



SLOVENSKI STANDARD
SIST EN 4300:2008
01-julij-2008

5 YfcbUj h_U!`CnbU Yj Ub^XY`cj `a clcf^U!`GhUbXUfX`nUdfc^Y_hfUb^Y

Aerospace series - Identification marking of engine items - Design standard

Luft- und Raumfahrt - Kennzeichnung von Triebwerkbauteilen - Konstruktionsnorm

Série aérospatiale - Marquage pour articles moteurs - Normes de conception

Ta slovenski standard je istoveten z: EN 4300:2008

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ICS:

49.050	Letalski in vesoljski motorji ter pogonski sistemi	Aerospace engines and propulsion systems
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ICS 49.050

English Version

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Normes de conception

Luft- und Raumfahrt - Kennzeichnung von
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This European Standard was approved by CEN on 29 February 2008.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This document (EN 4300:2008) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2008, and conflicting national standards shall be withdrawn at the latest by October 2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This standard:

- describes the location and the layout of the marks of the item;
- describes the marking processes to be used according to the environment and the function of the items;
- determines the selection conditions of the marks;
- determines the compatibility conditions of the marking processes with the constitution, the production and the use of the items.

This document applies to aerospace engine items and shall be used in conjunction with EN 4301.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 4301, *Aerospace series — Identification marking methods for engine items*.

AS 478J, *Identification Marking Methods*. ¹⁾

3 Abbreviation

O.C.R. Optical Character Recognition

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4 Presentation

4.1 Definition

4.1.1 Identity mark

An identity is represented by a mark affixed by means of a marking process.

An identity mark allows for example:

- the identity of an item and its design origin;
- the initial compliance of the item with its definition to be proved;
- the data relating to the various stages of the item's life in production and in use to be traced (traceability);
- the conditions of use to be specified;
- etc.

4.1.2 Description of an identity mark

An identity mark is information (coded identity or not), consisting of characters presented in a clear and orderly manner. A mark is characterised by a composition and a size and is applied directly to the item or to a separate support.

¹⁾ Published by: Society of Automotive Engineers (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001 USA.

4.2 Marking

Marking is the action of affixing the marks on a medium (item, label, etc.). Marking is defined by a process (or several alternative processes) at a location identical for all the units of the same item.

The marking process is selected according to:



- its ability not to affect the material, the geometry or the characteristics of the item;
- its ease of implementation;
- its cost;
- its long-term resistance.

Selection shall be thorough. An ill-suited process or sign size may damage an item during the last phases of manufacturing.

4.3 Relationship between identifier and mark

The following examples in Table 1 illustrate the relationship between identifier and mark.

Table 1

Identity requirement	Mark to be applied
To identify item's definition.	F0320 37356-12-6
To indicate the conditions of use.	VENT BEFORE OPENING
To state the compliance of an item with its definition.	 (inspection punch)
To provide for traceability of the item.	12345678 (serial number)
To specify a functional aspect of the item.	 (flow direction of a fluid)
To specify the condition of the item.	REP R2738 (item having been subjected to repair)
To specify a grade of material.	● Colour dot on an elastomer seal

5 Application of use

5.1 General

Minimum identification shall be provided to clearly identify the part and be compatible with the item and its environment.

5.2 Selection of the marks (see Table 3)

5.2.1 General

Selection and layout of the marks shall not be detrimental to the function of the item.

Avoid repeating existing marks.

All the characters of all the identity marks shall be readable by a single means, whether automated or not. In the case of automated reading of codified identity marks, character readable identification should also be provided if possible.

It is necessary to measure the size of the medium to be marked since the height chosen for the characters is to be as great as possible with respect to the space available.

5.2.2 Reduced markings for small items

For small-size items and those difficult to mark, the number of marks placed on the actual item can be reduced. However when reduced marking is used, a tag or the packaging should bear all the information required by the definition.

For non-serialised items, replace code 3 (serial number) with code 9 (manufacturing date). In some cases, only the production source's company monogram, code 6, is acceptable.

The order of preference for using reduced marking is given below:

EXAMPLES

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		Identification marks	Code
		(see EN 4300:2008)	(see EN 4301, Table 1)
Preference 1	{	• Designer's company code	2
		• Item identification number	1
		• Production source's company code	10
		• Serial number (or manufacturing date)	3 (or 9)
Preference 2	{	• Item identification number	1
		• Production source's company code	10
		• Serial number (or manufacturing date)	3 (or 9)
Preference 3	{	• Production source's company monogram	6
		• Serial number (or manufacturing date)	3 (or 9)
Preference 4	{	• Production source's company monogram	6

5.3 Selection of the marking locations

5.3.1 General

The surface selected for marking shall be such as to be accessible and compatible to the marking process, and adequate to contain all the marks.

For replaceable elements, the location shall be selected such that, where possible, the marks remain visible after assembly.

5.3.2 Prohibited areas

The application of marks is prohibited in the following areas:

- proximity to fillet radius, chamfers and component edges or angled surface's because of the risk of stress cracking;
- flow areas, because of the risk of flow disturbance;
- assembly areas e.g. welding, clamping, bonding because of the risks of bearing surface defect, alignment defect, loss of clamping loads, contamination, etc.;
- friction or sliding areas because of the risk of seizing, stiff points, etc.;
- stressed areas, because of the cracks, fatigue, life cycle reduction, etc.

The surface hardened (case hardening) hence embrittled areas shall be avoided, because of the risk of fatigue failure.

5.3.3 Restricted marking area

If a designer specifies a specific controlled area to contain the marking (see 6.3.2), he shall first contact manufacturing, to ensure all relevant information can be fitted into that area.

5.3.4 For the pipe assemblies, tubing and electrical wiring

A minimum of one mark shall be provided at or near one of the connection points.

