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Specification for precision vernier height gauges

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 12, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI and came into effect on 20 November 2008. It was prepared by Technical Committee TDW/4, *Technical product realization*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 1643:1983, which is withdrawn.

Relationship with other documents

prEN ISO 13225-1 is in preparation and covers design and metrological characteristics of simple vertical length measuring instruments for linear-dimensional measurements perpendicular to a surface plate with either analogue or digital indication.

Information about this document

This new edition has been fully revised to bring it up to date.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Introduction

The principal features of a vernier height gauge are shown in Figure 1 but details of design may vary between manufacturers. The accuracy of performance of a vernier height gauge is based upon the quality and precision of the various features, e.g. the accuracy of the dividing of the scales, the quality of the graduation marks, the straightness of the guiding edge, the flatness of the base datum and the measuring faces. These are all features which the manufacturer controls in order that measurements made with the instrument are reliable within the tolerances given in Clause 6.

1 Scope

This British Standard specifies requirements for the construction, accuracy at the reference temperature of 20 °C and the protection of metric and imperial precision vernier height gauges which include a scribe for marking heights. The metric height gauges measure height up to a maximum of 1 000 mm using a main scale and vernier scale graduated to read to 0.02 mm. The imperial height gauges measure height up to a maximum of 48 in using a main scale and vernier scale graduated to read to 0.001 in.

NOTE 1 Attention is drawn to the fact that the metric dimensions are not necessarily direct conversions of the imperial dimensions. For instance, the vernier division of 0.02 mm marked on the metric height gauge corresponds to a 0.001 in vernier division on the imperial height gauge, whereas the actual conversion is 0.001 in = 0.0254 mm.

Requirements for setting blocks which might be supplied are also specified.

Methods of testing height gauges are specified in Annex A.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 817, *Specification for surface plates*

3 Terms and definitions

For the purposes of this British Standard the following terms and definitions apply.

NOTE The components of a precision vernier height gauge are illustrated in Figure 1, which also gives the nomenclature.

3.1 measuring range

range of heights that the gauge can be used to measure without the vernier scale extending beyond the main scale

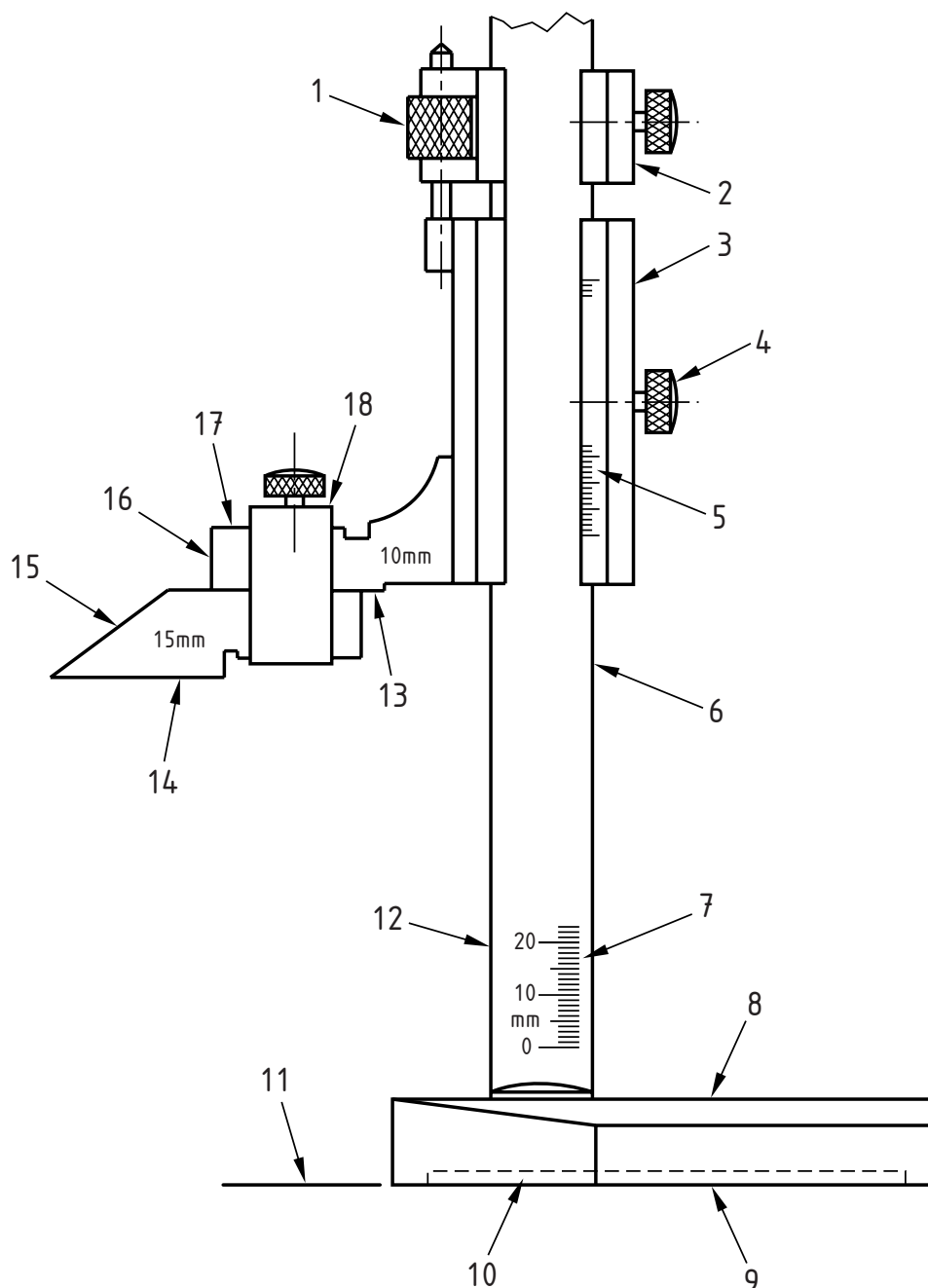
3.2 zero datum surface

plane that supports both height gauge and the object to be assessed for height

3.3 deviation of reading

difference between the actual height of a designated measuring face above the zero datum surface and the vernier reading

Figure 1 Example and nomenclature of a precision vernier height gauge



Key

- | | | |
|--|---------------------|--------------------------------|
| 1 Fine adjustment | 7 Main scale | 13 Measuring face [see 4.8 b)] |
| 2 Fine adjustment clamp | 8 Base | 14 Measuring face [see 4.8 c)] |
| 3 Slider | 9 Base datum | 15 Scriber |
| 4 Locking mechanism (e.g. locking screw) | 10 Relief | 16 Measuring jaw |
| 5 Vernier scale | 11 Zero datum plane | 17 Measuring face [see 4.8 a)] |
| 6 Beam | 12 Guiding edge | 18 Scriber clamp |

NOTE The illustrations are not intended to specify details of design.