



## Armchair with stool

No pain no gain.

### Armchair with stool

You won't find a better way to relax than sitting in this self-made armchair. But you'll have to build it first!



## 1 Introduction

Building this beautiful piece of furniture is something for experts. It should take them 3 to 4 days to do it. The costs without surface treatment are approx. £400.

The following construction guide is designed for 21 mm, 40 mm and 9 mm thick birch multiplex panels. Have the required panels cut to size at a DIY store or by your carpenter. If you use other materials or material with a different thickness, adapt the parts list accordingly.

The seat shells of the armchair and stool consist of many individual shaped parts which are glued to each other. You need a router to make these shaped parts.

You will find the detailed material list and the construction drawing under the link entitled "Downloads for the project".

### Required power tools:

- > Jigsaw
- > Cordless universal cutter
- > Multi-sander
- > Cordless drill/driver
- > Cordless screwdriver
- > Bench drill
- > Hand-held circular saw
- > Cordless tacker
- > Router
- > Fine spray system

### Other accessories:

- > Tacker for approx. 7 mm long nails (for upholstering)
- > Universal cutter for cutting fabric to size
- > Dowel scribes, centre points
- > Sanding paper, grits of 120–240



- > Set of wood drill bits
- > Universal twist drill bit, 4 mm diameter
- > Adhesive tape
- > Pencil, folding rule, pencil sharpener, rubber, compass
- > Work surface
- > 2 pieces of square timber, dimensions of approx. 500 x 58 x 38 mm
- > Trestles (if available)
- > Sheeting or old newspapers
- > Scrap wood to protect the workpiece
- > 4 G-clamps for gluing, clamping dimensions of min. 850 mm, and other small G-clamps
- > Cloth and paintbrush
- > Scribing square
- > Wide chisel
- > Spray adhesive
- > Blueprint paper
- > Red and blue felt pen
- > For your own protection: Face mask, protective glasses, gloves, ear protectors

**Detailed material list:**

pcs	Designation	Length	Width	Thickness	Material
1	Red routing template	970 mm	316 mm	10 mm	MDF
1	Blue routing template	970 mm	304 mm	10 mm	MDF
2	Leg panels for armchair	700 mm	357 mm	40.0 mm	Birch multiplex
2	Skirt panels for armchair	500 mm	120 mm	21.0	Birch multiplex
1	Base plate for leg of armchair	547 mm	514 mm	9 mm	Birch multiplex
1	Curb for base plate of armchair	514 mm	27 mm	21 mm	Birch multiplex
2	Seating surfaces of armchair	590 mm	115 mm	21 mm	Birch multiplex
2	Sizing panels for seating surface shaped parts of armchair	1000 mm	970 mm	40 mm	Birch multiplex
1	Backrest of armchair	800 mm	640 mm	21 mm	Birch multiplex
1	Panel for upholstery of armchair	600 mm	640 mm	9 mm	Birch multiplex



1	Panel for upholstery of armchair	800 mm	560 mm	9 mm	Birch multiplex
2	Panels for upholstery of armchair	530 mm	175 mm	9 mm	Birch multiplex
2	Panels for upholstery of armchair	530 mm	120 mm	9 mm	Birch multiplex
2	Leg panels (front/back) for stool	700 mm	357 mm	40.0 mm	Birch multiplex
2	Skirt panels for stool	279 mm	110 mm	21 mm	Birch multiplex
1	Panel for leg frame of stool	512 mm	300 mm	9 mm	Birch multiplex
2	Seating surfaces of stool	590 mm	110 mm	21 mm	Birch multiplex
1	Sizing panel for seating surface shaped parts of stool	1000 mm	970 mm	40 mm	Birch multiplex
1	Panel for upholstery of stool	600 mm	510 mm	9 mm	Birch multiplex
2	Panels for upholstery of stool	290 mm	120 mm	9 mm	Birch multiplex
2	Dowel rods for armchair, 8 mm diameter	520 mm			
2	Dowel rods for stool, 8 mm diameter	280 mm			
8	Brackets	60 mm	30 mm	2 mm	
1	Velcro tape				
	Flat head screws, 3.5 x 25 mm				
	Flat head screws, 3.5 x 20 mm				
	Flat head screws, 3.5 x 35 mm				
	Flat head screws, 4 x 40 mm				
1	Can of spray adhesive				
	approx. 0.7 l wood stain			1 mm	
	approx. 0.7 l hardwax oil			1 mm	
2	Padding	600 mm	510 mm	70 mm	Polyether foam



2	Padding	600 mm	640 mm	70 mm	Polyether foam
2	Padding	800 mm	560 mm	40 mm	Polyether foam
4	Padding	290 mm	120 mm	20 mm	Polyether foam
4	Padding	530 mm	175 mm	20 mm	Polyether foam
1	Fleece	6,000 mm	1,500 mm		Polyester fleece, 100 g/m <sup>2</sup>
1	Upholstery fabric	6,500 mm	1,400 mm		e.g. Trevira CS

## 2 Making the routing templates

The routing template is defined for the Bosch Routers POF 1400 ACE and POF 1200 AE with a template guide of 24 mm diameter and a straight bit of 12 mm diameter.

If you use other accessories, you have to re-calculate the routing template. The offset of the routing template to the routed part is calculated using the following formula:

Diameter of template guide – diameter of straight bit =  $x/2$

Download the routing template drawings and print them out. Then transfer the contour including the bore holes using the blueprint paper and a pencil onto the relevant MDF board (970 x 316 x 10 mm and 970 x 304 x 10 mm).

Now saw the templates precisely along the line using the jigsaw. To make it easier to saw the radii, drill holes first or use a curve-cutting saw blade. Also drill the marked holes. These are used partly for screwing the routing template and partly for scribing or marking the dowel holes. Then sand the cut edge precisely flat.

To prevent confusion, now mark the templates in colour: the red template is used for routing the inner contour, while the blue template is for routing the outer contour. The finished templates are used for both the stool and for the armchair.

## 3 Making the shaped parts for the seat shells

The shaped parts for the armchair and for the stool are made in one step.

The basic form is the same on both. As the stool does not have any horizontal armrests, these will simply be sawn off in a later step.

First screw the red routing template onto the sizing panel flush with the bottom edges for the seating surface shaped parts. Use 3.5-x-20-mm screws to do so. Make sure that the screw heads are cleanly countersunk. If necessary, use a countersink to do this.



Then transfer the dowel holes onto the sizing panel. Just scribe the holes with a 6-mm pilot drill bit. You will drill the exact vertical hole later with the bench drill.

Now copy the contour onto the workpiece using the router. Do not plunge more than 10 mm deep with the straight bit. You therefore have to rout in several passes. There will automatically be approx. 8 mm left over because the straight bit only has a working length of 32 mm. As a result, the sizing panels for the seating surface shaped parts will remain in one piece.

Unscrew the template again and slid it up 10 cm. Then screw the template on again, scribe the dowel holes, rout the contour in several passes, unscrew the template again and slide it up 10 cm. You now repeat this process another seven times.

You then carry on with the blue template for the outer contour. However, when doing so you start flush with the top edge of the sizing panel for the seating surface shaped parts. After every routing process, you slide this down 10 cm. You now also do the second sizing panel for the seating surface shaped parts of the armchair and the sizing panel for the seating surface shaped parts of the stool in the same way.

When everything has been routed, you place the panels with the routed area facing down and complete the shaped parts on the back with the router and the trimmer bit.

#### **4 Drilling dowel holes in the shaped parts**

To be able to connect the shaped parts with dowel rods in the next step, you now have to drill the corresponding dowel holes. To do so, use the bench drill and drill through the marked dowel holes with an 8-mm pilot drill bit.

The two shaped parts that are each placed at the end of the seat shells are the only ones you do not drill through at the armrests. Instead only drill them partially. This will ensure that the connections with the dowel rods are not visible from the outside. You do however drill through the dowel holes in the seating area on all the shaped parts. This will enable you to also use these holes later for connecting to the seat panels.

#### **5 Gluing the shaped parts to form seat shells**

Now use the shaped parts to make the seat shells of the armchair and stool.

To make sure that the parts do not slip during gluing, they are additionally connected with the dowel rods. If the dowel rods are difficult to guide through the pre-drilled dowel holes, scrape them off slightly with a card scraper.

