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Press release

New Prepreg Laboratory Line of Roth Composite Machinery *Testing of matrix systems, fibres and fabrics*

Steffenberg. Roth Composite Machinery from Steffenberg offers a new laboratory line for prepreg as well as organic sheet applications. The manufacturer invested roughly one million Euro in this new plant. In consultation with Roth Composite, customers and raw material producers are able to make trials with new matrix systems, fibres and fabrics without having to interrupt their own production processes for that. The know-how of the company is based on its experience of more than 50 years in the manufacture of Prepreg Plants.

The Prepreg Laboratory Line of Roth can process duromere and thermoplastic matrix systems up to 400 degrees Celsius. By using Prepreg Plants, semi-finished fibre composite materials are produced. These materials can be processed to finished products in later working steps by pre-impregnated, partly cured and thermoplastic matrices. The manufacture of prepreg is

used in numerous sectors. So, Roth Composite Machinery is servicing applications for example in the sports industry, the aerospace sector, the automotive industry, the ship and boat building area, in the building and bridge construction or in airplane structures.

The laboratory line in detail

The new laboratory line of Roth Composite Machinery is based on the calendering technology by using two calenders up to 400 degrees Celsius. The plant offers a working width of 600 millimetres and a working speed ranging from one to 40 metres per minute. The machine allows individual research and test runs for all kinds of fibres and resins. Tests with thermoplastic materials, such as duromers, fabrics and fibre systems made of carbon, glass and aramid are possible. The company is able to produce multilayer composite materials made of fabrics, fibres and films by using the laboratory line. A powder dosing unit for the processing of powder or granulate instead of a foil can be integrated. As application systems for the matrix, the comma blade or the Foulard method can be selected. As the application unit is movable, units of customers can be used as an alternative. The plant of Roth offers a spool creel with 80 spool positions, eight unwinders as well as three rewinders and enables a special fibre spreading. Its modular construction as well as the open design offer an excellent operability and allow the integration of measuring systems, for example for coating thickness measurements or surface inspections. Depending on the layers and the characteristics of the fibre materials, all common thicknesses of prepregs can be manufactured.

Innovative plant technology

The special Roth technology realizes the moving of the prepreg or the organic sheet over two curved heating plates and thus guarantees an optimal heat input. The first calender is installed between the two heating plates and serves for the homogeneity of the prepreg. The second calender at the end of the heating section ensures the finishing of the product.

The heating plates and the calender rollers are equipped with several temperature zones and thus guarantee an optimal temperature control.

In contrast to other customary short and even heating sections being equipped with four calenders, a uniform temperature input and low tolerances as to the product quality are achieved. The small distance between the heating zone and the calender roller serves for low temperature losses. The innovative Roth plant enables reduced tolerances and minimized costs.

Test runs for coating and laminating processes

Due to the configuration and modular construction of the laboratory line, test runs for coating and laminating processes are also possible. Roth Composite Machinery offers direct and indirect coating methods by means of comma blades, impregnations by using the Foulard system and squeezing rollers as well as multilayer laminations with pre-tempering systems via surface heating or infrared radiation.

Strong range of services with individual solutions

When manufacturing Prepreg Plants, Roth Composite Machinery offers a sophisticated range of services so that each customer requirement can be realized

individually. Depending on the kind of coating required by the relevant application, numerous systems are provided for selection: RRC, comma blade, Foulard bath, powder dosing unit, lamination of thermoplastic films or slotted nozzle application systems. As matrix, for example hot-melt, epoxy and reactive resins or solvents can be used. The number of spool positions at the spool creel are flexibly selectable according to the special requirements. The standard application offers an inner diameter of the core of three inches – optionally, other dimensions are possible. The tension control is effected via a pneumatic braking device. For the unwinder, roller diameters ranging from 150 to 1000 millimetres can be set and roller widths from 50 to 1600 millimetres are possible. The fibre displacement is carried out via fixed bars, an omega system and a fibre guiding comb.

The heating plates are heated electrically and are continuously adjustable via several control areas. The heating system is equipped with a high-temperature insulation as well as a suction unit. In these plants, Roth Composite Machinery is using calender systems having a contact pressure being continuously adjustable up to max. 50 Newton per millimetre. Optionally, the upper calender roller can be pivoted pneumatically or hydraulically. The cooling plate enables a continuously adjustable cooling ranging from +3 degrees to ambient temperature using water as cooling medium. Roth Composite Machinery offers pulling stations with a web tension up to approx. 8000 Newton and special roller coatings. For the rewinding, roller diameters up to 1000 millimetres as well as roller widths ranging from 50 to 1600 millimetres are possible.



