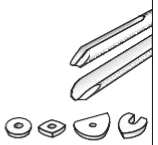
Gouge Jig SVD-186 R

TURNING TOOLS

Bowl gouges
Spindle gouges
Turning cutters



CARVING TOOLS

Curved gouges
Spoon-shaped gouges
Back bent gouges
Down bent gouges
Curved V-tools

Max tool width 36 mm (1/a")

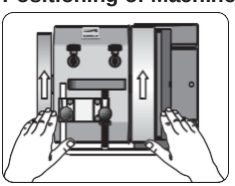
VIOLIN MAKING KNIVES

Knives with short bevel
Knives with long bevel
Double edged knives

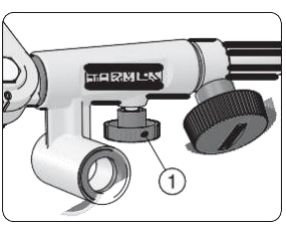
SVD-186 R is a further development of SVD-186

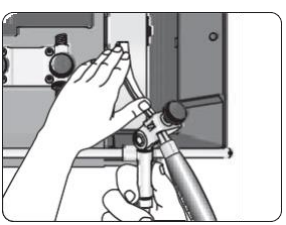
A new locking knob (1) allows you to now lock the jig's rotary motion. This makes it easier to get full control when sharpening woodcarving tools, such as bent V-tools. The locking knob also enables sharpening with a completely flat bevel on violin making knives when using Tormek's Multi Base MB-100 and Tormek's Diamond wheels.

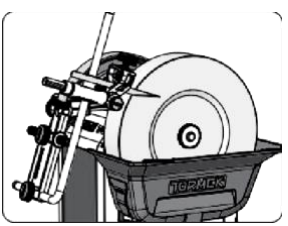
Positioning of Machine



Grinding direction:
Away from the edge.

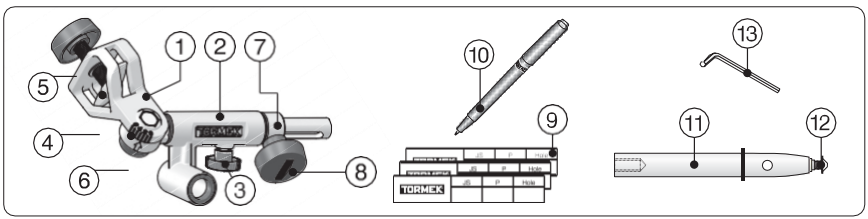






Design

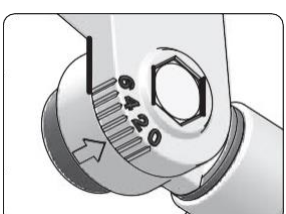
The jig comprises a *tool holder* (1) which runs in a *sleeve* (2). The *locking knob* (3) locks the rotary motion of the gouge jig. The tool is aligned with a *disc* (4) and tightened with a *screw* (5). Easy and precise *click setting* (6). The *stop ring* (7) can be set with the *screw* (8) in order to round off the heel of the grinding bevel. The setting can be noted on a special *recipe label* (10), which is attached to the ferrule. A special *pen*, which works on these labels is included (11). For turning cutters there is a *shaft* (12) with a *mounting screw* (13) and a 2.5 mm *allen key* (14).



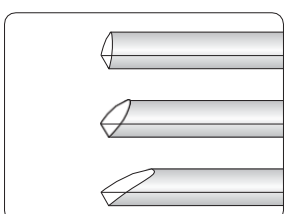
Jig setting

You can grind turning gouges with the so called fngernail shape as well as carving gouges with various shapes. You can also grind straight and curved V-tools.

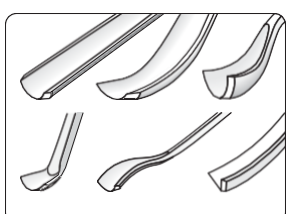
The jig causes the tool to move towards the grinding wheel in a special way, according to the setting selected from 0 to 6. This means, that for turning gouges you can decide the maximum length of the side edges. For curved carving gouges, which are not ground with a fngernail shape, the jig setting compensates for the shape of the shank.



The jig can be set from 0 to 6, which permits the grinding of …

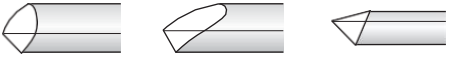


… turning gouges with various lengths of side bevels and …



… carving gouges with various shapes and V-tools.

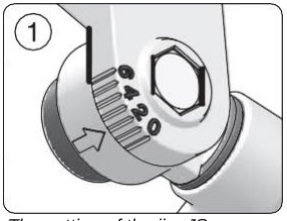
Turning Gouges



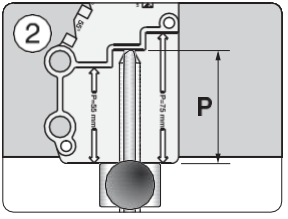
Shaping

The jig positions the gouge on the grinding wheel so that you can get a specifc and repeatable grinding at any point along the bevel. This enables you to get an even, single bevel around the entire profle from the left to the right wing.

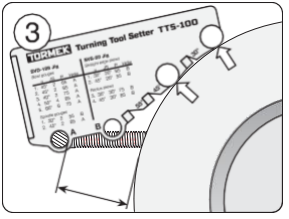
These three factors determine the geometry of a gouge



The setting of the jig, JS.

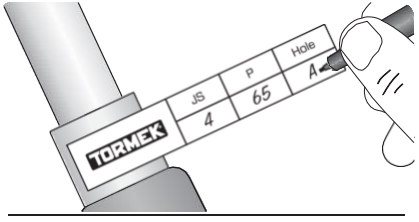


The protrusion of the tool in the jig, P.



Universal Support position. Use hole A or hole B.

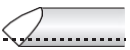
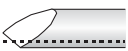
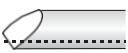
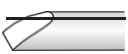
With the Turning Tool Setter TTS-100 you control these factors. Select the profle you want from the chart on the next page and use the three settings, which give that shape. Note the settings on the Profle Label and put it on the ferrule. After the initial shaping you can exactly replicate your favourite shape at every sharpening in less than a minute.

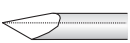


Note the settings on the Pro!le Label and put it in on the ferrule.

A set of labels comes with the jig.

