



ArcelorMittal

Magnelis®

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

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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/m², used for solar applications, for a period of 25 years, from the date of shipping by ArcelorMittal Flat Carbon Europe.

ArcelorMittal Flat Carbon Europe S.A.

The Client

25 year warranty
in Solar Applications

Magnelis® - Date

If the Client does not return the present document duly dated, initialed 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.

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 production first began, ArcelorMittal Flat Carbon Europe S.A. has been taking samples and placing them in exterior exposure sites. These samples are then checked on a regular basis.

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

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

Flat Carbon Europe

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ArcelorMittal

Extent of the warranty

1. ArcelorMittal Flat Carbon Europe S.A.'s liability under this warranty shall be exclusively limited, at the discretion of ArcelorMittal Flat Carbon Europe S.A., either to the cost of repairing any 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 arising 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 structures for all solar applications, such as:

- sheets or other parts contributing to the roofing or cladding (being part 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),
- deep-drawn sheets for waterproof casings used for thermal solar panels or as support for PV panels, and
- profiles for support of panels in solar energy generation plants.

1. This warranty covers supporting structures situated in locations with a normal atmospheric corrosivity category (C1 ... C4 as per EN ISO 12944-2); in other words, excluding those in highly polluted areas or areas less than 2.0 km from the seafront and/or subjected to permanent spraying with fresh water or salt water (corrosivity category C5-I and C5-M as per EN ISO 12944-2).

This warranty is valid for 20 years when Magnelis® is used in areas more than 300 m and 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. This warranty covers supporting structures exposed to moderately 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, or 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 cannot drain off freely,
 - for assemblies with other parts, which may contribute to keeping pollution or moisture on the Magnelis® surface,
 - for assemblies where the Magnelis® surfaces are separated from each other, or from surfaces made of other materials, by only a narrow gap,
 - for welded assemblies, if a fault occurs within an area less than 50 mm from the welds and if the weld seams are not protected after welding and not regularly inspected,
 - for assemblies that involve adhesive bonding of Magnelis® to itself or to other materials,
 - for posts that are directly rammed into the ground and where the Magnelis® surface comes into contact with the soil, and
 - for applications involving the water-circulation system of solar equipment, including the storage tank.
4. The visual appearance of the cut edges and discoloration 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 locations exposed to high abrasion (desert regions with strong winds and sand abrasion).

6. Magnelis® installations 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 time of enquiry 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).
- The entire installation is to be annually maintained in order to remove any deposits of dirt, leaves and other debris that can hinder the free drainage of water, and the internal and external parts of the installation are to be given an additional wash. The Client or its authorised representative must check that the cleaning process and detergents used do not damage the Magnelis® coating.
- If agreed at the time of enquiry and order, the Client must be able to provide evidence of such inspection and maintenance.

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 ($r \geq 2 \times \text{thickness}$).
2. The whole assembly shall be designed and installed so that there is no possibility of water or waste – organic or otherwise – stagnating on the Magnelis®, including at the fastenings and under the profile overlaps.
3. The slope of any surface shall be inclined at least 2 degrees in order to allow water to drain off.
4. Fastenings 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 mechanical or chemical damage 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 timber and other corrosive products is to be avoided.
8. After fitting, all tools, debris and miscellaneous items must be cleared away. Pencil or pen marks and any other type of marking must be removed.