of 1 to 5. For the purpose of this standard, the points 1 to 5 shall indicate the performance as follows:

Point 1	Very unsatisfactory
Point 2	Unsatisfactory
Point 3	Average (neither unsatisfactory nor satisfactory)
Point 4	Satisfactory
Point 5	Very satisfactory

A.4.2 The number of shaves for all the 40 blades and the corresponding scores shall be totalled up separately and average number of shaves per blade and average score per shave shall be calculated.

A.4.3 The blades shall be considered satisfactory with regard to the performance requirement when the following criteria are fulfilled:

- a) The average number of shaves per blade is 6 or more.
- b) The average score per shave is 3.5 or more.
- c) When the average score per shave is less than 3.5, then in order to give weightage to the number of extra shaves a value of 0.10 shall be added for every 0.5 extra average shave beyond 6.0.

AMENDMENT NO. 1 APPROVED ON 1985-06-26

SLS 308 - SPECIFICATION FOR DOUBLE EDGED STAINLESS STEEL SAFETY RAZOR BLADES (METRIC UNITS)

REQUIREMENTS - Clause 3

Incorporate the following into clause 3.

“3.9 Performance test - When tested in accordance with the method given in appendix A, the blades shall comply with the requirements given in A.4.3.”

SAMPLING - Clause 6

6.1 Change first two words to read as :

‘Two samples’

6.2 Delete the second sentence and substitute the following:

“Two blades shall be taken from each packet to form two samples of 40 blades each”.

6.3 Delete this clause and substitute the following:

‘**Single blades** : if single blades are marketed without packets, then they shall be divided into 40 equal strata and two blades shall be drawn from each stratum at random to form two samples of 40 blades each.’

6.4 Delete this clause and substitute the following:

“Each of the 40 blades in one sample shall be subjected to test given in 7. The other sample shall be subjected to the performance test given in Appendix A”.

CONFORMITY TO STANDARD

8.1 Delete this clause and substitute the following:

“The lot as defined in clause 2.9 shall be considered as conforming to this standard, if two samples drawn in accordance with clause 6 satisfy the following conditions:

8.1.1 The sample of blades tested according to clause 7 shall comply with the following:

8.1.1a) the average number of nicks per blade edge, obtained by dividing the total number of nicks observed, by twice the sample size examined is less than or equal to 3, and the maximum number of nicks that need be used in this computation is 7 per blade edge.

8.1.1b) the number of blades defective in any one of the parameters specified in clause 2.8 does not exceed 4, or, number of blades defective in all the parameters taken together does not exceed 8.

Otherwise the lot shall be considered as not conforming to this specification.

8.1.2 The blades of the other sample when tested according to the method given in **Appendix A**, shall fulfil all the criteria in **A.4.3**

Otherwise the lot shall be considered as not conforming to this specification.

Incorporate the following an Appendix A performance test for stainless steel blades

A.1 General

A.1.1 The test shall be carried out on 24 ± 2 hours old human 'stubble'

A.2 Procedure

A.2.1 The blade shall be fitted to a safety razor and the operator shall shave using his usual shaving technique and following the guidelines for the use of the blades given by the manufacturer.

A.3 Size of the panel of operators and the number of blades to be tested.

A.3.1 For evaluating the performance, a panel consisting of five operators shall be formed. Each operator shall be given eight blades (see clause 6 on sampling) and shall be required to shave on consecutive days till the blade has become unsatisfactory for use.

A.4 Expression of results and evaluation of the performance.

A.4.1 The operator shall grade the shaving satisfaction (with regard to smoothness and closeness of the shave) on each day by awarding points in a scale of 1-5. For the purpose of this standard, the points 1 to 5 shall indicate the performance as follows:

- Point 1 Very unsatisfactory
- Point 2 Unsatisfactory
- Point 3 Average (neither unsatisfactory nor satisfactory)
- Point 4 Satisfactory
- Point 5 Very satisfactory

A.4.2 The number of shaves for all the 40 blades and the corresponding scores shall be totalled up separately and average number of shaves per blade and average score per shave shall be calculated.

A.4.3 The blades shall be considered satisfactory with regard to the performance requirement when the following criteria are fulfilled.

- a. The average number of shaves per blade is 6 or more.
- b. The average score per shave is 3.5 or more.
- c. When the average score per shave is less than 3.5, then in order to give weightage to the number of extra shaves a value of 0.10 shall be added for every 0.5 extra average shave beyond 6.0.

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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.



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.

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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.