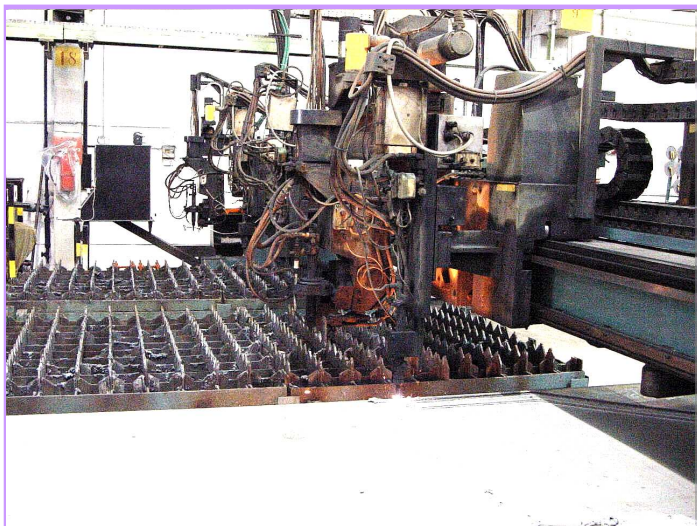
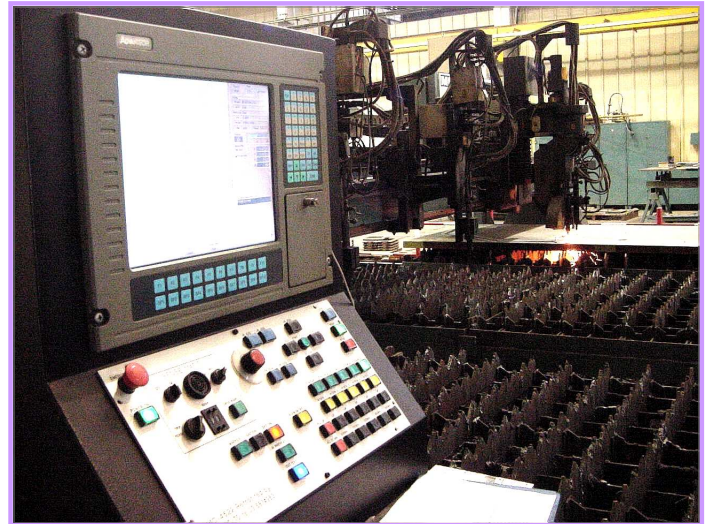


SHAPE-CUTTING CONTROL SYSTEM

Innovation & Advanced Technologies for Improving the Productivity and Accuracy of Shape-cutting Machines

Feature Highlights

- Compatible with numerous machines for cutting processes, including Plasma, Oxyfuel, Water jet and Laser.
- Automatic 4-axis Bevel Cutting
- Available with new machinery or as a retrofit
- Advanced Motion control
- Advanced Look Ahead, Feed Forward algorithms
- 3 Types of Kerf compensation (Programmable, Manual and Parametric)
- Control of multiple cutting heads
- Arc voltage dependent sensing during the cut
- Multi-axis (8, optional up to 16) simultaneous control



Advanced Performance

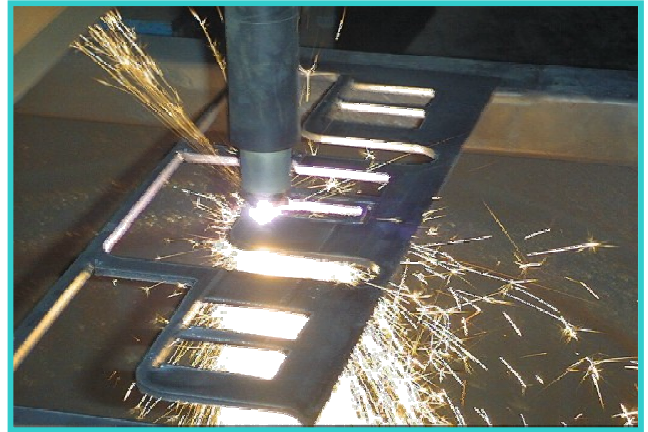
- Real-Time Motion and Logic control
- Unlimited backward cutting of complicated 2D and 3D shapes
- Easy setup of cutting parameters
- Easy to use plate alignment
- Various machine status displays
- Manual or Automatic job start point selection
- Start cutting at any block of the program or piercing points
- Easy restart of cut process anywhere along the part
- Graphical machine status monitoring and diagnostics

