

Profil du Futur



Ground Mounted Structures

for solar plants

Profil du Futur Presentation

A GLIMPSE OF PROFIL DU FUTUR

- ↳ Market leader in Structures made of guaranteed cold rolled profiles for metallic construction



- ↳ Specialized in design, drawing & manufacturing load bearing units mainly designed for the building Industry.

- ↳ 30 years of experience



- ↳ 1 site in Colmar, France, with 13 000 SQM of building and ~100 employees



- ↳ ~25 m€ Turn Over yearly



MARKET : 4 types of application

INDUSTRIAL & COMMERCIAL BUILDINGS



RESIDENTIAL & TERTIARY BUILDINGS



STRUCTURAL COMPONENTS



SOLAR POWER PLANTS (PV, CPV & CSP)



OUR INDUSTRIAL PROCESSES

PROFILING

STAMPING

PUNCHING

CRIMPING

WELDING

SLITING



BENDING

NOTCHING

CLINCHING

CUTTING

CONNECTION



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ZOOM ON OUR SOLAR PLANTS BUSINESS



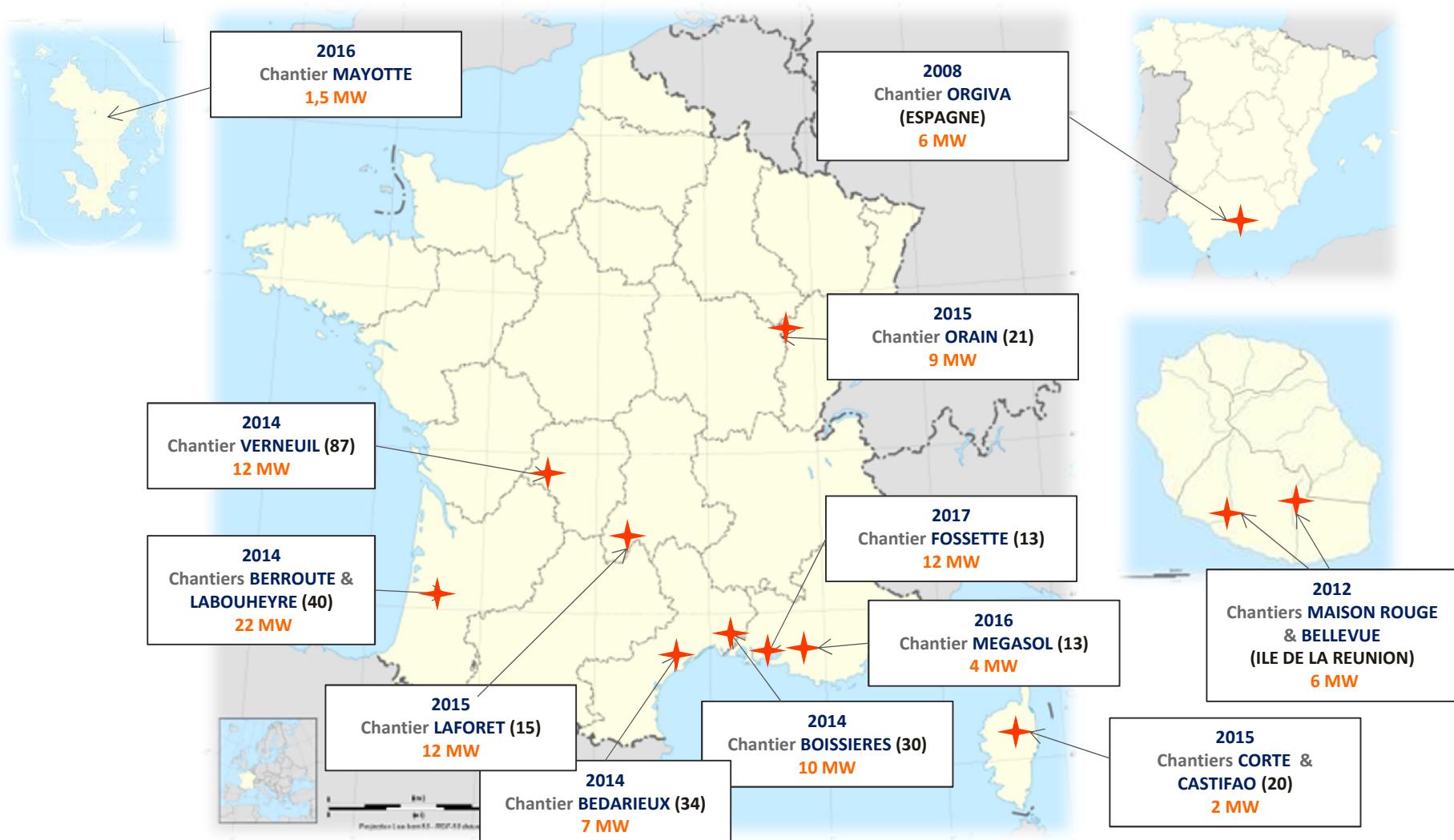
IN SPAIN...



