

IS : 11594 - 1985

REAFFIRMED - 1995

Indian Standard
SPECIFICATION FOR
MILD STEEL THIN WALLED SAMPLING TUBES
AND SAMPLER HEADS

UDC 624.131.365.05



© Copyright 1987

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

Indian Standard

SPECIFICATION FOR MILD STEEL THIN WALLED SAMPLING TUBES AND SAMPLER HEADS

Soil Engineering Sectional Committee, BDC 23

Members

Representing

| | |
|--|--|
| ADDITIONAL DIRECTOR (GE) | Ministry of Railways |
| JOINT DIRECTOR (GE) (<i>Alternate</i>) | |
| DR ALAM SINGH | University of Jodhpur, Jodhpur |
| SHRI B. ANJIAH | Engineering Research Laboratories, Government of Andhra Pradesh, Hyderabad |
| DR R. K. BHANDARI | Central Building Research Institute (CSIR), Roorkee |
| SHRI S. K. KANSAL (<i>Alternate</i>) | |
| CHIEF ENGINEER (IPRI) | Irrigation Department, Government of Punjab, Chandigarh |
| DIRECTOR (DAM) (<i>Alternate</i>) | |
| DR T. N. CHOJER | Public Works Department, Government of Uttar Pradesh, Lucknow |
| DEPUTY DIRECTOR (R) (<i>Alternate</i>) | |
| SHRI A. VERGHESE CHUMMAR | F. S. Engineers Private Limited, Madras |
| SHRI C. S. DABKE | Howe (India) Private Limited, New Delhi |
| SHRI G. V. MURTHY (<i>Alternate</i>) | |
| SHRI A. G. DASTIDAR | In personal capacity (5 Hungerford Court, 12/1, Hungerford Street, Calcutta) |
| DIRECTOR (IRI) | Irrigation Department, Government of Uttar Pradesh, Roorkee |
| SHRI A. H. DIVANJI | Asia Foundations and Construction (Private) Limited, Bombay |
| SHRI A. N. JANGLE (<i>Alternate</i>) | |
| DIRECTOR | Central Soil and Materials Research Station, New Delhi |
| DEPUTY DIRECTOR (<i>Alternate</i>) | |
| SHRI N. V. DE-SOUSA | Cemindia Company Limited, Bombay |
| DR GOPAL RANJAN | University of Roorkee, Roorkee; and Institute of Engineers (India), Calcutta |
| SHRI M. IYENGAR | Engineers India Limited, New Delhi |

(*Continued on page 2*)

© Copyright 1987

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

| <i>Members</i> | <i>Representing</i> |
|---|---|
| SHRI ASHOK K. JAIN SHRI VIJAY K. JAIN (<i>Alternate</i>) | G. S. Jain and Associates, New Delhi |
| SHRI A. V. S. R. MURTY SHRI T. K. NATARAJAN | India Geotechnical Society, New Delhi Central Road Research Institute (CSIR), New Delhi |
| SHRI RANJIT SINGH SHRI V. B. GHORPADE (<i>Alternate</i>) | Ministry of Defence (R & D) |
| DR G. V. RAO DR K. K. GUPTA (<i>Alternate</i>) | Indian Institute of Technology, New Delhi |
| RESEARCH OFFICER (B & RRL) | Public Works Department, Government of Punjab, Chandigarh |
| SECRETARY | Central Board of Irrigation and Power, New Delhi |
| DIRECTOR (C) (<i>Alternate</i>) SHRI N. SIVAGURU | Ministry of Shipping and Transport (Road & Wing) |
| SHRI U. JAYAKODI (<i>Alternate</i>) SHRI K. S. SRINIVASAN SHRI SUNIL BERRY (<i>Alternate</i>) | National Buildings Organization, New Delhi |
| DR N. SOM SHRI N. SUBRAMANYAM | Jadavpur University, Calcutta Karnataka Engineering Research Station, Government of Karnataka, Krishnarajasagar |
| COL R. R. SUDHINDRA | Ministry of Defence (Engineer-in-Chief's Branch) |
| SHRI S. S. JOSHI (<i>Alternate</i>) SUPERINTENDING ENGINEER (P & D) | Public Works Department, Government of Tamil Nadu, Madras |
| EXECUTIVE ENGINEER (SMRD) (<i>Alternate</i>) *SHRI H. C. VERMA | (<i>Alternate</i>) All India Instrument Manufacturers and Dealers Association, Bombay |
| SHRI H. K. GUHA (<i>Alternate</i>) SHRI G. RAMAN, Director (Civ Engg) | Director General, ISI (<i>Ex-officio Member</i>) |

Secretary

SHRI K. M. MATHUR
Joint Director (Civ Engg), ISI

(Continued on page 1)

*Shri Verma acted as Chairman in the meeting in which this Indian Standard was finalized.

