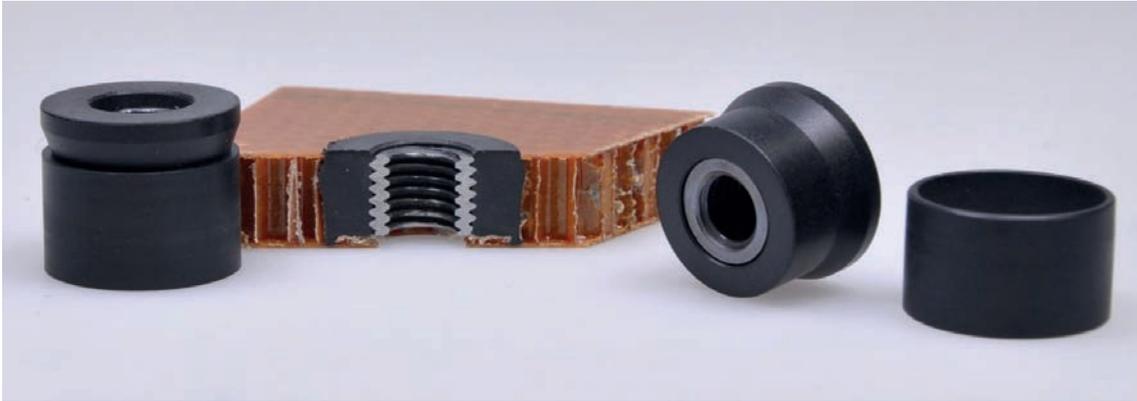


# LiteWWeight® Double Pin

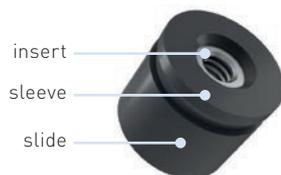


## WHAT IS MM WELDING®?

MultiMaterial-Welding (MM-Welding® in short) is a Fastening Technology Platform that uses ultrasonic energy to partially liquify thermoplastic materials to create a functional and strong connection within lightweight materials in fractions of a second.

## LITEWEIGHT® DOUBLE PIN FASTENER

This fastener is designed to realize fast and strong fixation that can be designed for plastic direct screws, with a metric internal thread or even with a through-hole. Fastener consists of a sleeve, as slide and optionally a metallic insert, which can be selected according to the application.

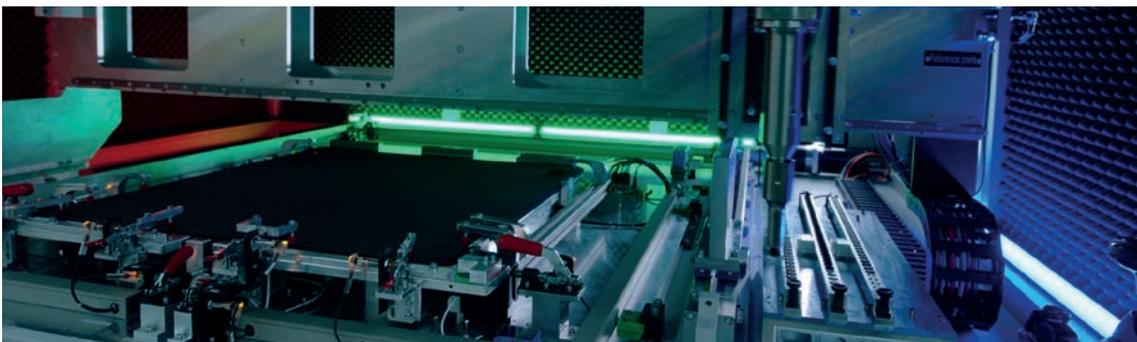


## ADVANTAGES

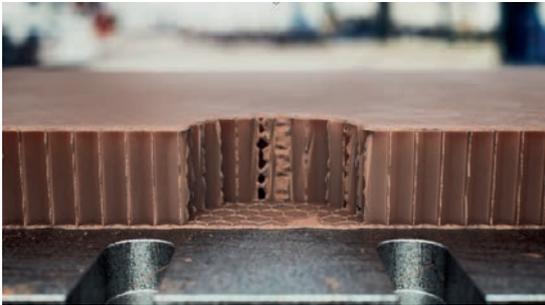
- High versatility: can contain a clearance hole, a threaded hole or a metallic insert (M3 to M8)
- Quick installation process time of < 0.7 seconds.
- High strength due to creating form lock to top-layer and conventional weld-connection to bottom-layer.
- Full integration in substrate possible.
- Pull-out forces of higher around ~ 2000N can be achieved through deep integration into HCB material.

