भारतीय मानक **IS 1360 : 2023**

Indian Standard

इंजीनियर्स पैटर्न टी स्क्वायर — विशिष्टि

(तीसरा पुनरीक्षण)

Engineers' Pattern Tee Squares — Specification

(Third Revision)

ICS 01.100.40

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

October 2023 **Price Group 4**

Educational Instruments and Equipment Sectional Committee, PGD 22

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Educational Instruments and Equipment Sectional Committee had been approved by the Production and General Engineering Division Council.

This standard is one of the series of Indian Standards relating to drawing instruments. This standard covers the requirements for four sizes of engineers' pattern tee squares, designated as T0, T1, T2 and T3 for use with the corresponding four sizes of engineers' drawing boards covered in Indian Standard specification for engineers' pattern drawing boards (IS 1444). The new sizes specified are those suitable for use with the ISO 'A' range of trimmed paper sizes.

This standard was first published in 1959 and subsequently revised in 1963 and 1989. This revision has been taken up to keep pace with the latest technological developments. In this revision, following changes have been made:

a) UDC number has been replaced by ICS number on first cover page;
b) Reference clause has been updated; and
c) In **3.3**, unit of coefficient of expansion has been corrected.

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, 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

ENGINEERS' PATTERN TEE SQUARES — SPECIFICATION

(Third Revision)

1 SCOPE

This standard covers the requirements for four sizes of engineers' pattern tee squares, designated as T0, T1, T2 and T3.

2 REFERENCES

The standards given below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards:

IS No.	*Title*
IS 287 : 1993	Permissible moisture content for timber used for different purposes — Recommendations (*third revision*)
IS 451 : 1999	Technical supply conditions for wood screws (*third revision*)
IS 2500 (Part 1) : 2000/ISO 2859-1 : 1999	Sampling procedure for inspection by attributes: Part 1 Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection (*third revision*)

3 MATERIALS

3.1 Timber

Blade and stock shall be made of any one of the following species of timber:

Trade Name	*Botanical Name*
Mahogany	Swietenia sq.
Teak	Tectona grandis Line. F.
Rosewood	Dalbergia Latifolia Roxb.
Sissoo	Dalbergia sisso Roxb.
Bijasal	Pterocar Pus Marsuspium Roxb.

The slantness of the grain shall not exceed 1 in 20.

3.2 Working Edges

The working edges of the stock and blade shall be made of well-seasoned, dense, close and fine grained ebony (diospyros melanoxylon dalbergioides Roxb.), or padauk (pteroearous dalbergioides Roxb.), or *shisham* except in cases where the material used for the fabrication of tee square is a hardwood. Alternatively, suitable rigid plastic material may be used for this purpose.

3.3 If plastic material is used for the working edge, it shall be from a sheet complying the following requirements:

a) The material shall be homogeneous;
b) The coefficient of expansion shall not be greater than 0.000 09/℃ within the temperature range 0 ℃ to 60 ℃ and relative humidity range 25 percent to 100 percent;
c) The material shall possess toughness, hardness and flexibility in sufficient degree to permit constant handling and use without deterioration; and
d) The material shall not contain more than 2 percent plasticizer.

3.4 The wood used shall be free from knots, cracks, sap, shakes and other defects which may affect the service ability and appearance of the tee squares.

3.5 Moisture content of wood used in the manufacture of blade, stock and working edges shall not exceed 12 percent and in the case of teak wood (tectona grandis Linn. f.), it shall not exceed 14 percent (*see* IS 287).

3.6 Metal parts shall be either corrosion resistant or shall have a corrosion resistant finish.

4 DIMENSIONS

The dimensions of the finished tee squares shall be as given in Table 1.

5 CONSTRUCTION

5.1 The back edge of the blade shall taper by a uniform 5 mm per 100 mm in length to give increased width towards the stock.

5.2 The working edge of the blade shall not be more

than 11 mm in width and shall be beveled to leave an edge of not more than 2 mm and not less than 1 mm.

5.3 The tapered blade shall be screwed to the stock without being either sunk or mortised into it so that, in use, the upper surface of the stock is in the same plane as the surface of the board. Working edges shall be securely glued to blade and stock, respectively.

