SOLAR MOUNTING PROFILES
FOR GROUND-MOUNT PHOTOVOLTAIC SYSTEMS

CERTIFICATES

TSE EN 13964

TSE EN 14195

TSE EN 14353

EPD BELGESİ

TSE K 236

EN ISO 1090

ECOVADIS

TS EN ISO 9001 - 2015

TS EN ISO 14001 - 2015

TS ISO 45001 - 2018

FAYDALI MODEL BELGESİ

certificates

ABOUT US

about us

1999

UMS Uğur Metal Sanayi took its first step in the sector **in 1999** by trading galvanized and painted galvanized sheet metal in Ankara Ostim OIZ. In a very short time, he managed to stand out in his own sector with his principled attitude and high-quality understanding.

2005

Expanding its volume in the sector with the investment decision taken in 2005, UMS established **the first and only Steel Service Center** in its region and provided fast, quality and solution-oriented services for the special size galvanized sheet requests demanded with its length cutting line, trapezoidal line and slitting line.

2006

UMS, which crowned the importance it attaches to quality by obtaining **TS EN ISO 9001** Quality Management Certificate in 2006, has become a Steel Service Center that makes a difference with its quality certificate.

2010

Starting its export adventure in 2010, it has managed to export to **more than 17 countries**, consisting of Europe, North Africa and Turkic Republics, especially Norway, Sweden, Denmark, France.

2013

Continuing its growth and development in the sector with its investments, **the company has become the fastest producer brand in Turkey** with the largest profile production capacity and producing gypsum and gypsum board profiles, exterior profiles and connection accessories with new production lines added to its body in 2013.

2018

In 2018, the company took new steps in terms of quality and received **TS EN ISO 9001** Quality Management System Certificate, **TS EN ISO 14001** Environmental Management System Certificate, **TS OHSAS 18001** Occupational Health and Safety Management System Certificate, **ISO 14025** and **TS EN 15804** Environmental Product Declaration (EPD) for Steel Profile and Accessories.

2019

In 2019, together with **Atılım University Material Forming and Excellence Center, UMS Power Ceiling Profiles**, which show an upper thickness performance in suspended ceiling systems compared to their counterparts, have been developed and started to be produced. The developed design has been registered by obtaining the Utility Model Certificate.

2020

In 2020, **UMS Reform Suspended Ceiling Profiles** with a completely new design and surface texture with new profile lines with emboss technology were developed and added to the product portfolio.

2022

In the ASO 2 region in Temelli, 38 production centers, 8000 m2 closed and 4000 m2 open, with a total area of 12000 m2, Turkey's largest and highest production capacity profile factory has been opened.

2023

UMS Light Steel Structural Profiles production was started based on the vision of "offering the most accurate structural solutions in accordance with Turkish and global standards with a competent design and detailing team in light steel structure manufacturing".

2025

UMS has started manufacturing ground-mounted solar profiles and accessories for solar power plants.

*Today, UMS continues its manufacturing operations with the same determination and commitment that have defined the company since its foundation. With an annual Steel Service Center (SSC) capacity of **120,000 tons, an annual production capacity of 150 million meters of steel profiles**, and state of the art production lines, UMS manufactures its products using galvanized cold-forming steels and galvanized non-alloy structural steels.*

