

CCS N 32



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 22055-2022

Microscopes - Interfacing dimensions for imaging components

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents"

drafted.

This document replaces GB/T 22055.1-2008 "Microscope Objective Lens Thread Part 1. RMS Type Objective Lens Thread (4/5in x 1/36in)",

GB/T 22055.2-2008 "Microscope Objective Lens Thread Part 2. M25x0.75mm Type Objective Lens Thread", GB/T 22057.1-

2008 "Imaging Distance of Microscope Relative to Mechanical Reference Plane Part 1. Tube Length 160mm", GB/T 22057.2-2008 "Microscope

Imaging distance of mirror relative to mechanical reference plane Part 2. Infinity Corrected Optical System, GB/T 22132-2008 Microscopy

Diameter of Mirror Interchangeable Eyepieces". and GB/T 22055.1-2008, GB/T 22055.2-2008, GB/T 22057.1-2008,

Compared with GB/T 22057.2-2008 and GB/T 22132-2008, in addition to structural adjustment and editorial changes, the main technical changes are as follows.

--- Changed the standard name, and the changed standard name is "Connection Dimensions of Microscope Imaging Components";

--- Integrated GB/T 22055.1-2008, GB/T 22055.2-2008, GB/T 22057.1-2008, GB/T 22057.2-2008, the content of GB/T 22132-2008, and rearranged the content of each chapter of the standard;

--- Deleted the reference document in GB/T 22057.2-2008 (see Chapter 2 of GB/T 22057.2-2008);

--- Added Note 1 and Note 2 in Table 1 (see 4.1);

- Added W26, M27, M32 specification threads (see 4.2);
- Increased the requirements for the diameter of the observation tube matched with the eyepiece (see 4.3);
- Added Appendix A, Appendix B and Appendix C.

This document is modified to adopt ISO 9345.2019 "Connection dimensions of imaging components of microscopes".

The technical differences between this document and ISO 9345.2019 and their reasons are as follows.

- Changed the content of the scope (see Chapter 1) to conform to our standard terminology;
- In the introduction of the chapter "Terms and Definitions", ISO 10934-1 is replaced by GB/T 27668.1, which is the standard adopted;
- Increase the objective lens parfocal distance 35, 95 and numerical aperture symbol NA (see Table 1), in order to meet the use of different products in my country;
- Changed the description of Figure 1 and Figure 2 in the international standard to the note of Figure 1 and Figure 2 (see 4.1), making it more clear that the microscopes in my country are different

The relationship between the positioning surface of the optical system, the reference surface and the imaging distance;

- Delete the major diameter of the internal thread and the minor diameter of the external thread in Table 3 and Table 4 of the international standard to conform to the metric thread parameter marking method;

- Changed the "W26 thread fit tolerance and tolerance" in Table 4 of the international standard to make it consistent with the "RMS thread fit tolerance and tolerance" in Table 3 "Poor" is consistent to meet my country's processing requirements for threads;

- Change "Metric thread deviation and tolerance" to "Pitch Diameter Tolerance" (see Table 4, Table 5, Table 6 and Table 7) to conform to my country's grain processing requirements;

- Change the thread length "4.500" to "5.0" (see Table 6) to meet my country's processing requirements for threads;

- Increase the minimum thread length "5.0" (see Table 6) for internal threads to meet my country's processing requirements for threads;

--- Increase the diameter size "25.0, 34.0" (see Table 8) to meet the use of different products in my country.

The following editorial changes have been made to this document.

--- Adjusted references.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies the terms and definitions, requirements and markings for connection dimensions of microscope imaging components.

This document applies to the design, manufacture and quality assessment of microscopes.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 27668.1 Microscopy Terminology Part 1. Optical Microscopy (GB/T 27668.1-2011, ISO 10934-1:2002, MOD)

3 Terms and Definitions

The terms and definitions defined in GB/T 27668.1 and the following apply to this document.

3.1

l1

The spatial distance between the positioning surface of the objective lens and the object plane (that is, the surface without covering the object) when the microscope is in working state.

NOTE. See Figure 1, Figure 2 and footnote b in Table 1.

[Source. GB/T 27668.1-2011, 3.79.2.4, with modifications]

3.2

l2

The spatial distance between the objective lens positioning surface (objective barrel or converter) and the primary image surface.

Note 1. The usual value is 150mm or infinity.

Note 2. See Figure 1, Figure 2 and Table 1.

[Source. GB/T 27668.1-2011, 3.79.2.1, with modifications]

3.3

fNTL

The focal length of the special tube lens that comes into play when designing infinity-corrected objectives.

NOTE. See Figure 2.

3.4

mechanical tubelength

Spatial distance between the positioning surface of the objective lens on the converter and the positioning surface of the eyepiece on the observation tube.