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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Non-destructive testing - Infrared thermographic testing -
General principles**

无损检测 红外热成像检测 总则

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

This document is equivalent to ISO 10880:2017 "General principles for non-destructive testing - infrared thermal imaging testing".

Introduction

With the remarkable development of thermal imaging technology, the industrial application of infrared thermal imaging in non-destructive testing (NDT) is growing.

The effectiveness of imaging inspection depends on the appropriate and correct test method. The purpose of this document is to provide general principles of infrared thermal imaging inspection to facilitate Correct and effective application of industrial non-destructive testing methods, such as power equipment, buildings, instrumentation and industrial materials.

General principles for non-destructive testing - infrared thermal imaging testing

1 Scope

This document specifies the general principles for infrared thermographic testing in the field of industrial non-destructive testing (NDT).

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies.

in this document.

ISO 9712 Nondestructive testing-Qualification and certification tion of NDT personnel)
Note. GB/T 9445-2024 Qualification and certification of non-destructive testing personnel (ISO 9712:2021, IDT) ISO 10878 Non-destructive testing - Infrared thermography -Note. GB/T 12604.9-2021 Nondestructive testing terminology infrared thermography (ISO 10878:2013, MOD)

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 10878 apply.

4 Infrared thermal imaging inspection personnel

Operators responsible for implementing infrared thermal imaging testing (TT) should meet the following requirements.

Infrared thermal imaging inspection personnel should meet the requirements of ISO 9712 and have basic knowledge of infrared measurement and engineering heat transfer; a)

Infrared thermal imaging inspection personnel should meet the vision and color vision requirements specified in ISO 9712.b)

5.1 Thermal Imager

Different infrared thermal imagers have different properties and functions, such as the type of infrared detector, spatial resolution (instantaneous field of view, effective image elements), temperature range, temperature resolution, temperature accuracy, single frame acquisition time, exposure time, detection wavelength range, cooling method, scanning Scanning mode, optical photo display and recording function. Make sure that the infrared thermal imager used has appropriate properties and functions and is at the appropriate temperature.

Calibrate to meet test requirements.

When necessary, various accessories can be added to the infrared thermal imager, such as wavelength filters, attenuation filters, interchangeable lenses, monitors, infrared External reflector or computer and software for data collection and processing.

5.2 Equipment for active thermal imaging detection

According to the performance and function of the infrared thermal imager, the test environment and the state of the object being tested (size, shape, emissivity, material, temperature, etc.), select an appropriate heating or cooling system.