

Nederlandse norm

# NEN-ISO 10110-7

(en)

Optics and photonics - Preparation of drawings  
for optical elements and systems - Part 7:  
Surface imperfection tolerances (ISO 10110-  
7:2008, IDT)

Vervangt NEN-ISO 10110-7:1998

ICS 01.100.20; 37.020

februari 2008

Als Nederlandse norm is aanvaard:

- ISO 10110-7:2008.IDT

VOORBEELD  
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Normcommissie 341 016 "Optische Instrumenten"

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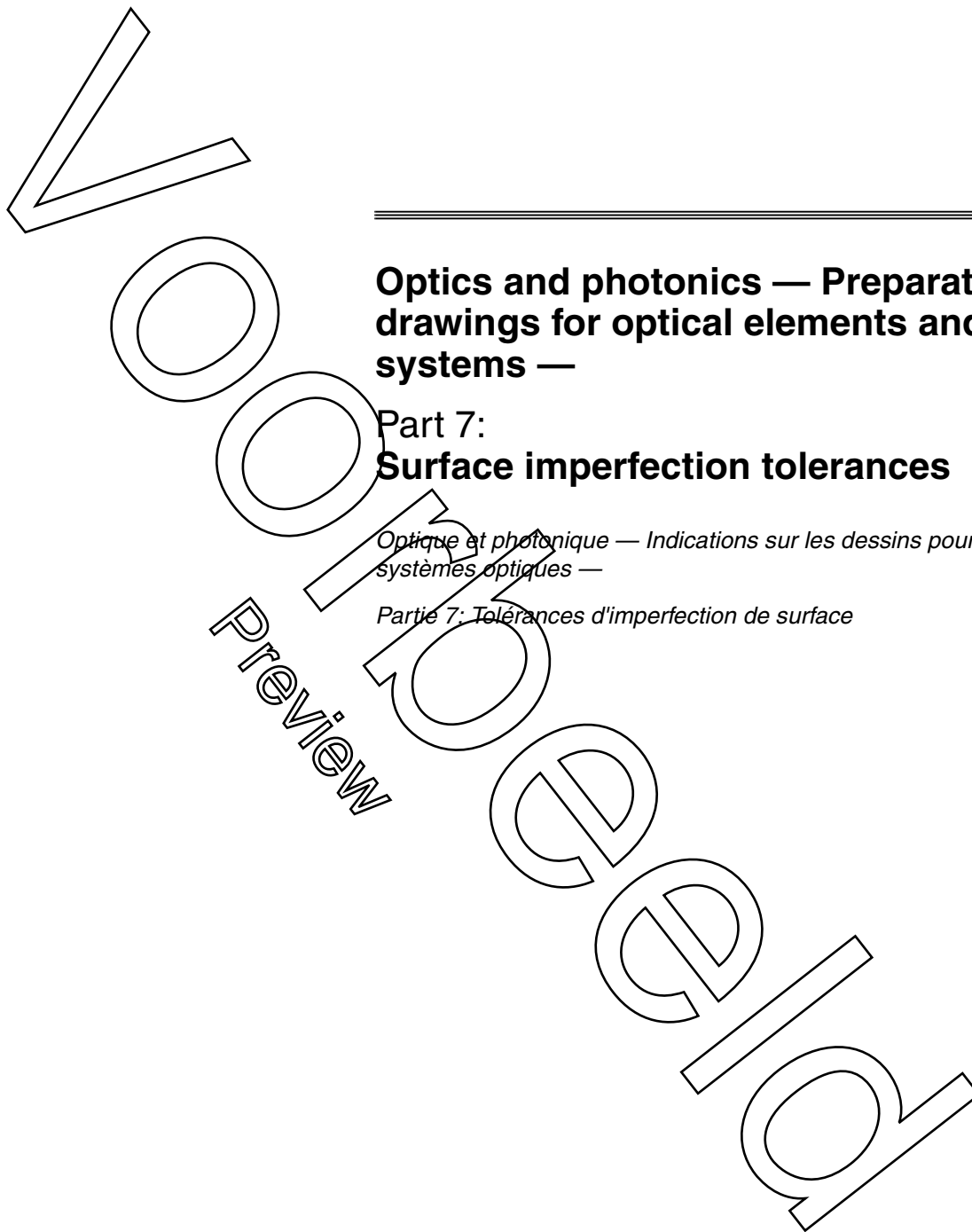
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**Optics and photonics — Preparation of drawings for optical elements and systems —**

**Part 7:  
Surface imperfection tolerances**

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

*Partie 7: Tolérances d'imperfection de surface*



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## Foreword

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The main task of technical committees is to prepare International Standards. 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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ISO 10110-7 was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 1, *Fundamental standards*.

This second edition cancels and replaces the first edition (ISO 10110-7:1996), which has been technically revised.

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 — Inhomogeneity and striae*
- *Part 5: Surface form tolerances*
- *Part 6: Centring tolerances*
- *Part 7: Surface imperfection tolerances*
- *Part 8: Surface texture*
- *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*

## Introduction

A localized surface imperfection, such as a dig or a scratch resulting from handling or manufacture, can degrade the perceived quality of an optical component. Dark-field inspection reveals the location of very small imperfections. The use of an appearance comparison scale, together with tolerance levels agreed by the manufacturer and user, permits classification of a component as “accept” or “reject”. This form of subjective inspection based on visibility or a visual assessment of area, although economic and fast, lacks precision.

Measurement is only required as a second stage operation following inspection necessary to determine location and to select a surface imperfection worthy of study, see ISO 14997. In such cases, a drawing notation indicating this level of inspection is required and can be added to the specification. This process, not depending on the eye, is more time consuming and is usually only carried out when a surface imperfection could influence performance as, for example, in laser or low-light level systems or when a more precise measure is demanded.

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