Where more than one mark is used on a tube run for ease of reading, inversion of every second group of marks is acceptable.

5.4 Selection of the marking processes

5.4.1 General

Whatever the environment of the component the marking process chosen must ensure a permanent marking is achieved:

- select the processes which can be applied to an item according to the selection of Table 3, i.e.:
 - geometry,
 - material,
 - environment,
 - function.

Refer to 5.3 for the marking selection criteria and to Table 2 for the design criteria as given above, according to the marking process chosen;

- ensure that the process:
 - presents no danger to the item: risk of distortion, corrosion, embrittlement, etc.,
 - is compatible with the item's utilisation environment: temperature, fluids, etc.,
 - is compatible with the geometry of the location: accessibility, surface condition, etc.,
 - produces legible marks: contrast with the background, impastation, etc.;
- examine the possibilities of later rework or additions: upgrading of the item to a new definition, application of repair, etc.;
- if automatic identification and/or recording of the marks is required, refer to EN 4301; compatible O.C.R. marking processes are given in Table "Marking method codes, class letter and depth" of EN 4301.

5.4.2 Permanent marking process

Permanent markings ensure identification during the normal service life of the item.

Permanent markings are permitted on finished items only when specified by the engineering drawing from which the item is manufactured.

Permanent markings shall not affect the function or serviceability of the item.

Permanent marking is not recommended on contacting surfaces, nor on surfaces which are in motion with respect to the mating surface during operation of the items. However, when permanent markings must be placed on such surfaces, all raised metal and burrs shall be removed in accordance with the requirements given on the engineering drawing of the item.

Permanent markings shall not be applied on surfaces which have been chemically processed, painted, or plated unless the marking will be legible and the minimum requirements of the surface treatment process is maintained or restored.

See EN 4301.

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5.4.3 Temporary marking process

Temporary markings ensure identification during ordinary handling and storage of items prior to assembly and use. Under certain service conditions these markings may exhibit the characteristics of permanent markings.

Temporary markings shall not adversely affect the function or serviceability of the item. On items subject to intense heat, any temporary marking method which leaves heavy carbon deposit or sufficient detrimental residue such as cadmium, copper, zinc, lead, etc., should be avoided or, when used, shall be removed before subjection to intense heat.

See EN 4301.

6 Information to be entered on the drawing

6.1 General

The identification marking methods are described in EN 4301.

6.2 Definition of the item

The drawing calls out:

- the identification marking codes in accordance with EN 4301, see Figure 1 (*);
- standard combinations of identification marks in accordance with EN 4301, see Figure 2 (**);

- EN 4301 for marking method (***)
- the process(es) code(s) in accordance with EN 4301, see Figure 2 (***) 2)
- any additional descriptors.

6.3 Location of indication marks

6.3.1 For unrestricted marking on a component surface

The callout line shall show the surface that is to be marked refer to examples in Figures 1 and 2.

See EN 4301 "Indication on drawings".

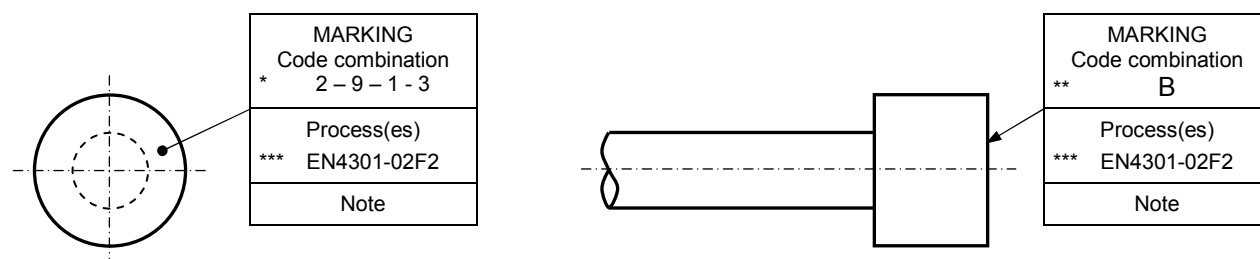


Figure 1

Figure 2

6.3.2 For restricted marking on a component surface

The callout line shall indicate the area the marking is to be positioned delineated by a fine dot and dash line, refer to example in Figure 3.

The marking area shall be dimensioned and indicated by a fine dotted and dashed line refer to 5.3.3.

See EN 4301 "Indication on drawings".

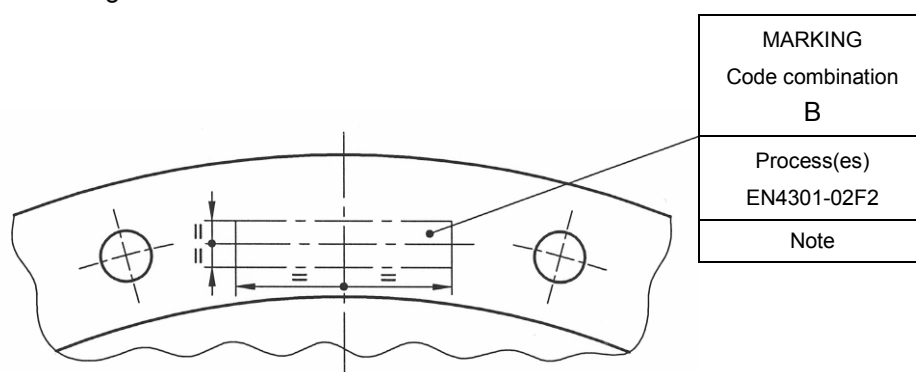


Figure 3

NOTE Designer shall not in choosing a position on the component surface to place the marking area, he shall provide minimum clearance for the margin requirements as given in EN 4301.

2) If automatic reading and / or recording is required, refer to 6.4 for additional identification codes.