MULTI MATERIAL WELDING

KVT SOLUTIONEERING
A BOSSARD COMPANY

BOSSARD

MULTIMATERIAL-WELDING®
THE TEAM

MULTI MATERIAL WELDING®

KVT SOLUTIONEERING
A BOSSARD COMPANY

BOSSARD
Proven Productivity

- ***WoodWelding®*** & ***BoneWelding®*** established Since 2016 ***MultiMaterial-Welding®***
- Tech-related Engineering Team (13 Engineers in CH)
- Technology development of joining platform for lightweight constructions within the mobility world

- ***Bossard*** is a leading international supplier of product solutions and services in industrial fastener technology
- 800 Mio. € turnover in 2019
- Approx. 2500 employees in 80 locations
- Focus on productivity increase and service provision

MULTIMATERIAL-WELDING®
TECHNOLOGY DESCRIPTION

MultiMaterial-Welding

(short MM-Welding®)

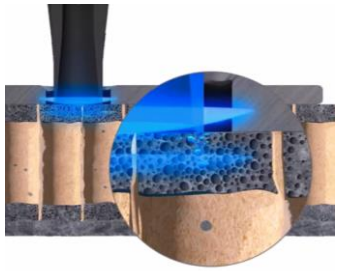
Fastening solution that uses **ultrasonic energy** to partially melt **thermoplastic materials** into **porous materials** to create a functional and strong **form-lock connection** in fractions of a second.

MULTIMATERIAL-WELDING®
FASTENER INSTALLATION PROCESS

1

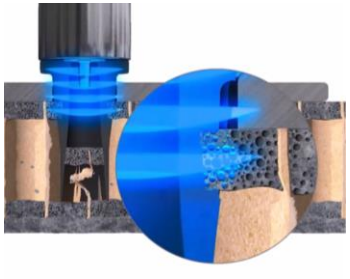
- Set welding **parameters**
- **Position and fix** parts

2



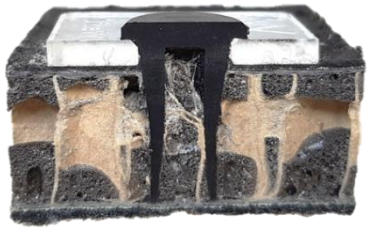
- Activate **vibration** (high frequency)
- **Press fastener** against parts
- **Pierce top layer** through ultrasonic movement

3



- Quick **melting** of fastener's surface through friction
- Quick **solidifying**

4



- **Mechanical form-lock** connection

MULTIMATERIAL-WELDING®
A WHOLE NEW PLATFORM OF JOINING TECHNOLOGIES

LiteWWeight

Fasteners melt into materials

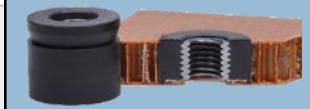
InWWerse

Materials melt into the fasteners

MULTIMATERIAL-WELDING®
A WHOLE NEW PLATFORM OF JOINING TECHNOLOGIES

Pin

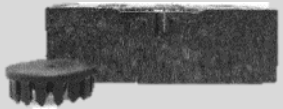
Double Pin



Fastener

Lotus

zEPP



Disc

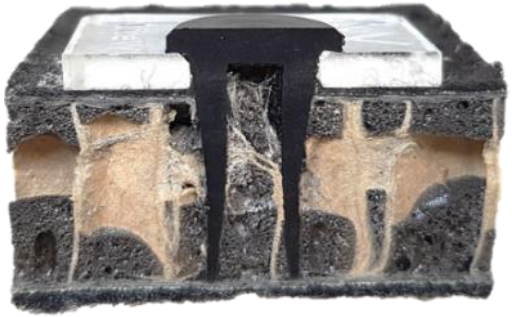
MULTIMATERIAL-WELDING®
LITEWWEIGHT™ – PIN

Pin

For sandwich structures with ***honeycomb*** core.

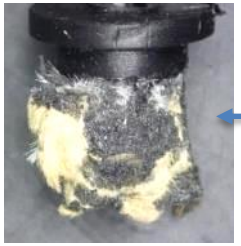
Micro ***form-locking*** bond creates highly reliable connections.

