



SLOVENSKI STANDARD
SIST EN 10154:1998
01-avgust-1998

N'U i a]b]!g]]V]Y a 'f5 GL' _cb]bi]fbc'j fc Y'dfYj`Y YbY'Y_`YbY'd`c Yj]bY]b'fU_cj]!
 H\ b] b]XcVUj b]dc[c]

Continuously hot-dip aluminium-silicon (AS) coated steel strip and sheet - Technical delivery conditions

Kontinuierlich schmelztauchveredeltes Band und Blech aus Stahl mit Aluminium-Silicium-Überzügen (AS) - Technische Lieferbedingungen

Bandes et tôles en acier revetues en continu par immersion a chaud d'une couche d'aluminium-silicium (AS) - Conditions techniques de livraison

<https://standards.iteh.ai/catalog/standards/sist/578816d0-cada-41da-b99a-0a6b8b5179ce/sist-en-10154-1998>

Ta slovenski standard je istoveten z: EN 10154:1996

ICS:

77.140.50 Ú[[z aã\ |^} ä å^| äå Flat steel products and semi-products
] [|ã å^|ã

SIST EN 10154:1998 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 10154:1998

<https://standards.iteh.ai/catalog/standards/sist/578816d0-cada-41da-b99a-0a6b8b5179ce/sist-en-10154-1998>

EUROPEAN STANDARD

EN 10154

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 1996

ICS 77.140.50

Descriptors: iron- and steel products, metal plates, steel strips, steels, hot-dip coating, continuous coating, aluminium-silicon alloys, designation, grades:quality, classifications, quality, mechanical properties, surface treatment, mass, inspection, marking

English version

**Continuously hot-dip aluminium-silicon (AS)
coated steel strip and sheet - Technical delivery
conditions**

iTeh STANDARD PREVIEW

Bandes et tôles en acier revêtues en continu
par immersion à chaud d'une couche
d'aluminium-silicium (AS) - Conditions
techniques de livraison

(standards.iteh.ai)

Kontinuierlich schmelztauchveredeltes Band und
Blech aus Stahl mit
Aluminium-Silicium-Überzügen (AS) - Technische
Lieferbedingungen

SIST EN 10154:1998

<https://standards.iteh.ai/catalog/standards/sist/578816d0-cada-41da-b99a-0a6b8b5179ce/sist-en-10154-1998>

This European Standard was approved by CEN on 1996-01-22. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels



Contents

	Page
Forword	3
1 Scope	4
2 Normative references	4
3 Definitions	5
4 Designation	6
5 Classification of grades and types of delivery	7
5.1 Steel grades	7
5.2 Coatings	9
5.3 Surface quality	9
5.4 Surface treatment (surface protection)	10
6 Requirements	11
6.1 Manufacturing process	11
6.2 Selection of properties	11
6.3 Mechanical properties	12
6.4 Freedom from coil breaks	12
6.5 Stretcher strains	12
6.6 Coating mass	13
6.7 Adhesion of coating	13
6.8 Surface condition	14
6.9 Dimensions, tolerances on dimensions and shape	14
6.10 Suitability for further processing	14
7 Testing	15
7.1 General	15
7.2 Test units	15
7.3 Number of tests	15
7.4 Sampling	15
7.5 Test methods	17
7.6 Retests	18
7.7 Inspection documents	18
8 Marking	18
9 Packing	18
10 Storage and transportation	19
11 Disputes	19
12 Information to be supplied by the purchaser	19
Annex A (normative): Reference method for determination of the coating mass	21
Annex B (normative): Method for determination of the mass of the alloy layer	23



Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 27 "Surface coated flat products - Qualities, dimensions, tolerances and specific tests", the secretariat of which is held by DIN.

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 1996, and conflicting standards shall be withdrawn at the latest by October 1996.

