

# 3D FABRIC // 3D BILLET

## VERTICALLY REINFORCED

## NCF TEXTILES

Z-fibers



Discover the potential of the third dimension: **SAERTEX** 3D Fabric // 3D Billet are reinforced with Z-fibers throughout the entire thickness of the material, in addition to the fibers in the 0° and 90° directions. This innovative textile construction can be produced using various raw materials ranging from glass, carbon and aramid to ceramic fibers and metal wires.

It is available in two versions:

- 3D Fabric as roll stock (1,000 to 5,100 g /m<sup>2</sup> weight per unit area)
- 3D Billets as plates with thicknesses of up to 50 mm (45–55% fiber volume fraction)

- 1 Increased impact resistance in the finished element**  
Protection from delamination through the structural reinforcement in the Z direction due to the thickness of the material.
- 2 Greater strength without undulation of the fibers**  
No stress concentrations due to waviness // no reduction of fiber-oriented strength in the textile.
- 3 Time savings during placement in the mold**  
Heavy textiles mean faster processing thanks to the reduced number of required layers.
- 4 Faster infusion rates, faster lamination**  
Outstanding flow properties through the 3D fiber construction // Fast production of thick and large components.

## Structure of SAERTEX 3D textile

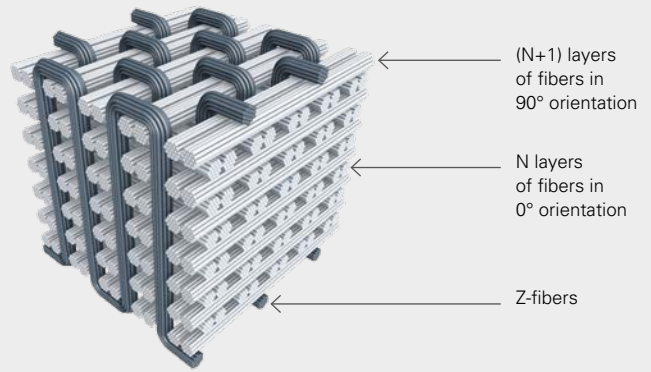
Multiple layers oriented in 0° and 90° directions have Z-fibers running through them vertically, connecting them to each other.

### 3D Fabric:

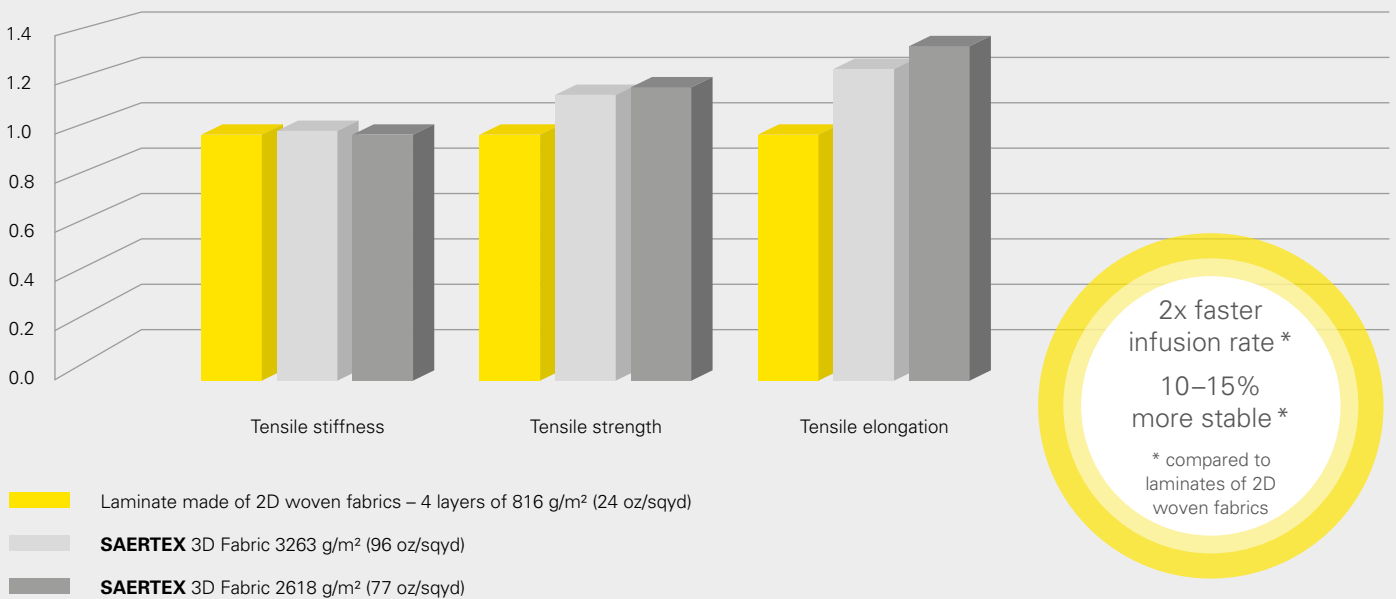
Roll stock with 3 or fewer layers in 0° orientation.  
Standard width: 1.524 m (max. 3.0 m)

### 3D Billet:

Flat billets with 4 or more layers in 0° orientation.  
Thickness: up to 50 mm // Max. width: 830 mm  
(depending on the thickness)

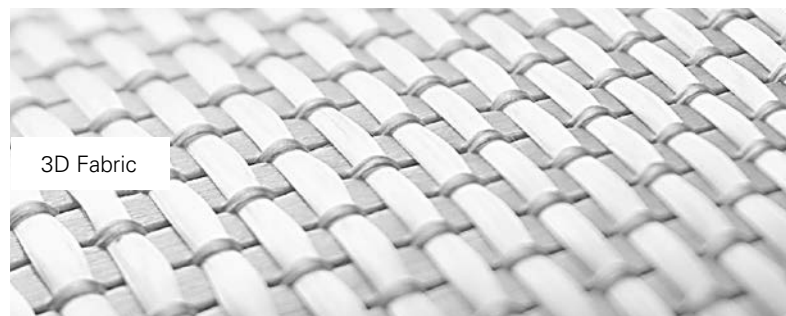
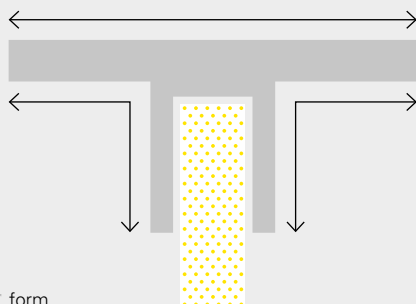


## Mechanical properties compared to a laminate of 2D woven fabric



## Also available in integral preform shapes

- Areas with two or more separate thicknesses possible (in the form of a  $\pi$ , H, T, I)
- Thickness can vary over the width
- Thickness can vary over the length



For applications and information – including the 3D Fabric product video – please visit [www.saertex.com/3D](http://www.saertex.com/3D)

REINFORCING YOUR IDEAS