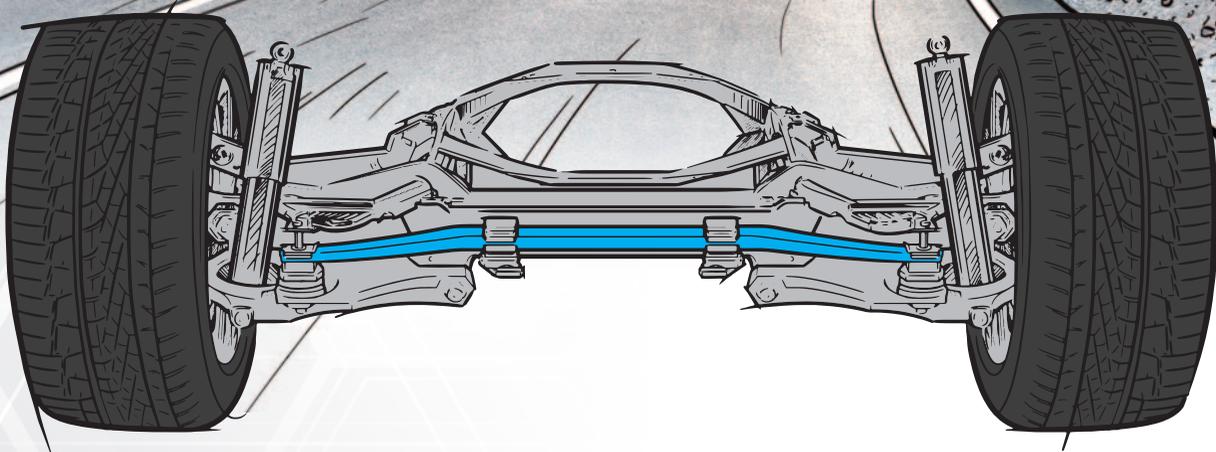


## HPRTM LINES

# Complete production lines for composite leaf springs

- » Rely on the expertise of the global market leaders to realize an entire production chain for the manufacture of composite leaf springs



Due to their outstanding advantages such as lightweight potential, cycle life, corrosion behavior and installation space, the demand for leaf springs made of Fiber-Reinforced-Plastics (FRP) is increasing from year to year. Hennecke's high-pressure resin transfer moulding (HP-RTM) process is used for production. Here, the HP-RTM process technology shortens injection times and enables highly reactive resin systems to be used for cost-effective production of the innovative leaf springs with short cycle times. The latest Hennecke reference is able to produce one FRP leaf spring in one minute with one high-pressure metering machine.

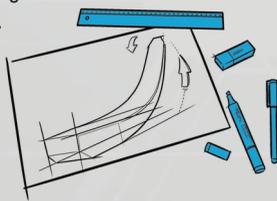
Hennecke has sold more than 70 STREAMLINE type metering machines for HP-RTM processing in over 13 countries worldwide and is proud to have eight lines in the market producing FRP leaf springs with a volume of around two million parts per year. In fact, a Hennecke STREAMLINE metering machine was responsible for the world's first HP-RTM serial production which was for FRP leaf springs: the Mercedes-Benz Sprinter front leaf spring.



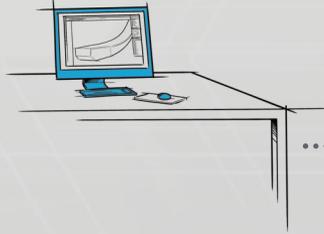
In close cooperation with experienced partners for all process steps, Hennecke can offer its customers complete production lines that provide a decisive competitive advantage in the production of FRP leaf springs:

The manufacturability of the part can be verified at an early stage with the SIMUTENCE design and virtual simulation process. This allows for iterative optimization through multiple simulation steps.

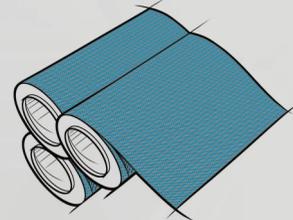
### DESIGN



### SIMULATION

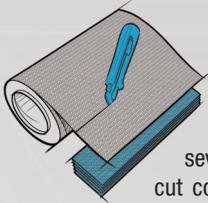


### SELECTION OF SEMI-FINISHED TEXTILE

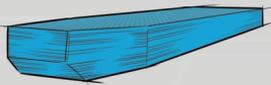


[www.simutence.de](http://www.simutence.de)

### STACKING



### FIBER PREFORM

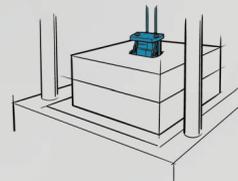
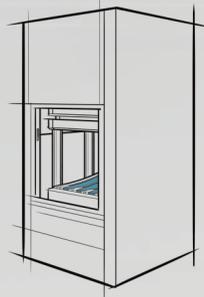


The fiber preform consists of several dozen fiber layers that are cut contour-close. FILL's renowned stacking and preforming lines handle the automated production.



[www.fill.co.at](http://www.fill.co.at)

### PRESSING



ENGEL is the world market leader for efficient press systems. The space-saving vertical presses used in the manufacture of FRP leaf springs are perfectly suited to the production of large lightweight components.



[www.engelglobal.com](http://www.engelglobal.com)

### HIGH-PRESSURE INJECTION

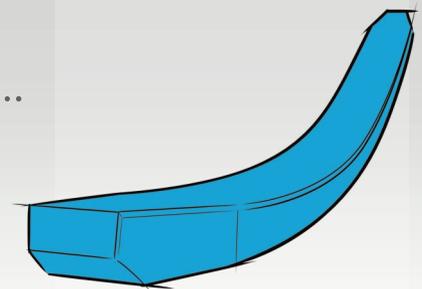
Tailored for the future: the **STREAMLINE MK2**

The high-pressure metering machine injects the highly reactive resin system into the mould within seconds. Hennecke's decades of experience in high-pressure metering and large-volume applications ensure the best performance. The second generation STREAMLINE

offers Hennecke customers a tailor-made HP-RTM processing system which has been fully overhauled and refined using the experience of our application and process specialists and in consultation with our customers. The space-saving and modular-built STREAMLINE MK2 offers distinct advantages in terms of operation, service and maintenance.



### FINISHED PRODUCT



If you are interested in producing FRP leaf springs in short cycle times, please feel free to contact us directly:

Hennecke GmbH  
Dr. Florentin Pottmeyer  
Sales Manager  
Composites & Advanced Applications



Phone: +49 2241 / 339 327



Email: [florentin.pottmeyer@hennecke.com](mailto:florentin.pottmeyer@hennecke.com)