While the glue dries, press the parts together firmly using G-clamps and scrap wood. The excess glue that oozes out when you press the parts together can simply be wiped off with a damp cloth. Observe the glue manufacturer's specifications regarding the drying time.

When the glue has dried, roughly sand the bumps off the finished seat shells.

#### **6 Sawing off the armrests of the stool's seat shell**



As the stool does not need any armrests, these will now be sawn off. Mark the sawing edge with a scribing square and a sharp pencil. Then saw the armrests off cleanly with the hand-held circular saw and the matching guide rail.

## **7 Preparing the seating surfaces**

Seat panels will be glued on to the seat shells at the front and back. These first have to be cut into shape.

To do so, use a compass to mark the radii on the “armchair seating surfaces” and “stool seating surfaces” panels. To make the curve easier to saw with the jigsaw, use a curve-cutting blade.

The “armchair seating surface” panel that is glued on to the back of the seat shell needs a cutout for the backrest. Mark the cutout on the panel as specified in the construction drawing. Then drill through at all four corners with at least 10 mm diameter, so that you can plunge the saw blade of the jigsaw into them and turn it 90 degrees. Finish the corners by hand with a chisel.

Alternatively, the cutout can be made with a hand-held circular saw.

## **8 Gluing the seating surfaces to the seat shells**

The seating surfaces are glued to the seat shells and additionally connected with long dowel rods for a secure hold. To do so, transfer the positions of the dowel holes in the seat shells onto the seating surfaces using dowel spikes.

If you have not yet drilled the holes for the dowel rods, you first have to drill dowel holes in the side of the seat shell. To do so, hold the seating surface on the seat shell and mark four holes roughly equal distance apart from each other. Use a drilling template to drill.

Then drill the corresponding dowel holes in the seating surfaces using the bench drill.

Use scrap wood and G-clamps again when gluing the parts together. Wipe off excess glue with a damp cloth. Take your time: glue the parts one after the other rather than all at once.

## **9 Sawing the backrest for the armchair into shape**

Now saw the armchair backrest into the right shape. To do so, transfer the contour onto the backrest panel as specified in the construction drawing using a pencil. Mark the radii with a compass and saw precisely along the line using the jigsaw. Use a curve-cutting saw blade to do so.

## **10 Sawing the leg frame panels into shape**

The leg frames for both the stool and the armchair each consist of two leg panels and two connecting skirts. The basic shape of the leg panels is the same. The armchair leg panel differs only in angle and height.

Now start with one of the leg panels for the stool. Transfer the contour onto the panel as specified in the construction drawing using a pencil. First saw the top and bottom slants at a 20-degree angle using the circular saw. Then saw the contour out with the jigsaw. Pre-drill the inner corners beforehand with a 20-mm drill bit.



With the leg panels for the armchair, you again cut the slants with the circular saw before sawing the contour with the jigsaw. The bottom slants are 20 degrees, which is the same as on the stool, but the top ones are 25 degrees and 15 degrees. To avoid confusion, mark the parts in the way that they will later be assembled.

To make the skirts, again transfer the contour onto the panel as specified in the construction drawing and saw it into shape with the circular saw.

## **11 Assembling the leg frames**

The leg frames of the armchair and the stool are essentially the same: the two shaped leg panels are fitted to the skirts using the brackets to form frames.

To do so, you first have to pre-drill and countersink the brackets (four per frame) for screwdriving with three 4 mm diameter holes each. (You can drill aluminium with a normal universal bit.) Then screw together the frames via the brackets. This is easiest to do when the chair legs are pointing up. Use longer screws (3.5 x 25 mm) to screw the leg panels, and use shorter screws (3.5 x 20 mm) to screw the narrower skirt panels.

As the upholstery will later be screwed to the frames from below, a base plate is screwed onto the frames for each. Use 4-x-30-mm screws to do this.

The base plate of the armchair clearly protrudes at the back of the frame and will also have a curb. This will later stabilise the backrest position and the glue joint between the seat shell and the rear seating surface. Mount the curb with screws (3.5 x 25 mm). Then fit the two base plates on the frames with screws (4 x 30 mm).

