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IS 14668 (1999): Supporting Screen and Centrifugal Liners for Various Types of Centrifugal Machines [FAD 2: Sugar Industry]
Indian Standard

SUPPORTING SCREEN AND CENTRIFUGAL LINERS FOR VARIOUS TYPES OF CENTRIFUGAL MACHINES — SPECIFICATION

ICS 29.160.10; 67.180

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 1999
FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Sugar Industry Sectional Committee had been approved by the Food and Agriculture Division Council.

This Indian Standard, an amalgamated form of IS 9952, IS 11090, IS 11190, IS 11481 and IS 11482 describes the requirement of supporting screens and centrifugal liners for use in various types of centrifugal machines used in sugar industry.

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 analysis, shall be rounded off in accordance with IS 2:1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.
Indian Standard

SUPPORTING SCREEN AND CENTRIFUGAL LINERS FOR VARIOUS TYPES OF CENTRIFUGAL MACHINES — SPECIFICATION

1 SCOPE

This standard specifies material, dimensions and other requirements for centrifugal liners and supporting screens for various types of centrifugal machines:

a) Supporting screens for centrifugal machines
   i) Batch type.
   ii) Continuous type.

b) Liners for
   i) Batch type flat bottom centrifugals for high grade massecuite.
   ii) Batch type self-discharging type centrifugals for high grade massecuites.
   iii) Continuous type centrifugals for B and C massecuites.

2 REFERENCES

The following Indian Standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<table>
<thead>
<tr>
<th>IS No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>410 : 1977</td>
<td>Cold rolled brass sheet, strip and foil (third revision)</td>
</tr>
<tr>
<td>1972 : 1989</td>
<td>Copper plate, sheet and strip for industrial purposes (second revision)</td>
</tr>
<tr>
<td>6911 : 1992</td>
<td>Stainless steel plate, sheet and strip (first revision)</td>
</tr>
</tbody>
</table>

3 MATERIALS

3.1 Any of the following materials may be used in the manufacture of liners and supporting screens for batch type centrifugal machines.

3.1.1 Stainless Steel Sheet — Steel conforming to IS 6911.

3.1.2 Copper Sheets — Copper conforming to IS 1972.

3.1.3 Brass Sheets — See IS 410.

3.1.4 Nickel

Electroformed nickel sheet having purity of nickel 99.99 percent and the working side of the screen shall have hard chrome plating of 8 to 10 micron thickness to have finished smooth surface.

3.2 Any of the following material may be used in the manufacture of timer/supporting screen for continuous centrifugal machines.

3.2.1 Stainless Steel Sheet — Steel conforming to IS 6911.

3.2.2 Nickel

Electroformed nickel sheet having purity of nickel 99.99 percent and the working side of the screen shall have hard chrome plating of 8 to 10 micron thickness to have finished smooth surface.

4 SPECIFIC REQUIREMENTS

4.1 Supporting Screens for Batch Type Centrifugal Machine

4.1.1 Dimensions

4.1.1.1 The thickness of the sheet to be used in the manufacture of supporting screen shall be 0.5 mm for stainless steel, 0.6 mm for brass and 0.7 mm for copper.

4.1.1.2 The supporting screen shall have alternating rows of round holes and triangular stabbed holes.

4.1.1.3 The diameter of the round holes shall be 5 mm and of the triangular stabbed hole shall be 4 mm.

4.1.1.4 The minimum screening area of the supporting screen shall be 36 percent.

4.1.1.5 The supporting screen shall have 48 round and 32 triangular stabbed holes per 25 cm² (5 cm × 5 cm).

4.1.1.6 The size of the supporting screen shall be as agreed to between the purchaser and the supplier depending upon the type and size of the centrifugal machines.

4.1.1.7 Permissible variation

Not more than five percent of the measured round holes/slot shall exceed the nominal dimensions declared by the manufacturer.
4.2 Supporting Screen Continuous Type Centrifugal Machines

4.2.1 Dimensions

4.2.1.1 The thickness of the sheet to be used for the manufacture of the supporting screen shall be 0.80 mm.

4.2.1.2 The holes in the supporting screens shall be of slot type.

4.2.1.3 The size of the hole shall be 4 mm × 9 mm.

4.2.1.4 There shall be 63 holes per 25 cm² (5 cm × 5 cm) in the supporting screen.

4.2.1.5 The screening area of the supporting screen shall be 24 percent.

4.2.1.6 The sizes of the supporting screens shall be as agreed to between the purchaser and the supplier depending upon the type and size of continuous centrifugal machines.

4.2.1.7 Permissible variation

Not more than five percent of the measured round holes/slot shall exceed the nominal dimensions declared by the manufacturer.

4.3 Liners for Batch Type Centrifugals for Final Massecuite

4.3.1 Types

On the basis of the type of hole, the liners shall be of slot type and round type.

4.3.2 Dimensions

4.3.2.1 The dimensions and thickness for different types of centrifugal liners shall be as given in Table 1.

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Type</th>
<th>Dimensions of Perforation</th>
<th>Thickness of Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td></td>
<td>(2) (3) (4)</td>
<td></td>
</tr>
<tr>
<td>i) For Brass/Copper Liners:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Slots:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Length</td>
<td>4.0</td>
<td>0.45 to 0.80</td>
<td></td>
</tr>
<tr>
<td>b) Width</td>
<td>0.3 to 0.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Round:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) On sugar side</td>
<td>0.30 to 0.35</td>
<td>0.45 to 0.80</td>
<td></td>
</tr>
<tr>
<td>b) On molasses side</td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) For Stainless Steel/Nickel Liners</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.04 to 0.06 for C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.06 to 0.09 for B</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3.2.2 The screening area of the centrifugal liners for various hole sizes and types shall be 17 to 21 percent.