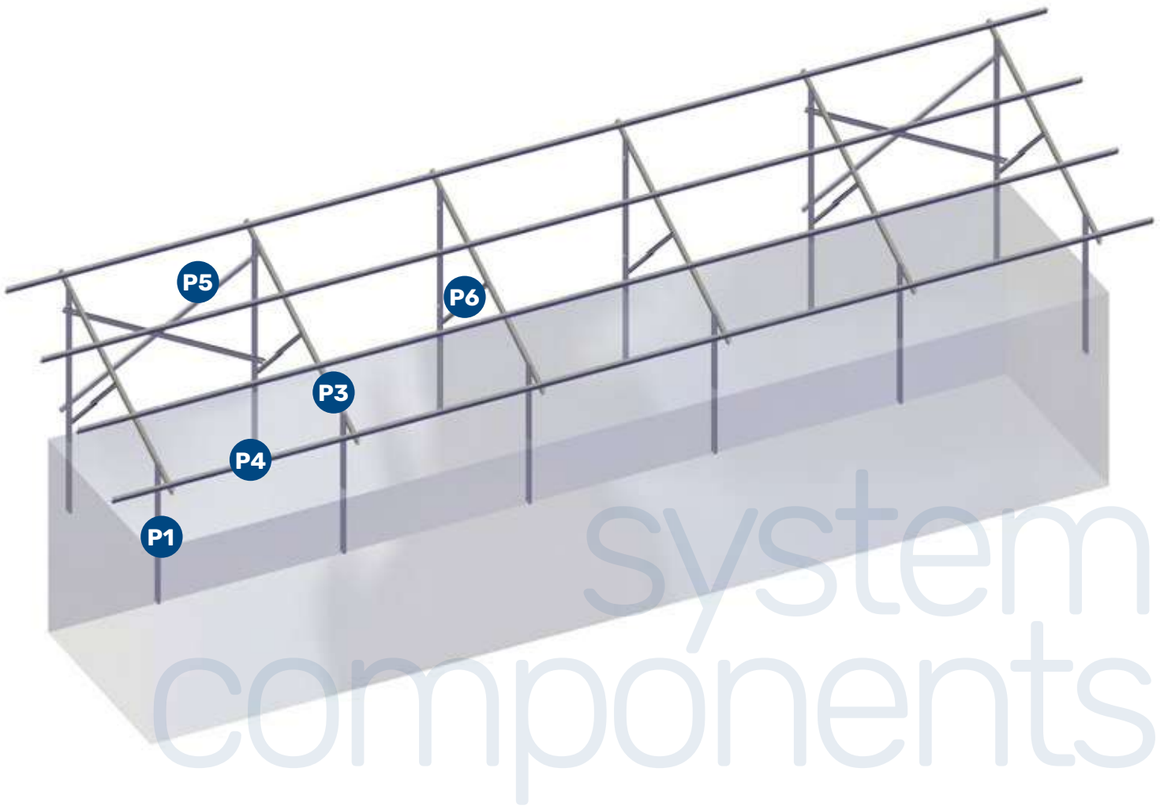
*Since entering the industry, UMS has built its reputation on customer satisfaction, after-sales service, quality, and reliability. Guided by its philosophy of always being **"One Step Ahead"**, the company continues to make a difference through innovation, advanced technology, and continuous improvement while steadily expanding its presence across its target global markets.*

What Are Solar Mounting Profiles?

Solar mounting profiles are the primary structural components of ground-mounted photovoltaic (PV) solar energy systems. They form the support structure that securely holds solar panels at the required angle and alignment.

Designed to withstand static loads as well as wind, snow, and seismic forces, solar mounting profiles safely transfer these loads to the foundation. This ensures the long-term durability, structural stability, and reliable performance of the entire solar mounting system.

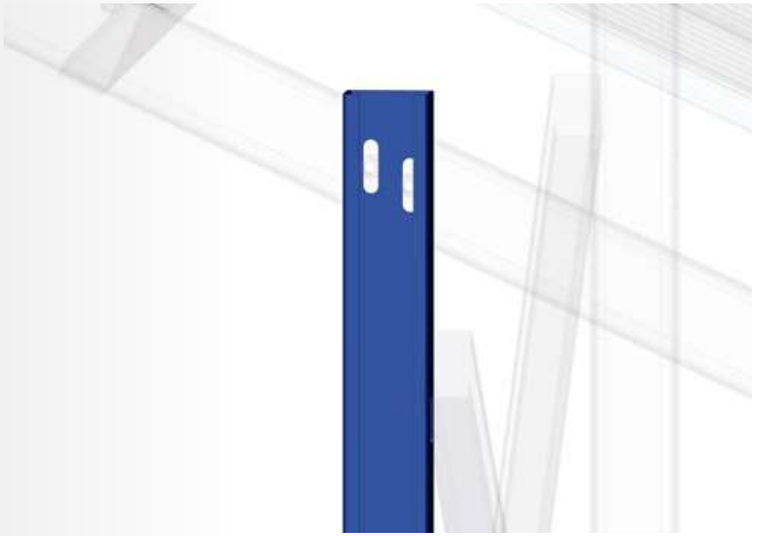
Metal Mounting System Components for Ground-Mount PV Systems



system components

From structural support profiles to installation accessories, we provide high-quality, fast, and sustainable solutions for your ground-mounted photovoltaic (PV) projects.

