

Gang tool machining advantages

Gang tooled lathes provide a reliable, fast method of tooling setup, yet very few users extract the best from this style of machine and tooling.

We hope these pages assists you in optimizing your next set-ups.

More Tools on the table

When we purchase machine tools, we want the best range of features, at the best price, so we generally buy more than we need, just in case that big job comes in, but we have to make sacrifices for that flexibility.

With gang tool lathes that generally means that the larger standard holders are great for that big job, (because the machine manufacturer has to provide for the maximum load that you can put on the tools.)

But for the small work, we are always looking for room to load that last tool, This is where you can benefit the most.

If you can stack the tools closer together for parts under 1" you can :

- Get more tools on the plate
- Change over setups quickly
- Be more flexible on the small jobs

Using a riser plate to allow smaller compact holders to be used, you can gain many benefits.

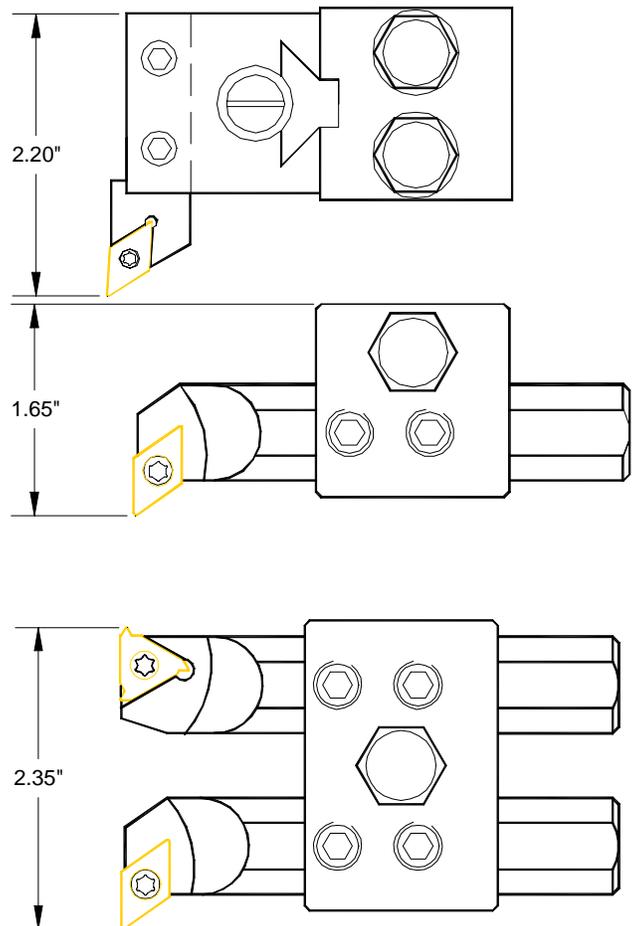
Most turning tools are square shank, but you can get the same results by using boring bars for turning,

There are other benefits to this, you can cut inside the part and outside with 1 tool, plus a boring bar takes up a lot less room on the tool plate.

You can stack 2 bars back to back for outside turning and threading.

Consider that most jobs 1" & under, on a gang tool lathe run up to 3" long, and you can overhang a boring bar 4 times its diameter.

A 3/4" boring bar is not over extended for that application. ($3/4" \times 4 = 3"$)



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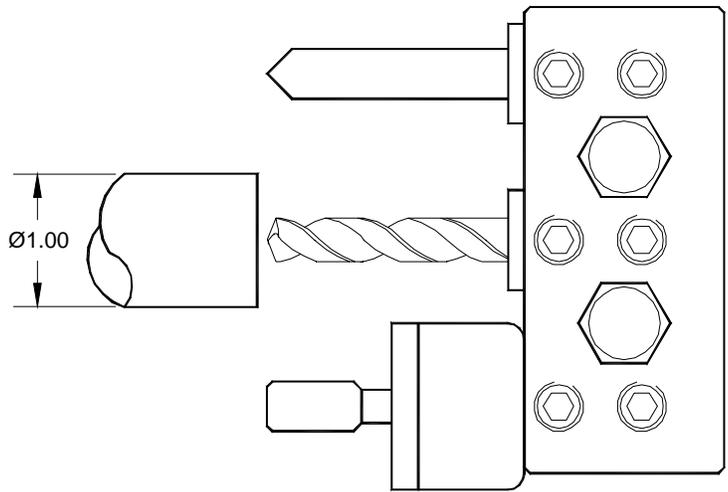
Multiple hole holders

When drilling you can use a multi tool holder and stack your drills close together.