IN REUNION ISLAND...



OUR RECENT PROJECTS

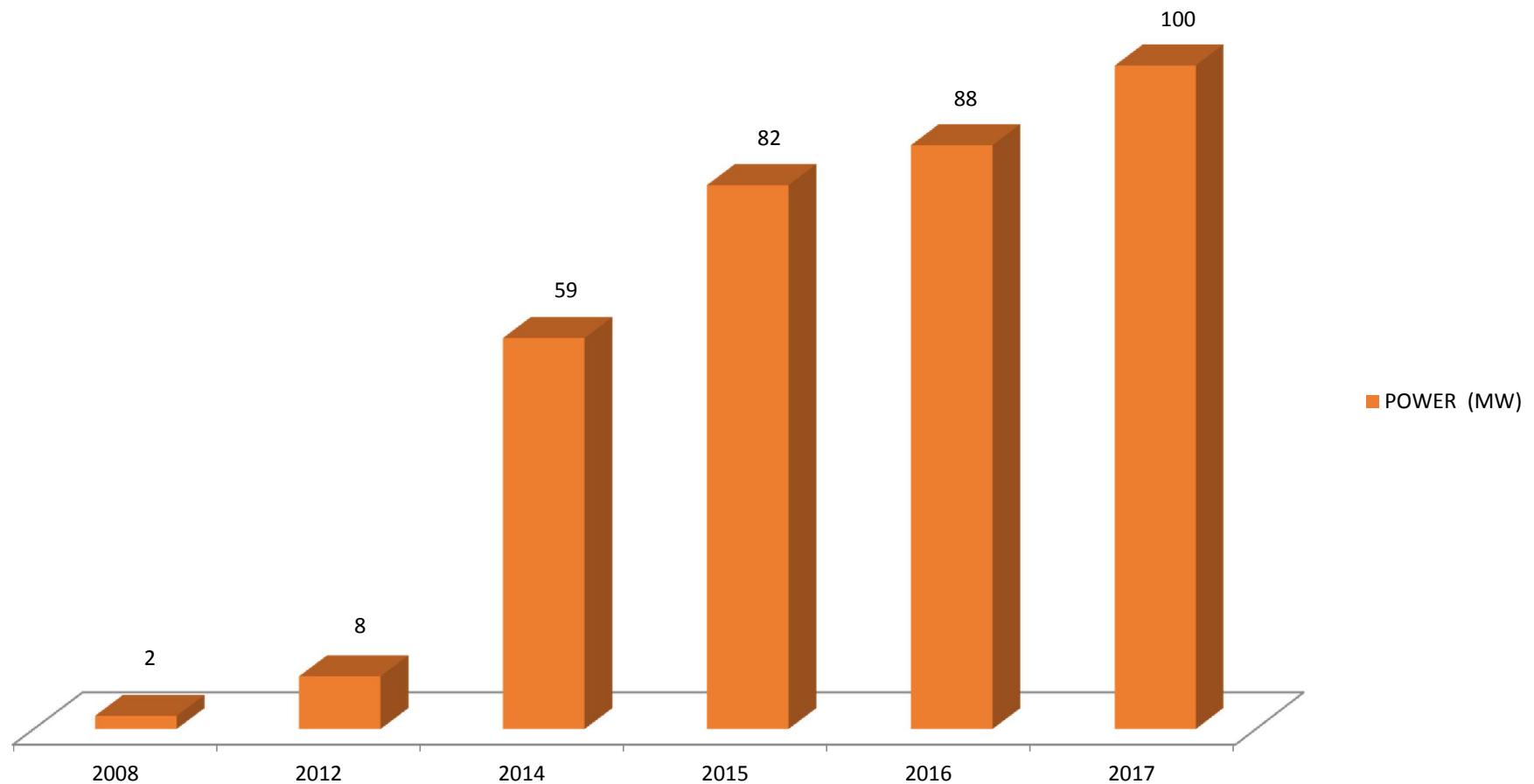




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OUR GROWTH

CUMULATED MW INSTALLED





STRUCTURES FOR SOLAR PLANTS : OUR KEY ADVANTAGE



1. AN INDUSTRIAL SYSTEM

- ↳ Based on a range of industrial profiles
- ↳ Designed & engineered for each project :
 - ✓ Calculation according to local codes (N&V, EU...)
 - ✓ Execution & installation drawings
- ↳ PDF : the French leader of engineered profiled structures
- ↳ 30 years of experience in metallic construction

2. UP TO 25 YEARS STRUCTURAL WARRANTY FROM ARCELORMITTAL GROUP

- ↳ Engineering according to Eurocodes or local rules
- ↳ Product warranty : Magnelis or Aluzinc coatings
- ↳ Certified by French control bodies
- ↳ High Strength Steels (S390)
- ↳ On-going CE-marking according to EN 1090





STRUCTURES FOR SOLAR PLANTS : OUR DIFFERENTIATION



3. ADVANCED TECHNICAL SOLUTIONS

- ↳ Optimized foundations adapted to each type of soils :
Rammed poles, specific anchored poles adjusted according to on site pulling tests.
- ↳ Structures adjustable in all 3 axis (X, Y, Z)

4. COMPETITIVENESS OF OUR SOLUTION

- ↳ Pre-coated profiles with ZINC MAGNESIUM instead of Batch-Galvanized poles: a breakthrough cost saving for foundations
- ↳ Industrial production lines with high capacities & weekly production scheme
- ↳ Expertise in structural design & optimization





STRUCTURES FOR SOLAR PLANTS : OUR DIFFERENTIATION



5. SHORT DELIVERY TIMES

- ↳ Coils storage at PDF