The European Standard EN 10154 supersedes

EURONORM 154-80: Hot-dip aluminium-silicon coated low carbon steel flat rolled products of commercial and drawing qualities - Technical delivery conditions.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies requirements for continuously hot-dip aluminium-silicon alloy coated flat products made of low carbon steels for cold forming (see table 1) or of structural steels (see table 2) in thicknesses $\leq 3,0$ mm. The thickness is the final thickness of the delivered product after coating.

This European Standard applies to strip of all widths and to sheets cut from it (≥ 600 mm width) and cut lengths (< 600 mm width).

The aluminium-silicon alloy coating is obtained by immersing the products in a bath containing 8 % to 11 % Si (also referred to as type 1).

The available coating masses, coating finishes and surface qualities are given in 5.2 to 5.4 and table 3.

The products covered by this European Standard are mainly used where heat resistance and corrosion resistance are the most important factors.

(standards.iteh.ai)

This European Standard is not applicable to steel flat products with hot-dip coating of pure aluminium (normally referred to as type 2 coating).

2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate points in the text and the publications are listed hereafter. Subsequent amendments to, or revisions of, any of these publications apply to this draft European Standard only when incorporated in it by amendment or revision. In the case of undated references, the most recent edition of the publications referred to applies.

- | | |
|------------|--|
| EN 10002-1 | Metallic materials. Tensile testing - Part 1: Method of testing (at ambient temperature) |
| EN 10020 | Definition and classification of grades of steel |
| EN 10021 | General technical delivery requirements for steel and steel products |

- EN 10027-1 Designation systems for steels - Part 1: Steel names - principal symbols
- EN 10027-2 Designation systems for steels - Part 2: Numerical system
- EN 10079 Definition of steel products
- EN 10143 Continuously hot-dip metal coated steel sheet and strip - tolerances on dimensions and shape
- EN 10204 Metallic products - types of inspection documents
- ENV 606 Bar coded transport and handling labels for steel products
- CR 10260 ECISS IC 10 - Designation systems for steel - additional symbols for steel names
- EURONORM 12¹⁾ Bend test for steel sheet and strip less than 3 mm thick

STANDARD PREVIEW
(standards.iteh.ai)

3 Definitions

SIST EN 10154:1998

For the purposes of this European Standard the following definitions apply in addition to the definitions in EN 10020, EN 10021, EN 10079 and EN 10204:

3.1 Hot-dip aluminium-silicon alloy coating (AS): Application of an aluminium-silicon coating by immersing the prepared products in a molten bath of aluminium-silicon alloy.

NOTE: In the present case, wide strip is continuously hot-dip coated in a bath the composition (type 1) of which is given in clause 1.

3.2 Coating mass: total mass of coating on both surfaces of the product (expressed in grams per square metre).

¹⁾ Until it is transformed into an European Standard, either EURONORM 12 or the corresponding national standard may be applied.

4 Designation

4.1 The steel names are allocated in accordance with EN 10027-1 and CR 10260; the steel numbers are allocated in accordance with EN 10027-2.

4.2 The products covered by this European Standard shall be designated as follows in the order given:

- a) Type of product (e. g. strip, sheet or cut length),
- b) Number of this standard (EN 10154),
- c) Steel name or steel number and symbol for the type of hot-dip coating as given in table 1 or table 2,
- d) Number denoting the nominal mass of coating (e. g. 080 = 080 g/m² including both surfaces, see table 3),
- e) Letter denoting the surface quality (A, B or C, see 5.3),
- f) Letter denoting the surface treatment (C, O, CO or U, see 5.4).

EXAMPLE 1: Designation of strip made of steel DX53D+AS or 1.0355+AS, coating mass 080 g/m² (080), surface quality improved surface (B); surface treatment chemical passivation (C):

Strip EN 10154-DX53D+AS080-B-C
or Strip EN 10154-1.0355+AS080-B-C

EXAMPLE 2: Designation of sheet made of steel S250GD+AS or 1.0242+AS, coating mass 120 g/m² (120), surface quality best quality surface (C), surface treatment chemical passivation and oiling (CO):

Sheet EN 10154-S250GD+AS120-C-CO
or Sheet EN 10154-1.0242+AS120-C-CO

4.3 Where appropriate, additional information to the designation as specified in 4.2 shall be given to describe clearly the delivery requirements (see clause 12).

