

STEEL FLAT PRODUCTS DESIGNATIONS – SYMBOLS

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THIS NORME REPLACES NORME B53 3053 AND B53 3057

This is a translation, the French original shall be used in all cases of litigation

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1. OBJECT

This norme defines the rules for the designation and symbols for flat steel products for automobile manufacturing, hot or cold rolled, supplied in the form of :

- thin sheet (< 3 mm) or thick sheet (≥ 3 mm) ,
- wide strip, wide slit strip
- strip.

2. PRODUCT DESIGNATION

The product is defined by its symbol, its dimensions and possibly its specific requirements.

3. SYMBOLS

The symbolic designation of the product consists of references characterising the :

- method of manufacture,
- surface appearance,
- steel grade,
- delivery condition if necessary, indicating in the following order the :

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- treatment reference (structure),
- cold working reference,
- decarburisation class reference,
- coating.
- dimensions and form,
- possible special features,
- packaging method,
- specific requirements, if applicable.

3.1. METHOD OF MANUFACTURE

3.1.1. ROLLING METHOD

3.1.1.1. Hot rolling (LAC)

“H” :

pickled sheet and strip.

“None” :

grades 1 or 3 for pressing.

“R” :

sheet and hot rolled strip for dip galvanising after forming.

3.1.1.2. Cold rolling (LAF)

“None” :

sheet, wide strip and wide slit, skin pass strip.

“F” :

annealed and skin pass strip

“R” :

sheet and cold rolled strip for dip galvanising after forming

3.1.2. SURFACE APPEARANCE

3.1.2.1. Hot rolled

“None” :

rough flat product from pickling.

3.1.2.2. Cold rolling

X :

sheet, wide strip and wide slit strip of appearance reference X for vehicle structural parts.

Z :

sheet, wide strip and wide slit strip of appearance reference Z for vehicle external parts.

3.2. STEEL GRADE

The designations for steel grades are defined in specific norms.

These designations may be followed by indices relating to specific requirements.

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3.3. DELIVERY CONDITION

3.3.1. TREATMENT REFERENCE

3.3.1.1. Hot rolled products

- C :** Auto annealed (rolled continuously).
- N :** Normalised, lamellar ferritic and pearlite structure with grain ≥ 6 .
- G :** Spheroidised, the pearlite is completely spheroidised and uniformly distributed.
- T :** Treated, reference followed by a figure or a number corresponding to approximately $1/10^{\text{th}}$ of the minimum failure strength in MPa.

3.3.1.2. Cold rolled products

“None”

annealed.

- T :** Treated, reference followed by a figure or a number corresponding to approximately $1/10^{\text{th}}$ of the minimum failure strength in MPa.
Sorbitic or bainitic structure.

3.4. COLD WORKING INDEX

Cold rolled strip for pressing may be subjected to various cold working operations to obtain the desired mechanical characteristics : E1, E2, E3, E4.

3.5. DECARBURISATION CLASS

“None”

class A ; normal decarburisation $\leq 0,04$ mm, part and total decarburisation allowed.

- C :** class C ; partial decarburisation excluding the presence of free ferrite on the surface (total decarburisation) : $\leq 0,02$ mm.

- D :** class D ; without decarburisation.

3.6. COATING

- AS :** Aluminium coated by continuous hot dipping.
- P :** Lead coated by continuous hot dipping.
- EZ :** Electro-zinc plated by continuous electro-deposition.
- G :** Galvanised by continuous hot dipping.

Note : *Some of these coatings may be on one or both faces of the sheet.*

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3.7. PRINCIPLE OF DIMENSIONAL DESIGNATION

- for wide strips : indicate the width (mm) x thickness (1/10 mm),
- for sheets and bars : indicate the width x length (mm) x thickness (1/10 mm),
- for slit products : indicate the width (mm) x thickness (1/10 mm).

3.8. SPECIAL FEATURES

These are specified when ordering and concern, for example, dimensional tolerances, pressing characteristics, etc.

3.9. PACKAGING CODES

These are specified in the general requirements for the supply of flat products in agreement with GALIA standards.