- ✓ No pre-drilled hole is necessary
- ✓ Very fast installation time **(< 1sec)**
- ✓ Connection can be a **multi-functional** element



MULTIMATERIAL-WELDING®
LITEWWEIGHT™ – PIN

Pin

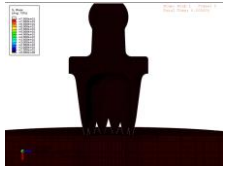


10mm
Diameter
= **1** kN pull-out

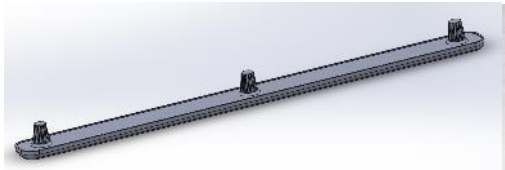
Based on common US processing principles and hence uses available machine technology

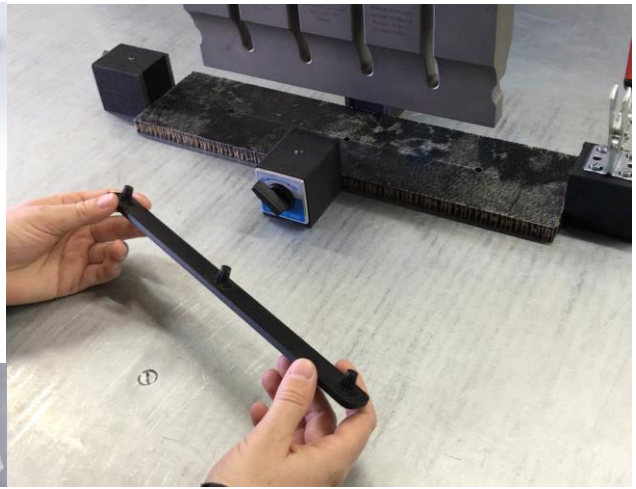
- ✓ **Very quick** processing allows reduction of welding units
- ✓ 1 US horn design for several connection pins
- ✓ **Very strong** connection allows design optimization

MULTIMATERIAL-WELDING®
FUNCTIONALLY INTEGRATED PARTS (F.I.P.)



- ✓ **Geometric Simplification:**
  Connection geometry can be integrated into the part to connect.
- ✓ **Size freedom:**
  Size Large / long geometries possible.
- ✓ **Form freedom:**
  No rotational symmetry required.
- ✓ **Higher Strength:**
  With less material, higher strength can be achieved.
- ✓ **Reduced costs:**
  Less parts and quicker production.

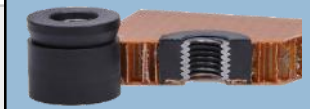




MULTIMATERIAL-WELDING®
A WHOLE NEW PLATFORM OF JOINING TECHNOLOGIES

Pin

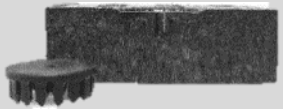
Double Pin



Fastener

Lotus

zEPP



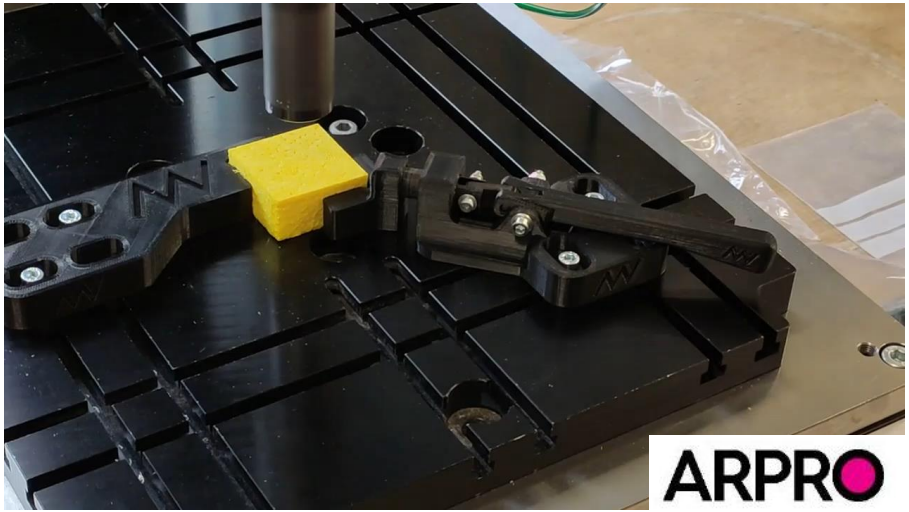
Disc

BOSSARD

MULTIMATERIAL-WELDING®

ZEPP – THE NOVEL SOLUTION FOR EPP AND SIMILAR FOAMS

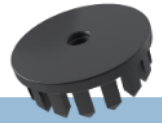
zEPP



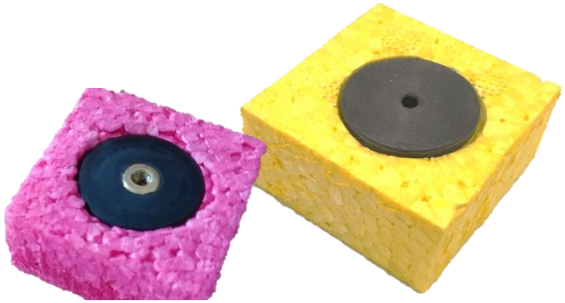
Engineered for **EPP** and similar foams. Can be applied at a wide range of **foam densities**.

