INTERNATIONAL STANDARD

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Optics and optical instruments — Microscopes — Marking of stereomicroscopes

Optique et instruments d'optique — Microscopes — Marquage des stéréomicroscopes

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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.

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.

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Optics and optical instruments — Microscopes — Marking of stereomicroscopes

1 Scope

This International Standard specifies the format for the marking of data for optical characteristics on stereomicroscopes, including operation microscopes, and gives recommendations for the marking of additional information.

2 Marking on main body of microscope

Table 1

Category of marking	Type or contents of marking	Remarks
Mandatory	Name of manufacturer	
Recommended	Country of manufacturer	The marking of the country of origin is mandatory in several countries
Recommended	Model name or type	
Recommended	Serial or manufacture number	

3 Marking on interchangeable or switchable objectives

Marking is not mandatory on fixed objective(s) with a magnification factor of 1,0 ×; however, marking is mandatory on supplementary objective lenses.

Table 2

Category of marking	Optical property	Type or contents of marking	Example	Remarks
Mandatory	Magnification	Magnification factor[1)]	0,5 ×	For operation microscopes it is not mandatory to mark the magnification if the focal length or the working distance is marked and the instructions for use contain a table giving the total magnification.
Mandatory	Focal length	Focal length of the objective, in mm	f = 200 mm	It is not mandatory to mark both the magnification and the focal length.
Recommended	Working distance (WD)	Free working distance, in mm	WD = 185 mm	For operation microscopes, it is sufficient to mark the working distance.

1) The magnification factor of a supplementary objective lens is the factor by which it changes the total magnification of the stereomicroscope.

The magnification factor of an interchangeable or switchable objective is the ratio of the magnification of the stereomicroscope with the interchangeable or switchable objective to that of the stereomicroscope with the standard objective (magnification factor 1,0 ×).

4 Marking on magnification changer

Table 3

Category of marking	Optical property	Type or contents of marking	Example of marking	Remarks
Mandatory	Magnification	Minimum and maximum magnification factors or magnification scale	0,63 × – 4 ×	On a stepwise magnification changer, all steps should be indicated. In the case of fixed objective and fixed eyepieces, the magnification changer may be marked with the total magnification.

5 Marking on binocular tube

Table 4

Category of marking	Optical property	Type or contents of marking	Example of marking	Remarks
Mandatory	Magnification	Magnification factor	1,25 ×	A marking is mandatory only if the factor is different from 1,0 ×.
Recommended	Focal length	Focal length of the tube lens, in mm	f = 200 mm	For operation microscopes, it is sufficient to mark the focal length if the instructions for use contain a table giving the total magnification.

6 Marking on accessories positioned in the optical path

Table 5

Category of marking	Optical property	Type or contents of marking	Example of marking	Remarks
Mandatory	Magnification	Magnification factor [1)]	1,25 ×	A marking is mandatory only if the factor is different from 1,0 ×.

1) The magnification factor of an accessory is the factor by which it changes the total magnification of the stereomicroscope.

7 Marking on eyepieces

Table 6

Category of marking	Optical property	Type or contents of marking	Example of marking	Remarks
Mandatory	Magnification	Visual magnification	10 ×	If the magnification changer is marked with the total magnification, the magnification of the eyepiece shall not be indicated.
Mandatory	Field of view	Diameter, in mm	/18	Visual magnification and field of view number shall be separated by an oblique stroke, e.g. 10 ×/18.
Mandatory	Manufacturer	Name or logo		
Recommended	Type of field correction	Flatfield	PL	
Recommended	Suitable for spectacle wearers	Symbol		Marking in conjunction with the magnification and field of view number, e.g. 10 ×/18 .

8 Total magnification

The value of the total magnification of a stereomicroscope is given by the product of the magnifications of the objective and the eyepiece, as well as the magnification factors of the magnification changer, the binocular tube and any accessories in the optical path.