भारतीय मानक

Indian Standard

IS 7382 : 2024

वक्ष शल्य चिकित्सा उपकरण — पसली कर्तक, थॉमस स्वरूप — विशिष्टि

(दूसरा पुनरीक्षण)

Thoracic Surgery Instruments — Rib Shears, Thomas Pattern — Specification

(Second Revision)

ICS 11.040.30

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June 2024 **Price Group 4**

Medical and Surgical Cardiology Equipment Sectional Committee, MHD 06

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Medical and Surgical Cardiology Equipment Sectional Committee had been approved by the Medical Equipment and Hospital Planning Division Council.

This standard was final published in IS 7382 : 1974 ‘Specification for shears rib price thomas pattern’. The standard was revised in 1987 by altering material requirements, specifying dimensional tolerances, and adding requirements of surface conditions, packing, marking, and recommended sampling plan. This revision aligns the cross references to the latest standards, incorporates the revised designation for stainless steel, includes certification clause and removes the optional sampling requirements.

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*)’.

Indian Standard

THORACIC SURGERY INSTRUMENTS — RIB SHEARS, THOMAS PATTERN — SPECIFICATION

(Second Revision)

1 SCOPE

This standard specifies requirements and tests for Price Thomas' pattern rib shears used in thoracic surgery.

2 REFERENCES

The standard 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 1501 (Part 1) : 2020/ISO 6507 -1 : 2018	Metallic materials — Vickers hardness test: Part 1 Test method (*fifth revision*)
IS 3642 (Part 1) : 1990	Surgical instruments — Specification: Part 1 Non cutting, articulated instruments (*second revision*)
IS 6603 : 2001	Stainless steel bars and flats — Specification (*first revision*)
IS 7531 : 1990	Surgical instruments — Corrosion resistance of stainless steel surgical instruments — Methods for tests (*first revision*)

3 MATERIALS

3.1 Working Jaws

The working jaws shall be made from stainless steel conforming to designation X40Cr13 of IS 6603.

3.2 Handles, Screws and Spring

The handles, screws and spring shall be made from stainless steel conforming to designation X20Cr13 or X30Cr13 of IS 6603.

4 SHAPE AND DIMENSIONS

Shall be as shown in Fig. 1.

4.1 Permissible tolerance on various dimensions is as given below:

a) ± 0.05 mm on dimensions up to 2.0 mm;
b) ± 0.1 mm on dimensions above 2.0 mm and up to 5.0 mm;
c) ± 0.2 mm on dimensions above 5.0 mm and up to 20.0 mm;
d) ± 0.5 mm on dimensions above 20.0 mm and up to 50.0 mm;
e) ± 1.0 mm on dimensions above 50.0 mm and up to 100.0 mm; and
f) ± 2.0 mm on dimensions above 100.0 mm.

4.2 The two halves of the instrument shall, however, not differ in any dimension andshall match with each other perfectly.

5 HEAT TREATMENT

5.1 The working jaws shall be hardened and tempered to a hardness of 500 HV to 600 HV, the spring to 420 HV to 470 HV and other components to 380 HV to 420 HV, when tested in accordance with IS 1501 (Part 1).

5.2 Mating surfaces on the same instrument, such as opposite jaws and shanks, shall not vary in hardness by more than 40 HV.

6 WORKMANSHIP

6.1 The opening and closing of the jaws and the movement of the handles shall be smoothand jerk free. The cutting edges shall register accurately.

6.2 The joints shall conform to the relevant requirements of 6 of IS 3642 (Part 1).

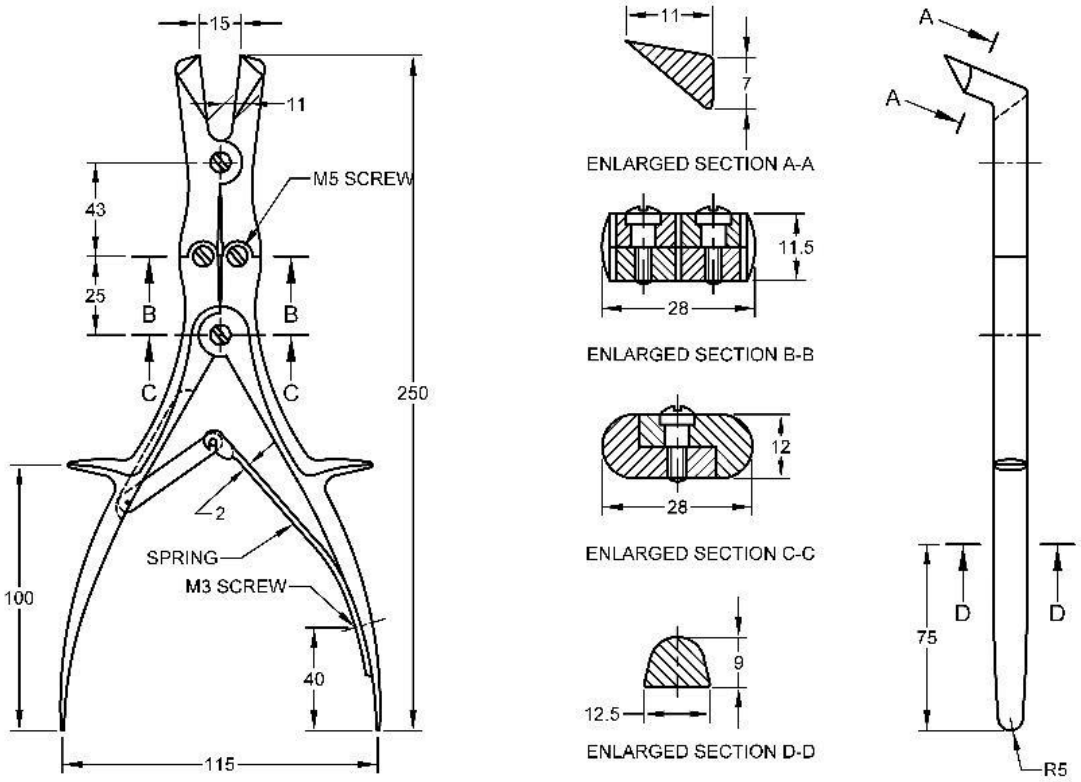
6.3 All edges shall be rounded except the cutting edges which shall be sharp and uniform. The cutting, edges shall not have nicks, jags and waviness when examined under a magnification of × 10.

