



**Magnelis®**

**20 year warranty  
in Solar Applications**

ArcelorMittal Flat Carbon Europe S.A. provides this warranty to

**ArcelorMittal ESP**  
Twee-Molensstraat 8  
2440 Geel  
België

**Final Customer: Sunbeam BV / P.C. Staalweg 60 / 3721 TJ Bilthoven / The Netherlands**

hereafter referred to as the "Client"

relating to the quality of its Magnelis® ZM310-type coated flat carbon steel. Subject to the conditions of this document, this warranty covers the structural integrity, in other words the non-perforation and non-rupture due to corrosion, of Magnelis® steel sheet coated with 310 g/m<sup>2</sup>, used for solar applications, for a period of 20 years, from the date of shipping by ArcelorMittal FCE.

Date 10/12/13

ArcelorMittal Flat Carbon Europe S.A.

Frederic Vanvolsem  
Company Director  
W.H.  
The Client

Sandeep Arora  
(s).....  
Sandeep Arora / Jean Paul Ordoni  
Head of Product Marketing / Head of COE: Credit  
& Control / & Encashment

Jean Paul Ordoni  
(s).....  
M. Jansen

P. Wieriks

If the Client does not return the present document duly dated, initialled and signed by the authorised person(s) within thirty (30)-days at the latest of the date of its receipt, the terms and conditions of the present document shall be deemed to have been expressly accepted in full by the Client.

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R. W.

ArcelorMittal Flat Carbon Europe S.A. subjects its production to accelerated corrosion tests, the results of which act as a guide to continuously improve the quality of its products.

Since start of production, ArcelorMittal Flat Carbon Europe S.A. is taking samples and places them in exterior exposure sites. These samples are checked on a regular basis.

ArcelorMittal Flat Carbon Europe S.A. regularly inspects several objects constructed using Magnelis® in various climatic conditions.

ArcelorMittal Flat Carbon Europe S.A. runs quality assurance systems in line with the requirements of standard ISO 9000 in its production plants.

#### Extent of the warranty

1. ArcelorMittal Flat Carbon Europe S.A.'s liability in pursuance of this warranty shall be exclusively limited, at the choice of ArcelorMittal Flat Carbon Europe S.A., either to the cost of repairing the faulty parts or to supplying free of charge to the Client's facilities a sufficient quantity of material allowing the Client to manufacture components to replace those deemed faulty (cold formed sections, panels etc). The replacement products must be Magnelis® sheets of the same type and with the same specifications as the original sheets.
2. Under no circumstances shall ArcelorMittal Flat Carbon Europe S.A. be liable for labour costs or other costs incurred due to the faulty material, or for repairing direct or indirect damage caused by the faulty parts.
3. All warranty claims shall be sent in writing as soon as possible after the damage occurs to ArcelorMittal Flat Carbon Europe S.A., which shall be allowed to inspect the items deemed to be faulty. The Client shall detail in its claim the precise identification of the materials deemed to be non-compliant, including the order number, the invoice number, the coil number, the shipping date and the installation date.
4. The Client shall do everything possible to facilitate the inspection of the materials by ArcelorMittal Flat Carbon Europe S.A. and to limit building reinstatement costs.
5. This warranty is granted to the Client of ArcelorMittal Flat Carbon Europe S.A. and to the Client alone. It may only be transferred in the event of a change of control of the Client's company, and within 15 days of the change occurring. Only in this case may the remainder of the warranty be transferred to the Client's successor. The Client may not provide its own customers with warranties relating to the product sold by ArcelorMittal Flat Carbon Europe S.A. and which would exceed the terms of this warranty.
6. The warranty covers all products shipped from the date of signing of this warranty certificate. ArcelorMittal Flat Carbon Europe S.A. reserves the right to modify the terms of the warranty at any time, with the exception of sheets already delivered or orders already placed.
7. It is agreed that the warranty shall not apply in the event of damage caused during transportation.
8. In the event of a dispute resulting from or in connection with this warranty, the Courts of the City of Luxembourg shall have exclusive jurisdiction in relation thereto. This warranty is governed by Luxembourg law. Only the English version of this text shall be deemed authentic.

