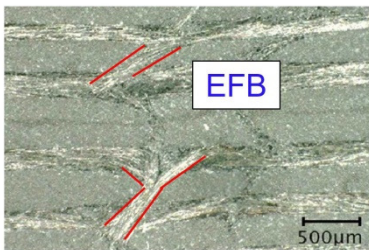
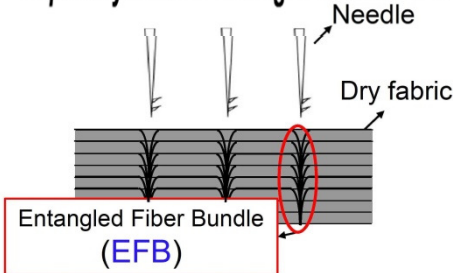


shikibo Z Direction Reinforcements

As additional technology for improvement of disadvantage point of composite, new reinforcement method for through the thickness direction has developed.

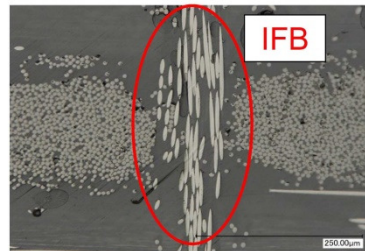
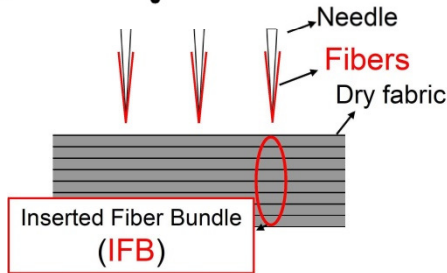
Z anchor

In-plane years are entangled with each other



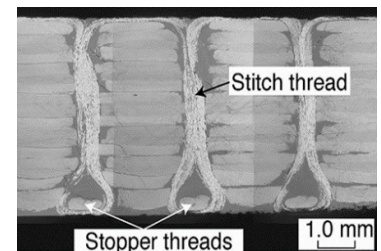
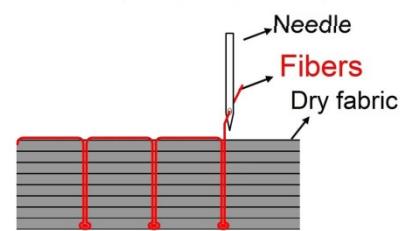
F anchor

Inserting additional Z direction fiber



Stitching

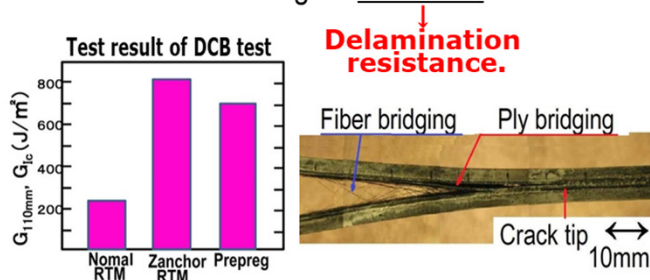
Connecting of layers by stitching



Z fiber by using new technique is could be improved damage tolerance of composite materials to in case of liquid infusion process such as RTM. The compression-after-impact (CAI) strength of the composite materials by using this technique showed higher value from conventional one. Moreover, the permeability property of resin at through the thickness direction of preform is increased dramatically. Therefore it becomes very easily to infuse the resin at thick component by this process. This Z direction reinforcement technique can be useful at any type of preform.

Limit impact delamination propagations

The composite by using the Zanchor process showed higher G_{Ic} value



Improve CAI strength

CAI: Compression-After-Impact
The composite by using the Zanchor process showed higher CAI value