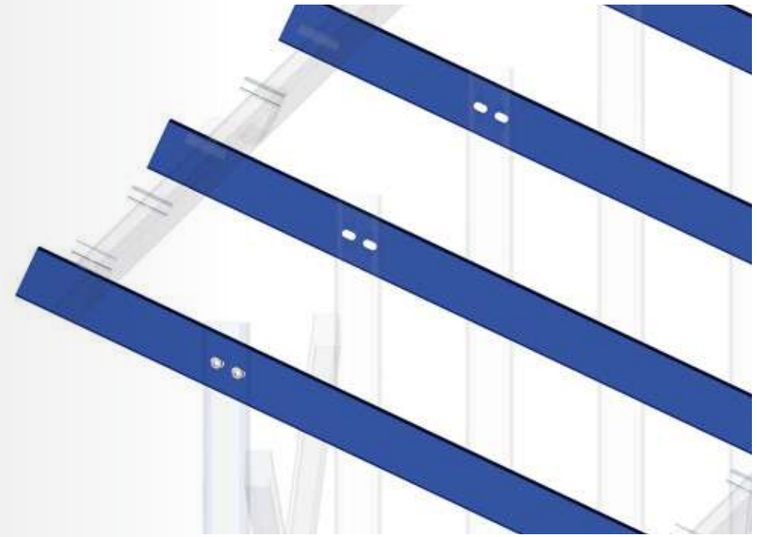
P1 Post



The P1 Post is the primary load-bearing component of the mounting structure. It is securely fixed to the ground using foundation anchors, embedded concrete foundations, or driven pile installation methods, transferring all vertical and horizontal loads from the structure safely to the foundation.

Typically manufactured from high-strength C-section steel profiles with a thickness of 3.0 mm, each post is engineered according to project-specific structural calculations, taking axial compression and bending loads into account.

P3 Beam



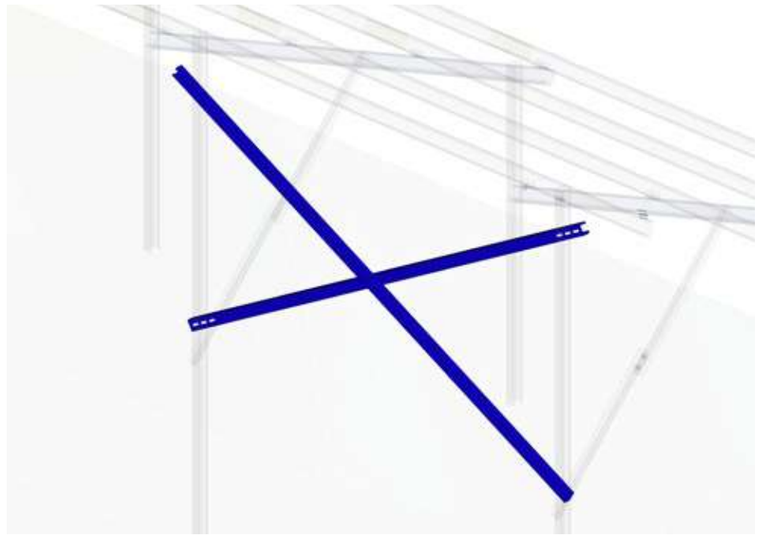
The P3 Beam is the main horizontal structural member, connected to the posts using bolts and nuts. It defines the system's tilt angle while transferring vertical loads from the upper structure directly to the posts, ensuring the overall structural integrity of the mounting system.

Depending on project requirements and structural load calculations, P3 Beams are typically manufactured from C-section steel profiles with thicknesses ranging from 2.0 mm to 2.5 mm.

P4 Purlin

The P4 Purlin is the secondary horizontal structural member that directly supports the solar panels, forming the upper framework of the mounting system. It provides the primary interface between the PV modules and the supporting structure while completing the modular support geometry.
Designed to distribute wind and snow loads evenly across the structure, the purlin transfers these loads safely to the main beams, contributing to the system's overall strength and stability.