Combining groups of tools simplifies setup greatly.

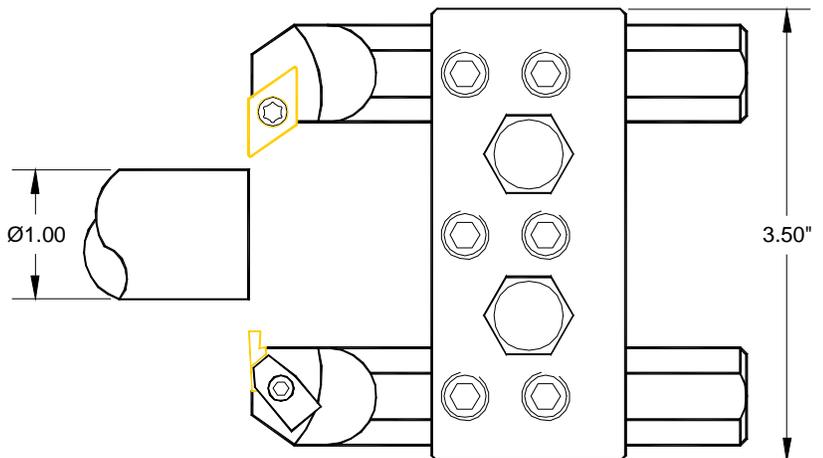
An NC spot drill (90° point), a drill, and a tap holder provide an ideal 3 position group for many jobs.

Simply swapping a drill and tap and a quick change over is achieved.



When choosing a threading tool, a grooving style holder (Top notch style) can provide a quick change from grooving to threading inserts.

Combining turning & grooving bars in a 3 position holder can allow fast rough and finish of the front & back of a part in a small table space.



Cutoff Tools

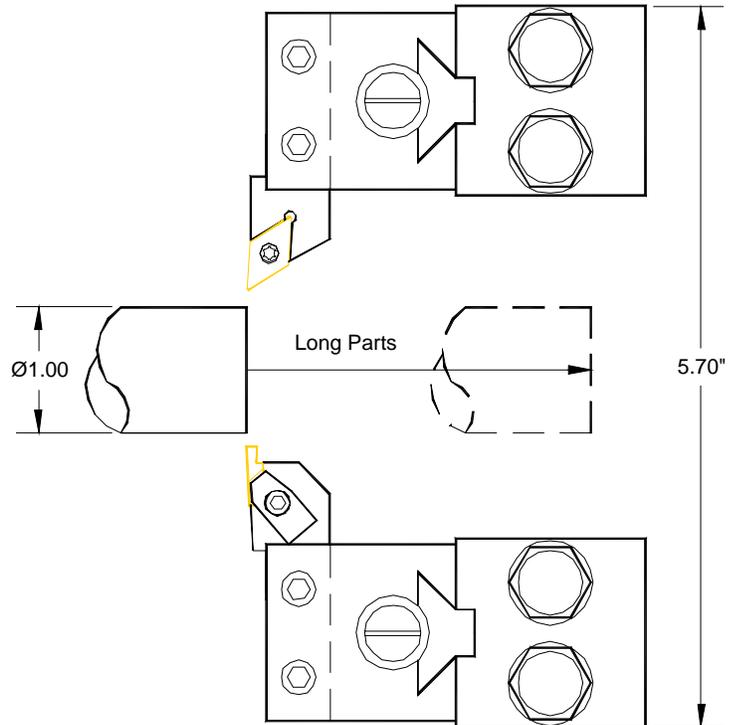
Cutoff tools for large diameter holders require a deep throat to accommodate 1" diameters, if your part is less than .5" diameter a thin grooving insert works well, (Nikcole manufacture a great range of inserts for grooving and turning) Thin Bit also has a wide range of inserts. This allows a 5/8" or 3/4" bar for cutoff.

