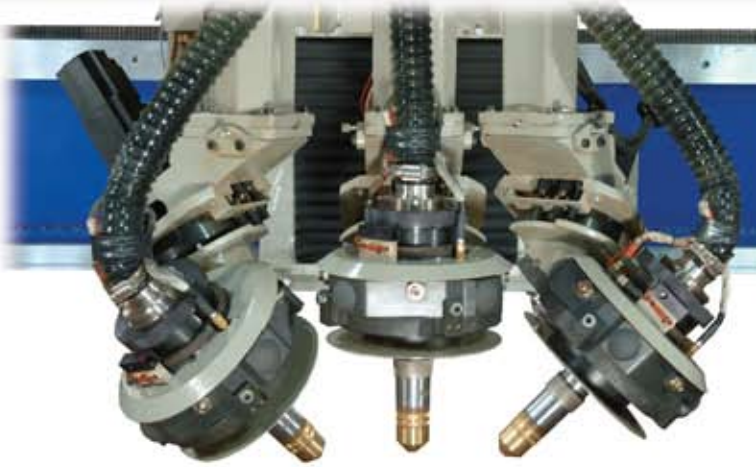
Global Rotator Infinity

MG Systems' Compound Skew Heavy-Duty Plasma Bevel Unit

Overview:

The Infinity Continuous Contour Plasma Bevel Unit is capable of accurately cutting bevel profiles (non-vertical) on nearly any contour. When the machine is programmed to cut at a bevel angle, the current and voltage are controlled by the same NC part program. The system is used to create bevels for weld-preparation surfaces or for active cutting edges as used on earth engagement tools. Bevel and Land edge configurations can be created via multiple passes.



Torch shown in various positions

Features and Benefits:

- AC drives for high performance.
- Programmable arc current, arc voltage, and bevel angle.
- Infinite C-axis rotation at a rate of 50 RPM, reduces cut cycle and programming time.
- Quick torch focal point adjustment for easy consumable changeover.
- Lateral and vertical torch "decoupler" collision detection to prevent torch damage in the event of a collision.
- Automatic torch height control by analog arc voltage with an accuracy of + / - .006 inches so part accuracy is maintained during bevel cutting.
- Resultant piece part bevel angles of +45 degrees through -45 degrees.
- Corner loops can be less than 0.394 inches (10mm) without requiring torch start/stop commands.
- Response time from 0 to 45 degrees is less than 2 seconds.
- Initial height sensing via torch tip contact eliminates offsets and reduces cycle time.
- Robust construction with unique compound skew technology allows the unit to be located away from cutting area to minimize potential damage.

System Description:

The bevel angle is automatically derived using a combination of A-axis and C-axis interpolation by the CNC (unique compound skew technology from MG Systems). The C-axis may be programmed as a positioning axis or a coordinated motion in conjunction with the X/Y linear and circular motion. When operated in concert with X/Y motion, the C-axis will maintain the bevel position tangent to the direction of travel. (See backside for additional options.)

Application:

Available on the TMC4500ST machine models.

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BACF

Optional Bevel Angle Change-on-the-Fly

Overview:

The optional Bevel Angle Change-on-the-Fly (BACF) allows controlled variation of bevel angles along a line element. The bevel angle can be changed in "real time" creating a continuous transition angle (0 to 45 degrees). The torch stand-off height is maintained via periodic voltage sampling, which contributes to workpiece accuracy.

Features and Benefits:

- Sets initial pierce height by using nozzle contact sensors reducing cycle time as there are no offsets to contend with.
- Initial height is set to an actual dimension, providing optimum pierce height, while reducing premature consumable wear.
- Frequent sampling and adjusting of the arc voltage to maintain the optimum stand-off height improves cut part accuracy and maximizes consumable life.
- Little knowledge and training time is required to effectively program beveled parts.

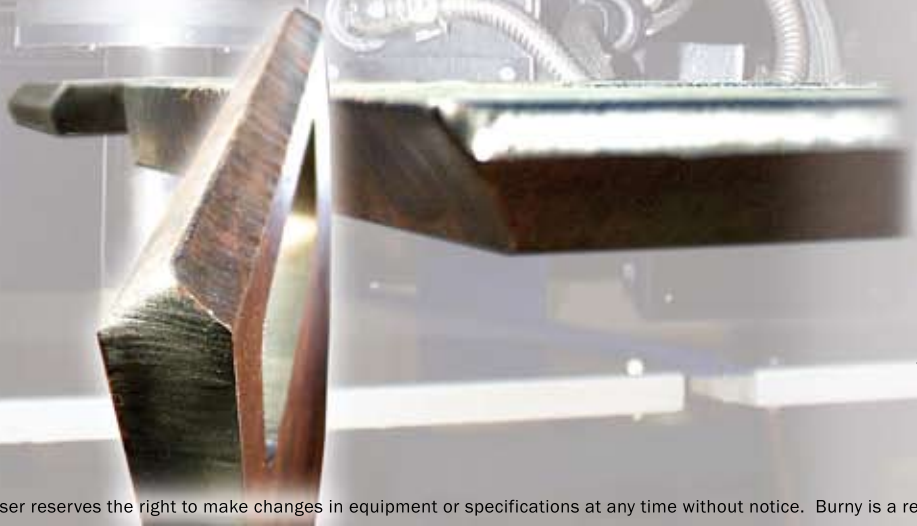
System Description:

Using a multi-axis CNC control, the torch bevel angle may be changed during linear or circular programmed motion. This will yield a smooth transition from a positive angle to zero degrees; continuing on to a negative angle (as required for weld groove preparation).

Implementation of BACF requires the use of Messer's EasyBevel software. The fully developed database applies the appropriate cutting parameters when one simply identifies the desired bevel angle on a given line segment.

Application:

Available on the TMC4500ST with Compound Skew plasma bevel unit.



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