

Polymers in Solar Mounting Applications – POWER MAX™

Lightweight, durable plastic composites are continuing to replace steel, aluminum, and fiberglass in the manufacturing of outdoor products. Innovative new developments and refinements have further expanded the performance spectrum of plastics in recent years, particularly for use in electrical and electronic components. Consequently, plastic components are becoming more common in PV solar mounting systems. As their popularity has grown, plastic components have been required to meet a variety of rigorous agency qualifications, which include well-defined, accelerated stress tests to assess long-term reliability. In addition to being capable of performing in harsh environments, plastic components provide several benefits for the solar installer. These include easier transportation and lighter lifting, no sharp edges, and molded-in features that reduce overall installation time and labor.

POWER MAX Plastic Ratings and Design

The POWER MAX mounting base is manufactured from an engineered polycarbonate (PC) designed for outdoor electrical, electronic, and telecommunication applications. The PC material features additive flame retardants and UV stabilizers and has been independently tested for fungus resistance, chemical stress cracking, and ultraviolet light resistance. The PC material is also pre-certified to several Underwriters' Laboratories (UL) and ASTM standards, including the following key elements:

<u>Property</u>	<u>Nominal Value</u>	<u>Test Method</u>
Flame Rating	5VA	UL 94
RTI (electrical, impact, strength)	115°C	UL 746
Tensile Impact Strength	211 ft· lb/in ²	ASTM D785

In addition, the POWER MAX base is designed with a higher strength 3/16" wall thickness, rounded corners to reduce potential stress cracking, and structural features for added strength.

POWER MAX™ UL 2703 Certification

The POWER MAX solar mounting system is UL2703 certified by Intertek laboratories, a third-party testing agency. The plastic base was subjected to and passed several mechanical and environmental tests that included the following evaluation.

- 50-Day Temperature Cycle
- 10-Day Humidity/Freeze Cycle
- Mechanical Load
- Fire - Class A

POWER MAX™ Mounting Base Internal Testing

Preformed Line Products operates a world-class laboratory and testing facility, located at its global headquarters in Cleveland, Ohio. Prior to launching any new product, PLP engineers conduct a series of strength, environmental, and electrical tests to confirm that the product's performance exceeds the application requirements. In addition to the required UL 2703 tests, the POWER MAX plastic base passed the following tests in PLP's labs:

<u>Internal Test</u>	<u>TR Number</u>	<u>Date Completed</u>
Tension Load tests	18097	7/24/17
Compression Load tests*	18172	5/18/17

*Testing results determined that the plastic base withstands 250 psf of downward pressure and 50 psf of upward pressure

Historical Field Experience

Preformed Line Products has a history of manufacturing products using the same polycarbonate (PC) plastic resin for other outdoor applications. Also since 1990, PLP plastic communication closures continue to outperform in demanding outside plant applications throughout the world. These products comply with strict Telcordia specifications that include impact, UV, and other environmental tests under the GR 771 requirements.

Additional Information

Please contact a PLP representative at 800-260-3792 or visit Preformed.com for additional information regarding the POWER MAX solar mounting system. Test reports are also available upon request.