*भारतीय मानक*

**गार्डिनर ब्राउन का पैटर्न ट्यूनिंग फोर्क्स — विशिष्टि**

*( दूसरा पुनरीक्षण )*

*Indian Standard*

# Gardiner Brown’s Pattern Tuning Forks — Specification

*( Second Revision )*

## ICS 11.040.30

Ear, Nose, Throat and Head & Neck Surgery (ENT - H&N) Instruments Sectional Committee, MHD 04

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Ear, Nose, Throat and Head & Neck Surgery (ENT-H&N) Instruments Sectional Committee had been approved by the Medical Equipment and Hospital Planning Division Council.

This Standard was first published in 2000. This revision of this standard has been methods brought out to align with updated references and to bring the standard in line with the latest format of Indian Standards.

The composition of the Committee responsible for 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 same as that of the specified value in this standard.

*Indian Standard*

GARDINER BROWN’S PATTERN TUNING FORKS — SPECIFICATION

*( Second Revision )*

## SCOPE

This standard specifies requirements for a set of tuning forks (Gardiner Brown’s pattern) used by ENT surgeons as diagnostic equipment.

## REFERENCES

The standards given below contain provisions which, through reference in this text, constitute provisions 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 1068 : 1993 | Electroplated coatings of nickel plus chromium and copper plus nickel plus chromium — Specification (*third revision*) |
| IS 1875 : 1992 | Carbon steel billets, blooms, slabs and bars for forgings — Specification (*fifth revision*) |
| IS 3642 (Part 1) :1990/ ISO 7151 | Surgical instruments — Specification: Part 1 Non-cutting, articulated instruments (*second revision*) |

## TERMINOLOGY

**Decrement Time**

The period of time during which the tuning fork keeps vibrating after it is struck on a pad.

## MATERIAL

The tuning forks shall be made of carbon steel conforming to Class 4 designation 45C8 of IS 1875.

## SHAPE AND DIMENSIONS

* 1. The shape and dimensions shall be as shown in Fig. 1.
  2. The tolerances shall be as per **4.2** of IS 3642 (Part1).

## MANUFACTURE, WORKMANSHIP AND FINISH

* 1. The tuning forks shall be forged to shape and sizes shown in Fig. 1. They shall be free from pits, cracks, seams and other surface defects.
  2. The grooves shall be regular and well-formed.
  3. The riveting and silver soldering shall be neat and sound.
  4. The surfaces of tuning forks shall be rounded and finished smooth.
  5. The tuning forks shall be plated chromium over nickel and the plating shall conform to service condition no. 2 of IS 1068.



**Frequency**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Sl No.* | *Hz* | *L1* | *L2* | *L3* | *L4* | *L5* | *L6* |
|  |  |  |  |  |  |  |  |
|  | 128 | 215 | 170 | 153 | 16 | 3.5 | 7 |
|  | 256 | 170 | 125 | 109 | 16 | 3.5 | 7 |
|  | 512 | 138 | 93 | 75 | 16 | 3.5 | 7 |
|  | 1 024 | 117 | 72 | 55 | 16 | 4.0 | 6.5 |
|  | 2 048 | 130 | 85 | 55 | 22 | 8.0 | 8.5 |
|  | 4 096 | 115 | 70 | 38 | 22 | 8.0 | 8.5 |

All dimensions in millimetres.

Fig. 1 Tuning Forks (Gardiner Brown’s Pattern)

## TESTS

* 1. **Decrement Time**

The note produced by the tuning fork shall be a long and continuous one. The decrement time shall be not less than 30 s.

* 1. **Frequency Test**

The frequency marked on the tuning forks shall not vary by more than ± 0.2 percent when tested with the help of an oscilloscope or a frequency analyser at 25 °C ± 2 °C.

## FREQUENCY

A complete set of tuning forks shall consist of one for each of the following frequencies:

128 Hz, 256 Hz, 512 Hz, 1 024 Hz, 2 048 Hz and 4 096 Hz.

## MARKING

* 1. Each tuning fork shall be marked with the following information:
     1. Indication of the source of manufacture;
     2. Frequency of tuning fork;
     3. Serial number; and
     4. Batch number.
  2. **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*, 2016and the Rules and Regulations framed there under, and the product(s) may be marked with the Standard Mark.

## PACKING

Each set shall be packed in a wooden box having specific cut out positions for keeping each size of fork.

**ANNEX A**

(*Foreword*)

**COMMITTEE COMPOSITION**

Ear, Nose, Throat and Head & Neck Surgery (ENT-H&N) Instruments Sectional Committee, MHD 04

| *Organization* | *Representative(s)* |
| --- | --- |
| All India Institute of Medical Sciences, New Delhi | Dr Rakesh Kumar **(*Chairperson*)** |
| ALPS International, New Delhi | Shri Alok Narang, |
| Shri Karan Narang (*Alternate*) |
| All India Institute of Medical Sciences, New Delhi | Dr Prem Sagar |
| Dr Arvind Kumar (*Alternate*) |
| All India Institute of Medical Sciences, Bhopal | Dr Vikas Gupta |
| Dr Ganakalyan Behera (*Alternate*) |
| Association of Indian Medical Device Industry, New Delhi | Shri Tarlochan Dev |
| Shri Ankur Bhargava (*Alternate* I) |
| Dr C. S. Prasad (*Alternate* II) |
| Government Medical College & Hospital, Chandigarh | Dr Surinder K Singhal |
| Shri Nitin Gupta (*Alternate*) |
| Happy Reliable Surgeries Private Limited, Bengaluru | Shri Hemant Savale |
| Shri Sanjeev Gautam (*Alternate*) |
| India Medtronic Private Limited, Gurugram | Ms Latika Vats |
| Shri Saurabh Sable (*Alternate* I) |
| Shri Sandeep Verma (*Alternate* II ) |
| Indian Institute of Technology Kanpur, Kanpur | Dr A. R. Harish |
| Kalam Institute of Health Technology, Vishakhapatnam | Dr Arjun Thimmaiah |
| Shri Amit Sharma (*Alternate*) |
| Serwell MediEquip, Chennai | Shri T. Jebin Samuel |
| Shri R. Radhakrishnan ( *Alternate* I) |
| Shri G. Sathish (*Alternate* II) |
| Tata Memorial Center (Hospital), Mumbai | Dr Richa Vaish |
| Shri Vijay Yashwant Mestri (*Alternate* I) |
| Dr Arjun Singh (*Alternate* II) |
| BIS Directorate General | Shri A. R. Unnikrishnan, Scientist ‘G’ and Head (Medical Equipment and Hospital Planning) [Representing Director General (*Ex-officio*)] |

*Member Secretary*

Ms Harshada Ganesh Kadam

Scientist ‘B’/Assistant Director

(Medical Equipment and Hospital Planning), BIS