

Sealing, Casting & Bonding Battery Packs With Material & Machine from RAMPF

Foam gaskets, electro casting resins, and process automation for ultrafast production at Battery Show Europe 2022

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Page 1 of 4

Grafenberg, Germany, June 14, 2022. Electro casting resins and foam gaskets ensure battery packs offer optimum performance, reliability, and durability, while fully automated production systems guarantee for ultrafast, high-precision production processes. Come and visit RAMPF at Battery Show Europe 2022 in Stuttgart from June 28 to 30 – Booth 8-A32 / Hall 8!

Sealing battery packs with foam gaskets from RAMPF Polymer Solutions



Liquid to highly thixotropic and compact gaskets based on polyurethane and silicone offer maximum and long-term protection against moisture, dust, and chemicals.

Polyurethane foams developed specifically for battery packs:

- > RAKU[®] PUR 32-3296 and RAKU[®] PUR 32-3250-60 (flexible foams) combine very good chemical resistance, excellent mechanical strength, and high (long-term) temperature resistance. They also impress with low water absorption and fast curing.
- > RAKU[®] PUR 34-4036 (rigid foam) combines good flame retardancy, very low viscosity, and low foam weight. The gasket also exhibits very good chemical resistance and excellent adhesion properties.

Silicone systems developed specifically for battery packs:

- > RAKU[®] SIL 37-1210 silicone foam is characterized by a broad temperature range, high flame retardancy, excellent mechanical strength, and excellent impermeability to aqueous media.
- > RAKU[®] SIL 37-1001 compact gasket with high long-term thermal endurance, excellent resistance to chemicals, and rapid oven curing.

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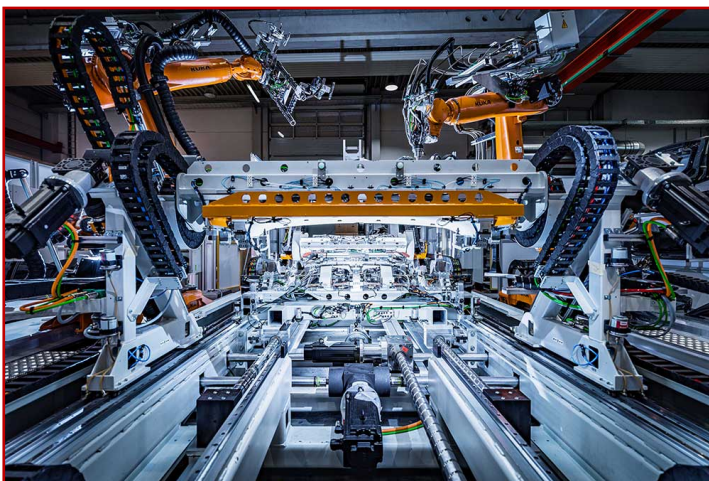
Thermal management of battery packs with electro casting resins and gap fillers from RAMPF Polymer Solutions



Polyurethane, epoxy, and silicone systems offer reliable and efficient protection against chemical substances and environmental influences such as heat, cold, and moisture. They also ensure optimum thermal management and excellent thermal endurance (heat resistance).

- > Thermal management: RAKU[®] gap fillers and casting systems based on silicone impress with outstanding thermal conductivity as high as $> 1.7 \text{ W/m}\cdot\text{K}$, low Shore hardness, good long-term thermal endurance, easy processing, and rapid curing.
- > Thermal endurance: Polyurethane and epoxy resins (RAKU[®] POX) combine excellent heat resistance of up to 180°C and thermal conductivity as high as $1.5 \text{ W/m}\cdot\text{K}$ with very good resistance to chemicals and outstanding shock resistance.

Automated production systems from RAMPF Production Systems for ultrafast, high-precision processes



Customized, highly automated turnkey production systems with integrated dispensing technology for sealing, casting, and bonding make manufacturing battery packs an ultrafast, high-precision process.

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RAMPF Production Systems has designed and produced highly complex systems integrating dynamic or static mixing technology for leading OEMs and suppliers for the following applications:

- > **Sealing** battery housings – applying sealing beads to lids or housings.
- > **Bonding** battery housings – structural bonds with joining tools and the necessary surface activation for controlled adhesion.
- > **Casting** / applying gap fillers – reliable casting of highly filled and abrasive materials under atmosphere.

Examples of automation solutions included in the systems:

- > Handling and robotics
- > Component transportation and control technology
- > Recording all process parameters with MES connection
- > Constructing tools and equipment
- > Material pre-treatment and heat treatment
- > Image processing and sensors
- > Contactless measuring technology

Highly compact automation – RAMPF MC multipurpose cell



Combining a minimal footprint with series production based on a modular system, the universal MC multipurpose cell from RAMPF Production Systems can be designed in line with customer needs. Its modular concept and a variety of cell sizes mean the MC can be configured with dispensing technology, small robots, linear axes, conveyor belts, and rotary or sliding tables. Integrating customized applications for joining, assembling, and testing turns the multipurpose cell into a space-saving automation concept that is available as a stand-alone solution or as part of a production line.

Come and visit RAMPF Production Systems and RAMPF Polymer Solutions at Battery Show 2022 in Stuttgart – Booth 8-A32 / Hall 8!

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www.rampf-group.com



The RAMPF Group stands for **engineering & chemical solutions** and caters to the economic and ecological needs of industry with six core competencies:

- > **RAMPF Machine Systems** based in Wangen (Göppingen), Germany, develops and produces multi-axis positioning and moving systems, trunk machines, and basic machines based on high-precision machine beds and machine bed components made from alternative materials such as mineral casting, ultra-high performance concrete, and hard stone.
- > **RAMPF Production Systems** based in Zimmern o. R., Germany, develops and produces production systems with integrated dispensing technology for bonding, sealing, foaming, and casting a wide variety of materials. The company also offers an encompassing range of automation solutions relating to all aspects of process engineering.
- > **RAMPF Composite Solutions** based in Burlington, Ontario, Canada, is a holistic composites supplier to companies in the aerospace, defense, transportation, medical, and green technology industries. The company offers a complete suite of services including composite part design and engineering, and metal-to-composite conversion engineering.
- > **RAMPF Eco Solutions** based in Pirmasens, Germany, develops chemical solutions for the manufacture of high-quality recycled polyols from polyurethane and PET waste materials. This company also designs and builds customized multi-functional plants for customers for the manufacture recycled polyols.
- > **RAMPF Polymer Solutions** based in Grafenberg, Germany, develops and produces reactive resin systems based on polyurethane, epoxy, and silicone. Its product portfolio includes liquid and thixotropic sealing systems, electro and engineering casting resins, edge and filter casting resins, and adhesives.
- > **RAMPF Tooling Solutions** based in Grafenberg, Germany, develops and produces board and liquid materials for cutting-edge modeling and mold engineering. The range of skills includes made-to-measure services and products such as pastes, large-volume and full-size castings for Close Contour models, and prototyping systems.

RAMPF has more than 850 employees and subsidiaries in Germany, the United States, Canada, Japan, China, and Korea.

All RAMPF companies are united under a holding company – RAMPF Holding GmbH & Co. KG – based in Grafenberg, Germany.

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