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Motion Control Systems

Hardware Specification

- PC based control with state of the art processor
- Modular system comprising a Main Processor board, up to 4 System Interface boards and software package
- Up to 16 servo axes motion control
- High speed DSP with 32-bit Floating Point Architecture for real-time operation
- Up to 512 Digital Inputs and/or Outputs and up to 64 Analog Inputs and 32 Outputs
- Position, Velocity, Torque and Software Commutation control for motor drivers
- Single and Dual Feedback motion control (Optional)
- Up to 8 Groups of synchronized axes with up to 16 axes in each group

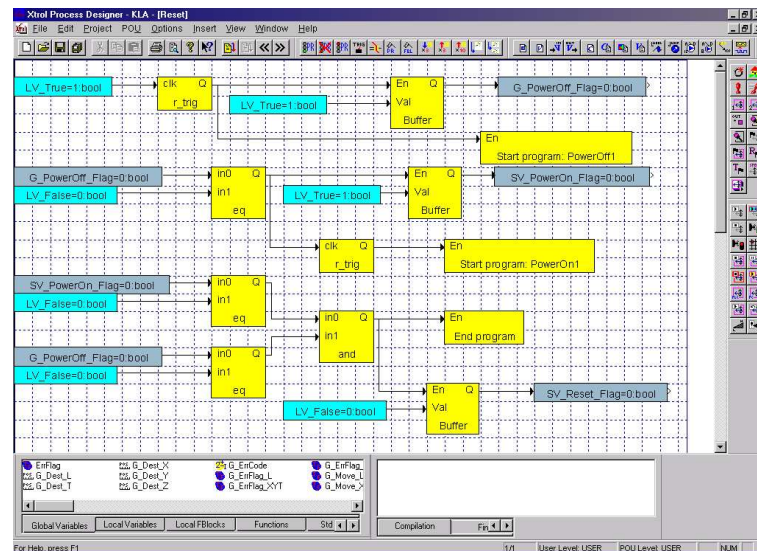


Programmable Logic Control (PLC)

- Perfect synchronization of Motion and Logic controls
- Full PLC software for simple creation of logic using Function Block Diagram (multitasking and object oriented language - based on IEC-1131 standard)
- Win98/NT/2000/XP multitasking environment for motion configuration and PLC design and debugging
- Software package allowing easy system setup, tuning and configuration
- Debugging software for real time execution of the process machine logic

Advanced CNC Software

- Rotation, mirror and scale job transformations
- On-line feed-rate override
- Up to four Home positions
- Automatic carriage separation
- G-Code file colored editor
- Tangential axis control mode - normal to the cutting path
- Rotational head Angles Interpolation
- Vector angle interpolation
- Bevel position correction
- On Screen I/O map and diagnostic
- Powerful CAD/CAM system for designing with bevel, nesting etc. (Optional)



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Programming Highlight Features

Configuration form

Define various settings and parameters in one form. Set the Table Size, Sheet Size, Home Positions, Graphics, Units, Feed Override Range and more...

The configuration form includes the following sections:

- Table Size:** X: 12000, Y: 12000
- Sheet Size:** X: 3000, Y: 3000
- Home Positions:** Home 1, Home 2, Home 3, Home 4 (X, Y, A, B coordinates)
- Graphics:** Display Kerf Trace, Zoom step: 5, Move step: 0, Units: Inch, mm
- Feed Override Range (%):** Lower: 50, Upper: 100
- Special G0 override:** 23
- G00 Speeds:** X: 10000, Y: 10000, A: 10000, B: 10000
- Manual Speeds:** X: 10000, Y: 10000, A: 10000, B: 10000
- Speed Settings:** MDI default: 1001, Forward: 4001, Backward: 5001, Test: 5000
- Bevel Head Tuning:** Bevel head 1 On, Bevel head 4 On, Min Length: 10, Min Radius: 1, Min Angle: 0, Max Error: 0.1, Bevel compensation height: 0, G95 Step: 0.5