- ↳ Integrated supply chain with ArcelorMittal Flat Producer
- ↳ 3 shifts industrial production



6. SELECTED PARTNERS FOR INSTALLATION

- ↳ Ramming, Drilling
- ↳ PV Panels mounting

7. INTERNATIONAL PRESENCE OF ARCELORMITTAL

- ↳ Support of Solar projects globally through AM International Projects and AM Distributions centers for steel supplies
- ↳ Local presence in most countries



STRUCTURES FOR SOLAR PLANTS : SEVERAL SCHEMES FOR THE SCOPE OF OFFER



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❖ DELIVERED ON SITE, READY TO BE INSTALLED

- ↳ Execution drawings, prototype, on site support...

❖ DELIVERED & INSTALLED

- ↳ Subcontracted to selected partners
- ↳ Within a consortium of partners with :
 - ☞ One face to the EPC
 - ☞ Clear respective responsibilities
 - ☞ A legal framing, used in major construction projects





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STRUCTURES FOR SOLAR PLANTS : PROJECTS BEYOND EUROPE : LOCALIZING PART OF THE JOB

❖ PROFIL DU FUTUR

- ↳ Design (standard features)
- ↳ Engineering (adaptation to local requirements) : ✓ Foundations (site conditions)
✓ Upper structure : Calculation note (Euronorm or local rules)
- ↳ Manufacturing
- ↳ Supply chain
- ↳ Supervision & training
- ↳ Warranties
- ↳ Sales contract

❖ LOCAL

- ↳ Soil analysis
- ↳ Manufacturing (eventually partly through local partner)
- ↳ Installation (eventually common offer with local partner)
- ↳ Finishing (clips, accessoires...)
- ↳ Relation with local control bodies & offices