4. EXPRESSION ON DOCUMENTS

Examples of writing according to symbols summarised in the appendix and the grade selected from the specific normes.

4.1. PRESSED PARTS

- Sheets XES (norme B53 3106) EZ 10/10 (norme B53 3210) e = 0,8 mm : signifies sheet of appearance X, cold rolled, grade ES, electro-zinc plated on 2 faces 10 μ , sheet thickness = 0,8 mm.
- Sheet HE 275 (norme B53 3316) G 10/10 (norme B53 3220) e = 1,8 mm : signifies hot rolled pickled sheet, high yield strength, grade E275, galvanised on 2 faces 10 μ , sheet thickness = 1,8 mm.
- Sheet HE 335 D.R (norme B53 3316) e = 3 mm : signifies hot rolled, pickled sheet, high yield strength, grade E 335D for dipped galvanising after forming, sheet thickness = 3 mm.

4.2. PARTS FOR MECHANICAL USE

Example 1 :

- **Engineering documents**
Sheet XC 68 (norme B53 3790) e = 1 mm : signifies sheet of grade XC 68, thickness 1 mm.
- **Manufacturing documents**
FXC 68 T4 (norme B53 3790) e = 1 mm : signifies cold rolled strip (F), grade XC 68, condition T4 quenched + tempered, thickness 1 mm.

Example 2 :

- **Engineering documents**
Sheets XC 18 (norme B53 3730) e = 5 mm : signifies sheet of grade XC 18, thickness 5 mm.
- **Manufacturing documents**
HXC 18 G (norme B53 3730) e = 5 mm : hot rolled sheet (H), grade XC 18, spheroidised condition (G), thickness 5 mm.

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Appendix

SUMMARY TABLE OF SYMBOLS USED

DESIGNATION	SYMBOL	DEFINITION
METHOD OF MANUFACTURE	H "none" F "none" R	Hot rolled pickled sheet and strip except grade 1C – 3C. Hot rolled pickled sheet and strip of grades 1C and 3C. Cold rolled annealed strip with skin pass. Cold rolled annealed sheet and strip with skin pass. Hot rolled and cold rolled sheet and strip for dipped galvanising after forming
SURFACE APPEARANCE	"none" X Z	Hot rolled sheet and strip as supplied for pickling. Cold rolled sheet and strip of appearance X. Cold rolled sheet and strip of appearance Z.
TREATMENT	C N G "none" T K	Auto-annealed (continuously rolled) Normalised condition (LAC) (hot rolled) Spheroidised condition Annealed condition (LAF) (cold rolled) Quenched and tempered condition (LAC and LAF) (hot and cold rolled) Annealed condition for strip (LAF) (cold rolled)
COLD WORKING	E1 E2 E3 E4	Cold working index strip 1 (strip) Cold working index strip 2 (strip) Cold working index strip 3 (strip) Cold working index strip 4 (strip)
DECARBURISATION CLASS	"none" C D	Class A : normal decarburisation Class C : partial decarburisation with no free surface ferrite Class D : no decarburisation
COATING	AS P EZ G	Aluminium coated by continuous hot dipping Lead coated by continuous hot dipping Electro-zinc plated by continuous electro-deposition Galvanised by continuous hot dipping

Note : Material grades with their symbols are stipulated in specific normes.

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5. RECORDS AND REFERENCE DOCUMENTS

5.1. RECORDS

5.1.1. CREATION

- OR : 01/11/1991 – CREATION OF THE NORME.

5.1.2. SUBJECT OF THE MODIFICATION

- B : 18/10/1996 – INTRODUCTION INTO IDEM (*French only*).
- C : 12/11/1997 – CORRECTION OF INTRODUCTION INTO IDEM.

5.2. REFERENCE DOCUMENTS

5.2.1. PSA DOCUMENTS

5.2.1.1 Normes

5.2.1.2. Others

5.2.2. EXTERNAL DOCUMENTS

5.3. EQUIVALENT TO :

5.4. CONFORMS TO :

5.5. KEY-WORDS

DESIGNATIONS, PLATS, PRODUITS, SYMBOLISATION
(*Designations, Flat, Products, Symbols*)