Supports Setup

Select the appropriate state for each support operating together with Master Head

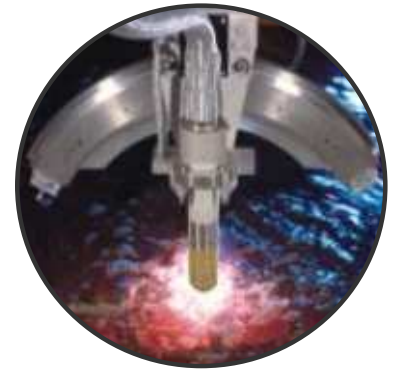
Supports Status			
Support 1	Support 2	Support 3	Support 4
Clamp	Clamp	Clamp	Clamp
Lock	Lock	Lock	Lock
Free	Free	Free	Free

Kerf table

Fill in the Kerf value for each index and save it for further automatic use

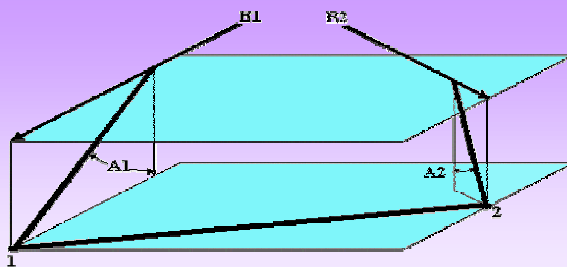
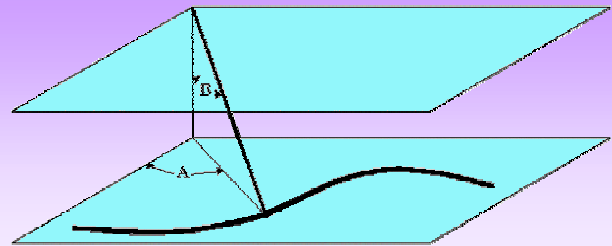
Index	Kerf
0	1.000
1	0.330
2	1.000
3	1.000
4	1.000
5	1.000
6	1.000
7	1.000
8	1.000
9	4.000
10	4.000
11	4.000
12	4.000
13	4.000
14	4.000
15	0.000
16	4.000
17	4.000
18	4.000
19	4.000
20	4.000

Bevel Cutting



Normal to cutting path

Automatic adjustment of the bevel head rotation to be normal to the cutting path

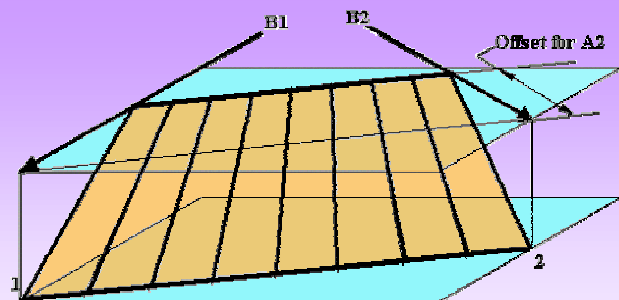


Angles Interpolation

Linear interpolation of both the rotation and bevel angle axis between two points on cutting path

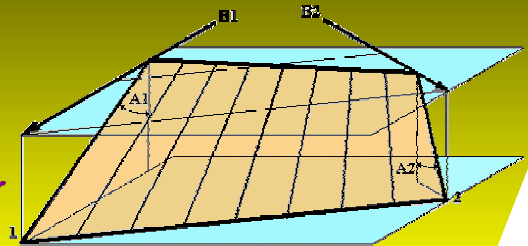
Vector angle Interpolation

The controller moves the cutting head from one position to the next by providing a motion that cuts a surface of bevel angle A2 all through the path, between B1 and B2



Vector position interpolation

The control system moves the cutting head from one position to the next by providing a motion that cuts a ruled surface between vector A1, B1 to vector A2, B2



Bevel position correction

For the case where the pivot of the rotation and bevel angles are not perpendicular to the plate surface, it is necessary to correct the distance between the nozzle and the surface via automatic adjustment of X, Y and Z position

Status & Information Displays

Important machine status displays are always present in condensed format.

