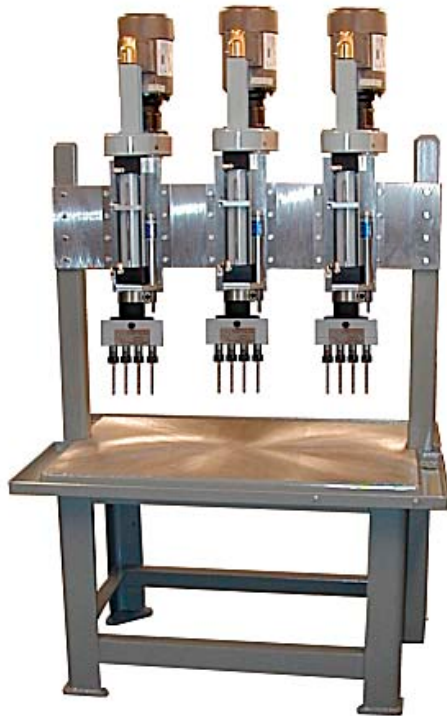


## MULTIPLE SPINDLE HEAD APPLICATION EXAMPLES

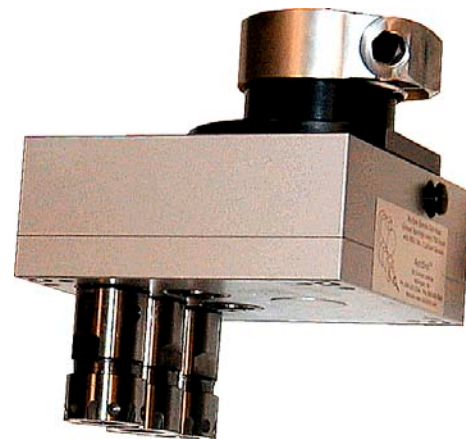


An AutoDrill designed Multiple Spindle Drilling Head system helped a customer fabricating doors to significantly increase their production drilling capabilities. The Multi-Drill fixture is capable of drilling all the hinge holes on a door in three separate hinge locations simultaneously. Multiple spindle drill heads and AutoDrill self-feeding drills reduce the multiple step operation to a single step.

AutoDrill equipment is designed for continuous production drilling. Optional peck feed or standard drill cycles can be incorporated into the multi-spindle drill system controls.

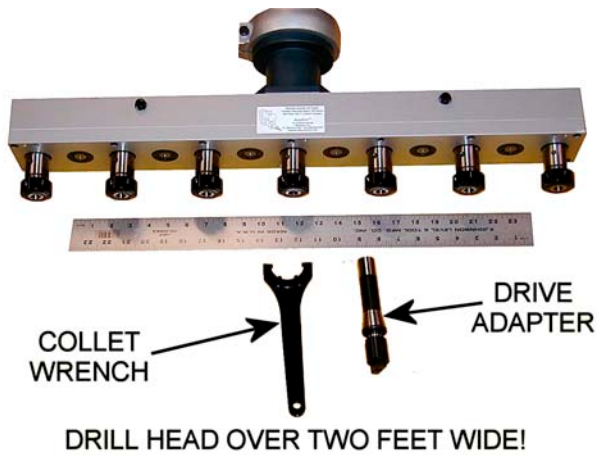
A multi-spindle head solution usually starts with an inquiry from the customer. Our staff asks questions to determine the application requirements and answers the customer's questions. We can then suggest suitable automatic drilling equipment and follow-up with a written quotation. Drawings, photos, literature and similar multiple drill head application examples help the customer understand the multiple spindle head proposal.

A recent inquiry required a solution to drill three closely spaced holes. They were to be drilled tight to a wall obstruction. An offset multiple spindle drill head was offered that answered both requirements with a single tool. The cost, at less than \$2000, was half other vendor solutions. The photo is the actual three spindle offset drill head provided to the customer. An adapter to mount to their drilling source was provided with the head and was included in the quoted cost. The spindles in this example utilize ER25 style collets, which are universally available.



Multi-hole bolt circle hole patterns are commonly used on pipe flanges, machine connections and many other bolting applications. Drilling these patterns is time consuming and subject to errors. When the volume is reasonably high or the accuracy is critical we have a solution.

Here is a fixed pattern drill head for drilling five holes equally spaced in a circular pattern. This unit was made to bolt directly to a motor.



Manufacturers in many industries have continuous series of holes in product components parts that require drilling. A typical example is the railing industry that have bottom and top rail sections requiring precision drilled holes to locate and attach the railing spindles. A typical seven spindle head for drilling 3-1/2" center to center spaced spindle holes is shown. It has been made to quickly and easily attach to a larger industrial drill press. In this case the head is over two feet wide! The width limitation, in many cases, is based on the drill press table size or the drill press horsepower. We review your application, including the requirements of the drilling machine, to assure the success of your project.

Requests to improve existing CNC equipment are commonly received. One request was to allow as many multiple holes to be drilled in one machine command as possible. The application required drilling many thousands of holes per article. By applying a Three Spindle Drill Head to the existing programmable machine tool the total operation time per article was reduced 50%. The customer decided that three spindles was the best multiple spindle drill arrangement based on the pattern required. In some cases, multi-spindle heads have been made with up to twelve spindles for similar multiple hole applications.



Close spaced holes tend to be uniform in size but there are situations where a hole pattern has hole sizes that differ. If the difference in hole size among the cluster of holes is less than 30-50% than the spindle speed can be set to allow drilling the largest hole size without affecting the tool life.

When the difference in hole sizes is greater than recommended reducing the spindle speed to that for the largest hole will seriously affect the pattern drilling time. The chance for tool breakage with the smaller sizes will also be increased. We can provide a solution in the multiple head design to have the spindles drilling the smaller hole to run at a high RPM than the spindles drilling the large holes. This can be done for a nominal charge because of our large selection of gear ratios available.