



## Installing a carbon-fibre reinforcement to a cello neck

An L-shaped beam adds strength to the neck and heel

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I have been installing this one-piece, L-shaped carbon-fibre beam in my new cellos for the past four years, and also in the occasional neck graft for restoration. This beam significantly stiffens the neck and heel, and also raises the B0 mode frequency of the cello neck. The installation procedure described here

has allowed me to stabilise the neck projection more effectively than any other method I've tried.

The half-inch cross-section of this beam is D-shaped, with a 2mm-thick carbon-fibre shell. The core is filled with foam. I owe thanks to double bass maker James Ham for introducing the product to me.

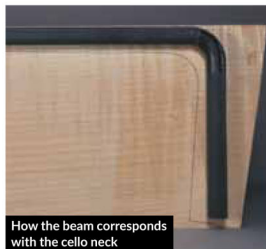


The template is scribed on both sides of a maple block

**1** First of all, a maple block is dimensioned and squared for a cello scroll and neck. Then I scribe my template on to both sides. The photo shows the maple block, the template and the carbon-fibre beam itself.

**2** This image shows how the beam will eventually fit into the neck. The turn into the heel can be as close as 4–5mm from the throat and 3mm from the thinnest neck surface; note, however, that the measurements of my own template could differ from those of other templates.

Before the following steps, it is crucial for the neck-block to be planed very square.



How the beam corresponds with the cello neck



Making a hole 39mm from the end of the template

**3** Using a half-inch brad point drill bit, I start making a 134.5mm-deep hole in the heel, perpendicular to the fingerboard surface, so that there is 39mm from the centre of the hole to the end of the neck. ▶