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Identification Markings for Steel

DIN 1599

Kennzeichnungsarten für Stahl

1 Purpose and scope

1.1 For the identification of steels precedence is given to the provisions adopted to this effect in the quality Standards or other delivery conditions according to which the products were ordered.

If the conditions of delivery do not contain any provisions of this kind it may be agreed to mark the steel products. This Standard lays down the kinds of marking envisaged. The extent of marking is left to the supplier except where agreeed to the contrary.

1.2 Products may be supplied marked according to this Standard even when no form of marking has been agreed.

1.3 This Standard does not cover the use of the DIN mark or of the DIN testing and quality control symbol.

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Explanations

The desirability of reducing the risk of mistaken identification of materials by producers, dealers, processors or users has led to more exacting requirements regarding the marking of steel products and in the preparation of quality Standards and technical conditions of delivery and is reflected in corresponding provisions of often widely differing kind. Thus identification of the necessary features is provided, for example, in the case of ribbed reinforcing steel (to DIN 488) by continuous rolled-in symbols throughout the bar length, in the case of boiler plate (to DIN 17 155) and pipes of high-temperature steels (to DIN 17 175) by impressed symbols in a defined area of the product, and in the case of flat products (e. g. to DIN 17 162) by stamping the plates and coils.

The differences in the kinds of marking mentioned in these examples indicate that it is scarcely practicable to regulate in a general Standard, and in a binding manner, all the requirements which have to be met for identifying steels. For the most part it is only possible to lay down appropriate provisions case by case, on the basis of intended purpose, form and dimensions of the product, in the conditions of delivery valid for the product, and as far as possible within a specified framework.

This new edition of DIN 1599 has to be seen in this light. It provides a survey of the customary or technically feasible methods of marking steel products. It serves as a basis for agreements in cases where the conditions of delivery for the product concerned do not contain any corresponding provisions, but identification marking is nevertheless desired and ordered.

In Section 4 and in Table 1 the kinds of marking concerned are presented. Compared with the February 1964 edition (Preliminary Standard) the following additions have been made:

a) Methods of marking for ingots, slabs, billets and sheet bars,
b) Marking by means of pre-manufactured identity plates (see Section 4.5),
c) Information on the usual position of markings on the product (Table 1).

The different shapes and colours for tie-on tags and adhesive labels as described in the previous edition of DIN 1599 for identifying the grade of steel failed to find any practical application and have therefore been omitted.

Similarly it has been decided to dispense with provisions concerning the size of the markings and on relationships between the product dimensions and the kind of marking, since it is not possible to establish any binding rules on this point. There remains the fundamental requirement that the markings must be readily legible and clearly differentiable from one another.

2 Features to be identified

2.1 The product features to be identified include the following

- steel grade (code number or material number),
- steelmaker,
- heat number,
- sample number,
- form of product,
- main dimensions of product.

2.2 The steel grade shall be identifiable from the marking unless agreements of a more far-reaching nature have been reached.

Note: Every marking applied means additional expense for the supplier, hence the customer should restrict his requirements regarding features to be identified to those details which are really necessary for his own purposes.

3 Kinds of mark

Depending on the method of marking (see Section 4) the marks will consist – either alone or in combination – of figures, letters, geometrical signs (dots, strokes etc.) or coloured marks. The marks must be readily legible and clearly differentiable.

Marking in clear is preferred; if coded marks are used, their significance shall be made known to the purchaser.

4 Methods of marking

4.1 Depending on the form and dimensions of the products (see Table 1) the marks described in Section 3 can be applied in the following ways:

a) rolling (see Section 4.3),
b) stamping (see Section 4.4),
c) identity plates (see Section 4.5),
d) printing (see Section 4.6),
e) painting or spraying (see Section 4.7),
f) tie-on tags (see Section 4.8),
g) adhesive labels (see Section 4.9).

It should be noted that the methods of marking mentioned in Table 1 for specific products cannot be used indiscriminately for any feature according to Section 2 that has to be identified.

4.2 The marking shall not adversely effect the properties or usefulness of the product (see Section 4.10).

4.3 Rolled-in symbols (i. e. symbols applied by rolling during manufacture) are generally used only for identifying the steelmaker, the form of section and possibly the section dimensions of the products stated in Table 1.

4.4 The stamping of symbols is performed mechanically or by hand using steel punches.

4.5 Pre-manufactured identity plates of metal are attached by welding, cartridge-firing, screwing or bonding.

4.6 Symbols are printed-on by means of stamps or rollers (see also Section 4.10).

4.7 The marks according to Section 3 are painted or sprayed-on either mechanically or manually, frequently with the use of stencils.

Any colours used for identification purposes (usually of steel grade) should comply with DIN 5381 (see also Section 4.10).

4.8 Tie-on tags shall be of a size not smaller than A7.

4.9 Adhesive labels must fulfil the conditions of Section 4.10.

4.10 The colours, tie-on labels or adhesive labels used for applying the markings according to Sections 4.6 to 4.9 must have the following properties:

a) adequate resistance to chemical effects caused by the substrate, e. g. rust,
b) adequate resistance to weathering,
c) adequate impact resistance,
d) good adhesion.

Any special requirements in regard to properties, e. g. ready removability of stamps, coloured markings or adhesive labels must be agreed at the time of ordering.

5 Position of marks

The position of the marks on the product shall be so chosen that they remain readily visible. Table 1 indicates appropriate positions for the markings, depending on product and method of marking.

Table 1. **Technically practicable methods of marking and position of identifying marks on product**

Product	Method of marking [1] (for details see indicated Section number)							Position of the identifying mark on the product [2]
	Rolled-in symbols (Section 4.3)	Stamping (Section 4.4)	Identity plate (Section 4.5)	Printing (Section 4.6)	Painting, spraying (Section 4.7)	Tie-on tags (Section 4.8)	Adhesive labels (Section 4.9)	
Ingots, slab ingots			X		X			Side face, bottom face
Billets, blooms		X	X	X	X			End face, side face
Sheet bars, roughed slabs		X	X	X	X			End face, side face, top face
Rails	X	X			X			Web
Sleepers, fishplates	X							Side face
Shapes (sections) including wide-flanged beams	X	X		X	X	X		Web, end face for Section 4.7
Bar steel	(X)	X		X	X	X	X	End face, circumferential surface
Wire rod (coils)					X	X		Circumferential surface
Strip, hot rolled				X	X	X	X	Circumferential surface, side of coil
Strip, cold rolled				X	X	X	X	Circumferential surface, side of coil for Section 4.7
Sheet ≧ 3 mm thick		X		X	X	X	(X)	Top face, end face
Sheet < 3 mm thick				X	X	X	X	Top face, Side face of packs
Wide flats		X		X	X	X	X	Top face, end face
Tubes, hollow sections		X		(X)	X	X		Circumferential surface

1) For the products indicated, the possible methods of marking are indicated by crosses (note Section 4.1).
Marking methods less often used or envisaged only for specific product groups are bracketed.

2) The details in this column do not apply to tie-on tags.