## **12 Making the upholstery**

It is advisable to use a robust upholstery fabric for the upholstery. A flat woven upholstery fabric made of 100% Polyester/Trevira CS was used for the construction guide.

For the padding it is best to use polyether foam, which you can get in different thicknesses at any good specialist shop. As these foams can only be cut using special cutting machines, have the upholsterer cut the required parts to size for you.

First cut the "upholstery panels" as specified in the construction drawing using the jigsaw. Make two curves with a 50 mm radius at the front of the panel for the seat upholstery. Then chamfer all corners and edges by lightly sanding them to a 45-degree angle. Now assign the upholstery pieces to the panels and mark them to avoid confusion.

Start with the seating surface of the armchair: glue the corresponding padding to the panels using the spray adhesive.

Transfer the dimensions onto the polyester fleece using the felt pen and cut it to size using the universal cutter. Then fit the fleece to the padding using spray adhesive. (The polyester fleece stops the fabric from rubbing against the padding. It separates, so to speak, the padding from the fabric.) Now do the same with all "upholstery panels".

Then cut the fabric using the universal cutter. Spread out the fabric, align the padding on the fabric and mark the cutting line with an excess of about 5 cm.



Now spread out the cut fabric on the worktable and align the padding on it with the panel facing up. Fold in the fabric on one side and fix it with one or two tacker nails in the middle of the panel. Then stand the upholstery up, smooth out the fabric and fix the opposite side in the middle with one or two tacker nails. Do the same with the other two sides. Then staple the fabric on each side from the middle outwards towards the edge. Now the upholstery is finished except for the corners.

Fold in the fabric at the corners. At the large curves with 50 mm radius, make two open folds for each corner, otherwise make only one fold. Staple the folds on the back.

### **13 Joining all parts to form a finished armchair and stool.**

First of all, the seating surfaces of both the stool and the armchair are screwed to the seat upholstery from below (with 4-x-30-mm screws). The armrest upholstery pieces for the armchair are also screwed from below. The remaining upholstery pieces are fixed using velcro. To do so, staple the velcro on the edge of each of the upholstery pieces. Now fit velcro in a mirror image on the backrests of the stool and armchair.

Now for the armchair: align the seating surface with the upholstery on the armchair frame as specified in the construction drawing and fix it from below with screws (3.5 x 35 mm and 4 x 30 mm).

It is important to now screw from above through the seat panel into the curb of the frame's base plate (with 3.5-x-40-mm screws). Now just insert the backrest and stick on the remaining upholstery pieces with the velcro.

Now for the stool: align the seating surface with the upholstery on the stool's frame as specified in the construction drawing and fix it from below with screws (3.5 x 35 mm and 4 x 30 mm). Stick on the stool's remaining upholstery pieces with the velcro.

The armchair and the stool are now finished apart from their surface.

### **14 Treating the surface of the frames, seating surfaces and backrest.**

To do the surfaces, take the upholstery off again and detach the backrest, the seating surfaces and the frames from each other.

Sand the edges and the surfaces with a grit of 120 to 180. When doing so, also chamfer all edges, i.e. use the sanding paper to make a small chamfer at a 45-degree angle. Then dampen the surface with a damp cloth. This makes the fibres of the wood stand up. Once it is dry, sand everything again with a grit of 180. This will remove the raised fibres.

Now the wood stain is applied. Remember to use gloves for your personal protection. Generously apply the wood stain with the paintbrush and wipe off excess stain with a cloth. Then leave the wooden parts to dry thoroughly.

Then you can carefully sand the parts with very fine sanding paper, grit of 240, if necessary. Then apply the oil-wax mixture with a paintbrush, again wiping off the excess oil with a cloth, and leave the parts to dry.





Caution: oil in a cloth can ignite itself. For this reason, never throw the cloth away when it is crumpled up. Instead always spread it out and leave it to dry or seal it in an air-tight tin or glass.

## **15 Finishing the armchair and stool**

After surface finishing, assemble all the parts again. To finish with, you can attach slides (for carpet) or felts (for parquet) to the feet.

## **16 Done**

Now you really have earned a break. It's a good opportunity to test your new furniture!

Bosch does not accept any responsibility for the instructions stored here. Bosch would also like to point out that you follow these instructions at your own risk. For your own safety, please take all the necessary precautions.