4.3.2.3 The sizes of the centrifugal liners shall be as agreed to between the purchaser and the supplier depending upon the type and capacities of centrifugal machines.

4.3.2.4 Permissible variation

Not more than five percent of the measured slots and round holes shall exceed the nominal dimensions declared by the manufacturer.

4.3.2.5 Pitch

a) Round hole — The pitch of holes (distance between centres of holes) shall be in the range of 1.0 to 1.2 mm and the holes shall be arranged in staggered formation.

b) Slots — The pitch of these perforations (arranged either in columns or in staggered formation) in the vertical direction shall be 1 mm (100 slots per 100 mm).

4.4 Liners for Self-Discharging Type Centrifugals for A and B Massecuites

4.4.1 Types

The liners shall have rectangular or round perforations in four segments—welded or unwelded.

4.4.2 Dimensions

4.4.2.1 The thickness of the sheet to be used for the manufacture of the liners shall be 0.45 mm to 0.80 mm.

4.4.2.2 The dimensions for different types of centrifugal liners shall be as given in Table 2.

4.4.2.3 The screening area of the centrifugal liners for different perforation sizes shall be 20 to 26 percent.

4.4.2.4 The sizes of the centrifugal liners shall be as agreed to between the purchaser and the supplier depending upon the type and capacities of centrifugal machines.

4.4.2.5 Pitch

The pitch (distance between centres of perforations) of rectangular and round perforations shall be in the range of 1.0 to 1.2 mm and the perforations shall be arranged in a staggered formation.

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Type</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td></td>
<td>(2) (3) (4)</td>
</tr>
<tr>
<td>i) Rectangular perforation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Sugar side</td>
<td>4.0 to 4.1</td>
<td>0.25 to 0.31</td>
</tr>
<tr>
<td>b) Molasses side</td>
<td>4.0 to 4.1</td>
<td>0.35 to 0.451</td>
</tr>
<tr>
<td>0.1 to 0.452</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) Round perforation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Sugar side</td>
<td>0.4 to 0.45</td>
<td></td>
</tr>
<tr>
<td>b) Molasses side</td>
<td>0.6 to 0.65</td>
<td></td>
</tr>
<tr>
<td>1For steel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2For copper and brass.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.5 Liners for Continuous Type Centrifugals for B and C Massecuites

4.5.1 Perforations

4.5.1.1 The liner shall have rectangular perforations.

4.5.1.2 The perforations shall be tapered having wider opening on the molasses side.

4.5.2 Dimensions

4.5.2.1 The dimensions for centrifugal liners shall be as given in Table 3.

Table 3 Dimensions and Requirements for Continuous Centrifugal Liners
All dimensions in millimetres.

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Perforation Size</th>
<th>Dimensions B</th>
<th>Dimensions C</th>
<th>Thickness of Sheets (B and C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>i)</td>
<td>Length</td>
<td>1.68 to 2.50</td>
<td>1.68 to 2.00</td>
<td>0.23 to 0.30</td>
</tr>
<tr>
<td>ii)</td>
<td>Width</td>
<td>0.09 to 0.15</td>
<td>0.06 to 0.08</td>
<td></td>
</tr>
</tbody>
</table>

4.5.2.2 The screening area of the centrifugal liners shall be 7 to 10 percent.

4.5.2.3 The size of the centrifugal liners shall be as agreed to between the purchaser and the supplier depending upon the type and capacities of centrifugal machines.

4.5.2.4 Pitch

The pitch of rectangular perforations shall be 0.63 to 0.8 mm.

5 WORKMANSHIP AND FINISH

5.1 The perforated sheets used in the manufacture of the centrifugal liners shall have uniformly and cleanly punched holes, free from burrs.

5.2 The liners shall have smooth surface and shall be smoothly finished, free from cracks, crevices and projections.

5.3 The liner meant for flat bottom centrifugal should have ‘straight edges’ and deviation should not exceed 0.5 mm per metre length. The screen should be made available (cut in lips) as to fit in top lock arrangement and not simply by overlapping.

6 DESIGNATION FOR CENTRIFUGAL LINERS

6.1 The designation of the perforated sheet (rectangular) shall comprise its aperture size in millimetres, the inscription IS 14668 type of centrifugal liners, and the word ‘Rectangular’ in parenthesis in that order.

Example:

4 mm × 0.3 mm IS 14668 Self-Discharging Type Centrifugal Liners (Rectangular)

6.2 The designation of perforated sheet (round) shall comprise of its aperture size in mm, the inscription IS 14668, type of centrifugal liner and the word ‘Round’ in parenthesis in that order.

Example:

0.4 mm IS 14668 Self-Discharging Type Centrifugal Liners (Round)

7 MARKING

Each supporting screen for continuous centrifugal machines shall be marked with the following particulars:

a) Manufacturer’s name or recognized trade-mark,

b) Type and size of the centrifugal machine, and

c) Code or batch number.

7.1 BIS Certification Marking

The product may also be marked with the Standard Mark.

7.1.1 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

8 PACKING

As agreed to between the purchaser and the supplier.

9 SAMPLING FOR LOT ACCEPTANCE

As agreed to between the purchaser and the supplier.
Bureau of Indian Standards

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Amendments Issued Since Publication

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</thead>
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