Indian Standard

SPECIFICATION FOR MILD STEEL THIN WALLED SAMPLING TUBES AND SAMPLER HEADS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 14 December 1985, after the draft finalized by the Soil Engineering Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 The Indian Standards Institution has already published a series of standards on methods of testing soils. It has been recognised that reliable and intercomparable test results can be obtained only with standard testing equipment capable of giving the desired level of accuracy. A series of Indian Standards covering specification of equipment used for testing soils are being formulated so as to encourage its development and manufacture in the country.

0.3 The equipment covered in this standard is used for carrying out undisturbed sampling of soils covered in IS : 2132 - 1985*.

0.4 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†. 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

1.1 This standard covers requirements of thin wall sampling tubes and sampler heads for *in-situ* sampling of soils, as required for open drive tube samplers.

*Code of practice for thin-walled tube sampling of soils (*second revision*).

†Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.1 For the purpose of this standard, definitions given in IS : 2809 - 1972* shall apply.

3. MATERIALS

3.1 Material for the construction of sampling tubes shall be as given in Table 1.

TABLE 1 MATERIALS OF CONSTRUCTION FOR DIFFERENT PARTS OF THE SAMPLING TUBES

| PART | MATERIAL | SPECIAL REQUIREMENT | CONFORMING TO INDIAN STANDARD |
|---------------|--------------------------|--------------------------------|---|
| Tube | Mild steel | Smooth surface | Grade light of IS : 1239 (Part 1) 1979* |
| Cutting shoes | Mild steel case hardened | 45-50 HRC, with smooth surface | IS : 4432 - 1967† |
| Sampling head | Mild steel | | IS : 226 - 1975‡ |

*Specification for mild steel tubes, tubulars and other wrought steel fittings : Part 1 Mild steel tubes (*fourth revision*).

†Specification for case hardening steels.

‡Specification for structural steel (standard quality) (*fifth revision*).

4. DIMENSIONS

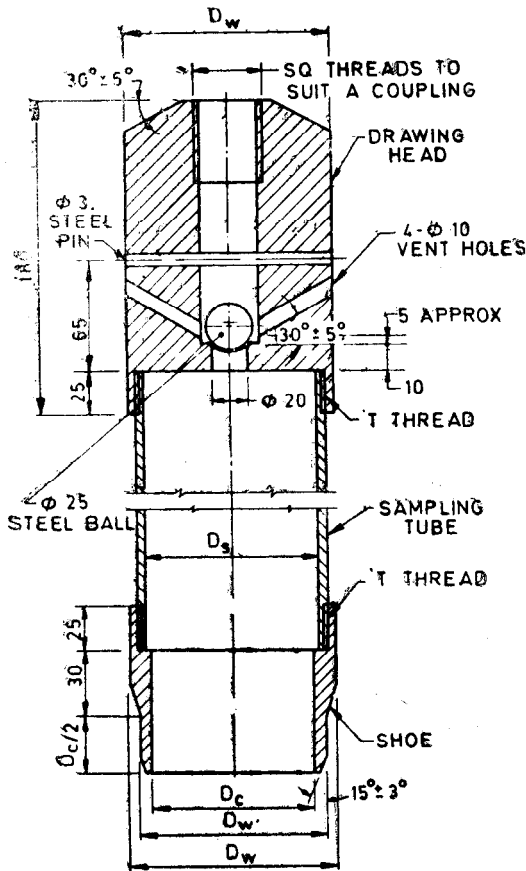
4.1 There shall be 4 sizes, 40, 65, 80 and 100 mm based on internal diameter of the tube. The tolerance on all dimensions shall be ± 0.5 mm.

