

STEEL FLAT PRODUCTS

HOT OR COLD ROLLED ZINC ELECTROPLATED

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NO USE RESTRICTION

*This is a translation, the French original shall be used in all cases of litigation**Date of translation : 04/03/2003*

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1. OBJECT

This norme defines the specific requirements for flat products (sheets and strips) :

- in non-alloy extra-mild steel,
- in steel with high level characteristics (high yield strength steels, rephosphorised steels,...), hot or cold rolled and coated on one or both surfaces with a layer of zinc by the process of zinc electroplating.

According to the type of product, it must be supplemented by all or part of the following documents :

- B53 3020 "Steel Flat Products - Designation - Symbols."
- B53 3106 "Steel Flat Products weldable extra-mild for pressing cold rolled."
- B53 3108 "Steel Flat Products weldable extra-mild for pressing hot rolled."
- B53 3312 "Steel Flat Products weldable high yield strength cold rolled."
- B53 3316 "Steel Flat Products weldable high yield strength hot rolled."

3. EXPRESSION ON DOCUMENTS

This material is designated in the following form :

"SHEET" or "STRIP" according to :

- the abbreviated designation of the sheet or strip with the reference of the norme concerned,
- the coating designation with reference to this norme,
- the thickness in mm.

Example :

- Sheet ES (norme B53 3106) EZ 10/10 (norme B53 3210) e = ... mm.
- Sheet E (norme B53 3106) EZ 10/10 (norme B53 3210) e = ... mm.

3. FIELD OF APPLICATION

This norme applies to sheets, wide strips, wide slit strips and strips suitable for cold pressing and weldable, used in automobile construction for the manufacturer of parts requiring a good resistance to corrosion.

4. CLASSIFICATION - COATING DESIGNATION

4.1 CLASSIFICATION

Zinc electroplated steel sheets are classified as follows :

- sheets coated on one face,
- sheets coated on two faces : in this case, unless otherwise specified, the two faces are each coated with a layer of zinc of approximately the same thickness.

4.2 COATING DESIGNATION

The coating is designated by the letters EZ, followed by a group of figures indicating the minimum coating thickness on each face.

Example : EZ 10/10 means zinc electroplated coating on 2 faces with a minimum coating thickness of 10 µm per face.

5. METHOD OF MANUFACTURE - ROLLING

Unless otherwise stated on the order, the manufacturing and rolling processes are left to the discretion of the supplier (hot or cold rolling) but must be indicated to user departments on request.

DELIVERY CONDITIONS

The products are delivered in accordance with norme B53 3050 except for specific requirements to be stipulated on the order.

Products coated on one face, wound in coils, are delivered with the coating on the outside of the coils, unless specifically agreed and stated on the order.

6. CHARACTERISTICS IN THE DELIVERY CONDITION

6.1 CHARACTERISTICS OF THE BASE PRODUCT

The product must satisfy all the requirements stipulated for the same, uncoated product, in particular those concerning the metallurgical and mechanical characteristics quoted in the following normes :

- B53 3106 and B53 3108 for extra mild steel sheets
- B53 3312 and B53 3316 for high yield strength steel sheets

Furthermore, it must be suitable for :

- pressing,
- welding,
- adhesion of sealants and adhesives,
- painting within the normal operating ranges. Minor modifications to these ranges regarding the surface treatment are permitted if they do not adversely affect the overall results on the vehicle. The results obtained after painting will be judged using méthodes d'essai specified in norme B15 5050 and must conform with the requirements of the latter.

6.2 CHARACTERISTICS OF THE COATING

6.2 COATING CHARACTERISTICS

6.2.1 CHEMICAL COMPOSITION

Zinc \geq 99,97 %.

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6.2.2 ZINC THICKNESS AND WEIGHT

The table below specifies the thickness and weight values that must be obtained at any point on the strip.

