***भारतीय मानक***

***Indian Standard***

**IS 9640 : 2024**

**मृदा के मानक भेदन परीक्षण के लिए स्प्लिट स्पून सैम्पलर — विशिष्टि**

*(* ***पहला पुनरीक्षण*** *)*

**Split Spoon Sampler for Standard Penetration Test of Soil — Specification**

*( First Revision )*

ICS 13.080.20***;*** 93.020

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भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

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**November 2024 Price Group X**

Soil and Foundation Engineering Sectional Committee, CED 43

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Soil and Foundation Engineering Sectional Committee had been approved by the Civil Engineering Division Council.

There are a series of standards on methods of testing of soils. It has been recognized that reliable and inter-comparable test results can be obtained only with the standard testing equipment capable of giving the desired level of accuracy. With this objective, a series of specifications covering the requirements of equipment used for testing soils have been published to encourage their development and manufacturing in the country.

The equipment covered in this standard is used for conducting the in-situstandard penetration test in soils in accordance with IS 2131 ‘Standard penetration test of soil — Method of test (*second revision*)’ (*under preparation*).

This standard was first published in 1980. The present revision has been taken up with a view to incorporate the modifications found necessary as a result of experience gained in the use of this standard. Also, in this revision, the standard has been brought into latest style and format of Indian Standards, and references to Indian Standards, wherever applicable have been updated. The other major modifications incorporated in this revision of the standard are given below:

1. The title of the standard has been changed from ‘Specification for split spoon sampler’ to ‘Split spoon sampler for standard penetration test of soil — Specification’;
2. Length and the other dimensions of the sampler have been modified in line with the current good practice;
3. Composite samplers, that is, split spoon sampler with liner have not been permitted for conducting standard penetration test. Accordingly, the various figures have been modified removing the liner. Also, the figure of the liner has been deleted. Marking clause has also been modified to delete marking of type of sampler. However, considering that split spoon sampler with liner may be used in special cases for sampling for other purposes, a suitable provision has been added; and
4. BIS certification marking clause has been modified to align with the revised *Bureau of Indian Standards Act*,2016.

This standard contributes to the Sustainable Development Goal 9: ‘Industry, innovation and infrastructure’: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

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 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. 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*

SPLIT SPOON SAMPLER FOR STANDARD PENETRATION TEST OF SOIL — SPECIFICATION

*( First Revision )*

**1 SCOPE**

This standard covers the requirements of split spoon sampler used for conductingin-situstandard penetration test in soils.

**2 REFERENCES**

The standards given below 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 edition of these standards:

|  |  |
| --- | --- |
| *IS No.* | *Title* |
| IS 513 (Part 1) : 2016 | Cold reduced carbon steel sheet and strip: Part 1 Cold forming and drawing purpose (*sixth revision*) |
| IS 1239 (Part 1) : 2004 | Steel tubes, tubulars and other wrought steel fittings — Specification: Part 1 Steel tubes (*sixth revision*) |
| IS 2102 (Part 1) : 1993/ ISO 2768-1 : 1989 | General tolerances: Part 1 Tolerances for linear and angular dimensions without individual tolerance indications (*third revision*) |
| IS 2131 : 1981 | Method for standard penetration test of soil (*first revision*) |
| IS 4432 : 1988 | Specification for case hardening steels (*first revision*) |

**3 DIMENSIONS**

Dimensions with tolerances of different components of this apparatus are given in Fig. 1 to Fig. 6. Except where tolerances are specifically mentioned against the dimensions, all dimensions shall be taken as nominal dimensions and tolerance shall be as given for medium class in IS 2102 (Part 1).

**4 MATERIALS**

The materials of construction of the different components of the split spoon sampler shall be as given in Table 1.

**Table 1 Materials of Construction of Different Components of the   
Split Spoon Sampler**

(*Clause* 4)

| **Sl No.** | **Part** | **Materials** | **Special Requirements** | **Conforming to Indian Standard** |
| --- | --- | --- | --- | --- |
| (1) | (2) | (3) | (4) | (5) |
| i) | Sampler tip including cutting shoe (*see* Fig. 2) | Mild steel, case-hardened | Cutting edge case hardened to 45 HRC, *Min* | IS 4432 |
| ii) | Sampler head (*see* Fig. 3) | Mild steel, case-hardened | Smooth surface | IS 4432 |
| iii) | Sampler body (*see* Fig. 4) | Mild steel | Smooth surface | IS 513 (Part 1) |
| iv) | Coupling (*see* Fig. 5) | Mild steel | To suit sounding rods as specified in IS 2131 | IS 1239 (Part 1) |

**5 CONSTRUCTION**

**5.1** The split spoon sampler shall be constructed as per details given in Fig. 1 to Fig. 4.

**5.2** The use of liner inside the split spoon sampler may be considered as a special case for sampling and in such a case, the sampler shoe dimensions shall be suitably adjusted to match with the inner diameter of the liner. The inner diameter of the liner shall be 35 mm  0.5 mm. The blow counts shall not be used for reporting observed SPT N value.

A drawing of a tube

Description automatically generated

All dimensions in millimetres.

Fig. 1 Assembly of Split Spoon Sampler

A drawing of a pipe

Description automatically generated

All dimensions in millimetres.

Fig. 2 Split Spoon Sampler Tip Including Cutting Shoe

A drawing of a ball check valve

Description automatically generated

All dimensions in millimetres.

Fig. 3 Split Spoon Sampler Head with Ball Check Valve

A drawing of a pipe

Description automatically generated

All dimensions in millimetres.

Fig. 4 Split Spoon Sampler Body

A diagram of a sampler head

Description automatically generated

All dimensions in millimetres.

Fig. 5 Coupler to Sounding Rod

1) A square lap joint between the split halves without pin and socket can also be used.

**6 MARKING**

**6.1** The following information shall be clearly and indelibly marked on each component of the equipment:

1. The name of the manufacturer or his registered trade-mark or both; and
2. Date of manufacture.

**6.1.1** *BIS Certification Marking*

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*,2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

**ANNEX A**

(*Foreword*)

**COMMITTEE COMPOSITION**

Soil and Foundation Engineering Sectional Committee, CED 43

| *Organization* |  | *Representative(s)* |
| --- | --- | --- |
| In Personal Capacity (*473, Vinayak Apartments, BHEL Housing Society, Plot No. C-58/19, Sector 62, Noida* - *201301*) |  | Shri C. Pushpakaran **(*Chairperson*)** |
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| Cengrs Geotechnica Pvt Ltd, Noida |  | Shri Sanjay Gupta  Shri Ravi Sundaram (*Alternate*) |
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| *Member Secretary*  Shri Dheeraj Damachya  Scientist ‘B’/Assistant Director  (Civil Engineering), BIS | | |

Working Group for Revision of IS 2131 and IS 9640, CED 43/WG4

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