

---

---

ड्रॉइंग कार्यालयों में प्रयोग के लिए  
सेट स्क्वायर — विशिष्टि  
(दूसरा पुनरीक्षण)

**Set Squares for Use of Drawing  
Offices — Specification**  
( Second Revision )

ICS 01.100.40

© BIS 2023



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](http://www.bis.gov.in) [www.standardsbis.in](http://www.standardsbis.in)

October 2023

Price Group 4

## FOREWORD

This Indian Standard (Second 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.

A set square is an object used in engineering and technical drawing, with the aim of providing a straight edge at a right angle or other particular planar angle to a baseline.

This standard was first published in 1962 and subsequently revised in 1989. The second revision has been taken up to keep pace with the latest technological developments and international practices.

In this revision, the following changes have been made:

- a) UDC number has been replaced by ICS number; and
- b) The reference clause has been updated.

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*

# SET SQUARES FOR USE OF DRAWING OFFICES — SPECIFICATION

( *Second Revision* )

## 1 SCOPE

**1.1** This standard specifies requirements for two types of fixed angle set squares, namely, (a) 45 degree — 45 degree, and (b) 60 degree — 30 degree complementary angles, commonly used by cartographers, surveyors and engineers.

**1.2** Requirements of adjustable type set squares are not covered under this specification.

## 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 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 edition of this standard:

<i>IS No.</i>	<i>Title</i>
IS 2500 (Part 1) : 2000/ISO 2859-1 : 1999	Sampling procedures for inspection by attributes: Part 1 sampling schemes indexed by acceptance quality limit (AQL) for lot- by-lot inspection ( <i>third revision</i> )

## 3 MATERIAL

**3.1** Set squares shall be made from transparent plastic material. The recommended plastic materials are acrylic and rigid polyvinyl chloride complying with the requirements given in 4.

**3.2** The material shall possess toughness, hardness and flexibility sufficient to permit constant handling in use without a degree of deterioration of the surface, loss in transparency, distortion or damage to the working edge such as to render it unserviceable.

**3.3** The plastic sheets shall be smooth, even on all sides and free from blister, porosity and other defects.

## 4 GENERAL REQUIREMENTS

**4.1** Set squares shall have straight working edges within a tolerance of 0.25 mm wide per 200 mm of length.

**4.2** Set squares shall have square or beveled edges. If beveled, the vertical edge thickness shall not be less than 1 mm.

**4.3** The set squares may be of the solid pattern with a centre hole or of the open centre pattern as illustrated in Fig. 1 and Fig. 2 respectively. In the open centre pattern, the minimum distance from the opening to the edge shall not be less than 15 percent of the nominal size.

## 5 DIMENSIONS AND TOLERANCES

**5.1** The sizes of the set squares shall be as specified in Table 1 read with Fig. 1 and Fig. 2.

**5.1.1** The sizes refer to the length of the hypotenuse of 45° set squares and the long rectangular side of 60° set squares.

**5.1.2** Set squares shall have a tolerance of  $\pm 2$  minutes on the angles.

**5.1.3** Set squares shall be flat within a tolerance of 1.0 mm wide per 300 mm of length.

**5.2** The tolerance on any linear dimension shall not be more than 1 percent for a temperature change from 0 °C to 40 °C and a humidity change from 0 percent to 100 percent.

## 6 DESIGNATION

The set squares shall be designated by their angle, the nominal size (A) and the IS number. For example, a 60° set square of 200 mm length shall be designated as:

Set Square 60° × 200 IS 1561

## 7 SAMPLING

### 7.1 Lot

All the set squares of the same designation 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 be as given in **7.2.1** and **7.2.2**.

7.2.1 For functional requirements namely, accuracy of angles 5.1.2 and straightness 4.1 a single sampling plan with inspection level II and AQL of 1 percent as given in Table 1 and Table 2 of IS 2500 ( Part 1) shall be followed.

7.2.2 For other general requirements of manufacture, dimensions, tolerances and designation, a single sampling plan with inspection level II and AQL 2.5 percent as given in Table 1 and Table 2 of IS 2500 (Part 1).

**8 MARKING**

8.1 Each set square shall be legibly and indelibly marked with angle, size, maker’s name or trademark. The year of manufacture shall also be marked if

required by the purchaser.

**8.2 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 products may be marked with the Standard Mark.

**9 PACKING**

Each set square shall be packed in a paper or plastic bag and such consignment not exceeding 25 set squares shall be packed in a suitable cardboard carton.

**Table 1 Dimensions**

(Clause 5.1, Fig.1 and Fig. 2)

All dimensions are in millimetres.

Sl No.	Nominal Size (A) (mm)	Minimum Thickness (mm)
(1)	(2)	(3)
i)	45 degree	2.0
	150	
	200	
	250	
	300	
	350	
ii)	400	
	60 degree	2.0
	150	
	200	
	250	
	300	
350		
	400	
	450	

