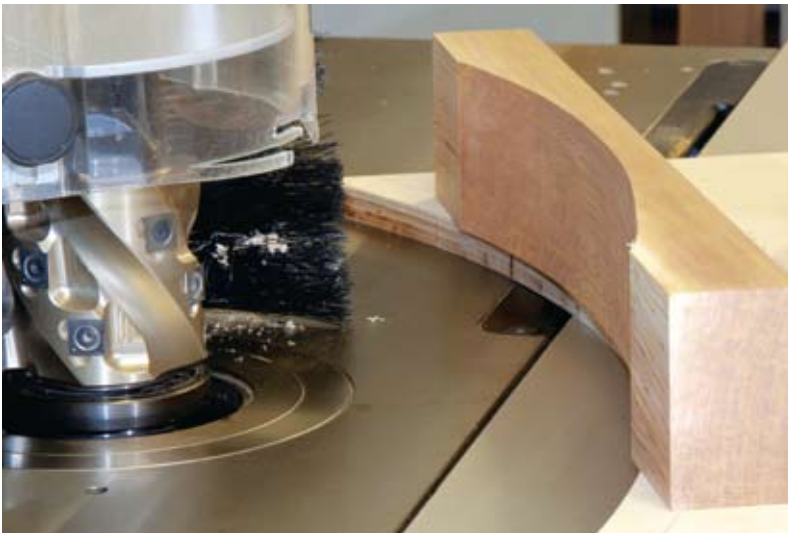




Felder spindle spiral cutter head

Dave Rigler discovers multi-edge tooling is the way to increase cutting height and remain in complete control



Removing 8mm at a time on a block of white oak 67mm thick was achieved with minimal breakout



A close-up of the cedar after a similar pass shows slight cutter marks...

I purchased this cutter primarily for curved profiling work. I needed a tool taller than my 50mm rebate block and a diameter below 100mm. I had also experienced occasional heavy grabbing and tear-out on internal curved profiling work when cutting into the grain and was looking for something to reduce that risk. For this reason I decided to try a spiral cutter head. My expectation was that the multiple smaller cutting edges would minimise large-scale tear-out and grabbing by breaking up the chip size. The downside is that the multiple

edges can leave witness marks, but how large and how hard to clean up after machining was unknown.

The spiral cutter I opted for was the Felder light alloy head. The body is a gold coloured anodized finish, machined to take four staggered vertical banks of three 14mm carbide knives. Alternate banks of cutters are offset vertically to each other to give a total cutting height of 75mm and a cutting diameter of 80mm. The knives are four-sided giving a long total life. The body is amply machined in front of the knives giving good chip clearance.

feed on one cut and did achieve areas of tear-out consistent with a knife width but did not get any sensation of grabbing.

The diameter of the cutter and the bearing guide were pretty much line on line. *F&C*

Performance

My B3 Hammer machine has a spindle height of 90mm, which accommodates perfectly the cutter head and a bearing guide without spacer rings.

To test the cutting performance I prepared a 75mm tall piece of western red cedar (*Thuja plicata*) and a 67mm tall piece of American white oak (*Quercus alba*). I band sawed waste away to leave a heavy cut of around 8mm of material to be removed with the spindle moulder.

In practice

Feeding the cedar past the tool felt smooth with an increase in cutting noise when working against the grain, prompting a slowing down of feed. The finished surface was free of tear-out but the expected horizontal knife lines were evident visually and could be felt with a fingernail, however, they were too small to measure. A magnified picture shows how small they were and I found them easily removed with light sanding.

The oak cut smoothly with the grain but required a slower feed against the grain to achieve a smooth cutting sensation and surface. I forced the



... but nothing too severe

F&C Verdict

I consider this spindle tool to be good value for money. It cuts well and I feel more confident using it for profiling tall curved work pieces, particularly when cutting against the grain. The engineering and construction of the head appears more than adequate for general workshop use.

Pros

*Price
Cut
Engineering and construction*

Cons

Slow feed required on some material to avoid tear-out

The numbers

*Dia 80mm
Height 77mm*

*Price £142.20
From www.felder-tooling.co.uk*



Great results from the spiral cutter right up to the 75mm limit