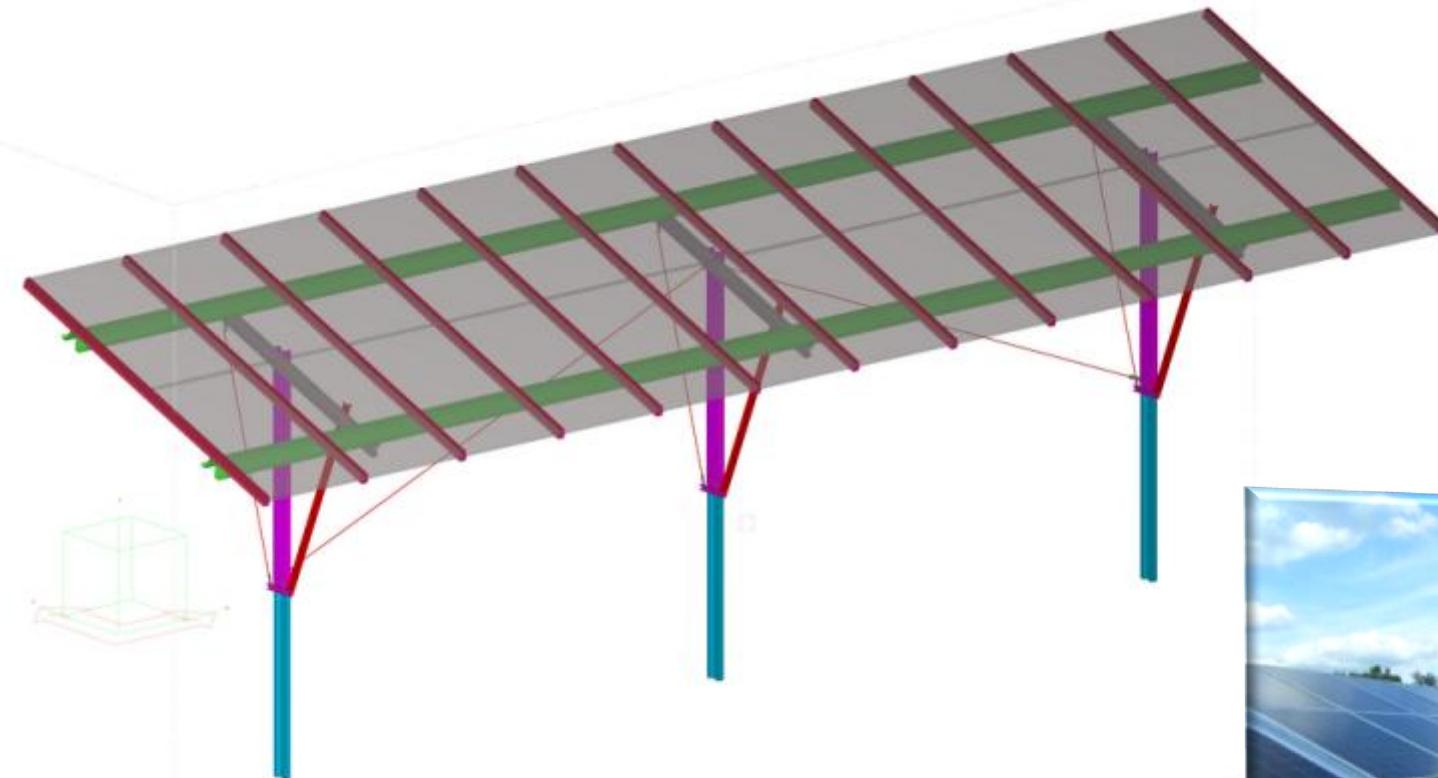




STRUCTURES FOR SOLAR PLANTS : TAILORED-MADE STRUCTURAL SOLUTIONS

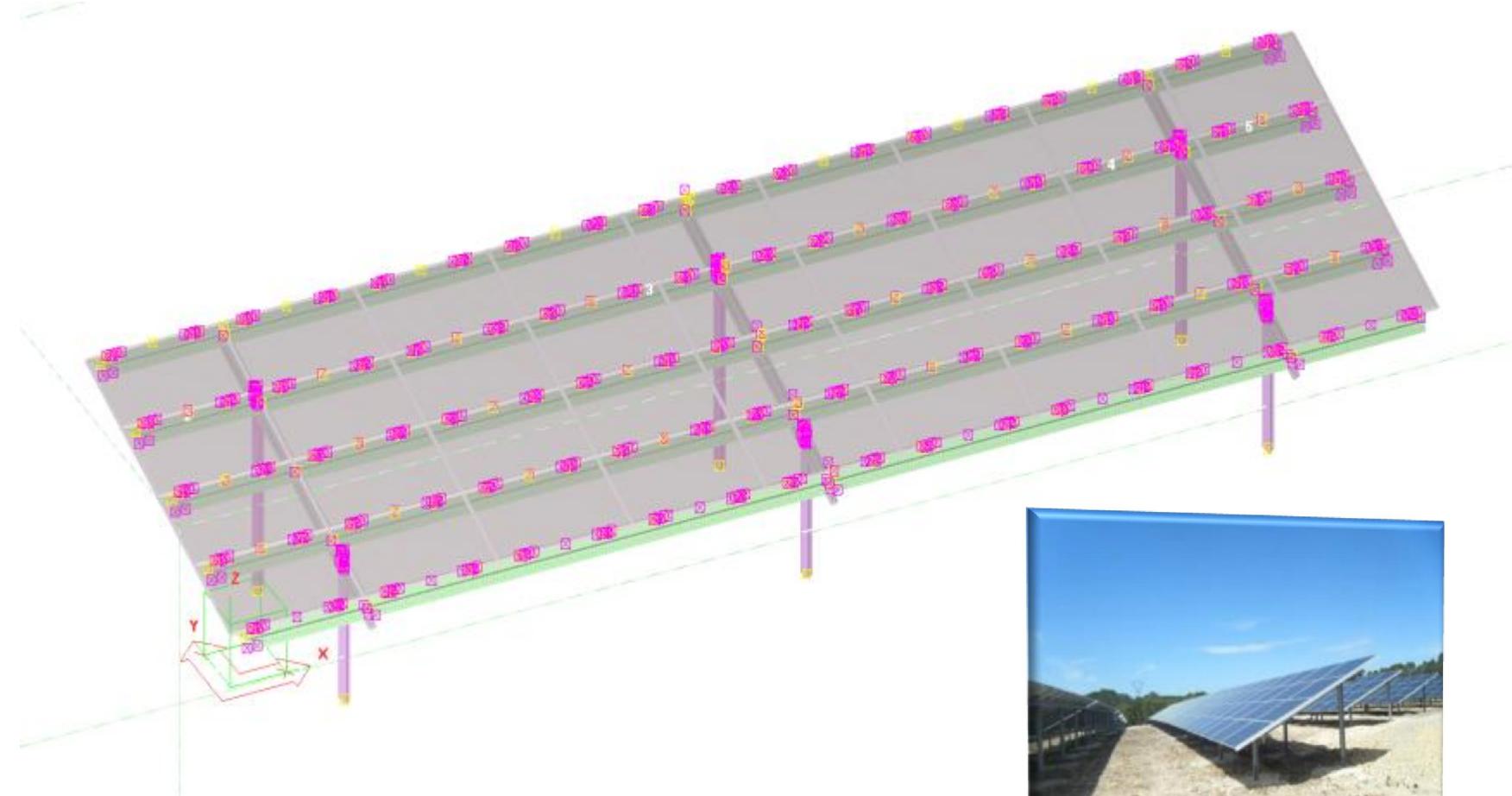


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STRUCTURES FOR SOLAR PLANTS : TAILORED-MADE STRUCTURAL SOLUTIONS

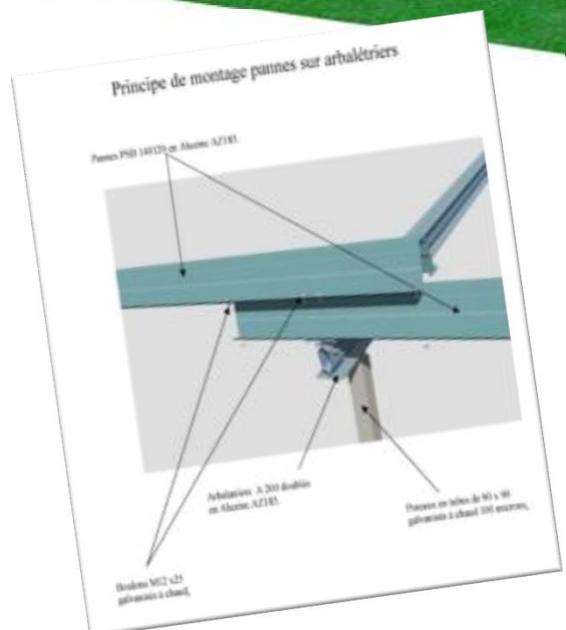




STRUCTURES FOR SOLAR PLANTS : PV MODULES IN LANDSCAPE (H) or PORTRAIT (V)

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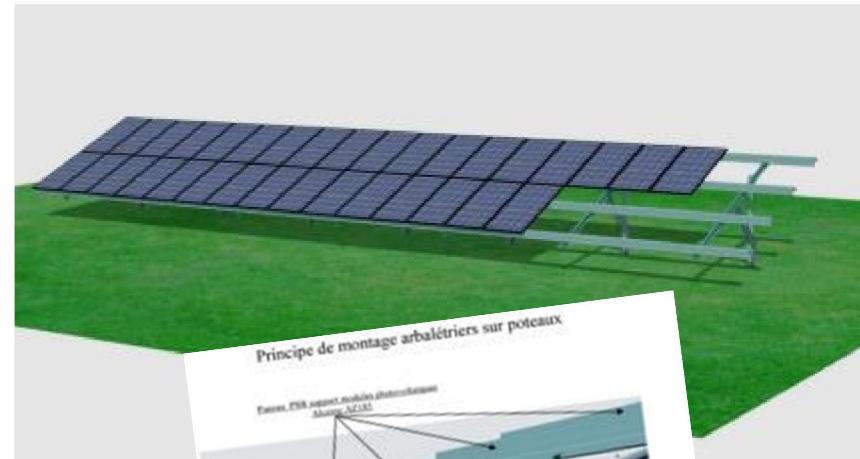
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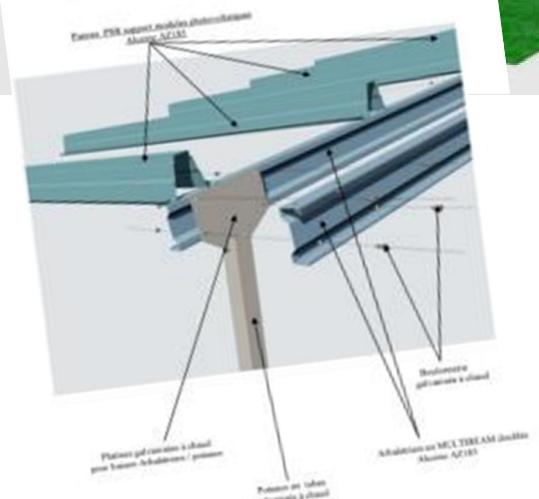