Roth Composite Machinery is developing, designing and manufacturing components, machines as well as complete production lines in the business fields "Filament Winding & Prepeg", "Pleating & Coating" as well as "Brushes & Brooms".

Bernd Fischer, Sales Director at Roth Composite Machinery, emphasizes: "We provide personal support in each machine project, starting from the first contact over the planning and designing up to the serial production. Every machine we manufacture is 'made in Germany' and we offer processing know-how in industry-specific applications."

Originated from the merger of the two special machinery manufacturers EHA and Schlesinger, Roth Composite Machinery GmbH belongs to the family company Roth Industries GmbH & Co. KG having more than 1,250 employees all over the world. Roth Industries is one of the most innovative companies in the area building and industrial engineering.

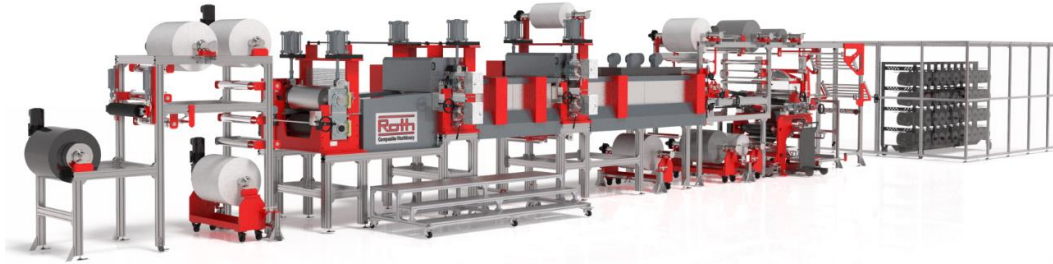
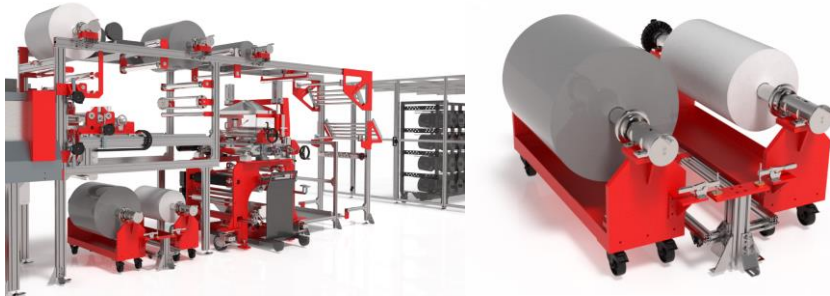


Image capture for file RCM_Prepeg_plant.jpg
Laboratory Line of Roth Composite Machinery for the manufacture of prepregs and organic sheets.



**Image capture for the files
RCM_Laboranlage_Abwickler.jpg,
RCM_Laboranlage_Abwickler_1.jpg**
The Laboratory Line of Roth Composite Machinery is equipped with a sophisticated unwinding device.



**Image capture for file
RCM_Laboranlage_Auftragssystem.jpg**
The application system of the Laboratory Line of Roth Composite Machinery is designed as mobile unit. Application systems of customers can be used.



Image capture for file

RCM_Laboranlage_Aufwickler.jpg

Three rewinders are available: One for the product, one for the upper protective paper and one for the lower protective paper.



Image capture for file

RCM_Laboranlage_Curve Technologie.jpg

The innovative curve technology of the heating plates of the Laboratory Line of Roth Composite Machinery ensures an optimal heat input.

About Roth Composite Machinery

Roth Composite Machinery is an expert in the field of special machinery construction – the company develops, designs and builds components, machines as well as complete production lines in the business areas

- Filament Winding & Prepreg
- Pleating & Coating
- Brushes & Brooms

About Roth Industries

Roth Industries GmbH & Co. KG comprising various firms and around 1,250 employees all over the world is one of the most innovative companies in the areas

- Building Solutions - Divisions: Energy Systems, Sanitary Systems, Environmental Systems
- Industrial Solutions – Divisions: Composite Technology, Plastic Technology, Hydraulic Technology

The head office of the medium-sized traditional company is located in Dautphetal, Hesse. While the company's strategic direction, the controlling, auditing as well as the balance and financial planning is effected from there, the local employees are responsible for the development, production and marketing of the products.

26 production and sales companies of Roth Industries are acting all over the world - in core segments as world market leader.

Roth Industries bundles all activities of the companies belonging to the group in Germany and abroad. The company is owned by the Roth family to 100 %.

Competence in
● energy ● water ● plastics

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