5.4 All edges shall be true. A working edge not less than 6 mm in width shall be securely glued to the body of the stock. The upper edge of the working face of the stock shall be beveled. The working edges shall be smooth and truly straight to within the limits given in Table 1 and shall form an angle of 90° ± 0°15′. The stock shall not show bow or twist more than 0.5 mm over the entire length and its working face shall be straight to within 0.2 mm.

5.5 The blade shall be securely fixed to the stock by means of countersunk headed brass screw (*see* IS 451), and ebony or rosewood or plastic dowels. The working edge of the blade shall preferably be set in the centre of the stock. A round hole, approximately 10 mm in diameter, shall be machined in the blade as shown in Table 1.

6 FINISH

The tee squares shall be finished smooth all over. They shall be French-polished (or equivalent), lacquered or given a synthetic finish all over except the working edge which shall be left clean.

7 SAMPLING

7.1 Lot

All the tee squares of the same type and size manufactured from the same material under similar conditions of production shall be grouped together to constitute a lot.

7.2 Unless otherwise agreed to between the supplier and the purchaser, the procedure given in IS 2500 (Part 1) shall be followed for sampling inspection. The inspection level, acceptable quality level (AQL) and type of sampling plan to be followed for various characteristics shall as given in **7.3**.

7.3 For dimensions, construction, workmanship, designation and finish a single sampling plan with inspection level II and AQL of 2.5 percent as given in Table 1 and Table 2 of IS 2500 (Part 1) shall be followed.

8 DESIGNATION

The tee squares shall be designated by their designation as given in Table 1 and the number of this standard. For example, a tee square of designation T1 shall be designated as:

Tee Square T1 IS 1360

9 MARKING

9.1 Each tee square shall be marked at an appropriate place with the manufacturer's name or trademark, the year of manufacture, size and designation.

9.2 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*, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

10 PACKING

Each tee square shall be properly wrapped, particular attention shall be given to the protection of working edges. For bulk supplies, the mode of packing shall be as agreed to between the purchaser and the supplier.

Table 1 Dimensions of Engineers' Pattern Tee Squares

(*Clauses* 4, 5.4, 5.5 *and* 8)

All dimensions are in millimetres.

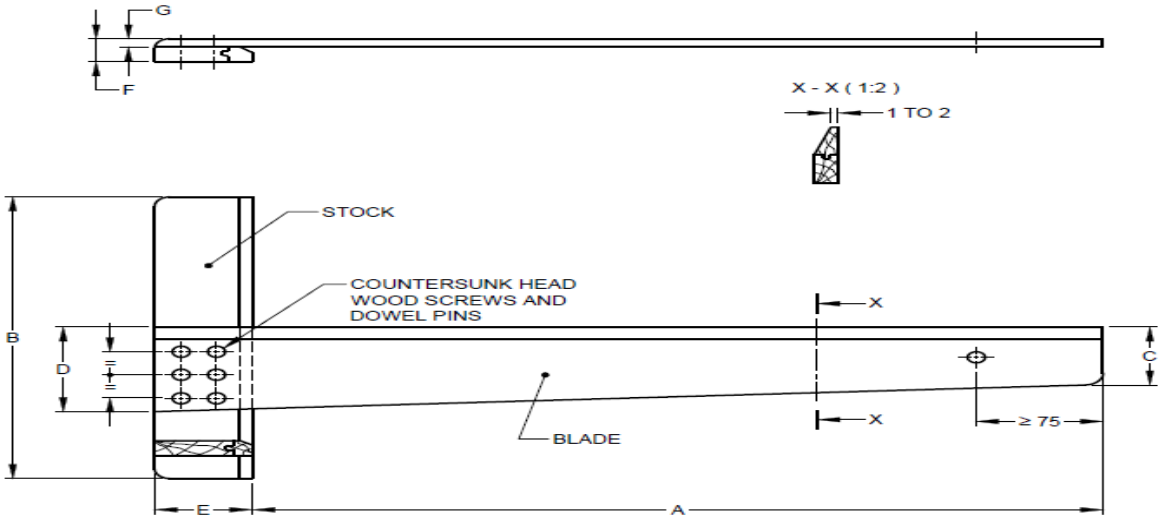

FIG. 1 DIMENSIONS OF ENGINEERS' PATTERN TEE SQUARES

Sl No.	Designation	A	B		C		D	E	F	G		Tolerances on Straightness of Working Edge of Blade	Bow or Twist	Recommended for Use with Sheet Size
			Min	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Min*	*Max*			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(i)	T0	1 270	385	405	44.5	52.0	190	65	13	4.0	6.5	0.40	1.5	A0
(ii)	T1	920	320	340	44.5	52.0	160	58	13	4.0	6.5	0.30	1.0	A1
(iii)	T2	650	275	295	44.5	52.0	140	55	13	4.0	6.5	0.20	0.5	A2
(iv)	T3	500	250	260	44.5	52.0	120	55	13	4.0	6.5	0.20	0.5	A3