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Principe de montage arbalestiers sur poteaux





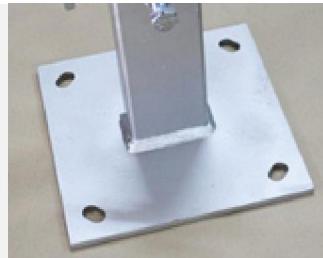
AGENDA



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❖ FOUNDATIONS ADAPTED TO EACH TYPE OF SOIL & CLIMATIC CONDITIONS

↳ RAMMED POLES



Slab support

↳ ANCHORED POLES for rocky or weak soils



↳ SINGLE or DUAL POLES according to climatic load

Rammed poles +
concrete



Rammed
poles

→ On-site pulling tests are a pre-requisite to determine the exact nature of soils and to finalize our offers



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PROJECTION ANTI-CORROSION : Magnelis® ZM310)

❖ IDENTITY CARD OF THE PRODUCT

- ↳ A metallic zinc coating with 3,5% Aluminium, 3% Magnesium
- ↳ ZM 310 : 25 µm/per side
- ↳ Thickness from 0,45 mm to 5 mm (upon request)
- ↳ Steel grades : DX51 D to DX57D
 HX 180BD to HX300BD
 HX180YD to HX300YD
 HX260LAD to HX420LAD
 S220GD to S390GD
- ↳ Certifications : - CSTB (France) C5M ZM310
 - SEW 022 VDEh (Germany- Karlsruhe)
 Under preparation



❖ WHY TO CHOOSE THE PRODUCT FOR SUCH APPLICATION ?