5. CONSTRUCTION

5.1 The sampling tubes, cutting shoes and sampling heads shall be made as per details given in Fig. 1. The length shall be as desired.

NOTE — The cutting shoes have been so designed that these give area ratio within 10 percent, and inside clearance 1 to 3 percent.

*Glossary of terms and symbols relating to soil engineering (*first revision*).



| Size | 40 | 65 | 80 | 100 |
|---|-------|-------|-------|--------|
| Thread size (T) | M45×3 | M75×3 | M85×3 | M110×3 |
| Outermost dia of the shoes and sampler head (D_w) | 50 | 77 | 94 | 115 |
| Nominal dia of tube (D_s) | 40 | 65 | 80 | 100 |
| Outer dia of shoes (D_w) | 41 | 66 | 82 | 103 |
| Internal dia of shoes (D_c) | 39 | 64 | 78 | 98 |

All dimensions in millimetres.

FIG. 1 DETAILS OF SAMPLING TUBE WITH DRIVING HEAD AND SHOE

6. MARKING

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

- a) The name of the manufacturer or his registered trade-mark or both, and
- b) Size and length.

6.1.1 The equipment (each part) may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the 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 ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

(Continued from page 2)

Soil Testing Instruments and Equipment Subcommittee, BDC 23 : 6

Convener

SHRI H. C. VERMA

*Representing*Associated Instruments Manufacturers (India)
Private Limited, New Delhi*Members*

- SHRI M. D. NAIR (*Alternate to*
Shri H. C. Verma)
DIRECTOR (CSMRS) Central Soil and Materials Research Station,
New Delhi
- DEPUTY DIRECTOR (CSMRS) (*Alternate*)
SHRI H. K. GUHA Geologists Syndicate Private Limited, Calcutta
SHRI A. BHATTACHARYA (*Alternate*)
DR S. C. HANDA University of Roorkee, Roorkee
- SHRI P. K. JAIN (*Alternate*) G. S. Jain Associates, New Delhi
SHRI VIJAY K. JAIN Central Road Research Institute (CSIR),
New Delhi
DR B. R. MALHOTRA K. N. Dadina Foundation Engineers, Calcutta
Ministry of Defence (Engineer-in-Chief's
Branch)
- SHRI M. P. SHUKLA (*Alternate*) Indian Institute of Technology, New Delhi
DR T. RAMAMURTHY
DR G. V. RAO (*Alternate*)
SHRI S. VENKATESAN Central Building Research Institute (CSIR),
Roorkee
- SHRI Y. PANDEY (*Alternate*)

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

| QUANTITY | UNIT | SYMBOL |
|---------------------------|----------|--------|
| Length | metre | m |
| Mass | kilogram | kg |
| Time | second | s |
| Electric current | ampere | A |
| Thermodynamic temperature | kelvin | K |
| Luminous intensity | candela | cd |
| Amount of substance | mole | mol |

Supplementary Units

| QUANTITY | UNIT | SYMBOL |
|-------------|-----------|--------|
| Plane angle | radian | rad |
| Solid angle | steradian | sr |

Derived Units

| QUANTITY | UNIT | SYMBOL | DEFINITION |
|----------------------|---------|--------|---|
| Force | newton | N | $1 \text{ N} = 1 \text{ kg}\cdot\text{m}/\text{s}^2$ |
| Energy | joule | J | $1 \text{ J} = 1 \text{ N}\cdot\text{m}$ |
| Power | watt | W | $1 \text{ W} = 1 \text{ J}/\text{s}$ |
| Flux | weber | Wb | $1 \text{ Wb} = 1 \text{ V}\cdot\text{s}$ |
| Flux density | tesla | T | $1 \text{ T} = 1 \text{ Wb}/\text{m}^2$ |
| Frequency | hertz | Hz | $1 \text{ Hz} = 1 \text{ c}/\text{s} (\text{s}^{-1})$ |
| Electric conductance | siemens | S | $1 \text{ S} = 1 \text{ A}/\text{V}$ |
| Electromotive force | volt | V | $1 \text{ V} = 1 \text{ W}/\text{A}$ |
| Pressure, stress | pascal | Pa | $1 \text{ Pa} = 1 \text{ N}/\text{m}^2$ |