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AX-40 Axe Jig
Instruction

PATENT

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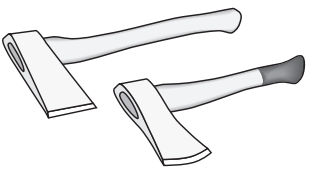
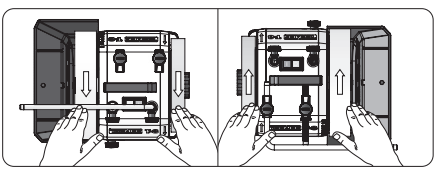
AX-40 Axe Jig

FOR ALL AXE HEADS

Fits the vast majority of axe heads - convex-, concave-, or flat beveled, with straight or rounded edges.



Positioning of Machine

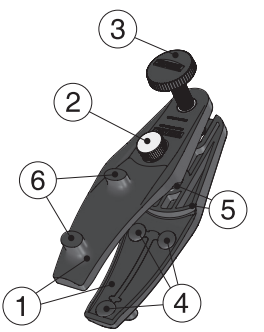


Sharpening direction: Edge leading or edge trailing.

Note *The AX-40 Axe Jig offers extreme versatility and we encourage experimenting with sharpening positions to find what best suits you and your axes. This instruction demonstrates one way of sharpening, and briefly presents different options based on the same basic method.*

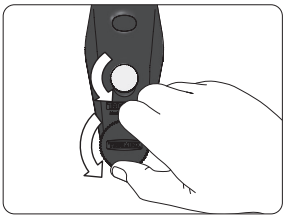
Design

The AX-40 Axe Jig comprises two composite *jaws* (1). The jaws are attached together with a *screw* (2) and a *knob* (3). Each jaw has three *rubber cusions* (4) that secures the axe head in the jig. The two back *shoulders* (5) act as points of reference for an even setting. Each jaw also has two fixed *stops* (6) for sharpening axe heads of various lengths, and for convexing the bevel. The jig is adjusted to the thickness of the axe head with the *screw* (2). The axe is fixed into the jig by tightening the *knob* (3).

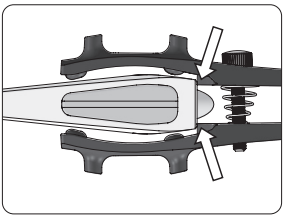


The axe head needs to be in contact with all six *rubber cusions* when the *screw* and the *knob* are tightened, to be secured in the jig.

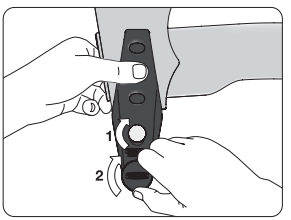
Mounting the axe head in the jig

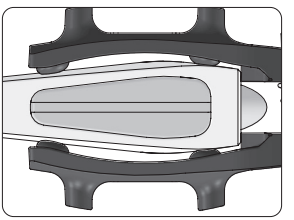


1. Unscrew the knob and the smaller screw, so that the axe head fits in the jaws with some air between the axe head and all rubber cusions.



2. Put your axe head in the jaws, with the back of the axe head resting against the back shoulders, or at equal distance to both shoulders. The jaws should usually point toward the center of the edge. Try matching the shape of the axe head.



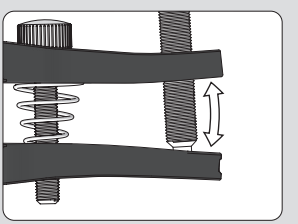


3. Pinch the jaws together so that all rubber cusions are touching the axe head and lock the small screw, then the knob.

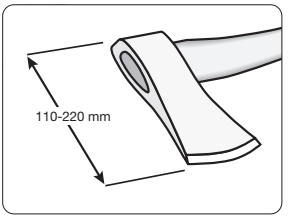
Important! *The axe head needs to be in contact with all six rubber cusions for it to be securely fixed in the jig.*

Note! *The mounting might require some unscrewing and tightening alternately between the knob and the screw depending on the shape and size of the axe head.*

