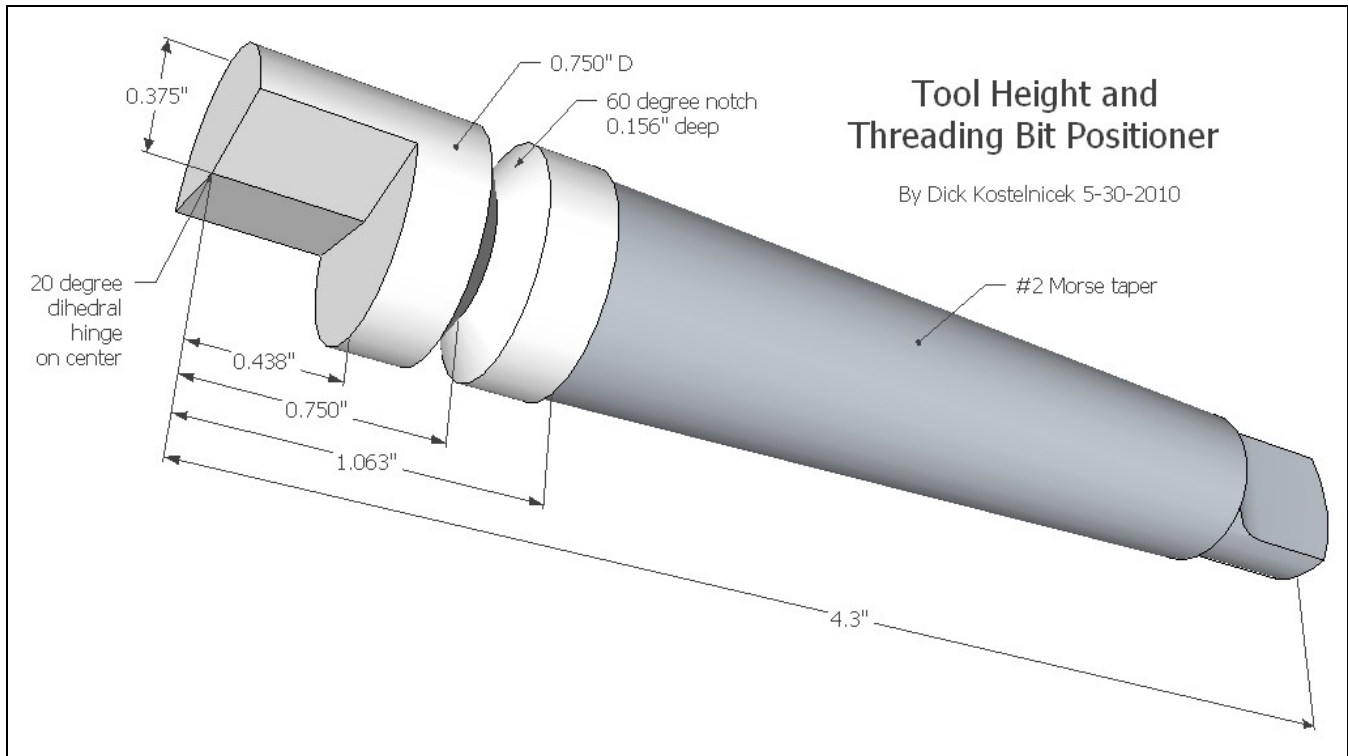


Tool Height and Threading Bit Positioner

By Dick Kostelnicek

Cutting well-formed screw threads in the lathe requires accurate positioning of a single-point threading bit. First, the height of the bit's point must be exactly on-axis and second, the threading bit's centerline should be perpendicular to it. These two requirements are usually accomplished with the aid of a horizontal line scribed on the side of the tailstock ram, and a threading center gauge. Additionally, the top surface of the bit should be horizontal, without back rake.



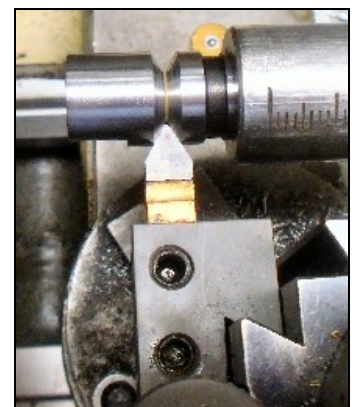
The positioning tool, shown below, can ensure both accurate height and bit alignment when it is placed in the lathe's tailstock ram. It is machined from a commercially available 2MT to 3JT drill chuck arbor.



How to use it

Raise the cutting bit until its top face touches the centerline hinge of the positioner's dihedral surfaces (left photo). The 20° dihedral angle allows for $\pm 10^\circ$ rotational mispositioning of the tool.

Nest the threading bit's point in the 60-degree V-notch to align it perpendicular to the lathe axis (right photo).



Using a dihedral hinge to gauge height and a V-notch to set bit alignment are certainly not a new concepts. What I've tried to do here is to combine setting height and bit alignment into a single tool that slips into the tailstock ram's socket.