Here, we introduce the knowledge and various knowledge about the product TAKAMAZ a variety of machine tools. I hope you will help the daily work of customers

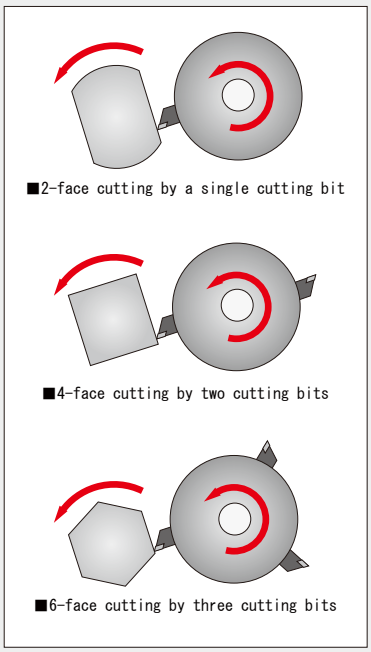
The 11th EXTENDING TOOL LONGEVITY IN POLYGON CUTTING

高松流技

Generally "cutting" refers to a wide variety of cutting processes that can be made on machine tools. "Polygon cutting", or efficient multi-face cutting, is one of unique cutting techniques, which is available with some Takamaz models.

What Is Polygon Cutting?

Polygon cutting generates multi-face profiles by controlling the spindle and cutter speeds at a 2-to-1 ratio. The number of faces generated is determined by the number of cutting inserts mounted on the cutter. One cutting bit can generate two-face profile, two cutting bits four-face profile and three cutting bits six-face profile. This type of cutting has long been used on multi-spindle automatic lathes and the same technique came to be realized on NC lathes about 10 years ago. We conducted tests using the same cutting conditions with 2- to 6-face cutting to observe tool life.



■2-face cutting by a single cutting bit

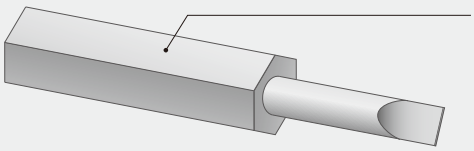
■4-face cutting by two cutting bits

■6-face cutting by three cutting bits

Features of Polygon Cutting

Since polygon cutting does not require spindle indexing, it can produce polygons with accurate index angles in a considerably short time compared to the cutting methods that use the polar coordinate interpolation function, C-axis indexing + Y-axis control, etc. However, since the cut face is not actually flat but elliptical, it is not suitable for cutting parts that require precise symmetry or accurate flatness. Using the polygon cutting technique, efficient cutting is expectable in generating convex profiles that do not require high accuracy such as wrench hooks or driver bits.

Example of cutting: Driver bit



Polygon Cutting with TAKAMAZ Machines

XY series, X-200, etc. can handle polygon cutting. Concerning cutters, the polygon cutting option is required.

Test cutting sample
Width across flats : 27mm
Length : 10mm
Cutting time : 20second

Conclusion

This article introduced the unique cutting method "Polygon Cutting". For further details on tools and machine specifications, please contact our Sales Engineering Section.