ISO 10110 - Optics and photonics — Preparation of drawings for optical elements and systems

The ISO 10110 series standardizes drawing indications for optical elements and systems. These documents do NOT contain manufacturing or test methods.
All documents are maintained by Technical Committee 172 (Optics and Photonics).
All ISO 10110 document titles lead off with *Optics and photonics - Preparation of drawings for optical elements and systems*
Documents are reviewed every five(5) years. Please look for updates at iso.org. Questions may be submitted to the OEOSC through Contact Us at oeosc.org.

Document No.	Subtitle	Description	Current	Last confirmed	Notes (Oct 2025)
ISO 10110-1	General	This document specifies the general layout of drawings and provides examples of indications in the ISO 10110 series.	Ed. 3, 2019	2025	A preliminary work item has been started. Peter McKay (BSI) is the Project Leader.
ISO 10110-5	Surface Form Tolerances	ISO 10110-5:2015 specifies the presentation of design and functional requirements for optical elements and systems in technical drawings used for manufacturing and inspection. (It) specifies rules for indicating the tolerance for surface form deviation.	Ed. 3, 2015	2020	This document has been revised and finalized. It will be published in the next several months. Paul Murphy (ANSI) was the Project Leader.
ISO 10110-6	Centring Tolerances	This document specifies the rules for indicating centring and tilt tolerances for optical elements, subassemblies, and assemblies ... and applies to plano surfaces, rotationally invariant (spherical and aspherical) surfaces, circular and non-circular cylindrical (cylindrical and acylindrical) surfaces, and non-symmetrical surfaces (general surfaces).	Ed. 3, 2025	2025	Ray Williamson and Dave Aikens (both ANSI) recently revised this document.
ISO 10110-7	Surface Imperfections	ISO 10110-7 specifies the indication of the level of acceptability of surface imperfections within a test region on individual optical elements and optical assemblies. These include localized surface imperfections, edge chips and long scratches. The acceptance level for imperfections is specified, taking into account functional effects (affecting image formation or durability of the optical element), as well as cosmetic (appearance) effects.	Ed. 3, 2017	2022	The next review will be in 2027.
ISO 10110-8	Surface Texture	Surface texture is the characteristic of a surface that can be effectively described with statistical methods. Typically, surface texture is associated with high spatial frequency errors (roughness) and mid-spatial frequency errors (waviness). This document is primarily intended for the specification of polished optics. This document describes a method for characterizing the residual surface that is left after detrending by subtracting the surface form.	Ed. 3, 2019	2025	
ISO 10110-9	Surface Treatment and Coating	This part of ISO 10110 specifies rules for indicating the treatments and coatings applied to optical surfaces for functional and/or protective purposes.	Ed. 2, 2016	2021	This document is being revised, currently at Committee Draft stage. Eric Herman (ANSI) is Project Leader.
ISO 10110-11	Non-Toleranced Data	This document specifies the default (implicit) tolerances for indication in the ISO 10110 series. Because these values are the default, they are intentionally chosen to be values deemed as loose fabrication requirements for industry.	Ed. 3, 2025	2025	The Project Leader for the latest revision was Jennifer Michels (ANSI).

 Prepared by Jennifer Michels, Redhead Optical, 10.16.2025

Document No.	Subtitle	Description	Current	Last confirmed	Notes (Oct 2025)
ISO 10110-12	Aspheric Surfaces	This document specifies rules for presentation of aspheric surfaces and surfaces with low order symmetry such as cylinders and toroids. It also specifies sign conventions and coordinate systems. This document does not apply to off-axis aspheric and discontinuous surfaces such as Fresnel surfaces or gratings. NOTE For off-axis aspheric and non-symmetric surfaces, see ISO 10110-19.	Ed. 3, 2019	2025	
ISO 10110-14	Wavefront Deformation Tolerance	This document specifies rules for the indication of the permissible deformation of a wavefront transmitted through or, in the case of reflective optics, reflected from an optical element or assembly.	Ed. 3, 2018	2023	To bring this document into harmony with ISO 10110-5 and ISO 14999-4, it will be revised as soon as possible.
ISO 10110-16	Diffractive Surfaces	This document guides the presentation, description and dimensioning of surfaces adding a diffractive optical function on optical surfaces, such as planes, spheres, aspheres or general optical surfaces. This document does not apply to diffractive surfaces with random surface texture, for example stochastic antireflective structures, nor does it address Bragg gratings, volume holograms (HOE) and acousto-optic modulators.	Ed. 1, 2023	2023	
ISO 10110-17	Laser Irradiation Damage Threshold	ISO 10110-17 specifies rules for the indication of the damage threshold from laser irradiation up to which optical surfaces shall not exhibit any damage, as defined in ISO 11254-1.	Ed. 1, 2004	2022	This document is in need of revision due to significant technial progress. However, this can only be done in conjunction with those revising ISO 21254-2. Also see ISO 21254-1, which has been recently revised.
ISO 10110-18	Stress Birefringence, Bubbles and Inclusions, Homogeneity, And Striae	This document specifies the indication of tolerances for four categories of imperfections within optical materials — stress birefringence, bubbles and inclusions, homogeneity, and striae. Tolerances are applied either to a finished optical part, a finished system of optical parts, or to the raw material used to manufacture an optical part.	Ed. 1, 2018	2023	This document remains consistent with ISO 12123, which is currently being revised.
ISO 10110-19	General Description of Surfaces And Components	ISO 10110-19 provides a general method of describing surfaces and components. This part of ISO 10110 applies to continuous and discontinuous surfaces. It does not apply to diffractive surfaces, Fresnel surfaces, ophthalmic glasses, and micro-optical surfaces. ISO 10110-19 applies to any general surface or component, even including spherical or rotationally symmetric surfaces if it is necessary, i.e. when NURBS, splines, point clouds, etc. are used.	Ed. 1, 2015	2025	