

Steel

The steel for PV mounting systems – ZM Ecoprotect® Solar

Zinc-magnesium-coated steels for long-lasting corrosion protection of high-performance supporting structures.

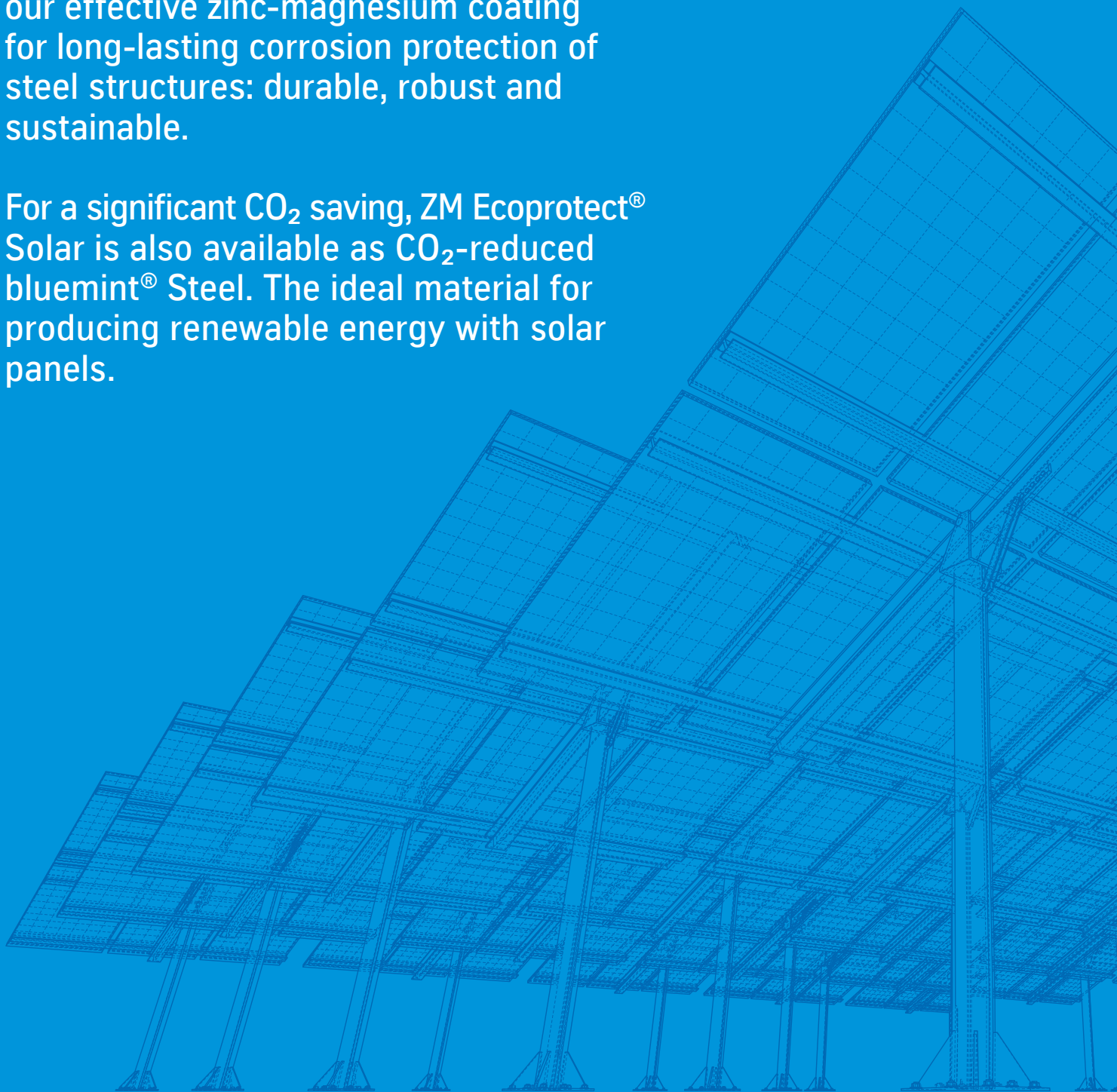


thyssenkrupp



Ground-mounted PV systems should be built solidly in order to generate green energy on a stable and sustainable basis: with high-quality coated steel from thyssenkrupp. ZM Ecoprotect® Solar – our effective zinc-magnesium coating for long-lasting corrosion protection of steel structures: durable, robust and sustainable.

For a significant CO₂ saving, ZM Ecoprotect® Solar is also available as CO₂-reduced bluemint® Steel. The ideal material for producing renewable energy with solar panels.



