



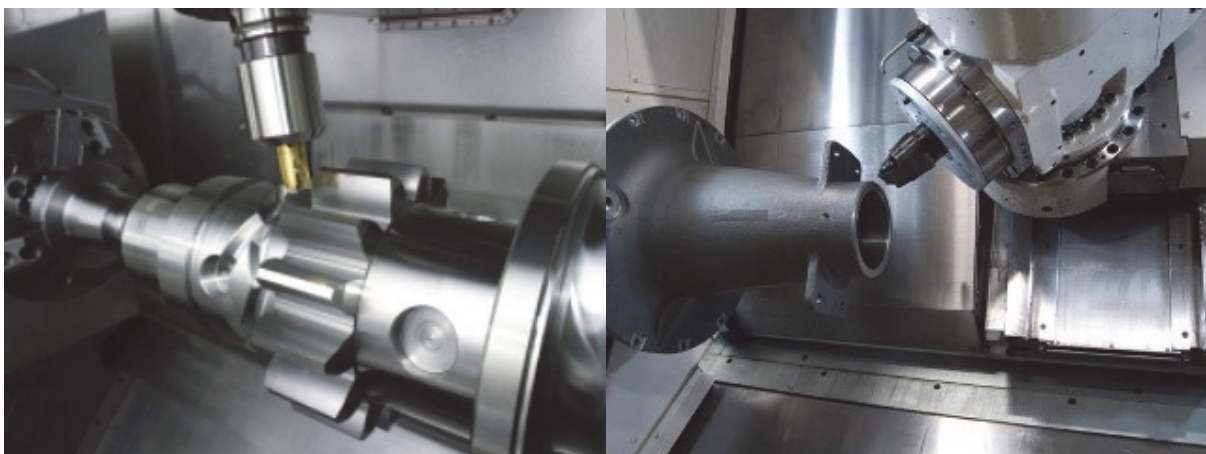
Multi-Function Machining

In addition to the other precision machining technologies we provide ORIGIN now offers Multi-Function machining which is one of the most advanced and adaptable machining technologies available.



Our latest machine is capable of flexible ultra-fast CNC machining **simultaneously** in 5 axes following complex toolpaths to form compound surfaces with ultra-smooth finishes.

Capabilities include the ability to machine and mill from any direction at any angle, as well as machine on indexed faces of a shaft along the length or end face while it is being held accurately in position for the duration of the milling process. The machine is capable of automatically alternating between milling and turning operations as many times as necessary as well as combining both functions.





This amazing technology is very well suited to manufacture of components with highly detailed internal and external shapes and contours including voids and compound shapes making it ideal for molds, dies, gears, splines, complex mechanical components and prototypes demanding high accuracy and finish.



Machining Envelope Dimensions





Typical Applications

- Mold machining.
- Shafts, Splines, Threads and Keyways.
- Impellers.
- Bevel, Spur and Helical Gears.
- Custom Ball Joints and Bearings.
- Die and Tooling machining.
- Complex Manifolds.
- Turbines.
- Specialised Engine Components.
- Prototypes & R&D Components.

What is 5 Axis Machining?

The definition of 5 Axis machining refers to the function of a CNC machine moving a component or tool across five different axes. Conventional 3 Axis machining centres move a part in X and Y only, i.e. two directions with the tool restricted to moving up or down only in the Z Axis.



The difference with 5 Axis machining centers is that they can move on two additional rotating axes commonly called A and B which enable the machining cutter to approach the job from any direction creating immense flexibility and shapes that are difficult if not impossible to create by any other means.

Additional benefits relate to negating the need for additional time consuming part setups in the machine in order to machine from other directions.



5 Axis Simultaneous vs. 5 Sided Machining

There are numerous advantages to Simultaneous machining over and above conventional 5 Axis (5-sided) machining. Even though 5 Axis machining is also extremely powerful and impressive to observe it is much slower than 5 Axis Simultaneous machining due to the limited movement of multiple axes.

Mold work is a key area where 5 Axis Simultaneous machining is extremely powerful due to the increased degrees of freedom which provide greater manoeuvrability and reach. Manufacturing molds using 3-axis machining centres has many limitations particularly when the design features deep cavities or the molds are tall in the core dimension making it challenging for them to fit under the head of the machine. 5 Axis Simultaneous machining provides more options for machining these details from other directions.

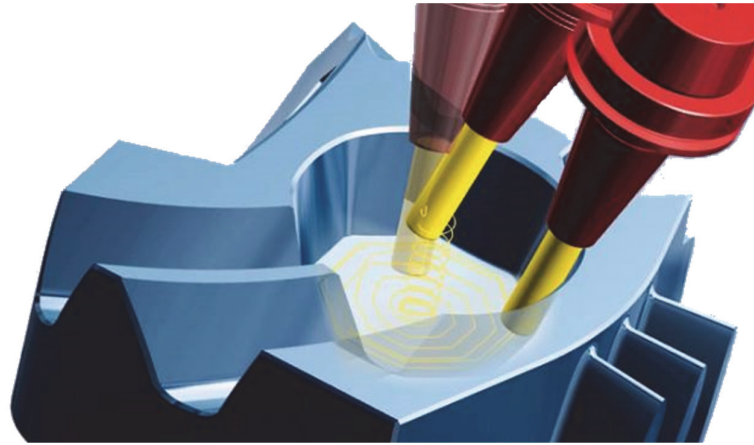
In addition to the above points, 5 Axis Simultaneous machining also provides clear benefits in surface finish. It is often difficult to achieve required surface finish quality using conventional 5 Axis and 3 Axis machining particularly for mold work. In fine finishing operations, particularly on complex inner contours which are common in small diameter molds, conventional 5 Axis and 3 Axis machining can often result in the requirement for more difficult processes based on additional setups resulting in lower quality results.

The main benefits of 5 Axis simultaneous machining are below:

- ✓ Better surface finish.
- ✓ Longer tool life.
- ✓ Allows tool to reach difficult places smoothly.
- ✓ Less setups for faster part machining.
- ✓ More complex geometry possible.



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Our 5 Axis Simultaneous Machining is Powered by:



SolidCAM
The Leaders in Integrated CAM



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