6.4 The spring shall function satisfactorily.

7 SURFACE CONDITION

7.1 General

All surfaces shall be free from pores, crevices and grinding marks. The instruments shall be supplied free from residual scales, acid, grease, and grinding and polishing materials. Compliance with these requirements shall be checked by visual inspection.



All dimensions in millimetres.
FIG. 1 SHEARS, RIB, PRICE THOMAS PATTERN

7.2 Surface Finish

The surface finish shall be one of, or a combination of, the following:

a) Mirror polished;
b) Reflection-reducing, for example satin finish, matt black finish; and
c) An applied surface coating, for example for insulation purposes.

NOTE — The satin finish should be effected by an appropriate procedure, such as grinding, brushing, electro polishing and, in addition, satin finishing (glass beading or satin brushing). The finish should be uniform and smooth and it should reduce glare.

Instruments of mirror finish should be adequately ground to remove all. Surface imperfections and polished to remove grinding marks, resulting in a mirror finish. The mirror finish should be effected by an appropriate procedure, such as polishing, brushing, electro polishing, and mirror buffing.

7.3 Passivation and Final Treatment

The instruments shall be treated by a suitable passivation process, for example by electro polishing or by treatment with 10 percent (*v/v*) nitric acid solution for not less than 30 minutes at a temperature not less than 10 °C and not exceeding 60 °C. The instruments shall then be rinsed in water and dried in hot air.

NOTE — If the joint is lubricated, the lubricant should be non-corrosive and suitable for medical application according to the Indian Pharmacopoeia.

8 TESTS

8.1 Performance Test

Use the shears to cut a fresh piece of rib of a fully grown sheep or goat. The rib shall be cut evenly without any splintering. This shall be done 5 times. The cuts shall be clean and neat and the cutting edges of the instrument shall not get damaged. The cutting edges shall continue to register accurately after the test.

8.2 Load Closure Tests

The cutting edges shall just meet along their entire length when a force of 15 N is applied at the free ends of the handles.

8.3 Test for Flexibility of Spring

With the handles of the shears fully open, the distance between the free ends of the handles shall be measured. By applying force at the handles, the shears shall be closed and opened 15 times in quick succession. The distance between the free ends of the handles shall be measured again. There shall be no change in the distance as recorded at the beginning of the test.

8.4 Corrosion Resistance Test

The rib shears shall show no sign of corrosion when tested in accordance with IS 7531.

9 MARKING AND PACKING

9.1 The instruments shall be legibly and indelibly marked with the manufacturer's name, initials or recognized trade-mark; the words 'stainless steel' or letters 'SS'; and the country ofmanufacture.

9.2 Each instrument shall first be wrapped in a suitable cushioning material like tissue paper and then put in a polyethylene bag or wrapped in wax paper. The instruments shall thereafter be packed in cartons in accordance with the current trade practice. Alternatively, the instruments may be packed as agreed to between the purchaser and the supplier.

9.3 The packages shall be marked with the name of the instrument; the manufacturer'sname, initials or recognized trade-mark; the words 'stainless steel'; and the country of manufacture.

10 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 product(s) may be marked with the Standard Mark.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Medical and Surgical Cardiology Equipment Sectional Committee, MHD 06

Organization	*Representative(s)*
In Personal Capacity (*B*-87, *Alpha* 1, *Greater Noida, Pilkhan Estate*, 3*rd Street*)	DR DEEPAK KUMAR SATSANGI **(*Chairperson*)**
All India Institute of Medical Sciences, Delhi	DR MILIND P HOTE DR PRADEEP RAMAKRISHNA REDDY (*Alternate*)
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Member Secretary
SHRI PAWAN KUMAR
SCIENTIST 'B'/ASSISTANT DIRECTOR
MEDICAL EQUIPMENT AND HOSPITAL PLANNING, BIS

Bureau of Indian Standards

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This Indian Standard has been developed from Doc No.: MHD 06 (20925).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi