FESTOOL

No. 313

Routing star-shaped grooves and profiles

A Description

This example describes step by step how one can create star-shaped ornaments or profiles or grooves using a router. Useful applications include the manufacture of circular-shaped CD shelves, as well as profiled ornaments on doors and fillings of any type, for example. Here the appearance of the pattern can be modified in various ways by the position, length and distance of the grooves or profiles. New attractive patterns and ornaments can also be created in no time at all through combination with the trammel unit for the router.

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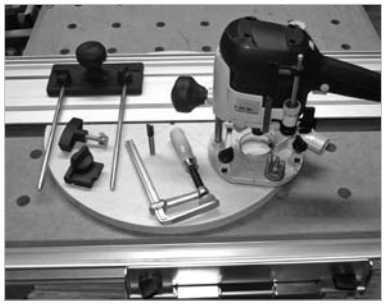
B Tools/Accessories



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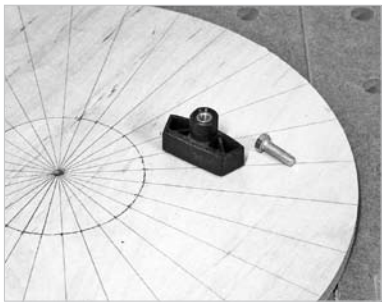
You need the following tools and accessories for routing using a copying pin:

Designation	Order No.
Router e.g. OF 1010	574234
Groove cutter Ø 11 mm	490961
Multifunction table MFT 3	495315
Guide rail adapter for router for use on the guide rail of the MFT	Included in the set
Limit stop = Kickback stop	491582
Fastening clamp	489570
Fixed jaw of a clamping element for MFT (only available as a complete set)	488030

C Preparation/Set-up



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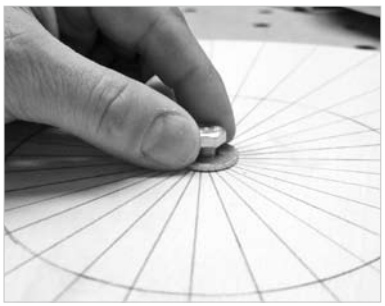

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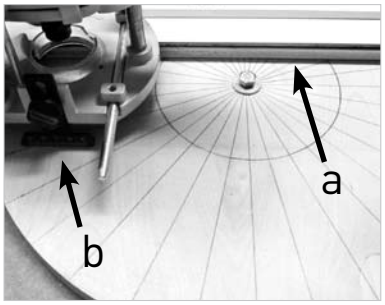
To route star-shaped grooves on a shelf with Ø 420 mm for holding CDs, you first have to divide the circular (see application example 530) base into even sections.
Proceed as follows:

- First calculate the circumference of the shelf using the formula: U = d x π or simplified: Circumference = Diameter x 3.14. The following calculation is based on our base: 420 mm x 3.14 = 1318.8 mm (circumference of the base). This circumference must now be divided into sections corresponding to the desired number of grooves for the CDs. We have decided on 30 sections in our example, i.e. 1318.8 mm (circumference) : 30 (sections) = 43.96 mm. Rounded off this results in a distance of 44 mm between each CD.



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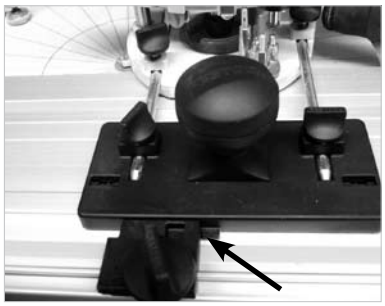
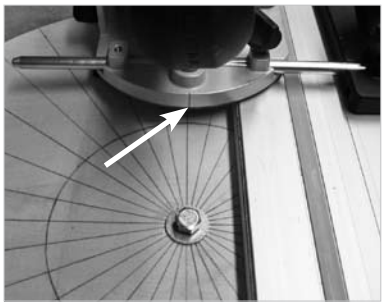

313/06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313/08


313/09

D Procedure

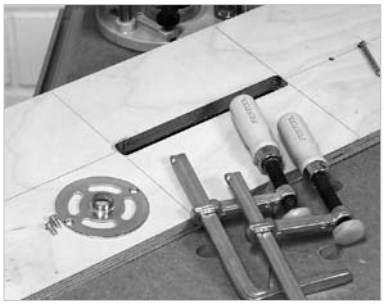
Position the fixed jaw of the clamping element from below through a 20 mm hole in the MFT and secure the base at the jaw using the M8 x 30 mm screw. Now you can turn the base left or right above this centre of rotation and align parallel to the guide rail according to your markings.
The guide rail is approx. 50 mm beside the centre of rotation. So that the router can be guided above the screwhead of the centre of rotation, the guide rail must be lifted up by approx. 10 mm (Fig. 313/05 a). For this a 10 mm plate is positioned under the guide rail. To be able to guide the router securely, the plastic support is screwed at the side of the router (Fig. 313/05 b).