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Longer parts

Sometimes a longer part requires machining, using 2 holders this can be achieved easily.

This example shows the ability to turn a longer part, or perhaps a tough material that required more rigid tooling than a boring bar.



6 & 8 Position holders

If your parts require frequent repeat setups a large capacity holder can save time and money. Load your tools once in the holder, setup your offsets and at the end remove the tool holder with the tools still mounted. The next time this part is required, simply load the holder onto the plate and locate it against a known stop,

Load the offsets from the last time it was setup. And you are ready to run.

(On most CNC controls you can download the offsets to a PC or load the offset data in a program that is after the M30 end of program) simply run the stored offset program to load the tool data.

This method of setup may seem expensive (saving tools on the shelf) but let us evaluate these numbers:

1 eight position holder	= \$320.00
6 tools at \$150.00 each	= \$900.00
Total tool cost	= \$1220.00

If your setup labor rate is \$80.00 hour and a new setup takes 2.5 hours typical setup cost is \$200.00

A new setup with would cost \$200.00

The next setup should take 10 minutes to load the new tool bar and run offset section of program.

Saving you \$190.00 per setup. Pay back is achieved at 6.4 setups. The more complex the setup the faster the payback time. If a 6 position holder is used payback is even faster (lower holder cost).

This example can be used as a basis for your payback time.

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Posi-Lock tool holders

The design of this tool holder allows a greater flexibility in tool choices, The adjustable height feature with micro adjust allows the use of both 3/8" or 1/2" center square section holders, also brazed carbide tools can be adjusted for exact center height.

The tool holders are interchangeable with the standard posts, this feature allows quick changeover of tool types, and greater flexibility when changing tool order, to obtain the fastest cycletime on your gang tool lathe. (this feature is a major benefit of gang tooling).

Live tool holders

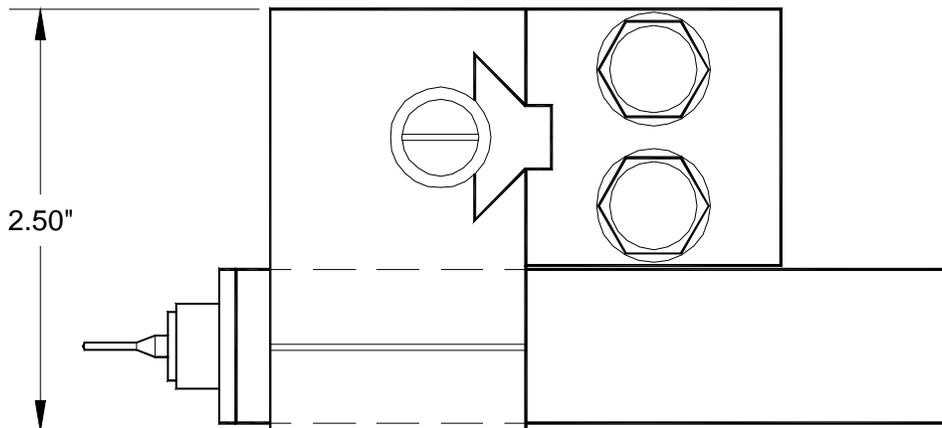
The design of this Posi-Lock holder fits the standard tool post or the vertical (3.5") high tool post. You can hold live spindles in an axial, radial, or vertical orientation.

These tools when linked to an indexing spindle allows the machining of these types of features:

- Off center holes
- Face Slots
- Face holes
- Side holes
- Saw slots

NSK America offer a wide range of live spindles ranging from 30,000 to 120,000 RPM . These spindles are air or electric powered, and are suitable for drilling up to 0.25".

If you have ever tried to drill a sub 0.03" hole you can see the benefit of these spindles.



This example shows an axial holder and a small drill, with this configuration you can drill bolt patterns Or mill a straight slot on the face of the part.