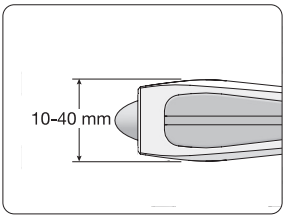
Note! *The composite material in the axe jig has some flex to it, allowing it to squeeze the axe head tightly. Make sure your axe head sits firmly in the jig, but don't over tighten the knob.*



Compatible axe head dimensions



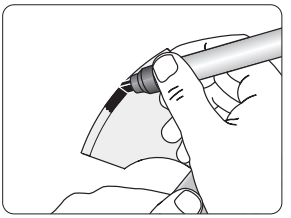
Since all six rubber cusions need to be in contact with the axe, the smallest axe you can sharpen is 110 mm (4 3/8") and the tallest is 220 mm (8 5/8").



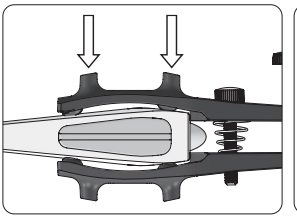
You can use the AX-40 Axe Jig to sharpen axes from 10 mm (3/8") to 40 mm (1 5/8") thick.

Note! *Limitations for the length of the axe head may vary with sharpening angle and which universal support is being used. Limitations for the thickness of the axe head may vary with the shape and geometry of the axe head.*

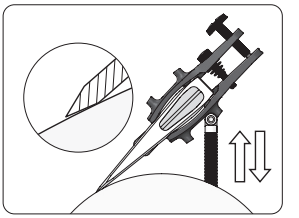
Replicating the existing edge angle



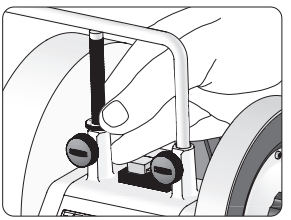
1. Color the bevel with the EM-15 Edge Marker.

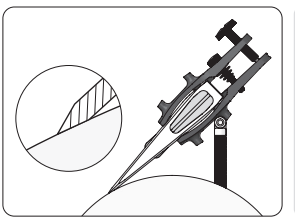


2. Choose which of the two stops you want to use. For regular axe heads, use the back stop, and for taller axe heads, use the frontal stop.



3. Adjust the Universal Support so that the heel of the bevel touches the grinding wheel.

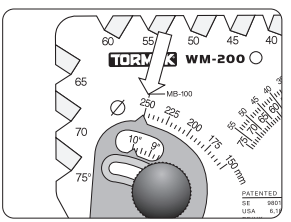




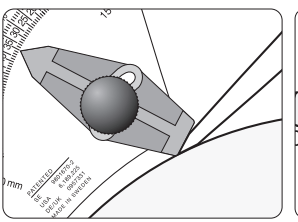
4. Raise the universal support with the Micro Adjust until the entire bevel touches the grinding wheel. Rotate the grinding wheel by hand to see where sharpening will take place. You have reached the correct sharpening angle when the color from the marker is worn off from the entire height of the bevel.

Note *For setting the angle when sharpening a convex bevel, see page 8.*

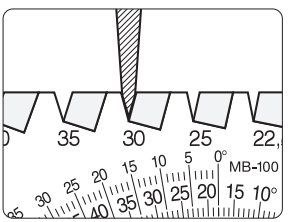
Setting a new edge angle and measuring an edge angle



1. Set the diameter of the grinding wheel on your WM-200 AngleMaster.

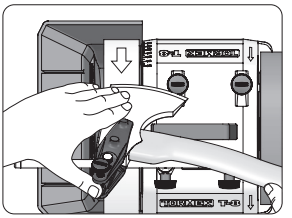


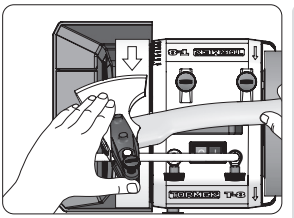
2. Set the desired edge angle on the AngleMaster. Adjust the Universal Support so that the bevel is in contact with the angle setter.



You can measure an edge angle in the grooves of the AngleMaster.

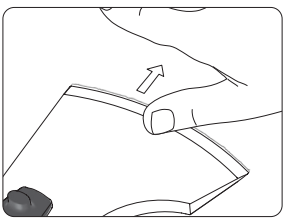
Sharpening



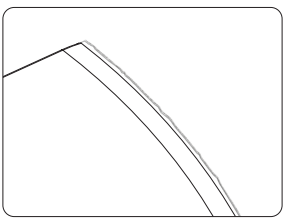


1. Place the jig with the fixed axe head onto the universal support, resting on one of the two stops. Use the front stop for tall axe heads, and the back stop for short axe heads. Hold the axe head and the jig with your fingers on the axe head, quite close to the edge, and your thumb supporting the back of the jig, pushing gently down and forward to keep the stop in constant contact with the universal support. Move the axe head from side to side across the entire width of the grinding wheel at a steady pace. Follow the shape of the edge to get an even bevel and consistent angle.

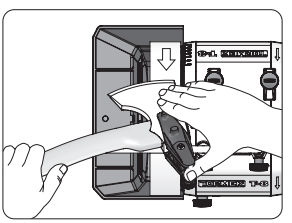
Tip *You can use either side of both stops for sharpening, depending on what feels most natural to you. Just be sure to hold that same position during the entire sharpening.*

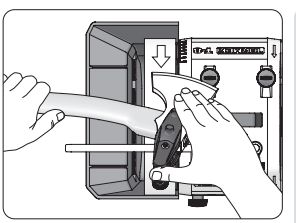


2. Sharpen until a burr forms along the entire edge on the opposite side of the one you sharpened. This can be felt by using a finger to lightly stroke the blade from the bevel and over the edge.



In good lighting, the burr will show up as a silvery line. When you have a burr along the entire edge, the first side is finished.



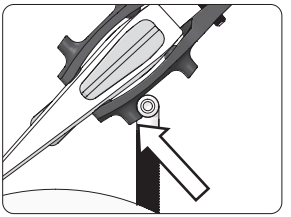


3. When the first side is sharpened, flip the jig over with the axe head still fixed and sharpen the other side. Make sure to use the corresponding stop to get the same angle on both bevels. Now the burr appears immediately, as it has already appeared on the underside and bends up. Sharpen as much as on the first side to obtain a symmetrical result.

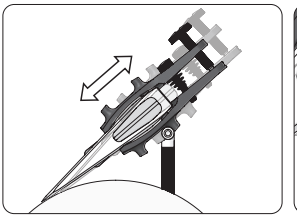
Tip *The burr will be weakened and more easily removed if you sharpen the first side again with very light pressure before honing.*

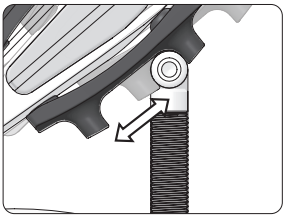
Sharpening a convex bevel

With the AX-40 Axe Jig you have the possibility to sharpen axes with a convex bevel, which might be preferrable for certain applications such as splitting wood.



1. To sharpen a convex bevel, set the edge angle with the jig held against the inner side of the front stop. Sharpen in this position until you raise a burr, then flip the jig over and sharpen to a symmetrical result on the other side.You have now established a new apex.





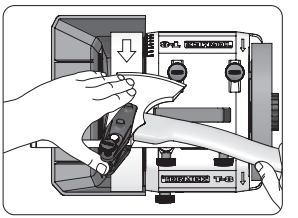
2. To convex the bevel, move the jig steadily over the universal support back and forth between the two stops. Make sure the jig stays on the universal support all the time, and that you move it all the way to the stops for the best result. Also make sure you sharpen along the entire bevel of the axe head, following the shape of the edge.

