Method of defining a cutter which corner radius bigger than the cutter radius

Abstract

The present invention provides a method of defining the Ball Nose cutter in CAD/CAM system .It is used to reduce the error of 3D Electrode CNC program.

Claims

What is claimed is

1. A method of defining cutter in CAD/CAM system which corner radius bigger than the cutter radius
2. The method according to claim 1 to generate CNC program
3. The method according to claim 1 to generate electrode CNC program
4. The method according to claim 1 to define cutter in Unigraphic CAM system
5. The method according to claim 1 to generate CNC program in Unigraphic CAM system
6. The method according to claim 1 to generate Electrode CNC program in Unigraphic CAD/CAM system



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Description

BACKGROUND

1.Field of the Invention

The present invention is related to define the Ball Nose cutter in CAD/CAM system which corner radius bigger than the cutter radius that utilize reducing the error of Electrode CNC Program which profile is 3D

2. Related Art

Electrode CNC Program need to reduce the design dimension size that same as Spark Gap at X ,Y axis and keep Z axis no change. Currently there are two ways to close it–one is to define the cutter radius size smaller as Spark-Gap when generating CNC program another is to use Minus OFFSET program same as Spark Gap to generate CNC program.. Both methods have big errors when the electrode profile is 3D.

SUMMARY

In accordance with the aforementioned needs, the present invention is an improved method for Electrode CNC Program.. It only change the X,Y axis size and keep Ball Nose Cutter Profile that ensure the Electrode CNC Program has no error on any 3D shape Electrode.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig 1 shows an example of cutter shape according to the present invention

Fig 2 shows an example of cutter is defined in Unigraphics CAD/CAM system according to the present invention

Fig 3A shows an example of the Electrode CNC Program according to the present invention

Fig 3B shows an example of Electrode CNC Program using present invention compared with designed electrode

Fig 4A shows an example of Electrode CNC Program using tradition method 1 compared with designed electrode

Fig 4B shows an example of electrode CNC program using tradition method 2 compared with designed electrode

DETAILED DESCRIPTION

FIG. 1 Shows an example how to define D6 Ball-Nose cutter when setting Spark-Gap 0.3mm per side.

FIG. 2 Shows an example how to define Ball-Nose cutter in Unigraphics CAD/CAM system according to the present invention. In UG using 7-Parameter or 10-Parameter

define the Ball Nose Cutter which Corner Radius bigger than Cutter Radius. The example define D6 Ball Nose cutter Spark-Gap is set 0.3mm per side.

FIG. 3A shows an example of the Electrode CNC Program according to the present invention. The Spark-Gap is set 0.3 mm. and Program use D6 Ball Nose Cutter. The designed electrode is simple to 45 degree sloping face which has maximum error

FIG. 3B Electrode CNC Program model that program by the present invention compared with designed electrode . The difference is 0.3mm same as the Spark Gap that is set

FIG. 4A Electrode CNC Program model that program by reducing the D6 Ball Nose Cutter to D5.4 Ball Nose compared with designed electrode . The difference is 0.17mm, but the set Spark Gap is 0.3mm .The error of the Electrode CNC Program is 0.13mm.

FIG. 4B Electrode CNC Program model that program by Minus Offset using the D6 Ball Nose Cutter, in order to keep the Z Axis size, moving up the program just same as Spark Gap. The difference is 0.12mm, but the set Spark Gap is 0.3mm. The error of the Electrode CNC Program is 0.18mm.