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Educational Instruments and Equipment Sectional Committee, PGD 22

Organization	*Representatives(s)*
In Personal Capacity (*7/57, Second Floor, Old Rajinder Nagar, New Delhi - 110060*)	DR SUKHVIR SINGH **(*Chairperson*)**
Ambala Scientific Instruments Manufacturers Association, Ambala	SHRI ASHWANI GOEL SHRI PUNEET GUPTA (*Alternate*)
CSIR - Central Scientific Instruments Organisation, Chandigarh	DR S. V. RAMAGOPAL
Directorate General of Quality Assurance, Ministry of Defence, New Delhi	SHRI K. CHANDRASEKARAN
Directorate of Standardisation, Ministry of Defence, DTE of Standardization Government, New Delhi	GP CAPT M. K. PANI
Educational Consultant of India Limited, Noida	SHRI PRADEEP K. S. SHISHODIA SHRI NANDEESH BABU M. G. (*Alternate*)
Indian Association of Physics Teachers, New Delhi	DR MAMTA
Industrial Design Product Design, IIT Delhi, New Delhi	SHRI LALIT KUMAR DAS
Instrument Research and Development Establishment, Dehradun	SHRI SUBHASH CHANDER KUMAR SHRI K. K. KAILASIA (*Alternate*)
Instruments Design Development and Facilities Centre, Ambala	SHRI J. K. S. GANGWAR
Kendriya Vidyalaya Sangathan, New Delhi	SHRI AVINASH DIKSHIT
Kohinoor Slides Rules Fabrik Private Limited, Varanasi	SHRI JEET RAJ MANKHAND
Malaviya National Institute of Technology, Jaipur	DR RAJENDRA KUMAR GOYAL DR RAJEEV AGRAWAL (*Alternate*)
Ministry of Science and Technology, Department of Science & Technology, New Delhi	DR LAXMAN PRASAD SHRI D. PRASAD RAJU (*Alternate*)
National Council of Educational Research and Training, New Delhi	DR GAGAN GUPTA PROF ALKA MEHROTRA (*Alternate*)
National Science Centre, New Delhi	SHRI A. S. MANEKAR
Office of Development Commissioner (MSME), New Delhi	SHRI S. VIJAYA KUMAR SHRI ALURI SURESH (*Alternate*)
Survey of India, Geodetic and Research Branch, Dehradun	SHRI MAM CHAND

Organization	*Representatives(s)*
BIS Directorate General	SHRI RAJEEV RANJAN SINGH, SCIENTIST 'F'/ SENIOR DIRECTOR AND HEAD (PRODUCTION AND GENERAL ENGINEERING)[REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI ASHUTOSH RAI
SCIENTIST 'B'/ASSISTANT DIRECTOR
(PRODUCTION AND GENERAL ENGINEERING), BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

This Indian Standard has been developed from Doc No.:PGD 22 (21721).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
Southern	: C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	2254 1442 2254 1216
Western	: Plot No. E-9, Road No.-8, MIDC, Andheri (East), Mumbai 400093	2821 8093

Branches : AHMEDABAD. BENGALURU. BHOPAL. BHUBANESHWAR. CHANDIGARH. CHENNAI. COIMBATORE. DEHRADUN. DELHI. FARIDABAD. GHAZIABAD. GUWAHATI. HIMACHAL PRADESH. HUBLI. HYDERABAD. JAIPUR. JAMMU & KASHMIR. JAMSHEDPUR. KOCHI. KOLKATA. LUCKNOW. MADURAI. MUMBAI. NAGPUR. NOIDA. PANIPAT. PATNA. PUNE. RAIPUR. RAJKOT. SURAT. VISAKHAPATNAM.

Published by BIS, New Delhi