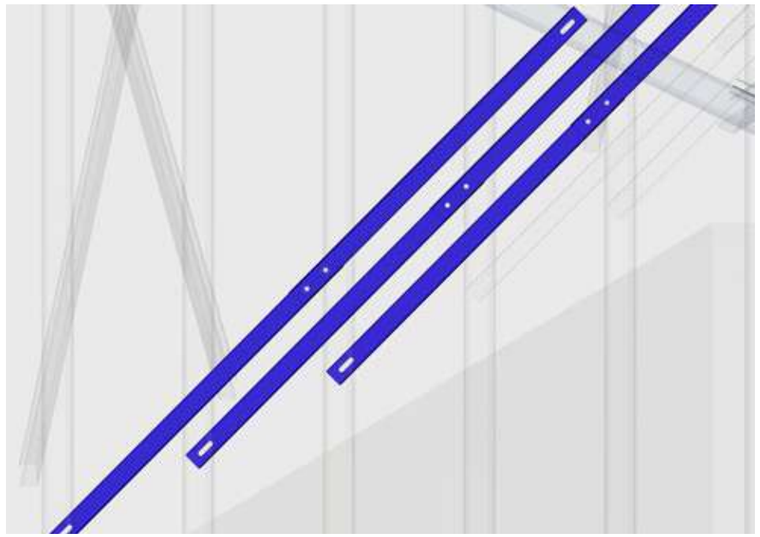
P5 Cross Brace



The P5 Cross Brace is a critical structural reinforcement component that maximizes the global rigidity of the mounting system. It provides essential stability under high lateral loads caused by wind and seismic activity.

By limiting structural buckling and lateral displacement, the cross brace preserves the geometric integrity of the supporting structure and enhances the long-term reliability of the system.

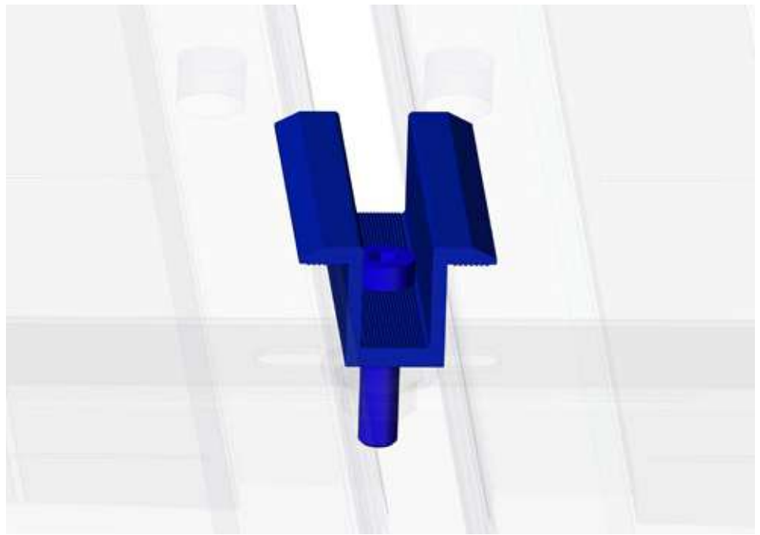
P6 Strut Brace



The P6 Strut Brace is an auxiliary structural member positioned between the beam and the post at a calculated angle to provide additional load support under compression.

It increases the overall load-bearing capacity of the structure while optimizing stress distribution across the primary members. By significantly reducing bending moments in the beams, the strut brace enables more efficient material utilization and improves structural safety. It also increases system rigidity and minimizes deflection under static loads.

P7 Accessories (Connection & Fastening Components)



Accessories are the auxiliary components used for assembling the mounting structure and securing the PV modules. These include:

- Bolts
- Nuts
- Washers
- Module Clamps
(Mid Clamps & End Clamps)
- Steel Clamps and
Splice Connectors
Bolts, nuts, washers, steel clamps, and splice connectors are protected with a corrosion-resistant hot-dip galvanized coating. Module clamps are manufactured from aluminum alloy compliant with **EN AW-6063 T66.**

Panel Configurations

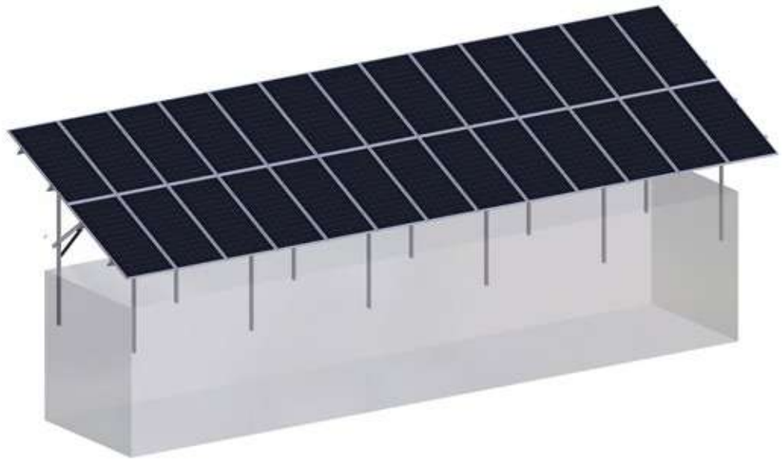
UMS

Portrait Panel Layout

In a portrait panel layout, photovoltaic (PV) modules are mounted on the supporting structure with their longer side aligned parallel to the tilt direction.