Lots of benefits. For system manufacturers, profilers and PV system operators.

ZM Ecoprotect® Solar for the exacting requirements of the solar industry: Excellent corrosion protection with 25-year warranty for substructures of solar installations. In addition, easy to process and environmentally friendly. The right profile for your PV project too.



Corrosion-resistant

- Better than conventional hot-dip galvanizing, even on cut edges, bend shoulders and drilled holes
- Highly weather-resistant, proven in salt spray tests and outdoor weathering tests
- 25-year warranty
- Approved by the DIBt (German Institute for Construction Technology)



Reliable process

- Excellent formability, ideally suited for roll forming
- Harder surface ensures less abrasion in the die
- Economical alternative to batch galvanizing

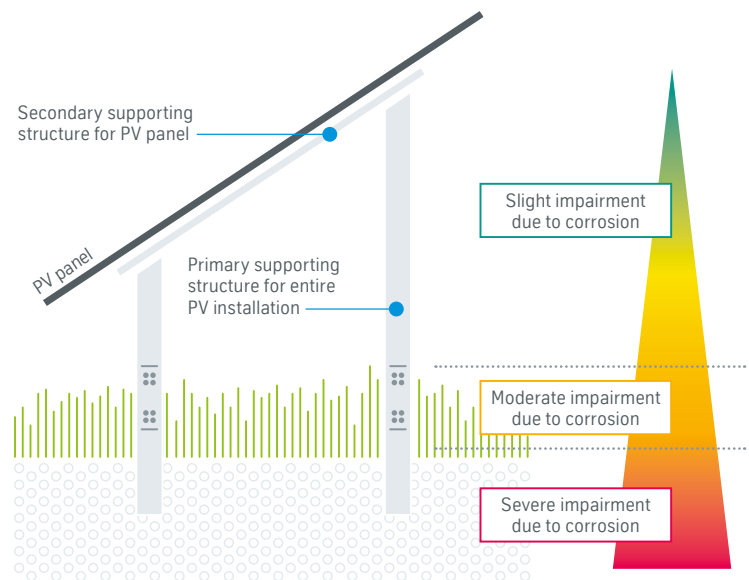


Sustainable

- Husbanding of resources by cutting down the use of zinc
 - 100% recyclable
 - Also available as bluemint® Steel for significant CO₂ savings
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Tested quality – optimum for durable PV substructures.

For long-lasting corrosion protection: ZM Ecoprotect® Solar offers the right grades and coatings for every application area of solar supporting structures.



In the secondary supporting structure, for example, we recommend using ZM Ecoprotect® Solar ZM310 with a guaranteed service life of 25 years*. For steel profiles without ground contact in the primary supporting structure, we also recommend a ZM310 coating – in general, each individual case should be checked separately because the corrosive loads are sometimes very different.

The excellent properties of our ZM coating are confirmed by the building regulations approval from the German Institute for Construction Technology (DIBt) and tests by the Karlsruhe Technologies Institute (KTI). For this purpose, an alternate climate test – among other procedures – was carried out on the coated steels to demonstrate the good corrosion resistance of the coatings.

➞ Classification of a solar supporting structure into different corrosive influencing zones



* The warranty is subject to project-specific conditions. Please contact us for specific recommendations regarding steel grade and coating or layer thickness.

Coating: zinc magnesium. Particularly effective outdoors.

ZM Ecoprotect® from thyssenkrupp has been the effective zinc-magnesium-based corrosion protection solution for many years already. ZM-coated steels are characterized by higher corrosion protection, economy and environmental friendliness, and benefit from excellent processing properties. Customers from the construction industry have been relying on the advantages of ZM Ecoprotect® for decades with their requirements for weather-resistant materials.

As of now, the proven coating is available as ZM Ecoprotect® Solar for steel substructures of solar installations – the application-optimized portfolio of coating thicknesses and dimensions will be continuously expanded in 2024.

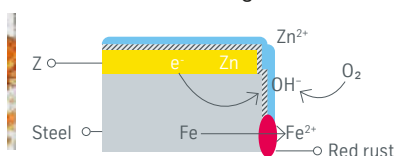
Outperforms normal zinc coating – and is more economical than subsequent batch galvanizing

ZM Ecoprotect® Solar is superior to pure zinc coatings. Due to the addition of magnesium, the application thickness can be significantly reduced compared to conventional zinc coatings. The coating provides equivalent corrosion protection and even better at the cut edges and drilled holes.

