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Technical product documentation — Heat-treated ferrous parts — Presentation and indications

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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is Technical Committee ISO/TC 10 *Technical product documentation*, Subcommittee SC 6, *Mechanical engineering documentation*.

This second edition of ISO 15787 cancels and replaces the first edition (ISO 15787:2001), which has been technically revised.

In addition to a number of editorial revisions, the following main changes have been made with respect to the previous edition:

— addition of an indication of both states of the part: 1) after the heat treatment (before final machining); and 2) after the final machining (Figure 16 and Figure 30);

— addition of examples representing the hardness values and their limiting deviations (Table 1);

— addition of line types for the indication of local areas and their applications (Table 2);

— addition of line type 07.2 (dotted wide line) for carburized, carbonitrided, nitrided or nitrocarburized workpieces to indicate areas where heat treatment is not allowed;

— replacement of the representation of hardness values, hardness depths, layer thicknesses and limiting deviations by their values and limiting deviations (Tables 1, 3, 4 and 5);

— addition of marking of slip zones (5.5.2), key for the allocation test point and nominal value (5.6), indication of local areas (5.7), oxide layer thickness (OLT) (5.11), heat-treatment order (HTO)(5.14), heat-treatment document (HTD)(5.15);

— replacement of the title of "Drawings providing specific indication of heat treatment" by "Heat-treatment sketch" (6.4);

— deletion of the former 6.4 *surface fusion hardening* in the 2001 edition;

— deletion of the Annex A tables present in the 2001 edition;

— addition of graphical symbols (Annex A).

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Introduction

Technical drawings of workpieces are the most important documents

— for construction, development and production,

— for the assembling, and

— for the use of the final products.

Generally, a drawing provides information about the workpiece, its shape and design, the material used, the dimensions, surface behaviour, permitted abbreviations, inspection data, and more.

Workpieces made from steel and iron often have to withstand severe conditions to resist wear and corrosion.

To attain the required properties, the workpieces are heat-treated in most applications. A drawing is a very important document as it also informs the heat-treater about the parameters to be aware of for a successful heat-treatment. For that, he should know the material used, the required heat-treatment, the required hardness and hardness depth, the expected or permitted microstructure, the required testing method and the test points for testing the heat-treated workpiece.

In this time of global production, it is essential to dispose of an International Standard for technical product documentation, especially for the presentation and indication of heat-treated parts. Therefore, ISO 15787:2001 was revised to help to improve the quality of heat-treated workpieces.

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Technical product documentation — Heat-treated ferrous parts — Presentation and indications

1 Scope

This document specifies the manner of presenting and indicating the final condition of heat-treated ferrous parts in technical drawings.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 128-24:2014, *Technical drawings — General principles of presentation — Part 24: Lines on mechanical engineering drawings*

ISO 4885, *Ferrous products — Heat-treatments — Vocabulary*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)*

ISO/TS 8062-2, *Geometrical product specifications (GPS) — Dimensional and geometrical tolerances for moulded parts — Part 2: Rules*

ISO 81714-1, *Design of graphical symbols for use in the technical documentation of products — Part 1: Basic rules*

3 Terms, definitions

For the purposes of this document, the terms and definitions given in ISO 4885 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

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