Selection Chart

Bowl gouges				
1	α=45°		**JS 2** **P 65** **Hole A**	Standard profile. Only lightly swept back wings. For turners of all skill levels.
2	α=45°			Irish profile. Swept back wings. Swing the tool 180° from side to side.
3	α=40°		**JS 2** **P 75** **Hole A**	With long swept back wings. Somewhat aggressive. For professional level turners.
4	α=55°		**JS 4** **P 65** **Hole A**	The larger edge angle is beneficial when turning deep bowls.
5	α=60°		**JS 6** **P 75** **Hole A**	"Ellsworth" shape. Wings are pronounced convex.

Spindle gouges				
1	α=30°		**JS 2** **P 55** **Hole B**	For tight spots, detail work and finest finish. For professional level turners.
2	α=45°		**JS 2** **P 65** **Hole A**	Standard profile. For turners of all skill levels.

These geometries, i.e. the shape and edge, angle are recommended by experienced woodturners and recognized woodturning workshops around the world, e.g. Glenn Lucas Woodturning in Ireland, Nick Agar's "Turning Into Art" in the UK and Drechselstube Neckarsteinach in Germany.

Since a tool can have an unlimited number of combinations of shapes and edge angles, a new tool has a more or less a different shape compared to any of the shapes on the chart. Therefore, you frst need to shape your tool to one of the shapes on this chart. Then the following sharpenings will be an easy task and done in less than a minute.

Tip *Stick to the shape you have selected and do not switch from one shape to another. Then you will get the full benefit of the Tormek TTS-100 Setter, since you can instantly replicate exactly the same shape every time. Should you need a different shape, then buy another tool and grind it to your alternative shape. This way of working will give you more time for turning and fewer interruptions for shaping and sharpening.*

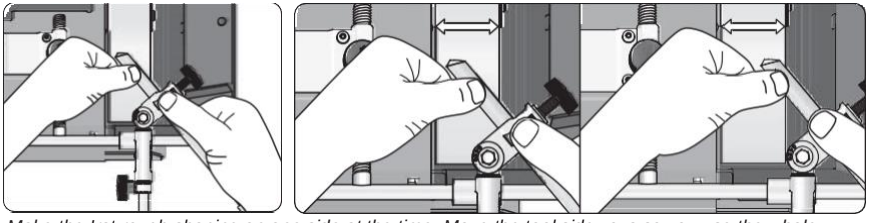
Shaping

You can do the initial shaping either directly on your Tormek or, if a lot of steel needs to be removed, on a bench grinder using the Tormek Bench Grinder Mounting Set BGM-100 (page 29).

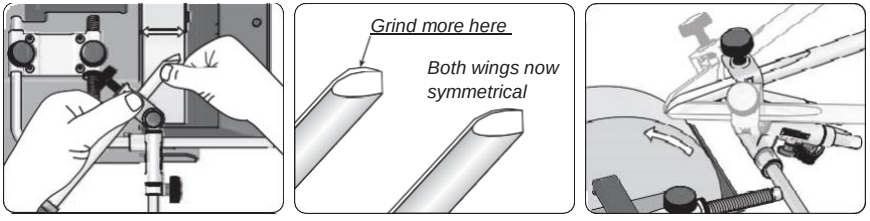
When shaping on the Tormek, contrary to a high speed bench grinder, you need to apply a high grinding pressure. Therefore, press with your hand or thumb on the tool to increase the grinding pressure. Grind one side at the time. This is easier since you do not need to swing the tool from side to side. Finish the grinding with a full swing over the entire bevel. Do not spend too long on the same spot on the grindstone, as it will leave grooves on the stone. Instead, grind on new spots so that you use the whole width of the stone.

By this technique the remaining grooves will not be too pronounced. They will reduce with future grindings of straight edges. If you immediately require a flat surface of the stone, you can true it with the Truing Tool TT-50.

Check your grinding frequently to ensure that the gouge acquires an even shape. Grind more on the spots where it is needed. Your hands and eyes decide the final evenness and shape of the bevel. Remember that once you have created your desired fingernail shape, this can be kept forever and you will always benefit from the time spent on the initial shaping. This initial shaping needs only to be made once. It takes 10–20 minutes depending on the original shape of the tool and on how much steel you need to remove.



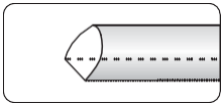
Make the first rough shaping on one side at the time. Move the tool sideways so you use the whole width of the stone and avoid creating grooves.



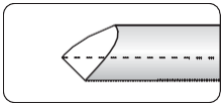
Grind the other side. Again use the whole width of the stone to wear the stone evenly. Check frequently to ensure that you are grinding evenly. Grind more where it is needed. Decrease the grinding pressure as you complete the shape and finish the grinding with a full swing over the entire bevel.

Length of the Wings

The length of the wings depends on how wide you swing the tool from side to side.



Limited swing.

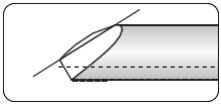


Full swing.

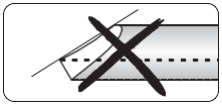
Shape of the Wings

Watch that you grind on the right spots on the bevel so the wings become symmetrical and slightly convex or straight.

They must never be concave.

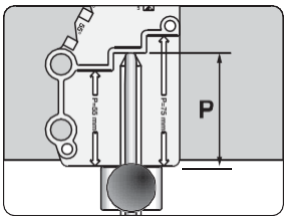


Convex.



Concave. Not suitable!

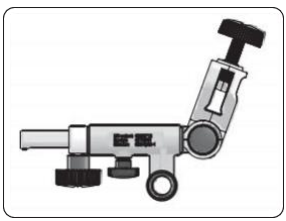
Note *You decide how much grinding takes place on any one spot and hence the final shape. If the wings tend to be concave, then grind more on the centre of the edge.*



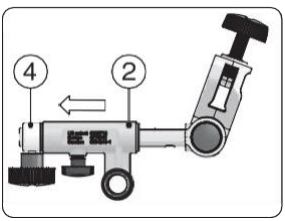
When the desired shape is achieved, check that the protrusion has not decreased during the shaping. If so, re-position the tool to the correct protrusion and then make the final shaping. By doing so, you will ensure that you exactly replicate the edge geometry at future sharpenings.

Rounding Off the Heel

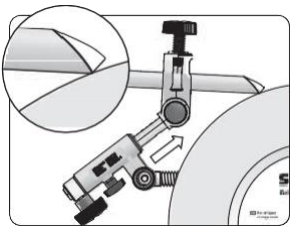
Some turners round off the heel of the bevel on bowl gouges and spindle gouges. The jig is designed so that you can move the tool towards the wheel and grind the heel. The heel can be ground either as a flat secondary bevel or rounded off by sliding the jig back and forth during grinding. If you want a more pronounced rounding off, you move the Universal Support a little towards the grinding wheel.