#### Application conditions

This warranty applies to all supporting structure of all solar applications, such as:

- sheets or other parts contributing to the roofing or cladding (being parts of the roofing or cladding e.g: trapezoidal sheets, corrugated sheets, tiles or sandwich panels) that will support the photovoltaic (PV) cells or panels,
- profiles between roofing and PV panels (connection parts),
- drawn sheets for water tight casing of thermal solar panels or casing to support PV panels and
- profiles for support of panels in solar energy generation plants.

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B. K.

1. This warranty is valid for 20 years when Magnelis® is used in areas more than 300 m up to 2,0 km from the seafront (C5-M as per EN ISO 12944-2), provided that the installation is not subjected to permanent spraying with fresh water or salt water.
2. Exposed to moderate corrosive emissions, in other words excluding those subject to the fallout of corrosive chemical products of any kind, smoke or rainwater containing carbon, deposits or particles of heavy metals such as iron or copper, alkaline products such as ash, cement dust or animal excrement.
3. This warranty on Magnelis® is not valid
  - for cold formed parts, from which water can not drain off freely,
  - for assemblies with other parts, which may contribute keeping pollution or humidity on the Magnelis® surface,
  - for assemblies where the Magnelis® surfaces are separated from each other or from surfaces made of other materials only by a thin gap or
  - in welded assemblies, when the distance from the welds is lower than 50 mm and where the weld seams are not protected after welding and regularly inspected,
  - in assemblies which involve adhesive bonding of Magnelis® to itself or other materials,
  - for posts, which are directly rammed into the ground and where the Magnelis® surface gets in contact with the soil and
  - for applications for the water circulating system of the solar equipment, including the storage tank.
4. The visual aspect of the cut edges and discolouration of the Magnelis® surface due to run off from cut edges or adjacent parts (made of any material) is not covered by this warranty.
5. This warranty against corrosion is not valid for areas with high abrasion (desert zones with strong wind and sand abrasion).
6. Installations of Magnelis® are to be inspected annually by the Client or its authorised representative. They are to be cleaned regularly and any accidental damage noted is to be repaired (scratches, dents etc.).

It may be agreed at the moment of inquiry and order that special precautions concerning inspection and maintenance have to be taken:

- All parts of the installation are to be inspected annually by the Client or its authorised representative and any accidental damage noted is to be repaired (scratches, dents, bulges, etc.)
- An annual maintenance of the entire installation in order to remove any deposit of dirt, leaves and other debris that can hinder the free discharge of water, and an additional washing of the internal and external parts of the installation is to be done. The Client or its authorised representative must check that the cleaning process and detergents used do not damage the Magnelis® coating.
- When agreed at the moment of enquiry and order, the Client shall be able to provide evidence of such inspection and maintenance.

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P. Hu

### Construction rules

To ensure the warranty applies, the following rules must be complied with in design of parts and during part making and installation.

1. Internal bending radii must be at least equal to twice the thickness of the sheet ( $r \geq 2 \times$  thickness).
2. The whole assembly shall be designed and placed so that there is no possibility of water or waste – organic or otherwise – stagnating on the Magnelis®, including right on the fixings and under the profile overlaps.
3. The slope of any surface shall be inclined at least 2 degrees in order to allow water drain off.
4. Fixings shall not contain any copper or lead parts in direct contact with the Magnelis® sheet, or any material liable to cause corrosive run-off onto the Magnelis® sheet. They shall be suitably shaped to prevent any local indentation of the Magnelis® sheets, which may prevent rainwater from draining off freely.
5. Forming shall occur without subjecting the Magnelis® sheet to high tensile stress or alternating bending stress.
6. Magnelis® parts that have sustained damage of a mechanical or chemical nature during forming, transportation, storage or assembly shall not be used. Parts that sustain damage after assembly shall be replaced before construction work comes to an end.
7. All contact with wet insulation materials, impregnated wood and other corrosive products is to be avoided.
8. After fitting, all tools, debris and miscellaneous items must be removed. Pencil or pen marks and any other type of marking must be removed.

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R. K.