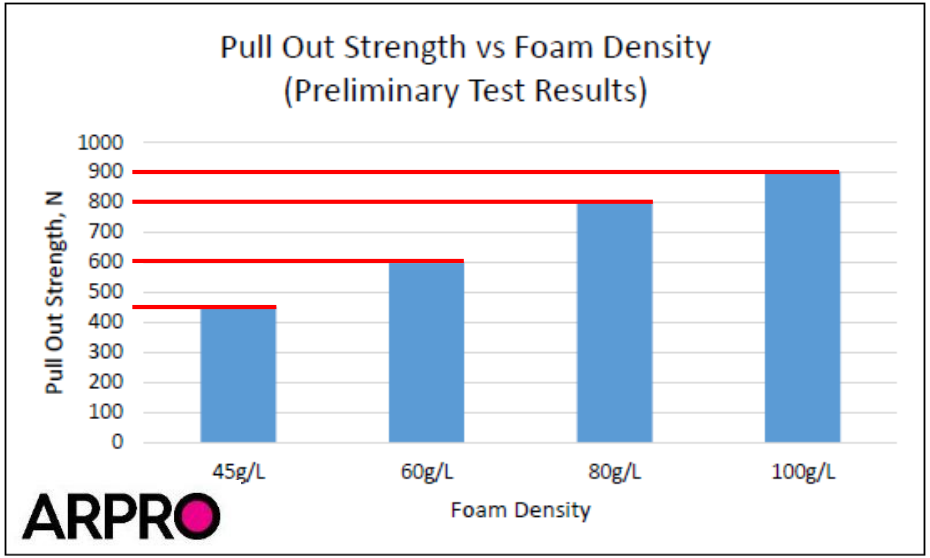
- ✓ Quick processing without pre-operation
- ✓ Can be fully integrated into EPP surface
- ✓ Low stature of fastening element but **high-strength** connections

MULTIMATERIAL-WELDING®
LITEWWEIGHT – ZEPP



- ✓ **Strong** connection point for direct screwing operations
- ✓ Deep penetration and **anti-turning** geometry enables high pull-out and torque-load ability
- ✓ Also with integrated **metric thread** system for reliable re-assemblies

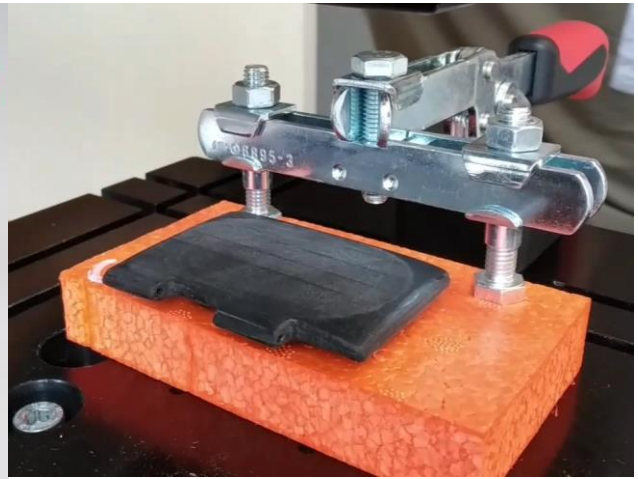




MULTIMATERIAL-WELDING®
LITEWWEIGHT – ZEPP AS F.I.P.

Functionally integrated parts (FIP) possible.

- ✓ No separate fasteners
- ✓ **Less materials**, less parts and therefore → less costs!
- ✓ **Simplified installation process**
- ✓ Better aesthetics!



BUSINESS MODEL
INTEGRATED SOLUTION

MULTI MATERIAL WELDING

Technology Development

- Software Development
- Product Engineering Design
- Technology Development
- Intellectual Property

Selected Partners

- Ultrasonic Equipment
- Automation Equipment

KVT BOSSARD

Integrated Solution

- MM-Welding Fasteners 
- MM-W Production Systems 
- Quality Control & Lifecycle Services 

Customers




KVT SOLUTIONEERING
A BOSSARD COMPANY

Join innovation.

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