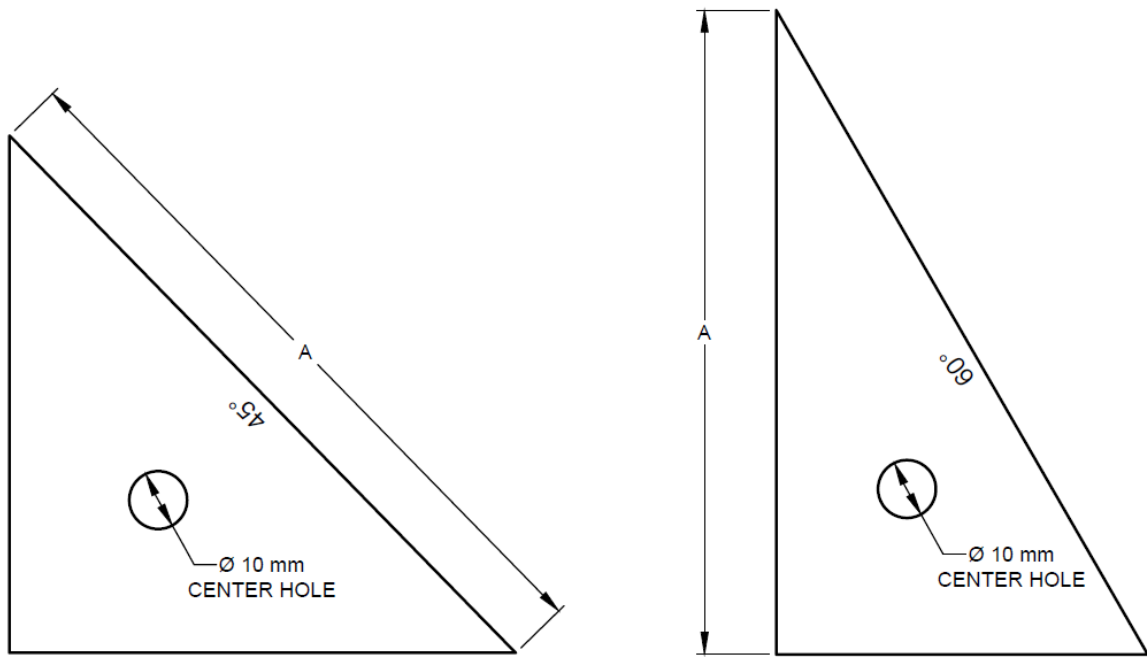


FIG. 1 SET SQUARE, SOLID PATTERN WITH CENTRE HOLE

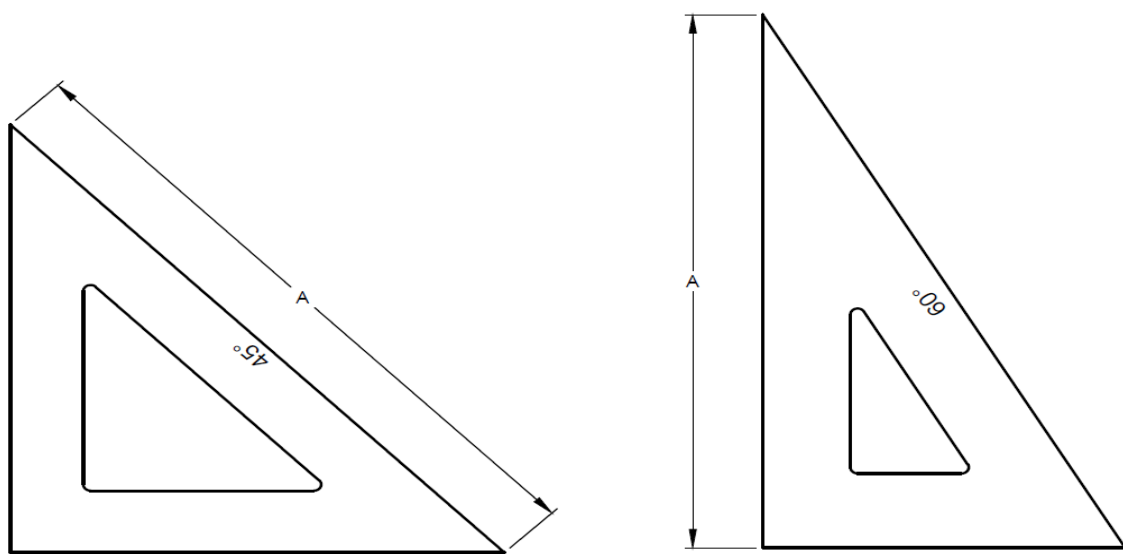


FIG. 2 SET SQUARE, OPEN CENTRE PATTERN

## ANNEX A

(Foreword)

## COMMITTEE COMPOSITION

Educational Instruments and Equipment Sectional Committee, PGD 22

<i>Organization(s)</i>	<i>Representatives(s)</i>
In Personal Capacity (7/57, Second Floor, Old Rajinder Nagar, New Delhi - 110060)	DR SUKHVIR SINGH ( <b>Chairperson</b> )
Ambala Scientific Instruments Manufacturers Association, Ambala Cantt	SHRI ASHWANI GOEL SHRI PUNEET GUPTA ( <i>Alternate</i> )
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. ( <i>Alternate</i> )
Indian Association of Physics Teachers, 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 ( <i>Alternate</i> )
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
Ministry of Science and Technology, Department of Science & Technology, New Delhi	DR LAXMAN PRASAD SHRI D. PRASAD RAJU ( <i>Alternate</i> )
National Council of Educational Research and Training, New Delhi	DR GAGAN GUPTA PROF ALKA MEHROTRA ( <i>Alternate</i> )
National Science Center, New Delhi	SHRI A. S. MANEKAR
Office of Development Commissioner (MSME), New Delhi	SHRI S. VIJAYA KUMAR SHRI ALURI SURESH ( <i>Alternate</i> )
Survey of India, Geodetic and Research Branch, Dehradun	SHRI MAM CHAND

*Organization(s)*

BIS Directorate General

*Representatives(s)*

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

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Head (Publication & Sales), BIS.

### 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](http://www.bis.gov.in) or [www.standardsbis.in](http://www.standardsbis.in).

This Indian Standard has been developed from Doc No.:PGD 22 (21723).

### 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](http://www.bis.gov.in)

### Regional Offices:

	Telephones
Central : 601/A, Konnectus Tower -1, 6 <sup>th</sup> Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	{ 2323 7617
Eastern : 8 <sup>th</sup> 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.