Normal position.



You can round off the heel by moving the stop ring (4) and the sleeve (2) backwards.

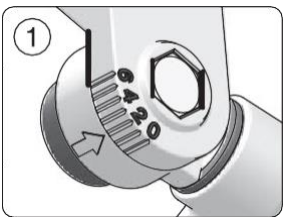


Now you can press the jig towards the wheel to round off the heel.

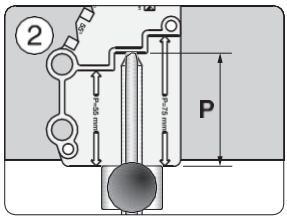
Sharpening

Once you have created the shape of the edge, it is an easy task to quickly re-sharpen the tool. The sharpening should be done on your Tormek machine for the best fnish and to ensure that the edge is not overheated. Make the three settings noted on the Profle Label carefully and you will obtain exactly the same shape every time even when the stone wears and decreases in diameter.

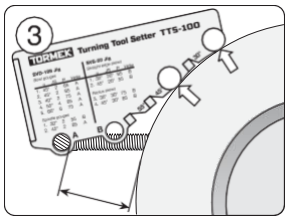
These three factors determine the geometry of a gouge



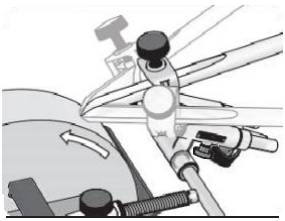
Set the jig, JS.



Mount the tool with a !xed protrusion, P.



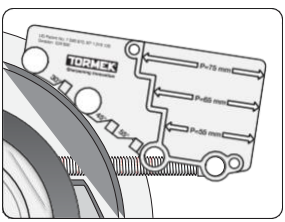
Set the Universal Support. Use hole A or hole B.



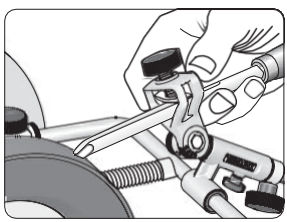
Sharpen with a light pressure and swing the tool from side to side. Since the shape is exactly replicated and the edge is just touched up, the sharpening takes just 20–30 seconds.

Honing

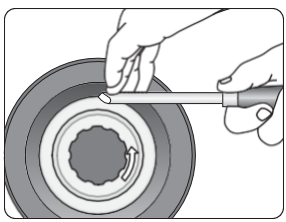
Honing and polishing the bevel and the flute to a fner fnish will make the sharpness more durable. Also, use the Setter and jig for this operation and you are sure that you are honing to exactly the same shape as the sharpening plus you do not risk rounding off the very tip of the edge.



Move the Universal Support to the honing wheel and make the same setting with the Setter.



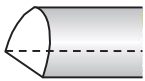
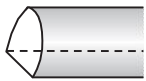
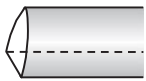
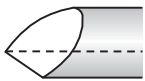
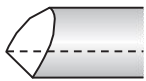
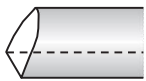
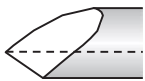
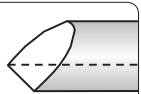
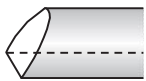
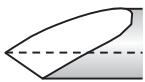
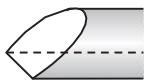
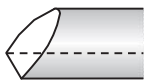
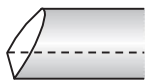
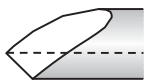
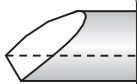
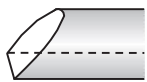
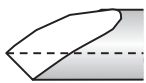
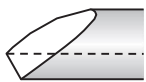
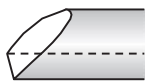
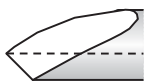
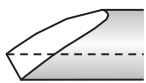
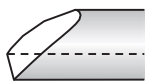
Hone by swinging the tool from side to side. You now have an extra !ne !nish.



Polish the flute and remove the burr on the Pro!led Leather Honing Wheel LA-120.

Other Shapes

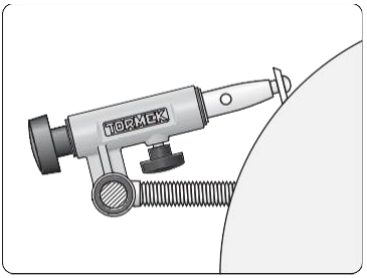
You can of course shape your gouge to a different geometry from those provided with the TTS-100 Setter. This graph shows examples of shapes which you can achieve on a bowl gouge at various jig settings and edge angles. In each example, the protrusion of the tool in the jig (P) is 65 mm (2½"). The gouge is swung fully 180º from side to side.

Jig Setting	Edge angle **35°**	Edge angle **45°**	Edge angle **55°**	Edge angle **75°**
JS 0				
JS 1				
JS 2		* 		
JS 3				
JS 4			* 	
JS 5				
JS 6				

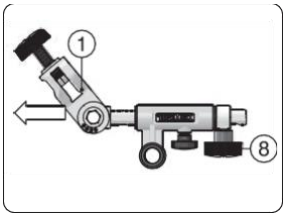
** Geometries achieved with the TTS-100 Setter.*

Turning Cutters

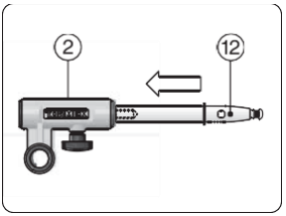
There are various types and sizes of exchangeable cutters for hollowing and scraping. The holes vary from 4–8 mm (5⁄32–5⁄16"), but due to a shoulder on the shaft they can all be mounted with the same screw. The cutters can be sharpened to their existing shape or to a new shape.



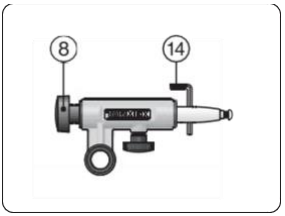
Mounting the jig



Loosen and remove the screw (8) and the tool holder (1).

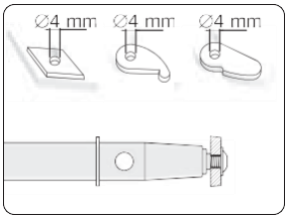


Insert the shaft (12) into the sleeve (2). Note: Position the sleeve according to the picture!

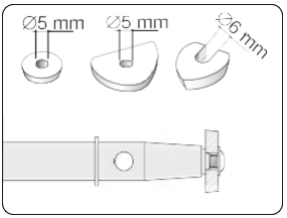


Mount the screw (8). Lock the shaft with the Allen key (14) when tightening.