In this configuration, module loads are transferred to the primary structural system through purlins that are spaced more closely along the module's shorter side, ensuring efficient load distribution and structural performance.

portrait



Technical Features

- *Narrower support frame width*
- *Shorter purlin spans, resulting in:*
  - *Lower bending moments*
  - *Reduced profile section requirements due to lower moment of inertia demands*
- *More efficient transfer of wind loads to the primary supporting structure through a compact panel geometry*
- *Compatible with both single-post and double-post mounting systems*
- *Improved structural efficiency in medium and high wind regions*

Structural Performance

- *More controlled load transfer due to the modules being more closely supported along their shorter side*
- *Enables cross-section optimization of the purlin profiles*
- *Provides a more balanced load distribution to the supporting posts*
- *Facilitates better control of structural deflection*

The portrait layout offers a well-balanced and structurally optimized solution, particularly for achieving economical profile selection while ensuring efficient wind load management.

Landscape Panel Layout

In a landscape panel layout, photovoltaic (PV) modules are mounted on the supporting structure with their longer side positioned horizontally.

This configuration is commonly preferred for large-scale ground-mounted solar projects and installations with a high number of PV modules, where efficient space utilization and installation productivity are key considerations.

landscape

Technical Features

- *Wider support frame design*
- *Longer structural spans*
- *Increased bending moments*
- *Higher section strength and structural rigidity requirements*
- *Larger cross-section requirements for the primary structural profiles*
- *Compatible with double-post mounting systems*

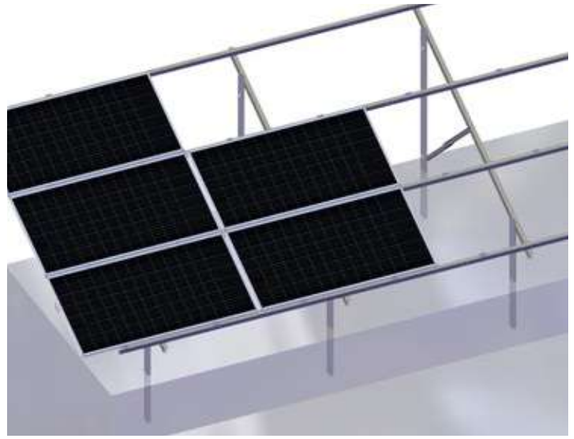
Structural Performance

- *Due to the longer spans of the supporting members, landscape layouts require higher structural strength. Profile sizing is therefore determined based on the increased bending moments and design loads.*
- *Provides advantages in structural continuity and installation efficiency for large-span, high-capacity solar projects.*
- *In regions with high wind loads, additional stiffening measures—such as extra connections, cross braces, or heavier profile sections—may be required to achieve the desired structural performance.*

The landscape layout is an ideal solution for utility-scale PV installations where maximizing field efficiency and maintaining structural continuity are primary design objectives.

Panel Layout Comparison

Criteria	Portrait Layout	Landscape Layout
Module Orientation	Long side positioned vertically	Long side positioned horizontally
Support Frame Width	Narrower	Wider
Structural Span	Shorter	Longer
Bending Moments	Lower	Higher
Profile Section Requirements	Optimized profile sections	Larger profile sections with higher rigidity
Required Moment of Inertia	Lower	Higher