5 Classification of grades and types of delivery

5.1 Steel grades

5.1.1 The steel grades available are given in table 1 and table 2. Table 1 contains low carbon steels listed in the following order of increasing suitability for cold forming:

DX51D+AS: bending and profiling quality,
DX52D+AS: drawing quality,
DX53D+AS: deep drawing quality,
DX54D+AS: special deep drawing quality,
DX55D+AS: special deep drawing quality, heat resistance up to 800 °C.

Table 2 contains structural steels listed in order of increasing specified minimum yield strength values.

5.1.2 Heat resistance may be assumed for temperatures up to 700 °C except for steel grade DX55D+AS for which heat resistance may be assumed for temperatures up to 800 °C.

(standards.iteh.ai)

[SIST EN 10154:1998](https://standards.iteh.ai/catalog/standards/sist/578816d0-cada-41da-b99a-0a6b8b5179ce/sist-en-10154-1998)

<https://standards.iteh.ai/catalog/standards/sist/578816d0-cada-41da-b99a-0a6b8b5179ce/sist-en-10154-1998>

Table 1: Grades and mechanical properties of low carbon steels for cold forming

Designation Steel grade			Yield strength R_e N/mm ² max. ¹⁾²⁾	Tensile strength R_m N/mm ² max. ²⁾	Elongation A_{80} % min. ³⁾
Steel name	Steel number	Symbol for the type of hot-dip coating			
DX51D	1.0226	+AS	-	500	22
DX52D	1.0350	+AS	300 ⁴⁾	420	26
DX53D	1.0355	+AS	260	380	30
DX54D	1.0306	+AS	220	360	34
DX55D ⁵⁾	1.0309	+AS	240	370	32

1) The yield strength values apply to the 0,2 % proof stress if the yield point is not pronounced, otherwise to the lower yield point (R_{eL}).

2) For all steel grades a minimum value of 140 N/mm² for the yield strength (R_e) and of 270 N/mm² for the tensile strength (R_m) may be expected.

3) For product thicknesses between 0,5 mm and 0,7 mm inclusive the minimum elongation values (A_{80}) shall be reduced by 2 units. For product thicknesses less than 0,5 mm the values are to be agreed upon at the time of ordering.

4) This value applies to skin passed products only (surface qualities B and C).

5) See 5.1.2.

Table 2: Grades and mechanical properties of structural steels

Designation Steel grade		Symbol for the type of hot-dip coating	Yield strength	Tensile strength	Elongation
Steel name	Steel number		R_{eH} N/mm ² min.	R_m N/mm ² min.	A_{80} % min. ¹⁾
S250GD	1.0242	+AS	250	330	19
S280GD	1.0244	+AS	280	360	18
S320GD	1.0250	+AS	320	390	17
S350GD	1.0529	+AS	350	420	16

¹⁾ For product thickness $\leq 0,7$ mm the minimum elongation values (A_{80}) shall be reduced by 2 units.

5.2 Coatings iTeh STANDARD PREVIEW

5.2.1 The coating masses are given in table 3.

For special applications coating masses which are different from those of table 3 can be supplied by agreement between the producer and the user.

Thicker coatings limit the formability and weldability of the products. Therefore, the forming and weldability requirements should be taken into account when ordering the coating mass.

5.2.2 During hot dip coating, a Fe- Al- Si alloy layer forms over the base material and its thickness depends on the chemical composition and the metallurgical properties of the base material. If a maximum value for the mass of this layer is required, this shall be specially agreed upon at the time of ordering. The test method is described in Annex B.

5.3 Surface quality

5.3.1 General

The products may be supplied with one of the surface qualities described in 5.3.2 to 5.3.4 (see also 4.2e) and 6.8).

5.3.2 As coated surface (A)