



Designation: E1390 – 21

Standard Specification for Illuminators Used for Viewing Industrial Radiographs¹

This standard is issued under the fixed designation E1390; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 The function of the illuminator is to provide sufficient illumination and viewing capabilities for the purpose of identification and interpretation of radiographic images. This specification provides the recommended minimum requirements for industrial radiographic illuminators used for viewing industrial radiographic films using transmitted light sources.

1.2 The illuminator has to ensure the same safety for personnel, or users of any electric apparatus, as specified by electrical standards applicable in the country in which the illuminator is used.

1.3 *Units*—The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards*:²

E1316 Terminology for Nondestructive Examinations

3. Terminology

3.1 *Definitions*:

¹ This specification is under the jurisdiction of ASTM Committee E07 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.01 on Radiology (X and Gamma) Method.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3.1.1 *diffusing screen, n*—the screen that scatters the light such that the light appears the same brightness from any viewing angle.

3.1.2 *viewing screen, n*—the port through which the light is projected.

3.2 For additional definitions of terms used in this specification, see Terminology E1316.

4. Ordering Information

4.1 This specification is intended to be used by the manufacturers and purchasers of radiographic illuminators. Requirements, if imposed on manufacturers, should be established by contractual agreement or appropriate purchase document.

5. Materials and Manufacture

5.1 *General*—The illuminator shall consist of a housing with one or more of the sides containing a viewing screen illuminated from the inside of the housing. The viewing screen may also be the diffusing screen. There shall be thermal protection to prevent overheating, and subsequent damage to the radiographs placed on the viewing screen. The housing or system may or may not require ventilation. A rheostat or suitable electrical circuit shall be provided to vary the light intensity.

6. Physical Properties

6.1 *General*—The illuminator shall be manufactured of materials deemed suitable to withstand the environmental conditions encountered under normal operating conditions.

6.2 *Viewing Screen*—The viewing screen shall be easy to clean and made of material which is resistant to scratches. The size of the screen shall allow the user to view the radiograph without excessive glare. If the illuminator is to be used for viewing radiographs of various sizes, masks of various sizes and configurations should be provided. Alternately, an adjustable aperture may be used.

6.3 *Color of Light*—The color of the light used to illuminate the radiograph shall be white, that is, color temperature between 5000 and 6250 °K. However, illuminators using non-white or “colored” light may be used if they have been recommended by the film manufacturers.