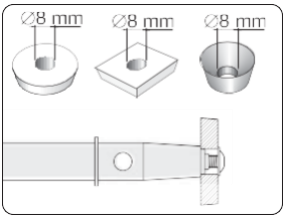
Mounting the cutter



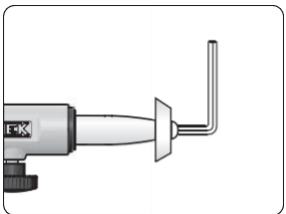
Cutters with 4 mm (5⁄32") holes are centered by the M4 screw.



Cutters with 5 and 6 mm (3⁄16"–¼") holes are centered on the !rst shoulder on the shaft.



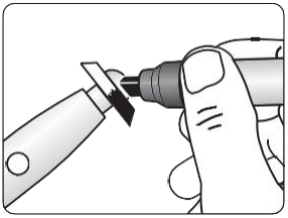
Cutters with 8 mm (5⁄16") holes are centered on the second shoulder on the shaft.

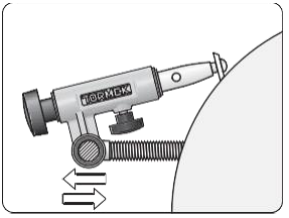


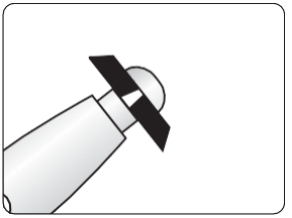
Use the Allen key (14), which

comes with the jig.

Setting the edge angle



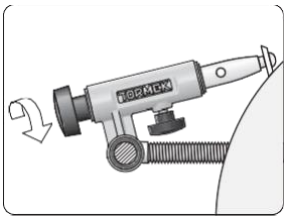


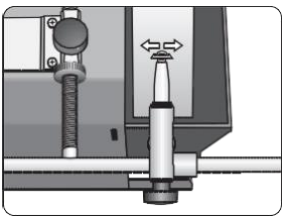


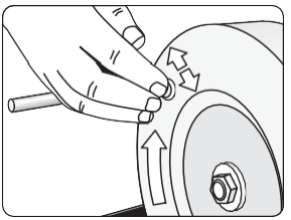
Colour the bevel with a marker. Set the Universal Support so that the grinding wheel touches the entire length of the bevel when rotating it by hand.

At the right setting the wheel removes the colouring along the whole length of the bevel.

Sharpening



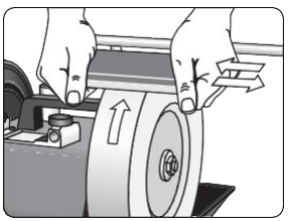


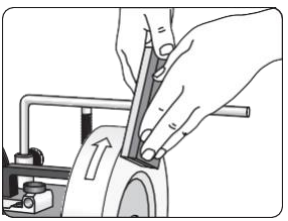


Rotate the jig all the time during the sharpening so you achieve an even grinding around the whole circumference. Use only a light pressure for the best result. Slide the jig sideways on the Universal Support so the wheel wears evenly.

Smooth the back on the machined, flat outside of the grinding wheel. Move the cutter in order to use the whole surface of the wheel.

Tip *When smoothing the back of the cutter, hold it towards the grinding wheel before you start the machine. This is easier and you do not risk dropping it into the water trough.*

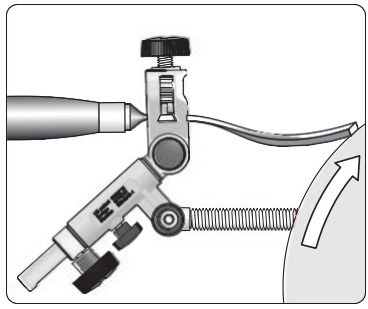




If you want an extra !ne surface on the bevel, grade the Tormek Original Grindstone with the Stone Grader SP-650 so it grinds more !nely corresponding to a 1000 grit grindstone.

Important *Do not hone these small tools on the leather honing wheel! They can easily get caught on the leather surface and spoil the leather.*

Carving Gouges



Carving gouges can be straight, curved or spoon shaped. They can also be back bent, down bent or tapered. The jig can be set to compensate for any radius on the curve so that the grinding takes place evenly across the edge, so creating a con- stant edge angle from the centre to the sides of the gouge.

Unlike turning gouges, carving gouges should not be ground with side bevels. The edge should form a straight line viewed from above and the corners must be sharp.

The Principle

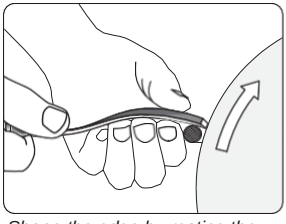
Use the technique as described in *Sharpening Techniques for Carving Gouges and V-tools* on page 20.

Edge Angle

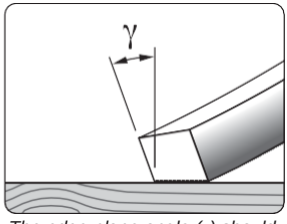
As described in the above chapter on page 24, the choice of edge angle is very important for a carving gouge. The method of setting the jig for a certain angle depends on whether you want to replicate an existing edge angle or if you want to put a new edge angle on your tool.

When replicating an existing edge angle, you should use the *Marker Method*, which is described on page 41. If you want to put a new edge angle to your tool, you can either set the angle by eye or you can use the AngleMaster (page 142).

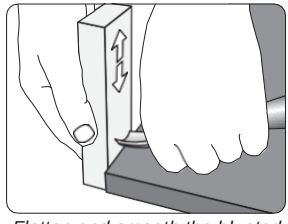
Shaping the edge



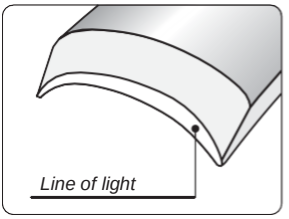
Shape the edge by resting the tool on the Universal Support placed horizontally and close to the wheel.



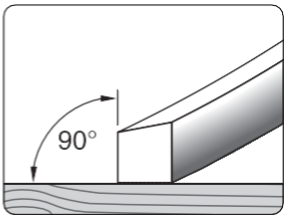
The edge plane angle (γ) should be approx. 20° (page 21).



Flatten and smooth the blunted edge with the !ne side of the Tormek Stone Grader, SP-650.

