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International Standard 5580

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Non-destructive testing — Industrial radiographic illuminators — Minimum requirements

Essais non destructifs — Négatoscopes utilisés en radiographie industrielle — Exigences minimales

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5580 was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*.

Non-destructive testing — Industrial radiographic illuminators — Minimum requirements

1 Scope and field of application

This International Standard specifies the minimum requirements for industrial illuminators used for viewing radiographs.

The function of the illuminator is to allow the viewing of radiographs.

The illuminator shall guarantee the same safety of personnel as an electric apparatus with maximum voltage, insulation and earthing which is required by corresponding safety standards of electrotechnics in each country where these are applied.

2 Characteristics of radiographic illuminators

2.1 Mechanical construction

An illuminator consists of the housing with one of the sides being the viewing screen illuminated from the inside. This screen can itself be the diffusing screen. This housing may also contain a system for thermal protection of the radiographs; this system may or may not be ventilated.

For the viewing of wet radiographs, the illuminator shall be so designed as to prevent penetration of the liquid if the radiograph comes into contact with the screen.

2.2 Viewing screen

The screens shall be easy to clean and shall be made of a material which is resistant to scratching during cleaning processes recommended by the manufacturer and during film viewing.

NOTE — The screen may be a combination of elements, all of which should be resistant to heat in terms of deformation and discoloration.

The size of the screens shall allow the viewing of a radiograph without excessive glare reaching the eyes of the operator. Should the illuminator be used for viewing radiographs of different sizes, a system of covering masks shall be provided.

2.3 Luminance

The screen luminance required depends on the density of the radiographs. The following luminance levels are recommended for the perception of information at various density levels.

The luminance (or brightness) of the illuminated radiograph shall be not less than :

- 30 cd/m² for film densities $\leq 2,5$
- 10 cd/m² for film densities $> 2,5$

and, wherever possible, approximately 100 cd/m² or higher. These minimum values require the following screen luminance :

Film density	Minimum screen luminance cd/m ²
1	300
1,5	1 000
2	3 000
2,5	10 000
3	10 000
3,5	30 000
4	100 000
4,5	300 000

NOTE — The illuminator may be provided with a device for continuous control of screen luminance.

2.4 Colour of light

The colour of the light used to illuminate the radiograph is normally white. However, in the case of a film with an emulsion type yielding a monocoloured image, light with adapted colours may be used if they have been recommended by the film manufacturers.

2.5 Diffusion of light

If the illuminator has a diffusing screen, the light shall be sufficiently divergent so that both eyes of the observer receive rays from all parts of the screen. The diffusion factor σ' shall exceed 0,7 (see 3.1).

2.6 Uniformity of illumination

The screen shall be uniformly illuminated, the uniformity factor g being higher than 0,5 (see 3.2).

2.7 Disturbing light

The housing, blinds and covering masks shall be constructed in such a manner that no disturbing light hinders the viewing of the radiographs (see clause 3).