Type	Designation	Thickness per coated face (µm)		Weight per face (g/m ²) 3 points method by dissolution	
		minimum (*)	maximum (*)	minimum (*)	maximum (*)
1 FACE	EZ 10/10 (**)	10	12	72	86
2 FACES	EZ 10/10	10	12	72/face	86/face
1 FACE	EZ 7,5/0 (**)	7,5	9	54	65
2 FACES	EZ 7,5/7,5	7,5	9	54/face	65/face

(*) *These values are mandatory*

None of the 3 measuring points must be :

69 > 1 measurement > 90 g/m² for EZ 10/10 and EZ 10/0.

50 > 1 measurement > 69 g/m² for EZ 7,5/7,5 and EZ 7,5/0.

(**) *or EZ 00/10 or EZ 00/7,5 in the case where, after specific agreement stipulated on the order, the coil is supplied with the coated face on the inside of the coils.*

Zinc thicknesses and weights can be determined according to the following méthodes d'essai :

- chemical dissolution (D20 5333),
- anodic dissolution (D25 1056),
- magnetic induction or Foucault (Eddy) currents (D26 5316)

However, in the case of litigation, only the chemical dissolution 3-point method (D20 5333) is valid.

6.2.3 SURFACE TREATMENT

After acceptance by the metallurgical departments, and for certain specific cases, the steel sheet may be supplied with an additional surface treatment defined by a specific requirement.

6.2.4 APPEARANCE

6.2.4.1 Coating

It must be uniform, exhibit no discontinuity of the zinc layer, or defects visible to the naked eye.

6.2.4.2 Pressed products

No appearance defect linked to the metal substrate or coating must be visible during pressing. It is the suppliers responsibility to check (on appearance Z) that the product is free from defects.

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6.2.5. ADHESION

The coating adhesion requirement can be determined in 3 ways :

1. During the tensile test for checking the characteristics of the coated sheet, no flaking or peeling of the zinc layer, visible to the naked eye, is permitted on the broken test specimen outside the failure area.
2. By a bending test at 180 ° in conformity with normes NF A 03-157 or NF A 03-158 (depending on the thickness of the steel sheets) on test specimens 50 mm wide.

Bending is carried out :

- a) without a spacer for thicknesses less than 3 mm,
- b) with a spacer with a thickness equal to that of the sheet when this is ≥ 3 mm.

Where the test is carried out on a sheet coated on one face (EZ 10/10), the coated face must be on the outside of the bend.

The test must not cause any flaking or peeling, visible to the naked eye, of the zinc layer on the outside of the bend.

3. By a resistance to temperature test for checking :

- the coating adhesion
- the appearance of visual defects

Test conditions :

Temperature : 220 °C

Duration 30 min.

After bending the test must not show any peeling or defect which could be detrimental to the appearance of the paint (stress relief, black spot, etc.)

Cross hatch test : according to norme D25 1075.

6.2.6 ROUGHNESS

The roughness of sheets of appearance X and Z is specified in norme B53 3059.

7. RECORDS AND REFERENCE DOCUMENTS

7.1. RECORDS

7.1.1. CREATION

- OR : 01/01/1979 – CREATION OF THE NORME.

7.1.2. SUBJECT OF THE MODIFICATION

- D : 27/09/1996 – INTRODUCTION INTO IDEM (*French only*).
- E : 13/11/1997 – CORRECTION OF THE INTRODUCTION INTO IDEM

7.2 REFERENCE DOCUMENTS

7.2.1. PSA DOCUMENTS

7.2.1.1 Normes

B15 5050, B53 3020, B53 3050, B53 3059, B53 3106, B53 3108, B53 3312, B53 3316, D20 5151, D20 5333, D25 1056, D25 1075, D26 5316.

7.2.1.2. Others

7.2.2. EXTERNAL DOCUMENTS

NFA03-157 (06/1978), NFA03-158 (06/1978)

7.3. EQUIVALENT TO :

7.4. CONFORMS TO :

7.5. KEY-WORDS

CHAUD, ELECTROZINGUEES, FROID
(*hot, electroplated zinc, cold*)