Tip *Make sure you use the entire width of the grinding wheel to make sure it wears evenly.*

Tip *It might be helpful to color the bevel with your EM-15 Edge Marker to easily follow the convexing of your bevel.*

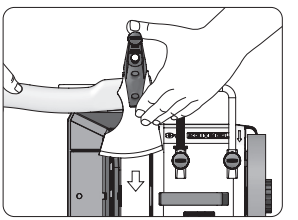
Sharpening edge trailing (the grinding wheel running away from the edge)

This instruction has shown you how to sharpen axe heads *edge leading* (the grinding wheel running towards the edge, with the universal support placed vertically). This way works for all kinds of axes, and you can stand or sit either behind or in front of your machine.



Edge leading.

You can also place the universal support in the horizontal position and sharpen *edge trailing* (with the edge facing the same direction as the rotation of the grinding wheel). For sharpening edge trailing, there are some particular limitations such as covexing a large broad axe. This can, however, be remedied by using the MB-102 Multi Base to place the universal support in a frontal vertical position. Using the MB-102 Multi Base also lets you sharpen a completely flat bevel on the side of a diamond grinding wheel.



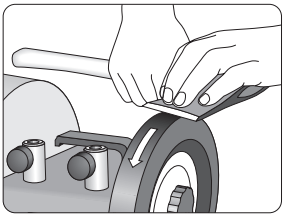
Edge trailing.

Factors affecting the option to sharpen edge trailing:

- Which Tormek model you have.
- How long the axe edge is.
- Which of the two stops are being used.

We recommend that you try out what works on the axe you are sharpening at the time, with its specific geometry.

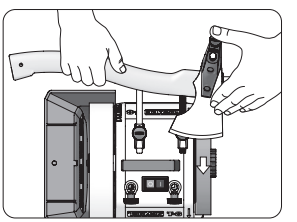
Honing



Place the machine so that the honing wheel rotates away from you. Remove the axe head from the jig if it feels easier. Hone and polish the bevels on the honing wheel. Make sure that the entire bevel is in contact with the honing wheel. If you are uncertain, use the EM-15 Edge Marker to color the bevel again, to see where it wears off during honing. Move the axe head from side to side a few times on each bevel, until the burr disappears.

You can ensure that the burr is completely removed by drawing a fingernail gently over the edge, lenghtwise. This will allow you to easily feel any unevenness. You can also cut a piece of paper. If the edge gets stuck or the cut is uneven, there is still a burr and you need to hone a little more. If the burr is not completely gone, you need to spend more time on honing. When you have no burr left at all, your axe will be razor sharp with a durable edge.

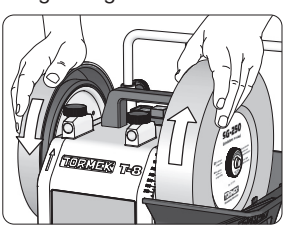
Important *Always hone edge* ***trailing****. Place the machine as shown so that the honing wheel rotates away from you.*



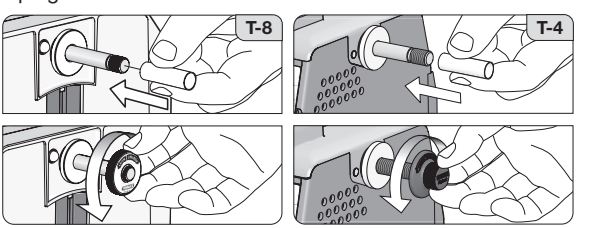
You can also keep the axe head mounted in the jig and hone on the leather honing wheel at a controlled angle using the universal support. You set the angle by using the Tormek Marker Method or the WM-200 AngleMaster.

Honing with the jig has the same minor restrictions as sharpening edge trailing. These too can be remidied by using the MB-102 Multi Base and the universal support in the frontal vertical position.

When honing using the jig on the universal support, in most cases you will need to remove the grinding wheel to avoid bumping into it with the axe handle.



Turn the grinding wheel clockwise by hand whilst holding the honing wheel still, and the EzyLock nut will automatically come loose.



Remove the grinding wheel - replace it with the transport sleeve and attach the EzyLock again.