Doc: PGD 25 (26553) WC
October 2024

BUREAU OF INDIAN STANDARDS
DRAFT FOR COMMENTS ONLY

भारतीय मानक मसौदा

ज्यामितीय उत्पाद विशिष्टि (जीपीएस) — आयाम मापक उपकरण — यांत्रिक डायल गेज की डिजाइन और मेट्रोलॉजिकल विशेषताएं

(IS 2092 का *दूसरा पुनरीक्षण*)

Draft Indian Standard

Geometrical Product Specifications (GPS) — Dimensional Measuring Equipment — Design and Metrological Characteristics of Mechanical Dial Gauges

(*Second Revision* of IS 2092)

ICS 17.040.30

Engineering Metrology Sectional Committee, PGD 25	Last date for receipt of comment is **XXXX**

NATIONAL FOREWORD

This draft Indian Standard which is identical to ISO 463: 2006 'Geometrical Product Specifications (GPS) — Dimensional measuring equipment — Design and metrological characteristics of mechanical dial gauges' issued by the International Organization for Standardization (ISO) will be adopted by the Bureau of Indian Standards on recommendation of the Engineering Metrology Sectional Committee and approval of the Production and General Engineering Division Council.

This standard was originally published in 1962 and subsequently revised in 1983. This revision has been brought out to align it with ISO 463: 2006.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, references appear to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 14253-1 Geometrical Product Specifications (GPS) – Inspection by measurement of workpieces and measuring equipment — Part 1: Decision rules for verifying conformity or nonconformity with specifications	IS 15371 (Part 1) : 2023/ ISO 14253-1 : 2017 Geometrical Product Specifications (GPS) – Inspection by measurement of workpieces and measuring equipment: Part 1 Decision rules for verifying conformity or nonconformity with specifications (*first revision*)	Identical
ISO/TS 14253-2 Geometrical product specifications (GPS) – Inspection by measurement of workpieces and measuring equipment — Part 2: Guide to the estimation of uncertainty in GPS measurement, in calibration of measuring equipment and in product verification	IS 15371 (Part 2) : 2018/ ISO 14253-2 : 2011 Geometrical product specifications (GPS) – Inspection by measurement of workpieces and measuring equipment: Part 2 Guidance for the estimation of uncertainty in GPS measurement, in calibration of measuring equipment and in product verification (*first revision*)	Identical
ISO 14978 Geometrical product specifications (GPS) — General concepts and requirements for GPS measuring equipment	IS 18164 : 2023/ ISO 14978 : 2018 Geometrical product specifications (GPS) — General concepts and requirements for GPS measuring equipment	Identical
ISO/IEC Guide 99 International vocabulary of metrology — Basic and general concepts and associated terms (VIM)	IS/ISO/IEC Guide 99 : 2007 International vocabulary of metrology — Basic and general concepts and associated terms (VIM)	Identical

The technical committee has reviewed the provisions of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO/IEC Guide 98-3	Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)

This standard also gives reference to National Annex E. This National Annex is informative and for voluntary compliance, which may be as per the agreement between the manufacturer and the purchaser.

The standard also makes a reference to the BIS Certification Marking of the product, details of which are given in National Annex F.

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.

NATIONAL ANNEX E
(*National Foreword*)

MPE VALUES FOR MECHANICAL DIAL GAUGE

E-1 MAXIMUM PERMISSIBLE ERROR

The preferred MPE values for the mechanical dial gauge with scale intervals 0.01 mm, 0.005 mm and 0.001 mm have been given below:

MPE values for mechanical dial gauge

Performance		**Scale interval (mm)**											
		0.01								0.005	0.001		
		Measuring range (mm)											
		0-1	1-3	3-5	5-10	10-20	20-30	30-50	50-100	0-5	0-1	1-2	2-5
Error of Indication (MPE) (µm)	1/10 revolution	5	5	5	5	8	10	10	12	5	2	2	3.5
	1/2 revolution	8	8	9	9	10	12	12	17	9	3.5	4	5
	One revolution	8	9	10	10	15	15	15	20	10	4	5	6
	Whole measuring range	8	10	12	15	25	30	40	50	12	5	7	10
Hysteresis error (MPEH) (µm)		3	3	3	3	5	7	8	9	3	2	2	3
Repeatability (MPER) (µm)		3	3	3	3	4	5	5	5	3	0.5	0.5	1
Measuring forces (N)		2.5 or less						3 or less	3.5 or less	2 or less			

ANNEX F
(*National Foreword*)

F-1 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.

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NOTE: The technical content of draft standard is not available on website. For details, please refer to ISO 463 : 2006 or contact:

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