- ↳ Remarkable corrosion resistance
- ↳ Alternative to batch/post galvanized products in terms of weight and cost/no thermal deformation
- ↳ Availability in high thicknesses till 5 mm (upon request)
- ↳ Self-healing cut-edge protection
- ↳ Warranties depending the environnement ([link](#))
 - **Normal** rural/urban/industrial : 25 years warranty for non-perforation and non-rupture due to corrosion
 - **Severe industrial** : warranty length will be studied depending the severity of the location.
 - **Agricultural** : warranty length will be studied depending the chemical aggressivity inside the building.
 - **Seafront** : 20 years warranty for non-perforation and non-rupture due to corrosion.



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PROJECTION ANTI-CORROSION : Magnelis® ZM310

❖ CORROSION PERFORMANCES IN SALT SPRAY TEST ON FLAT SAMPLES

Plane surface (accelerated test)



Z after 6 weeks



ZA after 28 weeks



AZ after 34 weeks



Magnelis after 34 weeks

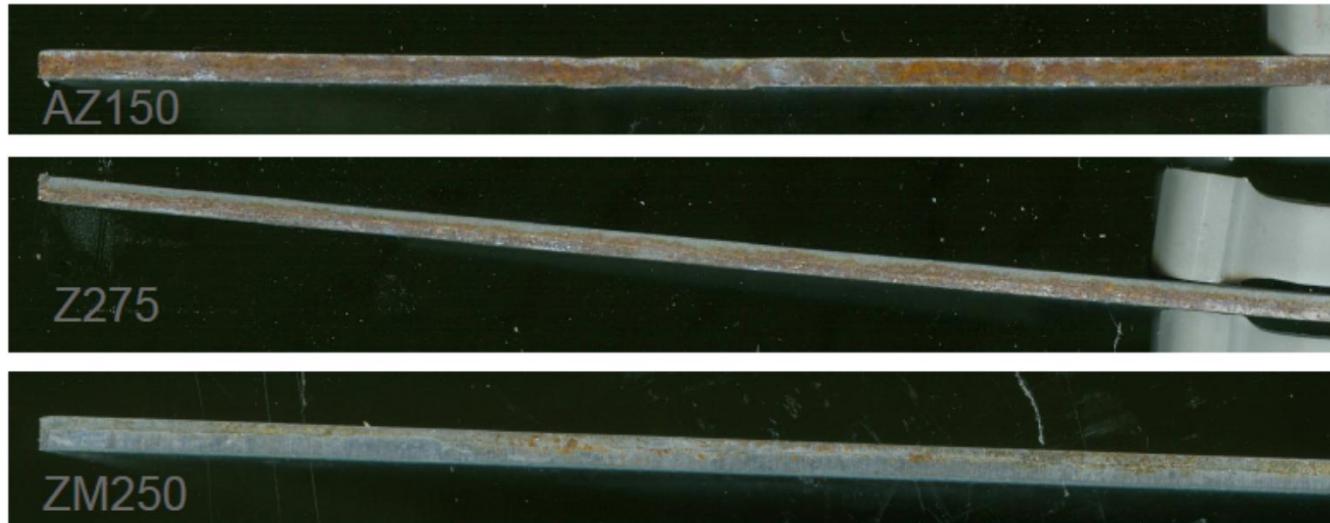


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CORROSION PERFORMANCE : Magnelis®

❖ EDGES BEHAVIOUR IN ZELZATE

Thickness : 2mm after 7 months



1. MAGNELIS EDGE CORROSION PROTECTION CLEARLY BETTER THAN ALUZINC & HDG
2. SELF HEALING EFFECT ALSO PRESENT IN C3M-C4 ENVIRONMENT



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CORROSION PERFORMANCE : Magnelis®