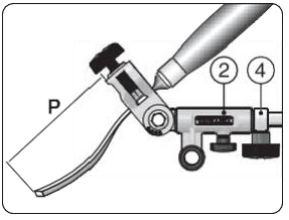


Now you have a line of light, which is your guide as to where to grind.

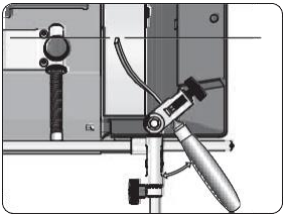


When cutting steep bowls using a curved or a down bent gouge, the edge plane angle can be decreased. Here it is 0°.

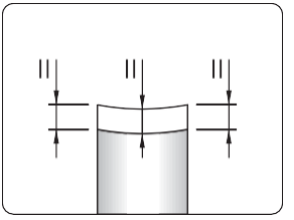
Setting the jig



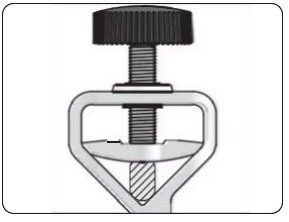
Mount the gouge in the jig protruding approx. 100 mm (4"). The stop ring (4) must be locked close to the sleeve (2).



Put the jig on the Universal Support and swing it to one side. Set the jig so that the plane of the edge is approx. parallel to the axis of the wheel.

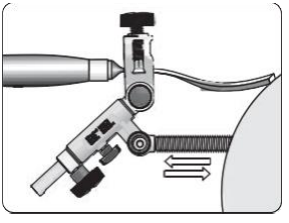


The edge angle will now be equal across the edge. If the thickness of the steel is even, the bevel length will also be equal along the edge.



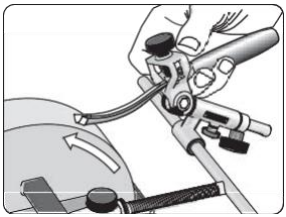
If the shank has a convex upper side, you should grind it flat to make sure that the tool does not turn in the jig.

Setting the edge angle

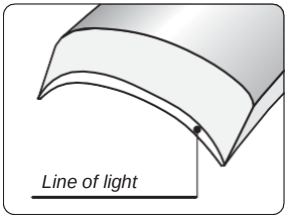


Set the edge angle by adjusting the Universal Support. When replicating an existing angle, use the Marker Method. When setting a new angle you can use the AngleMaster.

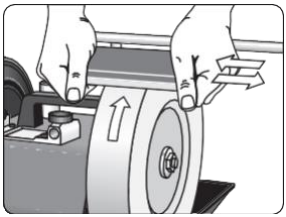
Grinding



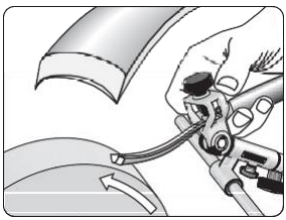
Always grind where the line of light is the thickest while swinging the tool.



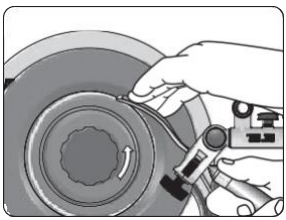
Check frequently where the grinding takes place. Grind until you get an even and thin line of light.



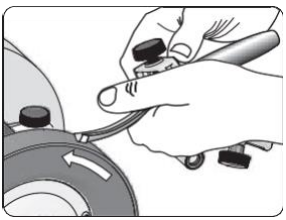
Grade the Tormek Original Grindstone for !ne sharpening with the !ne side of the Stone Grader SP-650.

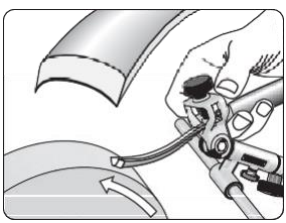


Continue sharpening. Check the result frequently.

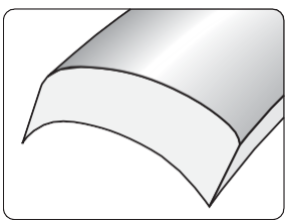


Remove the burr on the leather honing wheels to observe the line of light more clearly. The tool is left mounted in the jig.

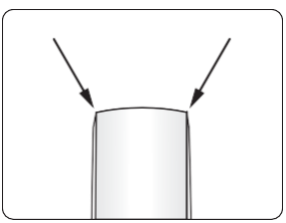




Sharpen again. Now with a very light pressure. Check frequently so that you do not over-sharpen.

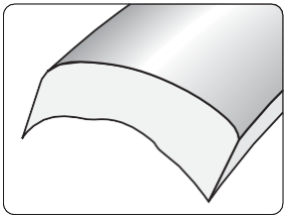


Stop sharpening immediately when the line of light disappears, which is a sure sign that the edge is sharp.



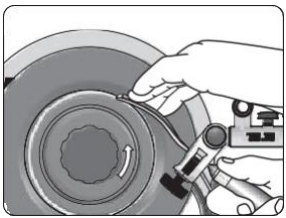
Be careful so you do not round off the corners. Woodcarving tools should have sharp corners!

Important *It is very easy to be misled by the burr and mistake the burr for the line of light! Therefore you must remove the burr frequently during the finishing of the grinding operation, so you clearly can watch the progress of a gradually thinner the line of light.*

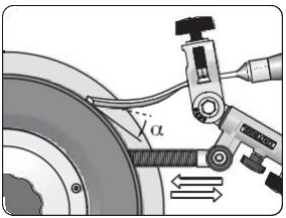


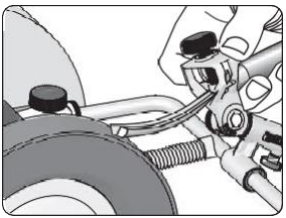
It is very easy to over-sharpen the edge at the end of the sharpening. If this happens, you need to reshape the edge and start again from the beginning.

Honing



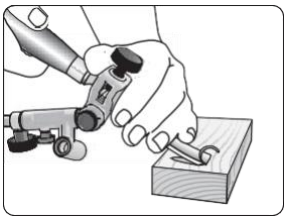
Keep the tool in the jig and hone and polish the inside on the Pro!led Leather Honing Wheel LA-120.



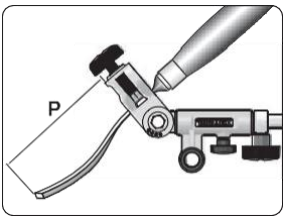


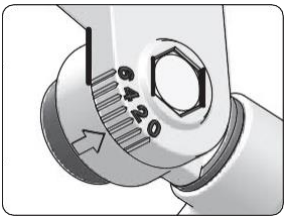
Hone and polish the bevel. Set the Universal Support so that the honing angle is the same as the grinding angle. Use the Marker Method. Hone away the burr and polish the bevel to a mirror !nish.