Displays the current view type: Table/Sheet/Part

Angle: Indicates the plate alignment angle

Power Led: Switches to Green when the Power is ON

Speed: User defined speed

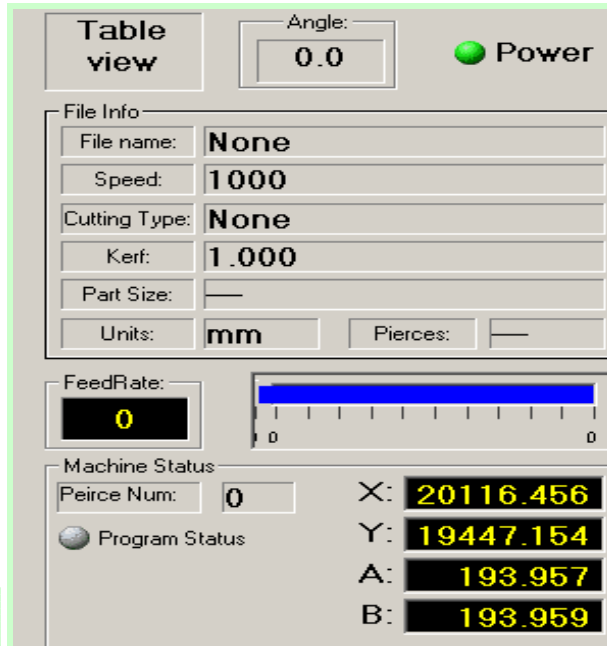
Cutting type: User defined type of cutting

Kerf: User defined kerf

Feed Rate: Shows the current machine feed rate in mm/min

Units: Unit defined in file

Pierce num:
Show the pierce number the machine is executing or the last one that was executed



File name: contains the opened file name when a file is loaded

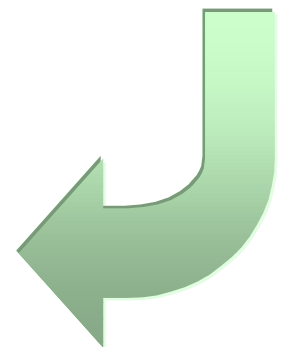
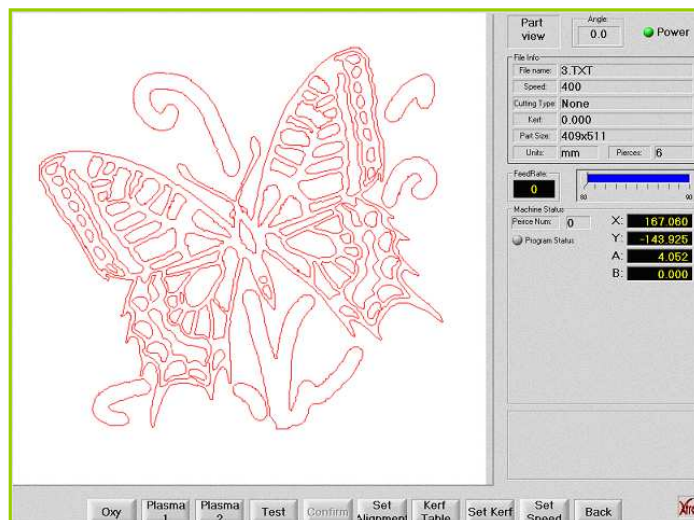
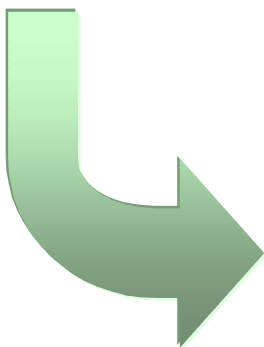
Part Size: The part size in units defined in file, calculated after opening

Pierces: Number of pierces in the file, each M7 is a pierce

Feed Override slider: Indicates the current feed override

X,Y,A,B displays the current axes position relative to the most recent selected zero point

Program Status: The led switches to Green when the machine is moving in Auto mode.



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