

**Project titel:** Trichterspinnen  
**Partner:** Dienes Apparatebau GmbH, Dralon GmbH  
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### Mission Statement

The main goal of the project is to increase the productivity of wet-spun polyacrylonitrile fibers by a plug-in spinning system for new and existing wet-spinning plants. Since the majority of PAN fibers (approx. 75%) are produced in the wet-spinning process, the producers are interested in increasing the efficiency of the wet-spinning process and thus to reduce production costs. The limiting factor for the throughput in the spinning process is the pressure between spinning pump and spinneret at high spinning solution viscosity and spinning speed. In the project, a funnel spinning system is developed, with which solvent can be added to the solidification area of the filaments to slow down the coagulation speed of the filaments. This offers 2 significant advantages:

- 1) The slower coagulation enables higher jet stretch ratios in the spinning bath. As a result, larger spinning hole diameters can be used to achieve the same final titre, which reduces the pressure between the spinning pump and the nozzle (lower shear forces in the nozzle). Consequently, higher spinning speeds and higher throughputs can be achieved.
- 2) Due to the gentle coagulation, denser fibers with better properties are produced.

Conclusion: Productivity increase of approx. 20% thanks to plug-in solution

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