

V-DIT: Vacuum Direct Infusion Technology from HÜBERS.

Innovative System Engineering for the Production of Composites.

Your Requirements:

Your products are composite parts e.g. for wind turbines, for the automotive industry, for the construction sector or for the highly sensible aerospace industry. These parts must meet highest requirements in terms of quality, reliability and durability. At the same time you seek cost advantages though increased production efficiency in terms of low reject rates and short cycle times.

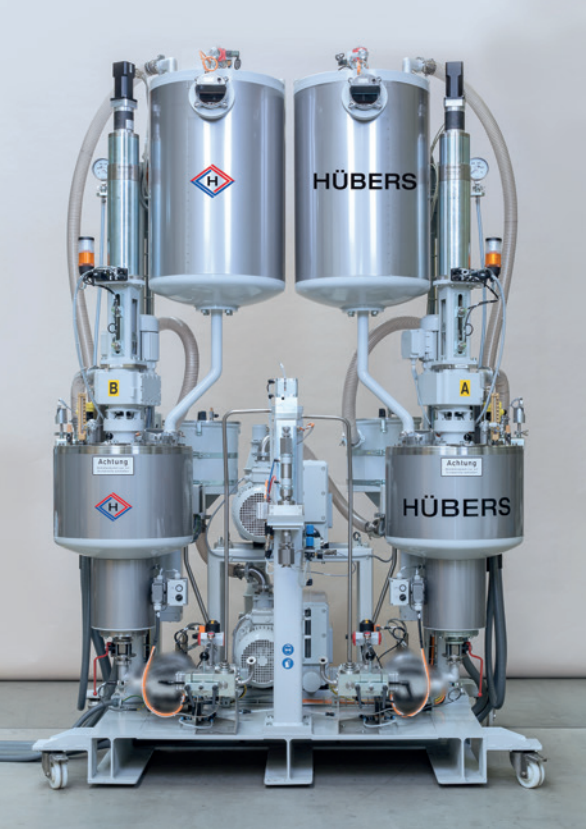
Our Vacuum Direct Infusion Systems:

- **bubble-free and void-free parts** by pre-degassing of the material components
- **short mold filling times** by pumping the material
- **direct, pressure-controlled infusion** via a closed system of infusion conduits
- **compact plant design** by continuous processing and mixing of the material, regardless of the parts' size
- **highest process reliability** through sensor control of the filling speed

HÜBERS' technology for the manufacturing of composite parts offers a reliably, lean process and therefore advantages regarding product quality and plant efficiency.



Pressurized Vacuum.



V-DIT: The Process

Key factors of the plant technology for vacuum direct infusion developed by HÜBERS are the degassing of the material components in a continuous process as well as the active conveying of the material into the mold under vacuum. The degassing of the material components is carried out in a continuous process. Thus the size of the metering mixers does not depend on the filling quantity of the part to be infused. With a very compact design, HÜBERS systems provide any desired quantity of material with constant viscosity and highest mixing quality. Due to the active conveying of the reactive mix into the mold under vacuum, the mold filling time is drastically shortened.

Continuous Degassing of the Material Components

- continuous suction of the material components directly from delivery containers or tank storage
- strong degassing effect through enlarged material surface in evacuated degassing devices
- homogenization in vacuum metering vessels

Closed Infusion System without Buffer and Transfer Vessels

- material conveying through pumps that work under vacuum
- mixing of the components in a static mixer immediately prior to infusion
- direct conveying of the mix via infusion channels into the evacuated lay-up in the mold

Active, Controlled Material Conveyance into the Mold

- sensor monitoring of the conveying pressure with automatic control of the metering pumps
- short mold filling time through high filling speed
- filling speed reduction towards the end of the infusion process ensures void-free saturation and impregnation of the core material also in the edges and end portions
- if necessary, the filling speed can even approach zero while the mixing ratio is exactly maintained