Secure the limit stop at the desired distance on the rail (Fig. 313/06). This way you ensure that your grooves are always the same length and run together exactly up to the reference circle of the base.

Then clamp a 11 mm groove cutter in the router. The 11 mm conforms to the thickness of a CD sleeve (10 mm). If you would like to insert thinner or thicker double CD sleeves or DVD sleeves in the grooves, you should always add at least one millimetre play to the actual sleeve thickness.
Push the guide rail adapter into the router and align it or the machine - after you have placed the router together with the stop on the rail - exactly according to your marking. There is a notch on the front edge of the milling insert for this (Fig. 313/07), which corresponds to the centre point of the cutter.

Now route one groove after the other as in Fig. 313/05 by turning the base to the right by one marking or stroke after each groove. Use the notch on the front edge of the milling insert again to turn the base accurately and evenly groove for groove. This turning process can be effected even more precisely and quickly if you fix a needle on the panel as in Fig. 313/08 and 3143/09.

For those who have a router table, for example Basis 5A or Basis 6 or CMS, it is possible to reproduce all other shelves using the copying pin method. Precise instructions on this method can be found in application example no. 312: Routing with a copying pin with the CMS.



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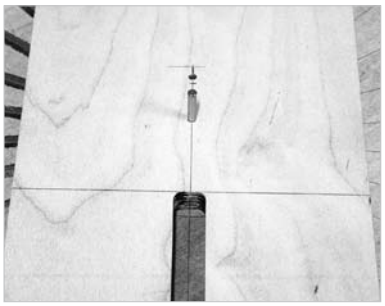
For users who do not have a guide rail it is also possible to create star-shaped grooves quickly, precisely and efficiently. For this you need the following tools and accessories:

- Router OF 1010
- Groove cutter Ø 11 mm
- Copying ring Ø 17 mm with centering mandrel D8
- Two fastening clamps
- Metal pin Ø 5 mm (alternative drill bit Ø 5 mm)
- Wooden template 650 mm long x 200 mm wide



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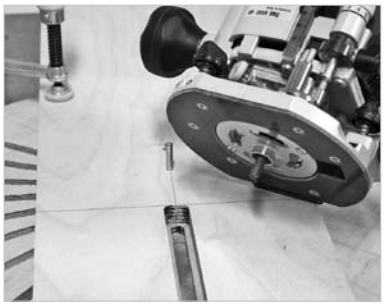
- A 17 mm wide and 20 mm
- long slot is drilled into the wooden template for holding the copying ring Ø 17 mm. At
- a distance of 57 mm, a 5 mm hole is then
- drilled in which a metal pin or reverse
- drill bit can be inserted. A 5 mm hole
- is also drilled in the centre point of the circle. Now the
- template can be turned to the right or left using a metal pin over the shelf
- and aligned precisely according to the
- markings on the base.



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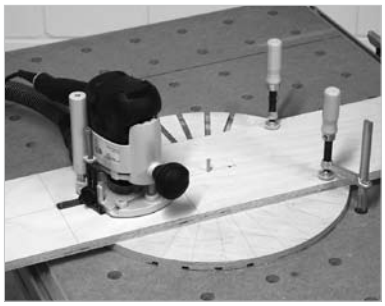
Clamp the template on the shelf base using fastening clamps so that the shelf cannot slide during routing. Then centre the copying ring Ø 17 mm using a centering mandrel D8 under the milling plate and screw tight. The 11 mm groove cutter is then inserted in the router and the desired routing depth on the router is set. The routing depth conforms to the wood thickness of the base. It should, however, not be greater than 6 mm. It is best to use only Multiplex wood for stability reasons.



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Position the switched-off router with the copying ring at the start of the slot on the template. If you have routed the slot in the template long enough, the cutter still does not touch the base underneath. Switch on the machine and move along in the slot to the centre of the base and back again to the start position. Then remove the fastening clamps and turn the template one mark further to route the next groove. If you have routed each groove in this manner you can also use the base as a pattern or template to reproduce other bases using the copying pin method (see text, Image 06).

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