



Metal Frame Renovables, S.L.  
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# CERTIFICATE OF WARRANTY

Metal Frame Renovables (MFR) is a Mounting System supplier/provider which hereby ensure that its equipment have the following warranty certificate.

This document sets an agreement of certificate of warranty as they are shown in the present document.



The warranty of corrosion shall be:

DESCRIPTION	YEARS WARRANTY*	MATERIAL	OBSERVATIONS
Upper Parts	25	STEEL S350GD + ZM 3 10	Against corrosion
Ramming profiles	10	STEEL S355 + HDG	Against corrosion
Ramming profiles	10	STEEL S350GD + ZM3 10	Against corrosion
Screws	25	STEEL AISI 340 (A2- 70)	Against corrosion
Steel parts for Upper Parts	25	STEEL S350GD + ZM 3 10	Against corrosion
Deflector elements	25	DX5 1D + Z275	Against corrosion
Porticos (for canopies)	25	STEEL S275 + HDG	Against corrosion
Aluminum parts	10	ALUMINIUM EN AW 6005A T6	Against corrosion

### Rules

- Hot dip galvanised steel: 10 years.
  - Rules:
    - UNE-EN ISO 1471
- Deflector elements: 25 years.
  - Rules:
    - UNE-EN-10346
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- ZM Steel: 10 and 25 years (see attached table)
  - Rules:
    - DIN 55634-1:2018 and EN ISO 12944-1 and -2 of 2017
- Stainless steel: 25 years in screws, nuts and washers.
  - Rules:
    - DIN ISO 3506-4

\*Note: For categories C1, C2 and C3\_\_\_\_ according to standard EN ISO 12944

The warranty of mechanical properties shall be:

DESCRIPTION	YEARS WARRANTY	MATERIAL	OBSERVATIONS
Upper Parts	10	STEEL S350GD + ZM 310	Against mechanical properties according to harmonized standards
Ramming profiles	10	STEEL S355 + HDG	Against mechanical properties according to harmonized standards
Ramming profiles	10	STEEL S350GD + ZM3 10	Against mechanical properties according to harmonized standards
Screws	5	STEEL AISI 340 (A2- 70)	Against mechanical properties according to harmonized standards
Steel parts for Upper Parts	10	STEEL S350GD + ZM 310	Against mechanical properties according to harmonized standards
Deflector elements	10	DX5 1D + Z275	Against corrosion
Porticos (for canopies)	10	STEEL S275 + HDG	Against corrosion
Aluminum parts	10	ALUMINIUM EN AW 6005A T6	Against mechanical properties according to harmonized standards

From the provisional acceptance certificate, the under the following conditions:

- I. The guarantee will be applied to abnormalities that are attributable to deficiencies of materials, according to the technical requirements of the customer order accepted.
- II. The repairs in the product by supply fault are guaranteed for a maximum of six months from the invoicing date, concerning the technical specifications accepted in the quotation by the client.
- III. The guarantee will remain subject to check the correct maintenance protocols and installation by the customer.
- IV. If, according to this guarantee, MFR substitutes a faulty component, this component will remain in possession of MFR. Any substituted component will only be guaranteed for the remaining time from the initial guarantee, and in no case this time will be extended.
- V. Excluded expressly from the above guarantees following eventualities: Incidents resulting from improper use or installation of the equipment by the user. Management of the equipment or installation by the client or third parties, except when there is a written authorization, damage caused by external or meteorological factors (lightning, floods, overvoltages in the network, etc.). Realization of ditches or earth movements that can affect the structure's embedded foundation due to its proximity or depth.

Pedro José Fernández Izquierdo  
Manager of Metal Frame Renovables S.L.

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# ANNEX I

Each maintenance operation must be carried out by a qualified technician under the responsibility of the maintenance company.

This maintenance is mandatory during the warranty period of MFR, which at any time may request the maintenance history of each PV plant.

The preventive maintenance operations of the structure and joints are divided according to the frequency:

## MAINTENANCE

Maintenance operations, specifications and frequency are detailed below. Preventive maintenance operations have been divided into groups for a fixed solar structure:

- Maintenance of the structure and joints (25% of the structure randomly covering the entire project).

ELEMENT	OPERATION TO BE PERFORMED	FREQUENCY	RECOMMENDATIONS
STRUCTURE	Visual inspection for collisions	Annual	Collisions could be caused by collision, settlement, ground movement, etc. If so, take the necessary measures to avoid displacement in the pillars.
	Visual inspection for deformations	Annual	In case of deformations in the structure, the damaged elements must be replaced to avoid further deformations in the future. The reason for the damage will be verified.
	Rust inspection	Annual	Apply zinc-rich paint (minimum 90%) on rusty areas. The rusty surface must be sanded and cleaned beforehand. The final layer must have a minimum of 100 microns (verify with a micrometer).
	Checking the tightening torque	Semiannual	Para verificar el par de apriete y que las marcas de unión permanezcan alineadas.

## TOLERANCES

The mounting tolerances are as follows:

- Verticality of the pillar:  $\pm 2^\circ$
- "Table" tilt angle:  $\pm 1^\circ$
- Rotation of the pillar:  $\pm 2^\circ$
- Distance between photovoltaic modules:  $\pm 2\text{mm}$
- Torque:  $\pm 5\%$

The tolerances indicated in the plans are those generated during the design phase to facilitate assembly work and ensure the correct operation of the structure.