

INTERNATIONAL
STANDARD

ISO
15227

First edition
2000-04-01

**Optics and optical instruments —
Microscopes — Testing of
stereomicroscopes**

*Optique et instruments d'optique — Microscopes — Essai des
stéréomicroscopes*



Reference number
ISO 15227:2000(E)

© ISO 2000

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS

© ISO 2000

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Contents

Page

| | |
|---|----|
| Foreword..... | iv |
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 3 Terms and definitions | 1 |
| 4 Accuracy of testing..... | 1 |
| 5 Test conditions | 1 |
| 5.1 Total visual magnification ($M_{TOT\ VIS}$) | 1 |
| 5.2 Difference in total visual magnification between left and right optical systems | 2 |
| 5.3 Difference in axes between left and right optical systems..... | 2 |
| 5.4 Difference in the centres of the image fields between left and right optical systems..... | 2 |
| 5.5 Difference in imaging rotations between right and left images..... | 2 |
| 5.6 Axial shift of object plane by magnification change..... | 2 |
| 5.7 Lateral shift of image plane by magnification change..... | 2 |
| 5.8 Focus difference between left and right optical systems..... | 2 |
| 5.9 Resolution for the highest magnification at the centre of the field..... | 2 |
| 5.10 Difference in exit pupil heights between left and right optical systems..... | 2 |
| 5.11 Minimum range for interpupillary distance..... | 2 |
| 5.12 Calibration error if a dioptre scale is used..... | 2 |
| 5.13 Minimum eyepiece dioptre adjustment range..... | 2 |
| 6 Test methods..... | 3 |
| 6.1 Apparatus | 3 |
| 6.2 Apparatus configuration | 4 |
| 6.3 Test procedures | 4 |
| Bibliography | 9 |

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 15227 was prepared by Technical Committee ISO/TC 172, *Optics and optical instruments*, Subcommittee SC 5, *Microscopes and endoscopes*.

This document is a preview generated by EVS

Optics and optical instruments — Microscopes — Testing of stereomicroscopes

1 Scope

This International Standard specifies test conditions and recommended test methods to ensure the minimum requirements for stereomicroscopes. These minimum requirements are given in ISO 10936-1, ISO 11884-1 and ISO 11884-2.

The test methods specified in this International Standard are recommended, but use of other test methods is permitted if the same results are obtained.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards:

ISO 10934-1, *Optics and optical instruments — Vocabulary for microscopy — Part 1: Light microscopy*.

ISO/CIE 10526, *CIE standard illuminants for colorimetry*.

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 10934-1 apply.

4 Accuracy of testing

Testing shall be performed with an accuracy better than 10 % of the value to be determined. Measurements shall be carried out according to general rules of statistical evaluation.

NOTE The accuracy of measurement methods and results based on statistical evaluation is described in the ISO 5725 series.

5 Test conditions

5.1 Total visual magnification ($M_{\text{TOT VIS}}$)

The total visual magnification shall be measured at the highest magnification (M_{max}) and the lowest magnification (M_{min}) on a vertical centreline.