❖ CORROSION BEHAVIOUR ON DEFORMED AREA

On T-Bend area on Magnelis ZM 120

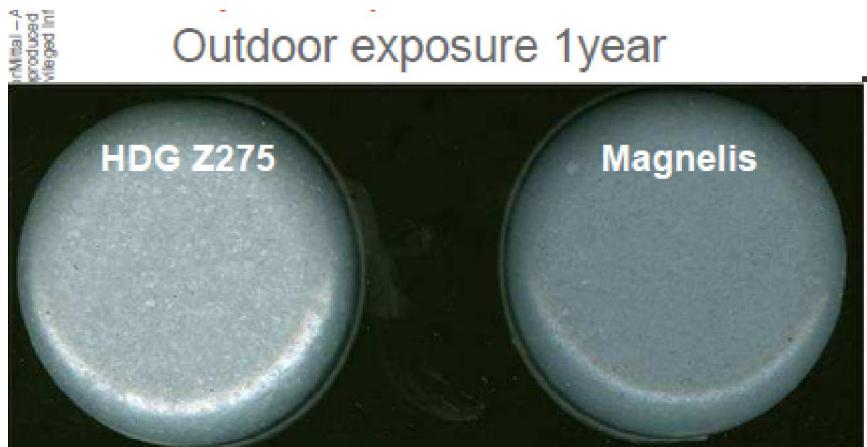


Outdoor exposure 1year

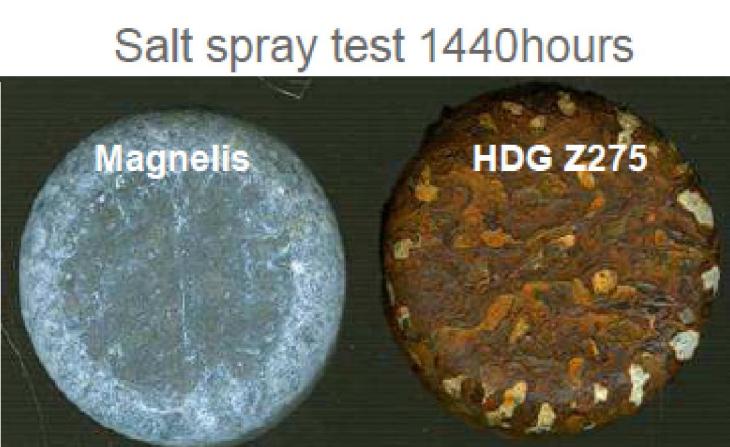


Salt spray test 4months

On cup sample



Outdoor exposure 1year



Salt spray test 1440hours



Ground Mounted Structures

for solar plants

OUR REFERENCES



STEEL STRUCTURE FOR SOLAR PLANTS



2014 : BOISSIERES in FRANCE (30) – 10 MW – Foundation : Slab support – Structure : dual poles





STEEL STRUCTURE FOR SOLAR PLANTS

2014 : BERROUTE & LABOUHEYRE in FRANCE (40) – 22 MW –

Foundation : Rammed poles – Structure : dual poles





STEEL STRUCTURE FOR SOLAR PLANTS



2014 : VERNEUIL in FRANCE (87) - 12 MW –

Foundation : Rammed poles + concrete – Structure : single pole





STEEL STRUCTURE FOR SOLAR PLANTS



2014 : BEDARIEUX in FRANCE (34) - 7 MW - Foundation : Slab support – Structure : dual poles





STEEL STRUCTURE FOR SOLAR PLANTS

2015 : LAFORET in FRANCE (15) - 12 MW - Foundation : Rammed poles – Structure : single pole





STEEL STRUCTURE FOR SOLAR PLANTS



2015 : ORAIN in FRANCE (15) - 9 MW - Foundation : Slab support – Structure : dual poles





STEEL STRUCTURE FOR SOLAR PLANTS



2008 : ORGIVA in SPAIN – 6 MW – Foundation : Rammed poles – Structure : single pole





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STEEL STRUCTURE FOR SOLAR PLANTS

2012 : REUNION ISLAND – 6 MW – Foundation : Anchored poles – Structure : dual poles



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PHOTOVOLTAIC ROOF ON FARM BUILDINGS



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PHOTOVOLTAIC ROOF ON PARKING SHELTERS

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