

CUBIC MACHINERY

The background of the entire page is a close-up photograph of a CNC lathe machine. The machine's components, including the tool holder and workpiece, are visible in a light blue/gray tone. A semi-transparent blue wireframe sphere is overlaid on the left side of the image, adding a technical or digital aesthetic.

Newsletter January 2017

Choosing a

Lathe-Type

Part 2

When to use a turret lathe

In our last newsletter we ran down the benefits of the gang tool lathe. Not only does the lathe type provide speed, financial savings and simplicity but accuracy as well. Why then do manufacturers bother with the turret lathe. Well, when it comes down to it there are two key factors in the necessity of a turret lathe.

1. **Part size**
2. **Part complexity**

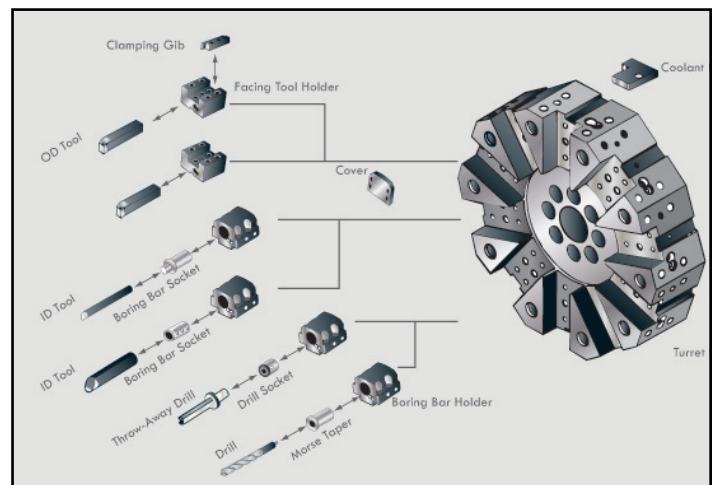
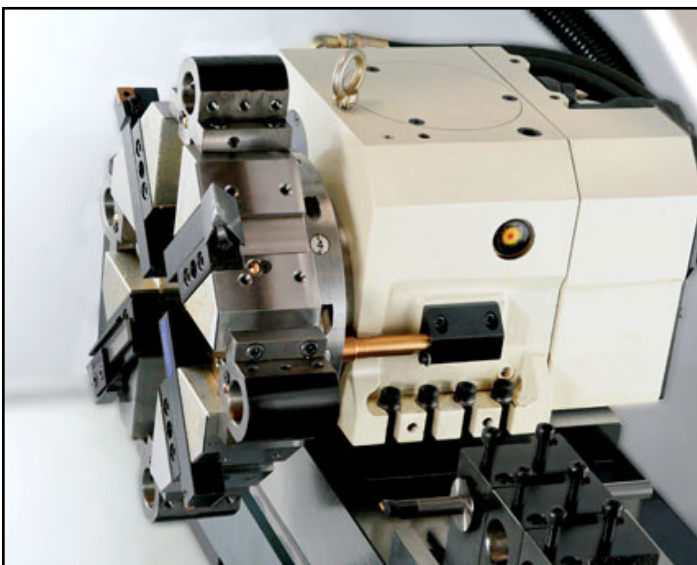
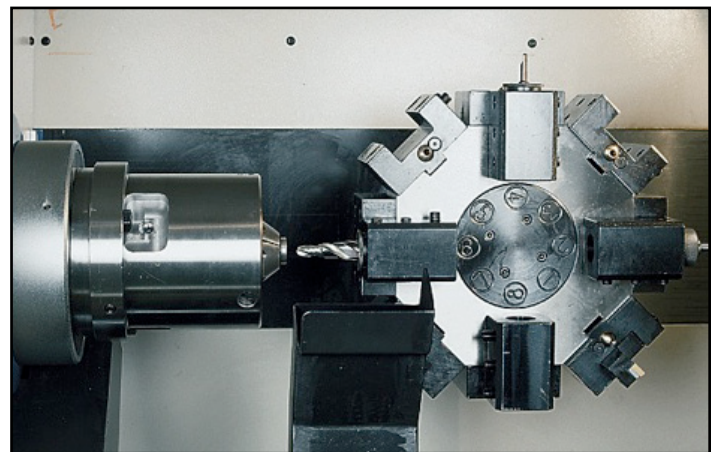
Gang tool lathes require clearance between tools to allow the part to fit between them. This means as the diameter of the part grows, less tools can be placed on the tool post. The opposite is true with turret lathes, as the part gets thicker the turret must be larger and given its radial nature allows for more tools. It is not uncommon for larger turret lathes to contain gang tool stations along its indices.

The length of the workpiece is also vital in deciding if the turret type is best. The further the workpiece hangs out of the spindle the more torque is applied to it by the tool. This can create tolerance issues and decrease the accuracy of a cut and the finish.

As a rule of thumb the the workpiece length must not be over 3x its diameter unless supported by either a guide bushing or a tailstock. Standard gang tool lathes require augmentations to the machine to allow this, but a turret lathe can easily supply a programmable tailstock allowing for a greater variety of parts to be machined.

[See video of YH21 using programmable tailstock.](#)

Machinists have also noted that beginners have an easier time programming turret lathes than gang tool. Clearing the part during tool change and working with negative positional numbers have been cited as the bulk of the difficulty. This coupled with the added amount of tools and lack of length issues allows for larger complex parts to be easily machined on a turret type lathe.



Choosing a Lathe-Type

