Preliminary SSAB HX380LAD Zero

Preliminary Product Sheet

Preliminary Product Sheets describe information for products that still are under development or in a trial delivery phase.

SSAB Zero™ steel is made using recycled steel and fossil-free energy.

The SSAB Zero™ EPDs and Certificate of Carbon Emissions is available on ssab.com. The availability of SSAB Zero™ products is subject to limitations and conditions of delivery have to be agreed upon separately.

General Product Description

Metal coated high-strength low-alloy (HSLA) steels are designed for applications that require galvanic corrosion protection and good formability in relation to high guaranteed yield strength.

These steel grades comply with EN 10346 standard.

In addition to normal zinc (Z) coatings, the offering contains Galfan (ZA) and Galvannealed (ZF) coatings for enhanced level of corrosion protection.

Dimension Range

SSAB HX380LAD Zero is available in thicknesses of 0.50-1.10 mm and widths up to 1520 mm as coils, slit coils and as cut to length in lengths up to 6 meters.
Available dimensions depend on the coating.

Mechanical Properties

Coating	Standard	Yield strength R_e [1] (MPa)	Tensile strength R_m (MPa)	Elongation A_{80} [2] (min %)
Z, ZA, ZF	EN 10346	380 - 480	440 - 560	19

The mechanical properties are tested in the transverse direction.

[1] If no pronounced yield point is present, the 0.2 % yield point value $R_{p0.2}$ is used. If the product has a pronounced yield point, the values apply for the lower yield point R_{eL}.

[2] When the thickness is less than or equal to 0.7 mm and greater than 0.5 mm, the minimum value for elongation is reduced by 2 units. For a thickness less than or equal to 0.5 mm, the minimum value is reduced by 4 units. In addition, in case of ZF coating, the minimum value is reduced by 2 units.

Chemical Composition (ladle analysis)

C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)	Al (min %)	Ti (max %)	Nb (max %)
0.12	0.50	1.50	0.030	0.025	0.015	0.10	0.15

Content % by mass.

Tolerances

Metal coated HSLA products are supplied with thickness, width and length tolerances in accordance to EN 10143. If no special instructions are given on the order, the products are delivered with the normal tolerances of this standard. Special tolerances according to EN 10143 or other tolerance specification can be agreed separately at the time of order.

Coatings

The metal coated products are offered with Zinc (Z), Galfan zinc-aluminium (ZA), or Galvannealed zinc-iron alloy (ZF) coating. The cathodic corrosion protection of these metal coatings is in direct proportion to its thickness, i.e. a thick coating will provide better corrosion protection for the underlying steel than a thin coating. However, thin coatings are recommended for applications with high formability requirements.

Zinc

The Zinc (Z) coating has a composition consisting almost entirely of zinc (>99%) and is lead free, resulting in finely crystallized zinc spangle that meets high requirements for visual appearance. It is produced by hot-dip galvanizing process. Thanks to the good formability of lead-free coatings, the corrosion protection, for example, in areas which have been bent is good. The small spangle coating is designated by the letter M.

Galfan

Galfan (ZA) is a zinc-aluminium alloy coating with the eutectic composition approximately of 95% Zn and 5% Al. This coating has better anticorrosive and forming properties than normal zinc coatings. Galfan coating can be recognized by its bright metallic and mildly cellular-patterned surface. It is produced by hot-dip coating process.

Galvannealed

Galvannealed (ZF) is a zinc-iron alloy coating having an iron content of about 10%. This coating is produced by heat-treatment after continuous hot-dip coating process. ZF coated steels are excellent for resistance welding applications and are designed for use in high-quality painted products. Galvannealed coating can be recognized by its typically grayish, matte surface.

Coating designation	Minimum total coating mass, both surfaces * (g/m^2)	Guidance value for coating thickness per surface (typical µm)
Z100	100	7
Z140	140	10
Z180	180	13
Z200	200	14
Z225	225	16
Z275	275	20
Z350	350	25
Z450	450	32
Z600	600	42
ZA095	95	7
ZA130	130	10
ZA155	155	11
ZA185	185	14
ZA200	200	15
ZA255	255	20
ZA300	300	23
ZF080	80	6
ZF100	100	7
ZF120	120	8
ZF140	140	10

*In triple spot test.

In addition to these coating thicknesses defined according to EN10346, the offering contains different asymmetric coatings, coatings with equal coating minimum mass per surface, and other OEM specifications that are available upon request.

Surface Quality

Normal surface (A)

Imperfections such as pimples, marks, scratches, pits, variations in surface appearance, dark spots, stripe marks and light passivation stains are permissible. Stretch levelling breaks or run-off marks may appear. Coil breaks and stretcher strains may appear as well. Surface quality A has a shiny appearance.

Improved surface (B)

Surface quality B is obtained by skin passing. With this surface quality, small imperfections such as stretch levelling breaks, skin pass marks, slight scratches, surface structure, run-off marks and light passivation stains are permissible. Surface quality B has a matte appearance.

Surface Treatments

In order to prevent formation of white rust during transportation or storage, the following surface treatments are available:

Chemical passivation (C)

Unless otherwise agreed, zinc and Galfan coated coils and sheets are delivered as chemically passivated. A thin passivation layer remains on the surface of the product. The purpose of this is to protect the coating against the formation of white rust during transportation and storage. This treatment is not sufficient, however, for protection under all conditions.

Oiling (O)

If required, oiling can be used instead of chemical passivation. Metal coated products to be painted are recommended to be delivered in oiled condition and therefore Galvannealed coated coils are delivered as oiled, unless otherwise agreed. The temporary corrosion protection provided by oil is especially dependent on storage time, and therefore long storage times should be avoided with oiled products.

Chemical passivation and oiling (CO)

Passivation with oiling is also available for maximum surface protection.

Unprotected (U)

In unprotected condition, i.e. without surface treatment, there is a risk for formation of corrosion products and scratches during transportation, storage or handling. The products are supplied without surface treatment only if explicitly required by the customer on its own responsibility.

General about surface treatments

All surface treatments are in accordance with RoHS directive (2011/65/EU) and do not contain Chromium VI (Cr^{6+}). Surface treatments provide only temporary surface protection during transportation and storage. White rust tends to form easily on the surface of bright, newly coated coils or in the space between tightly packed sheets if condensed water or rainwater collects on the surface and is not able to evaporate away quickly. In order to avoid white rust, care must be taken to keep the coated products dry during transportation and storage. Condensation may form between laps or sheets due to, for example, daily temperature changes or when bringing cold products into a warm building. If they become wet and white rust begins to form, they must be separated and situated so that they are dried quickly. This will prevent any further formation of white rust.

Contact Information

www.ssab.com/contact