Reducing the Cost, Weight and NVH of Carbon Fibre Components by Using Flax

Overview

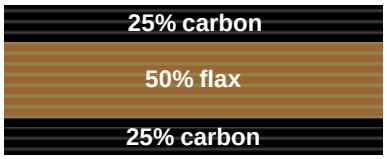
Carbon fibre can reduce weight and improve performance of structures in automotive, sports and other sectors. However, it is expensive, can cause noise, vibration and harshness (NVH) issues and has high environmental impact. Natural flax fibre composites have lower density, lower cost and much higher damping than carbon fibre.

By replacing some of the carbon in a laminate with flax, hybrid structures can be created with lower weight, cost, NVH and environmental impact. Applications include automotive body panels, secondary structures, sports racquets, bike frames, hockey sticks, skis, marine bulkheads, doors etc.

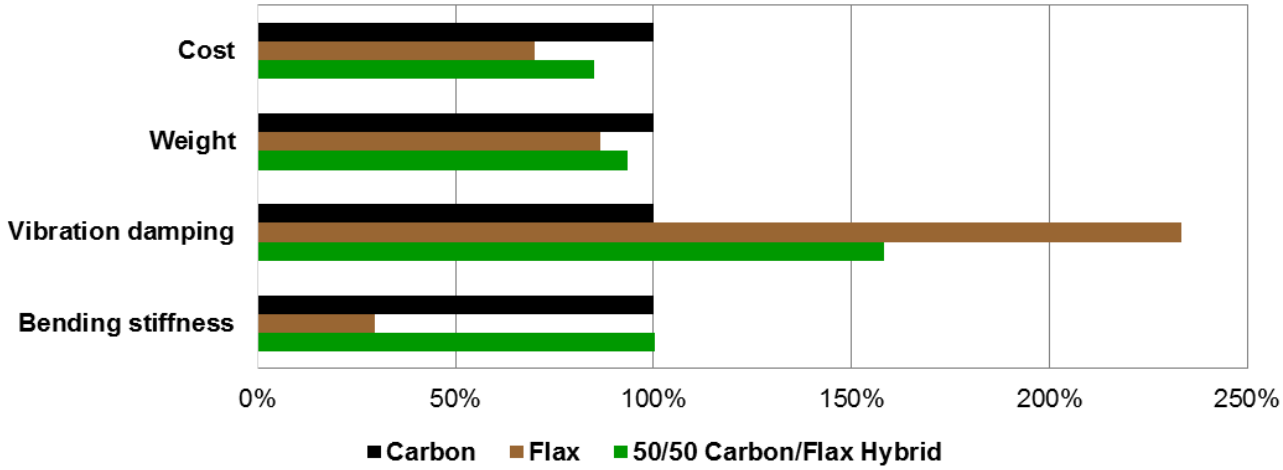
Key Facts

Relative to carbon fibre, a 50/50 carbon/flax hybrid composite has:

- 15% lower cost
- 7% lower weight
- 58% higher vibration damping
- Equal bending stiffness



Comparative Data



Technical Data

	Carbon	Flax	Carbon/Flax Hybrid
Density (g/cm^3)	1.5	1.3	1.4
Thickness (mm)	2.8	3.2	2.7
Flexural modulus (GPa)*	47	12	44
Flexural strength (MPa)*	870	180	560
Damping loss factor**	0.012	0.028	0.019

* Measured using the 3 point flexure test method ISO 14125.
** Measured using the centre point impedance method ISO 16940.

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Disclaimer

The information provided here is believed to be accurate but should be considered indicative only. It is the responsibility of the customer to check the suitability of the product for their specific application prior to use.

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