Testing the sharpness



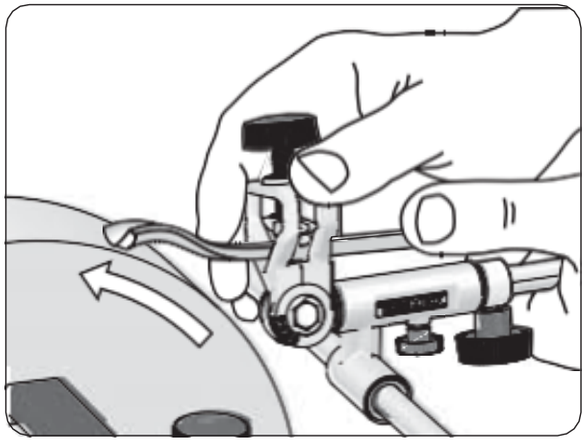
Leave the tool in the jig and test the sharpness by pushing the edge across the !bres in a piece of wood. The edge should cut easily and leave a smooth surface without tearing the !bres.



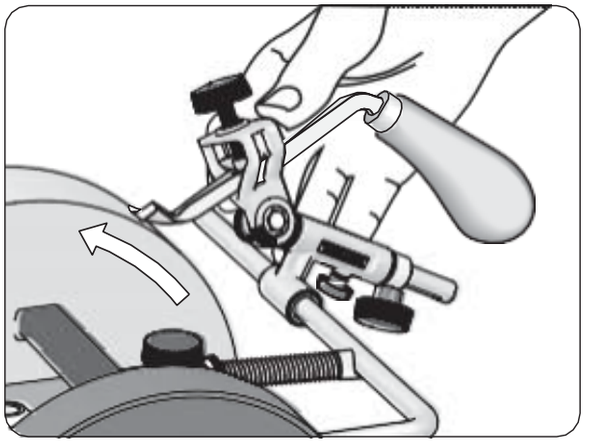


If the edge needs further honing or sharpening on some spots, you can continue with the same setting. When you are satis-!ed with the result, you remove the tool from the jig after having measured and noted the protrusion (P) and the jig setting.
Please see the next page.

Back Bent and Down Bent Gouges



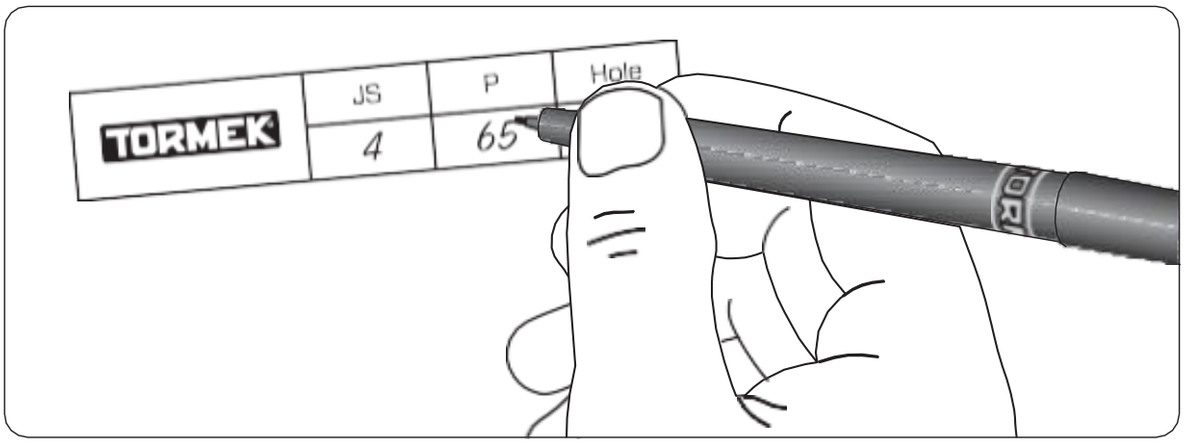
A back bent gouge is ground with the jig setting 0.



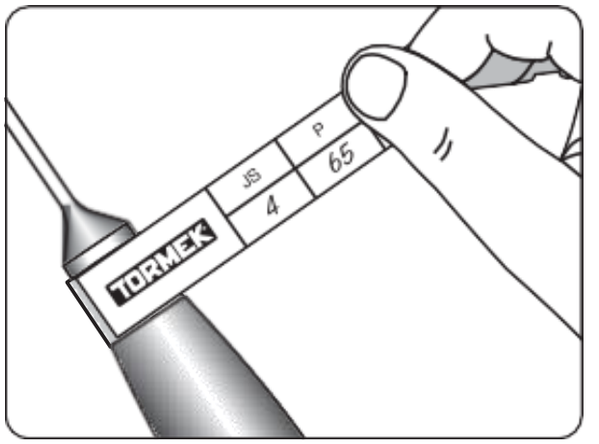
You can also grind a down bent gouge. The jig is set as shown on page 86.

Documentation of the Shape

The shape of the gouge is determined by the jig setting (JS) and the protrusion (P). Note these settings on the profle label, which comes with the jig. Now you can exactly replicate this shape at future re-sharpenings. Set the edge angle with the *Marker Method* or the *Spacer Block Method*.



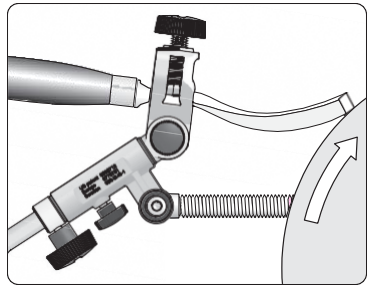
Note the jig setting (JS) and the protrusion (P) on the label. Use the water proof pen which comes with the jig.



Attach the label to the ferrule and you are assured that you have the same settings at future sharpenings.

V-tools

These tools are considered the most diffcult to grind. The reason is that it has two edges joined with a radius.



However, with the method described here, you will also manage to achieve a sharp and correctly shaped edge on these tools.

The principle is the same as for carving gouges, i.e. you frst give the tool its right shape and then let the line of light guide you as to where to grind.

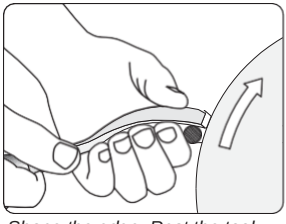
The Principle

Use the technique as described in *Sharpening Techniques for Carving Gouges and V-tools* (page 20).