## SERIAL PRODUCTION

To install the MM-Welding® fasteners, ultrasonic welding equipment is necessary, which is available through the MM-Welding® production systems. From stand-alone systems for small scale and flexible projects, up to massive serial production projects are available.



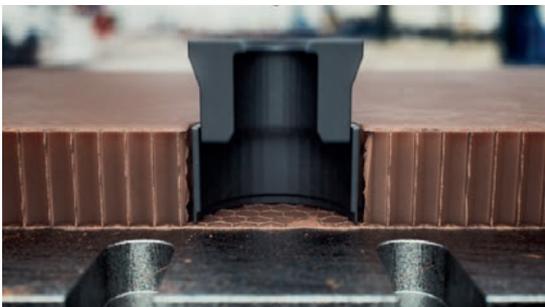
## INSTALLATION PROCESS



Position substrate material with the prepared hole.



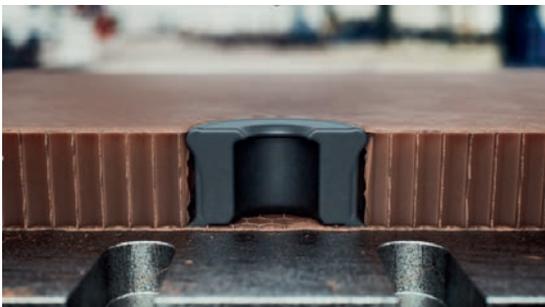
Insert the slide into the hole on the substrate material.



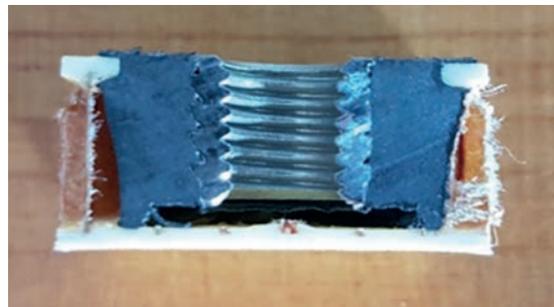
Position the sleeve with or without insert into the slide.



Apply MM-Welding process using ultrasonic energy to liquify the polymer and create a connection to both layers.



Fastener solidifies in fractions of a second. Strong form-lock connection is created.



The option of including a metallic inserts allows a strong dismountable connection.

## TECHNICAL INFORMATION

Diameter	16 mm (M4 to M5) / 20 mm (M6 and M8)
Substrate material thickness / Double Pin length	10mm to 30 mm
Pull-out resistance	Up to ~2000N dep. on substrate material
Torque Resistance	Up to ~30Nm dep. on substrate material

## DIFFERENT VERSIONS OF MM-WELDING DOUBLE PIN

Depending on the function required, the LiteWWeight Double Pin is also available in additional configurations.



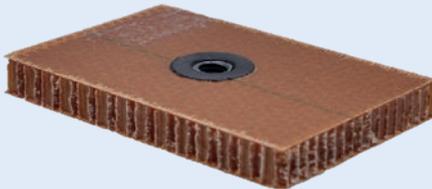
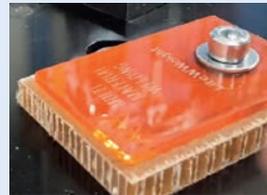
Allowing flush surface connection with conical screw heads

Including different metal inserts

Allowing a clearance hole (e.g. for cables)

## NOMEX HONEYCOMB PANELS FOR AEROSPACE APPLICATIONS

In aerospace Industry, certification is crucial for the acceptance of each part. The LiteWWeight Double Pin includes standard materials for aerospace, and is an ideal replacement for gluing where material content complicates the certification process.



## POLYPROPYLEN HONEYCOMB PANELS

Internal cavities of polypropylen honeycomb panels make it difficult to install standard connectors such as screws as they don't have a structure to hold on

to. The LiteWWeight Double Pin is designed to attach strongly to these type of material, and if necessary- allows the inclusion of a metallic thread.

