

Solar T-Slot Nut

--Product Description and Applications in Solar Brackets--

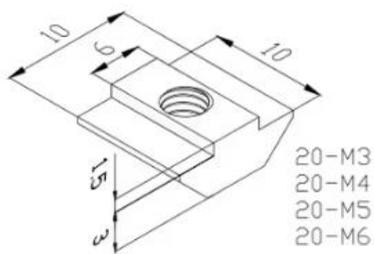
1. Product Description



1.1 Basic Parameters

Parameters	Details
Material	Predominantly made of 6005-T5 aluminum alloy with anodized surface treatment. Some supporting parts are made of 304 stainless steel, which combines excellent corrosion resistance and mechanical properties.
Specifications	Thread sizes range from M3 to M10, with M8 being the most widely used in the solar industry. It is compatible with various series of aluminum T-slot rails, such as 20, 30, 40 and 45 series.
Withstand Performance	It can resist wind loads of

	<p>up to 60 m/s and snow loads of up to 1.4 kN/m². The product generally comes with a 10-year warranty and a designed service life of 25 years.</p>
Appearance Color	<p>The standard color is silvery white. Custom colors are available from most manufacturers to meet specific customer requirements.</p>



1.2 Core Features

- Flexible Installation:** The nut can be inserted either from the end of the rail slot or slid directly into any position of the T-slot. There is no need for additional drilling or welding work, which significantly simplifies the installation process and allows for convenient adjustments during the setup and later maintenance stages.
- Strong Fastening Performance:** Many products adopt an exquisite structure like a ball-head mechanical design. When used with bolts, this design ensures full contact between the threads, forming a stable and firm connection. This effectively prevents loosening of solar components caused by long-term outdoor exposure to wind, vibrations and other harsh conditions.
- Customizable Adaptability:** Manufacturers can customize the nuts according to parameters such as the aluminum structure of the customer's solar bracket and the cross-sectional size of the rail. Corresponding design drawings can also be provided to ensure perfect matching with the customer's solar mounting system.



2. Applications in Solar Brackets

As an indispensable fastener in the solar bracket system, the Solar T-Slot Nut plays a crucial role in connecting various components of the bracket. It is well-suited for solar bracket installations in multiple scenarios, including rooftop and ground-mounted systems. The specific application scenarios are as follows:

- 1. Connecting Rails to Basic Components:** In both rooftop and ground solar bracket systems, the Solar T-Slot Nut works with basic components such as roof hooks and ground bracket bases. It firmly secures the aluminum rails that bear the weight of solar panels to these foundational structures. For instance, in sloped roof installations, it fixes the rails to adjustable tile hooks, making the system adaptable to roofs with different tile thicknesses.
- 2. Securing Solar Panels to Bracket Clamps:** It can be used in conjunction with middle clamps and end clamps to stably assemble both framed and frameless solar panels onto the bracket rails. By adjusting the position of the clamps through the nut, it can accurately match solar panels of various sizes, which is applicable for the installation of commonly used solar panels ranging from 100W to 200W and other power ratings.
- 3. Adapting to Special-Scenario Brackets:** It also performs well in special scenarios such as vehicle-mounted solar brackets. For example, it can fit into the T-slots of car roof racks, cooperating with the bracket to fix solar panels on the roof. This meets the solar power supply needs for outdoor activities like camping and long-distance trips. Moreover, it has passed vibration tests to ensure that the solar panels remain stable and do not loosen during vehicle operation.