Press Release

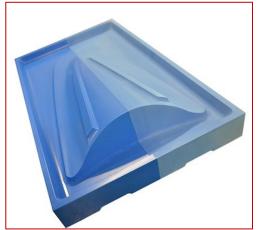
RAMPF Presents Brand New Epoxy Board for Composite Manufacturing

JEC World 2019: Board, Close Contour, and liquid materials for modeling and mold engineering / Composite part design, engineering, and manufacturing expertise for aerospace and medical industries

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Grafenberg, Germany, February 19, 2019. At JEC World 2019, the international RAMPF Group will present its comprehensive product and service offering for composite manufacturing. This includes board, Close Contour, and liquid materials for modeling and mold engineering as well as composites part design, engineering, and manufacturing expertise for the aerospace and medical industries – Hall 5 / Booth P24.

> Brand New – Epoxy Board RAKU[®] TOOL WB-0890



RAMPF Tooling Solutions, the world's largest producer of board, Close Contour, and liquid materials for modeling and mold engineering, is presenting its new RAKU[®] TOOL WB-0890 epoxy board, which was specially developed for the composite industry. The board has an extremely fine surface structure, which significantly reduces both finishing and the amount of sealer that has to be used. Furthermore, the surface finish can be transferred from the master model to the prepreg mold, so that no resanding of the mold is required and the service life of the pre-

preg molds is significantly increased.

RAKU[®] TOOL WB-0890 is easy and quick to machine and compatible with all industry-standard paints, release agents, and epoxy prepregs. Glass transition temperature T_g is 110 °C.

> High-performance epoxy systems



RAMPF Group, Inc., the US subsidiary of the international RAMPF Group and a leading expert for modeling and mold engineering materials, is highlighting two innovative epoxy systems for composite manufacturing. The low-viscosity, low-temperature processing, and fast-curing FST system RAKU[®] EI-2508 is used for aircraft interiors, rail interiors, and many other applications where flame-retardant properties are required.

The high-temperature, toughened epoxy system RAKU[®] EI-2510 exhibits excellent hot-wet properties (dry Tg 210 °C, wet Tg 174 °C), high fracture toughness, and is used for a wide range of structural applications in high-



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temperature environments. The low-temperature processing 2K system requires less investment in tooling and infrastructure and no special storage.

> World-class engineering services for the aerospace industry

RAMPF Composite Solutions is highlighting its engineered solutions through innovations in advanced carbon fiber and fiberglass composites using cutting-edge technologies. Core competencies include composite manufacturing to very tight tolerances utilizing the out-of-autoclave VARTM process, resin infusion, metal plating, and value-added assembly.

The company based in Burlington, Ontario, Canada, offers

world-class engineering services for the aerospace industry, developing cutting-edge solutions from sketch to qualification. With a team of highly qualified experts, RAMPF Composite Solutions is set up and capable to fill every role needed for demanding aerospace composites design.





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The RAMPF Group stands for **engineering and chemical solutions** and caters to the economic and ecological needs of industry.

The range of competencies includes:

- > production and recycling of materials for modeling, lightweight construction, bonding, and protection;
- > technical production systems for precise, dynamic positioning and automation, as well as technologies for complex composite parts production;
- > comprehensive range of **solutions and services**, particularly for innovative customer-specific requirements.

With this know-how, RAMPF helps its customers to achieve profitable and sustainable growth.

The Group secures its presence on the international markets with more than 880 employees and 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.
- RAMPF Production Systems based in Zimmern o. R., Germany, develops and produces mixing and dispensing systems for bonding, sealing, foaming, and casting a wide variety of materials. The company also offers a wide range of automation skills 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 and medical industries. The company offers a complete suite of services including composite part design and engineering, metal-to-composite conversion engineering, and composite manufacturing to very tight tolerances.
- RAMPF Eco Solutions based in Pirmasens, Germany, develops chemical solutions for the manufacture of high-quality alternative polyols from PU and PET waste materials. This expertise is also put to use in the planning and construction of customer-specific facilities for manufacturing 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 subsidiaries in Germany, the U.S., Canada, Japan, and China.

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

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