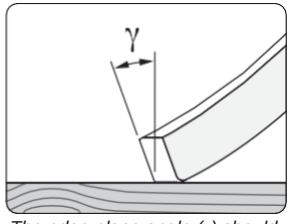
Edge Angle

As described in the chapter above on page 24, the choice of edge angle is very important for a carving gouge. The method of setting the jig for a certain angle depends on whether you want to replicate an existing edge angle or if you want to put a new edge angle on your tool.

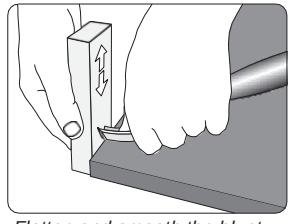
Shaping the edge



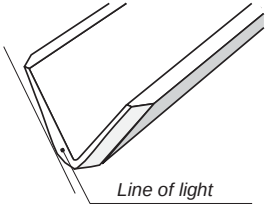
Shape the edge. Rest the tool on the Universal Support positioned horizontally.



The edge plane angle (γ) should be approx. 20° (page 21).

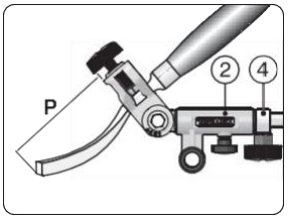


Flatten and smooth the blunt edge with the !ne side of the Tormek Stone Grader, SP-650.

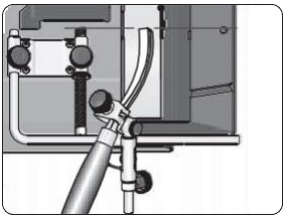


The blunt edge appears as a line of light, which is your guide as to where to grind.

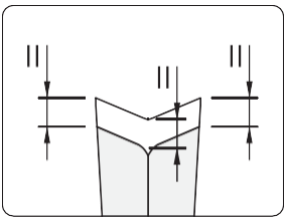
Setting the jig



Mount the tool in the jig protruding approx. 100 mm (4"). The stop ring (4) must be locked close to the sleeve (2).

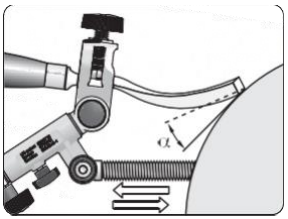


Turn the jig so one wing lies flat on the wheel. Set the jig so that the edge is approximately parallel to the axis of the wheel.

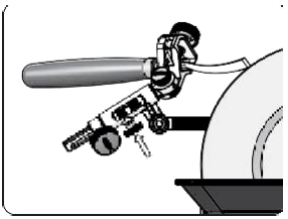


Now the jig is set to suit the shape of the tool, the edge angle will be uniform.

Setting the edge angle

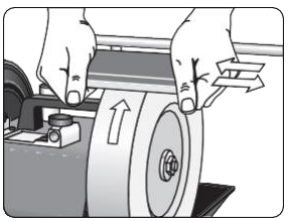


Set the edge angle by adjusting the universal support. When replicating an existing angle, use the Marker Method. When setting a new angle you can use the AngleMaster.

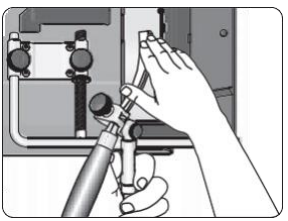


When you find the right angle, lock the jig's rotary motion using the smaller locking knob under the jig.

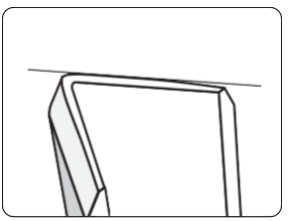
Grinding



Grade the Tormek Original Grindstone for fine sharpening with the fine side of the Stone Grader SP-650.



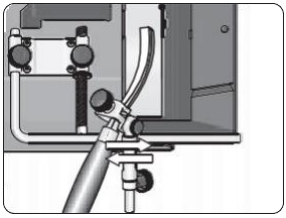
Adjust the sharpening pressure with a finger and check what sharpening is carried out. Fine adjust if necessary.



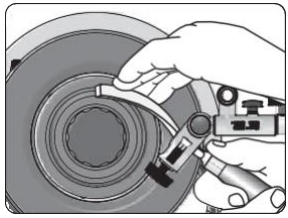
Grind parallel to the inside of the bent V-tool.

For those who have the older version of SVD-186 without the smaller locking knob, we recommend

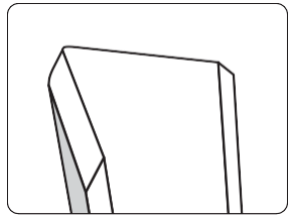
not to move the tool sideways when sharpening. Remaining in the same place on the grinding wheel gives better control.



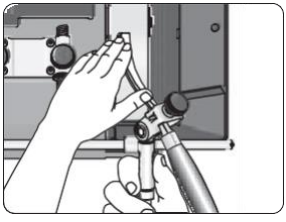
Move the tool slowly sideways.



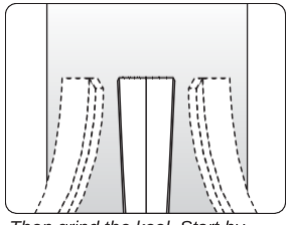
Remove the burr on the leather honing wheels so that you can better observe the line of light.



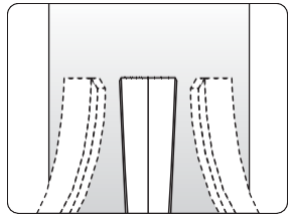
Stop sharpening immediately when the line of light disappears, which is a sign that the edge is sharp.



Now grind the other wing in the same way.



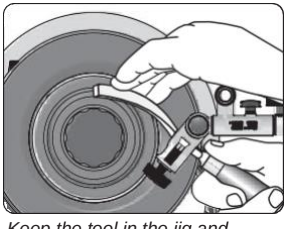
Then grind the keel. Start by loosening the locking knob.



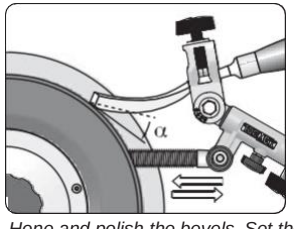
Turn the tool from side to side to equalise the grinding towards the wings.

