



Non-crimp fabric production module

## FLEXIBLE UD-TAILOR-DEVICES

Variable unidirectional material production in minimum space

**There is a whole slew of fiber, tow and tape placement technologies. But available tape and tow materials cannot be flexibly tailored and optimized for consecutive processing steps or novel composite designs and applications on-time. Customers depend on the UD-material available on the market. This is why Württemberg mechanical engineering company M&A Dieterle developed a highly flexible and compact machine for customized production of UD-tape, fixed tow and non-crimp fabric materials.**

The machine platform has a minimal space of only L: 3.00 m x W: 1.50 m. To this platform, different modules can be integrated to change the mode of impregnation – by either stabilization of spread tow with binder web, binder powder or resins (see fig.). The machine unwinds the roving with constant tension, spreads it, then fixes or impregnates it. With just one machine platform fixedTow, TowPreg and UD-non-crimp fabric can be produced.

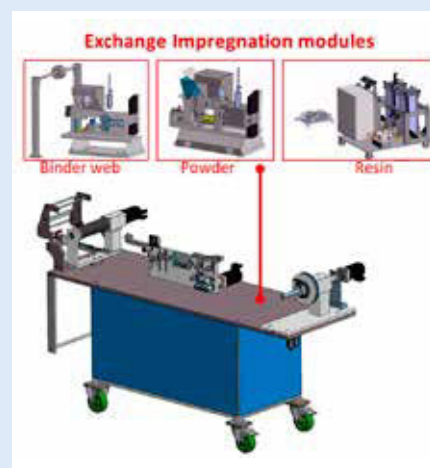
### Compactness and flexibility with one machine platform

Materials' properties such as fiber type, areal weight, binder or matrix content can vary and are easily adaptable. The machine processes one roving at a time, enabling fast material changes. This leads to resource efficient manufacturing with

little waste generated due to low machine lead time. Little initial machine investment is needed, and with current semi-finished UD-material costs from external suppliers, inhouse material production is an attractive option. By a simple and fast change of input material or impregnation modules, tailored composite combinations can be produced.

M&A Dieterle GmbH first target markets are R&D research and development departments as well as SMEs, small and medium sized enterprises, who wish to develop new composite materials, make tailored prototypes and/or develop small series. M&A Dieterle is planning on constantly extending the range of UD-Tailor-Devices. New modules are built in cooperation with interested parties. Validation of processing and handling of produced materials with preforming and post processing methods, such as tailored-

fiber-placement (TFP), deep drawing and injection molding or hybrids have been carried out.



Flexible UD-tailor machine platform and impregnation modules

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Composites Europe 2017  
19. bis 21. September 17  
Halle 4 · Stand C04