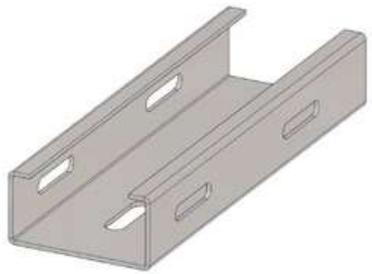


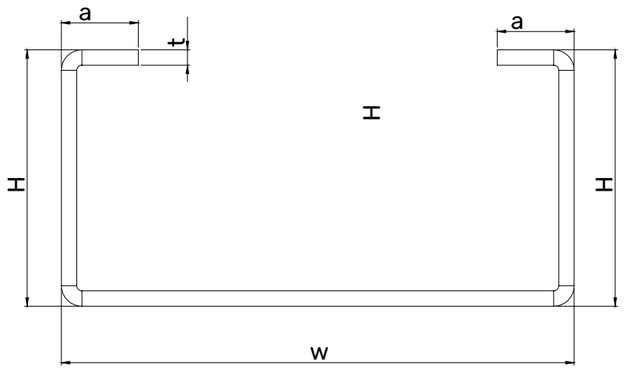
UMS Solar Mounting
Profiles & Accessories

UMS

Solar Profile Sections

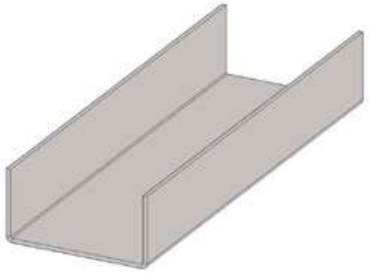
Solar C Profile





t (mm)	w (mm)	H (mm)	a (mm)
1,5≤t≤2,0	40-130	40-50	10-20
1,5≤t≤2,5	63-300	40-75	10-20
2,5≤t≤3,0	80-130	45-50	10-20

Solar U Profile



t (mm)	w (mm)	H (mm)
1,5≤t≤2,5	63-300	40-75
1,5≤t≤3,0	40-130	20-55

Accessories

Purlin Splice Connector

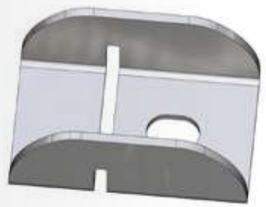
Description

The Purlin Splice Connector is designed to securely and rigidly join two purlin profiles of the same section in the longitudinal direction. It ensures structural continuity while providing reliable load transfer throughout the mounting system.

Technical Features

- *Typically manufactured with a U-shaped profile*
- *Provides secure load transfer through bolted connections*
- *Designed to transfer both bending moments and shear forces*
- *Maintains profile continuity across long structural spans*

Steel Clamp



Description

The Steel Clamp is a mechanical connection component used to secure the purlin system to the primary structural beam. It provides a safe and controlled load path between structural members operating on different planes, ensuring a rigid and reliable connection at the purlin-to-beam interface while maintaining the overall integrity of the mounting system.

Technical Features

- *Restricts sliding and displacement at the connection point*
- *Mechanically secures the purlin profile to the primary beam*
- *Compensates for minor alignment deviations that may occur during pile driving or installation*
- *Minimizes the effects of elevation differences during assembly*
- *Simplifies on-site alignment and positioning*
- *Helps maintain the structural geometry within the specified design tolerances*

Module Mounting & Connection Components

Mid Clamp

Description

Material: EN AW-6063 T66 Aluminum
The Mid Clamp is an intermediate fastening component used to secure two adjacent photovoltaic (PV) modules to the purlin profile. It provides reliable mechanical fixation while maintaining the required installation gap between adjacent modules.

Technical Features

- *Manufactured from extruded **EN AW-6063 T66** aluminum*
- *Excellent corrosion resistance*
- *Ensures uniform clamping force distribution between adjacent module frames*
- *Provides controlled torque transfer through bolted fastening*

End Clamp

Description

Material: EN AW-6063 T66 Aluminum
The End Clamp is used to secure the first and last PV modules in a module row to the supporting profile, ensuring a stable and reliable connection at the ends of the array.

Technical Features

- *Panel çerçeve kalınlığına uygun ölçü seçenekleri*
- *Yüksek sıkma dayanımı*
- *Modül kaymasını ve yer değiştirmesini sınırlar*
- *Panel dizisinin uç noktalarında stabilite sağlar*

Fastener Set

Description

Material: Stainless Steel (A2 / A4 Grades Available)
(The Fastener Set consists of bolts, nuts, and washers used to mechanically connect structural members and mounting accessories throughout the solar mounting system.

Technical Features

- *Ensures the safe transfer of tensile and shear forces*
- *Provides rigidity and stability at connection points*
- *Allows for secure, removable mechanical connections, simplifying installation and maintenance*

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EPD®
THE INTERNATIONAL EPD® SYSTEM

TSE
TSE EN 14353
TS EN 14195
TSE K 236

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