Important *It is very easy to be misled by the burr and mistake the burr for the line of light! Therefore you must remove the burr frequently during the finishing of the grinding operation, so you clearly can watch the progress of a gradually thinning line of light.*

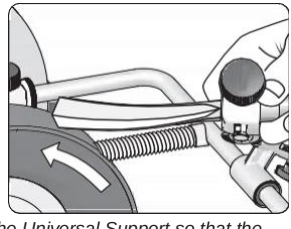
Honing

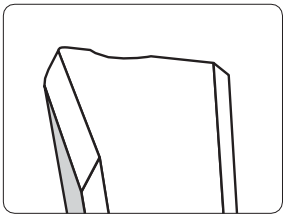


Keep the tool in the jig and hone and polish the inside on the Pro!led Leather Honing wheel LA-120.

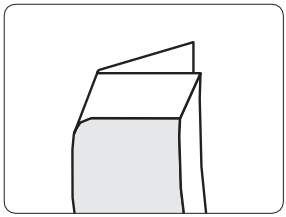


Hone and polish the bevels. Set the Universal Support so that the honing angle is the same as the grinding angle. Use the Marker Method. Hone away the burr and polish the bevels to a mirror !nish.

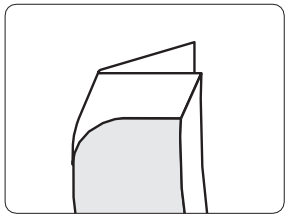




It is easy to over-grind the edge at the end of the grinding. If this happens, you need to reshape the edge and start again from the beginning.

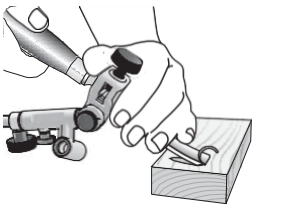


This is now how the tool should appear. The keel is slightly longer than the bevel of the wings since the steel is thicker in the centre.



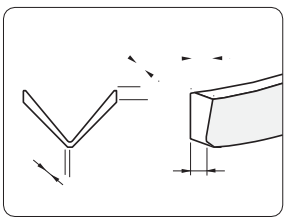
The tool cuts more easily if you round the keel. Move the Universal Support slightly towards the grindstone and grind gently while swinging the tool from side to side.

Testing the sharpness

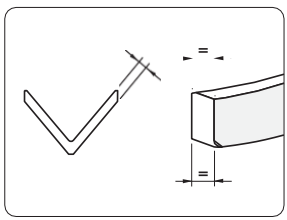


Keep the tool in the jig and test the sharpness by pushing the edge across the !bres in a piece of wood. The edge should cut easily and leave a smooth surface without tearing the !bres. If the edge needs further honing, you can continue with the same setting. When you are satis!ed with the result, you remove the tool from the jig.

Uneven thickness of the steel



Uneven thickness



Even thickness

If the steel thickness varies, the length of the bevel will also vary despite the fact that the edge angle is the same. This has no influence on the function of the tool, as it depends on the edge angle. A V-tool with an even steel thickness has the same bevel length on the whole wing.

Violin Making Knives

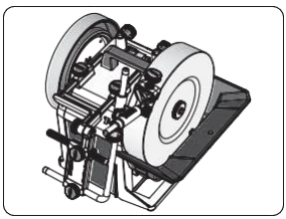
You need to use SVD-186 R, Multi Base MB-100 and one of Tormek's diamond wheels to sharpen violin making knives to a precise edge angle. This is because the violin making knives require a completely flat bevel, which is only possible when grinding on the side of the wheel. We recommend that you use the fnest wheel, Diamond Wheel Extra Fine DE-250 with a grit size of 1200.

Edge angle

To sharpen violin making knives to the original angle, we recommending using Tormek's Marker method. This involves colouring the bevel with a permanent marker and then adjusting the other angle settings so the grindstone removes the colour from the bevel. You then know it is set at the right angle.

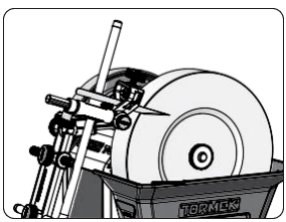
Note that the settings are virtually limitless when you use Multi Base MB-100. Experiment a little to fnd the setting that suits your tool.

Setting the jig

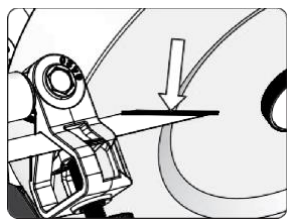


Fit MB-100 horizontally together with the universal support. Place the jig on the universal support.

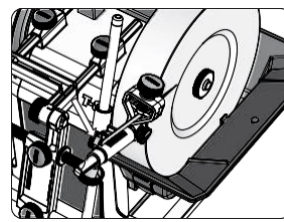
Setting the edge angle



Set the edge angle by adjusting MB-100, the universal support and the rotary motion on the jig. Note that all settings affect each other.

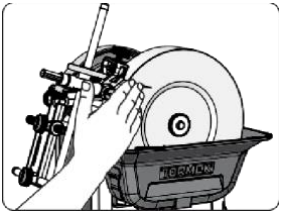


Colour the sharpening bevel with a permanent marker and place the knife against the grindstone. Pull it forwards. Adjust the angle setting until the grindstone removes the colour from the whole of the sharpening bevel.

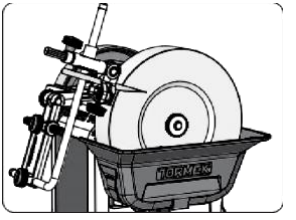


When you !nd the right angle, lock the jig's rotary motion using locking knob under the jig.

Grinding

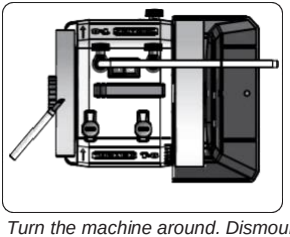


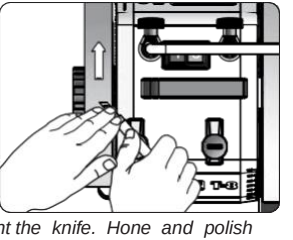
Adjust the sharpening pressure with a !nger and check what sharpening is carried out. Fine adjust if necessary.



Sharpen the other side by loosening the locking knob and rotate the jig's rotary motion downwards. Adjust the settings on MB-100 and the universal support so that the sharpening bevel lies correctly against the wheel.

Honing





Turn the machine around. Dismount the knife. Hone and polish the bevels on the leather honing wheel. Let the entire bevel touch the leather wheel, so you hone at the same angle as at the grinding. Move the knife back and forth a few times on each side of the blade until the burr disappears.

Important *Always hone in the direction of rotation (away from the edge). Place the machine as shown with the wheels running away from you and the honing wheel to the left.*