INTERNATIONAL STANDARD

ISO 10110-9

Second edition
2016-07-15

Optics and photonics — Preparation of drawings for optical elements and systems —

Part 9: Surface treatment and coating

Optique et photonique — Indications sur les dessins pour éléments et systèmes optiques —

Partie 9: Traitement de surface et revêtement

Reference number
ISO 10110-9:2016(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 172, *Optics and photonics*, Subcommittee SC 1, *Fundamental standards*.

This second edition cancels and replaces the first edition (ISO 10110-9:1996), which has been technically revised with the following changes:

a) the referencing of optical coating standards ISO 9211-1 and ISO 9211-2;

b) the description of functional coatings in tabular form as described in ISO 10110-1;

c) a complete revision of all drawings;

d) the addition of Annexes A to D which show examples for optical drawings and coating specification documents.

ISO 10110 consists of the following parts, under the general title *Optics and photonics — Preparation of drawings for optical elements and systems*:

— *Part 1: General*

— *Part 2: Material imperfections — Stress birefringence*

— *Part 3: Material imperfections — Bubbles and inclusions*

— *Part 4: Material imperfections — lnhomogeneity and striae*

— *Part 5: Surface form tolerances*

— *Part 6: Centring tolerances*

— *Part 7: Surface imperfection tolerances*

— *Part 8: Surface texture; roughness and waviness*

— *Part 9: Surface treatment and coating*

— *Part 10: Table representing data of optical elements and cemented assemblies*

— *Part 11: Non-toleranced data*

— *Part 12: Aspheric surfaces*

— *Part 14: Wavefront deformation tolerance*

— *Part 17: Laser irradiation damage threshold*

— *Part 19: General description of surfaces and components*

Optics and photonics — Preparation of drawings for optical elements and systems —

Part 9: Surface treatment and coating

1 Scope

ISO 10110 specifies the presentation of design and functional requirements for optical elements and systems in technical drawings used for manufacturing and inspection.

This part of ISO 10110 specifies rules for indicating the treatments and coatings applied to optical surfaces for functional and/or protective purposes.

2 Normative references

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

ISO 128-24, *Technical drawings — General principles of presentation — Part 24: Lines on mechanical engineering drawings*

ISO 9211-1:2010, *Optics and photonics — Optical coatings — Part 1: Definitions*

ISO 9211-2, *Optics and photonics — Optical coatings — Part 2: Optical properties*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9211-1 and the following apply.

3.1
functional coating
thin film deposited to affect surface reflectance, to separate spectral wavelength regions, and/or to produce certain polarization or other special properties

Note 1 to entry: There is a wide variety of functional coatings, e.g. reflective, antireflective, wavelength selective, conductive or protective coatings. The different types of functional coatings are listed in ISO 9211-1:2010, Table A.1 (see Annex A).

3.2
protective surface treatment
paint or plating protection applied to optical surfaces, particularly rear surface mirrors, to prevent damage from handling, environmental effects and other causes

Note 1 to entry: Surfaces may also be painted or covered in certain areas to limit their optically effective apertures for stray light control.

4 General

ISO 10110-1 stipulates that all indications apply fundamentally to the finished product. Accordingly, the dimensions given in drawings which mention surface treatments or coatings refer to the dimensions after application of the treatments or coatings (see Figure 1). However, in certain cases, the dimensions