FLEXIBLE MACHINERY CONCEPTS FOR COATING AND LAMINATING OF PREPREG AND COMPOSITE PRODUCTS

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Key words: Coating, laminating, prepreg, composite structure, machinery, equipement

Summary:
The world wide trend in prepreg machinery is favouring flexible, multifunctional systems for the production of various products made from rovings, textiles and multiaxial structures. The combination of fibres like carbon, glass and natural fibres with epoxies for the use in reinforced plastics in the aero-space, sports and automotive industries is gaining more and more importance. The design of specialized coating technologies and the effective treatment of the fibre materials for prepreg products present a number of mechanical engineering challenges. For the machinery solution in general it is necessary to apply epoxy resin or phenol resin chemistry on a variety of substrates made of different material type. Difficulties in handling various products must be evaluated for winding, material guiding, coating and drying processes. Depending on the substrate, the coating chemistry and the end product it is necessary to perform a detailed evaluation of each piece of equipment proposed for coating and impregnating lines.

Innovative and new developed coating systems shall be shown in the presentation. The choice of the right coating system must be determined in consideration of the chemistry, the application weight and the viscosity of the coating material among other factors. Furthermore the differentiation in complete impregnation or only single side coating influences the choice of the coating system. End users choose composite materials due to the characteristics of weight, strength and economy of use. As a result of the extreme differences in individual products, expectations from production machines are very high. With decades of experience Coatema Coating Machinery GmbH is in a position to offer highly innovative and economical prepreg machine concepts. These concepts need to be tailored to each customer’s specific needs and shall be shown with the presentation.

Abstract of the proposed paper:
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Important parameters for coating plants for prepreg handling result in specialized plant layout such as:

- various winding technology with perfect tension control
- various coating technologies depending on the coating weight and the coating chemistry viscosity and delivery
- drying technology depending on the coating chemistry (water or solvent based)
- appropriate exhaust technology
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