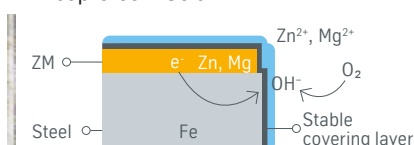
The reason: ZM Ecoprotect® Solar forms a particularly resistant and durable covering layer on the steel surface that protects the steel in corrosive atmospheres. This means the zinc-magnesium coating is ideally suited for steel structures in outdoor applications.

➡ Cut edge corrosion of ZM Ecoprotect® Solar and galvanized steel in comparison

Conventional zinc coating



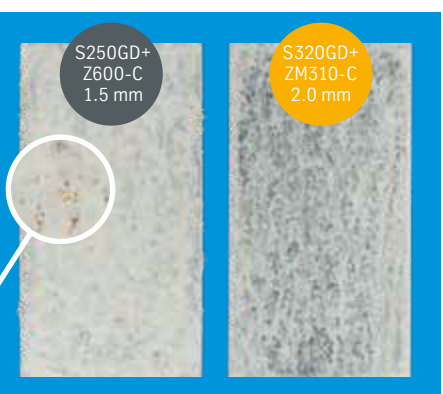
ZM Ecoprotect® Solar



Untreated steel corrosion behavior of passivated Z and passivated ZM sheet

Salt spray test according to DIN EN ISO 9227, test time: 2,016 hours
Significantly better resistance to basic material corrosion of ZM310-C compared to Z600-C, despite thinner coating

Occurrence of the first red rust spots on Z600-C after 1,728 hours in the salt spray test



Reliably available: ZM Ecoprotect[®] Solar – also as bluemint[®] Steel.

Hot-dip coated structural steel, DIN EN 10346

Steel grade designation	Coatings in g/m ²	Thickness ¹	Width ¹
		from_to in mm	from_to in mm
S220GD	ZM310, ZM430 ² , ZM620 ²	0.60–3.00	900–1,530
S250GD	ZM310, ZM430 ² , ZM620 ²	0.60–3.00	900–1,530
S280GD	ZM310, ZM430 ² , ZM620 ²	0.60–3.00	900–1,530
S320GD	ZM310, ZM430 ² , ZM620 ²	0.60–3.00	900–1,530
S350GD	ZM310, ZM430 ² , ZM620 ²	0.60–3.00	900–1,530
S390GD	ZM310, ZM430 ² , ZM620 ²	0.60–3.00	900–1,530
S420GD	ZM310, ZM430 ² , ZM620 ²	0.60–3.00	900–1,250
S450GD	ZM310, ZM430 ² , ZM620 ²	On request	On request
S550GD	ZM310, ZM430 ² , ZM620 ²	On request	On request

Available steel grades,
coatings and dimensions
for solar applications

Save CO₂ now!
Find out more: bluemint-steel.com



Mild steel, DIN EN 10346

Steel grade designation	Coatings in g/m ²	Thickness ¹	Width ¹
		from_to in mm	from_to in mm
DX51D	ZM310, ZM430 ² , ZM620 ²	0.40–4.00	900–1,600
DX52D	ZM310, ZM430 ² , ZM620 ²	0.40–4.00	900–1,600
DX53D	ZM310, ZM430 ² , ZM620 ²	0.40–4.00	900–1,600
DX54D	ZM310, ZM430 ² , ZM620 ²	0.40–4.00	900–1,600
DX56D	ZM310, ZM430 ² , ZM620 ²	0.40–4.00	900–1,600

¹ Not all thickness and width combinations possible.

² Coating on request. | Outlook: significantly expanded range of dimensions available in 2024.

Micro-alloyed steel, DIN EN 10346

		Thickness ¹ from_to in mm	Width ¹ from_to in mm
Steel grade designation	Coatings in g/m ²		
HX260LAD	ZM310, ZM430 ² , ZM620 ²	0.40–3.00	900–1,600
HX300LAD	ZM310, ZM430 ² , ZM620 ²	0.40–3.00	900–1,600
HX340LAD	ZM310, ZM430 ² , ZM620 ²	0.40–3.00	900–1,600
HX380LAD	ZM310, ZM430 ² , ZM620 ²	0.40–3.00	900–1,600
HX420LAD	ZM310, ZM430 ² , ZM620 ²	0.40–3.00	900–1,600

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thyssenkrupp – a partner
who understands its business.
And yours too.

Our goal is to advance your business – through sound advice, individual and innovative solutions that meet your specific requirements. We are able to do this because we have acquired a great deal of technical expertise over many years. Just like the way that we can put ourselves in your shoes. It allows us to develop a deep understanding of your business model. Our claim gets to the heart of the matter: “engineering. tomorrow. together.” After all, the closer we work together, the more likely it is that our solutions will have a successful future.



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