# Universal Manufacturing Software

## Cenon CAM - Shape your Ideas !

Cenon CAM

made in germany

# *I*ntroduction

**Cenon is a universal production software** for CNC machining system. You can either design and construct with Cenon or you can import your projects from your favored design software (Corel Draw, Auto CAD, etc.). Using Cenon, you can focus on the important steps of the CAM output, while intelligent algorithms perform the exact conversion of the graphics to your CAM system.

| 👁 ✏ 🪣 🟥 | 10 | Star | Single Tooth 1.0 mm |
|---|---|---|---|
| 👁 ✏ 🪣 ⬜ | 10 | Rectangle | Single Tooth 2.0 mm |

It doesn't matter whether you **import** DXF or EPS files or if you **create** your own graphics – the steps to the output are similar and easy. All you have to do is **assign a tool** to each step of the process, then you can **start** the machining right away. The tool radius correction ensures that your work-pieces will become true to size, regardless of whether you are making inline contours, pockets or outline contours.
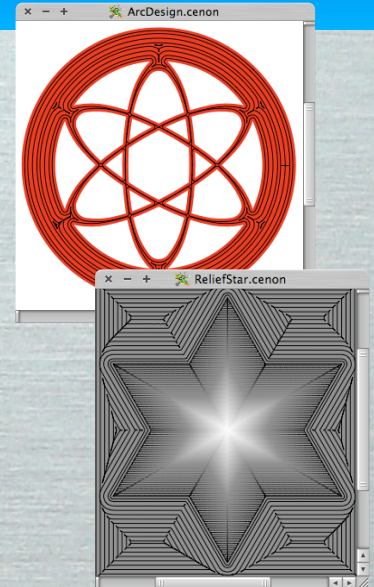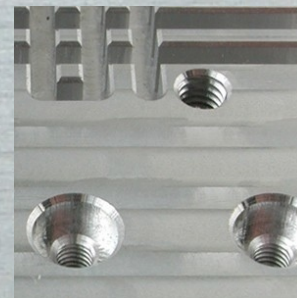
Example of an Inlay

Pockets
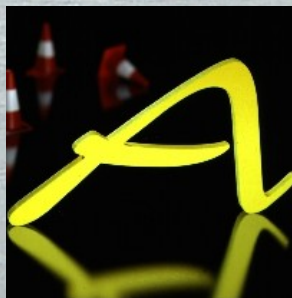
an Outline Contour

Threads and Countersinks

In producing **technical workpieces**, you will benefit from powerful functions for cutting threads, countersinks or chamfers. Batch production and the serial number function will help you produce larger quantities.

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# *W*orkflow

The concept of Cenon is to keep complicated things simple. Combined with a state-of-the art user interface and intelligent core algorithms, Cenon is a beautiful and strong partner for most challenges in the art of production.

## From the Screen to the Showroom

Cenon allows the import of a wide range of formats, like PostScript, DXF, HPGL, and Gerber. Strong and clean Editing Functions, and industrial strength pre-manufacturing processing, including tool radius correction, contour-fill, Relief, Pick-Out, or special purpose algorithms. Cenon is able to control the machine from a graphical Control-Panel, allowing interaction, or export to different file formats.

## Workflow

| Data Input | | Graphic Editing | | Data Processing | | Data Output |
|---|---|---|---|---|---|---|
| DTP Software | ⇨ | powerful Editing | | Filling/Rub-Out | ⇨ | Cutting Plotter |
| Mechanical CAD | ⇨ | Rich-Text Boxes | | Thinning | ⇨ | CNC Maschine |
| Spread Sheet | ⇨ | Raster to Vector | ⇨ | Relief Function | ⇨ | CNC Router |
| Scan | ⇨ | | | Pick-Out | ⇨ | Jet Cutting System |
| Barcode-Reader | ⇨ | | | Batch Production | ⇨ | Laser Plotter |

# *P*anels
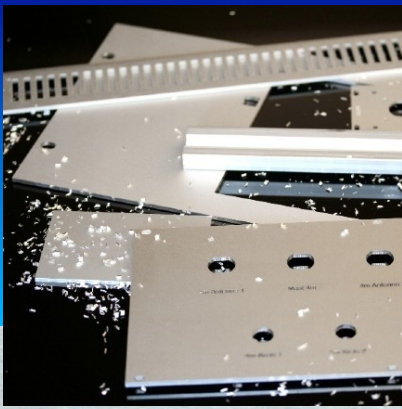
For **sign making** or **engraving** tasks where the work is focused on **perfect lettering**, graphics and logos, functions for well-fitting inlays or for thinning the letters of stamps quickly turn out to be indispensable. Moreover, thanks to the PostScript technology, you can use all fonts of your computer system or software. It is not required to use special engraving fonts (except when you want to achieve a very high working speed).

You can apply Cenon's **comfortable editing functions** also for **re-editing imported graphics**.

Be invited to our tour and **learn more about the** many **applications of Cenon** in the different fields of the art ...
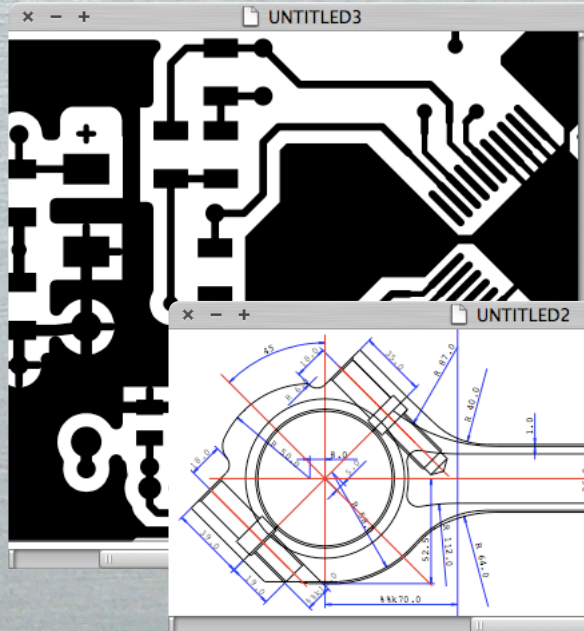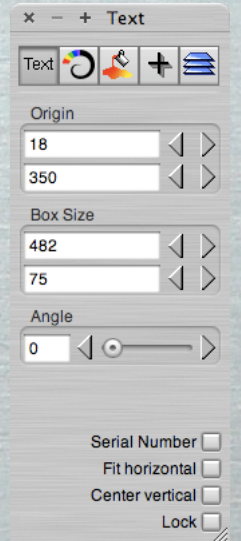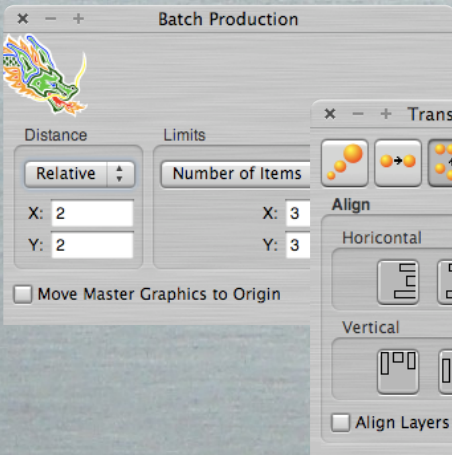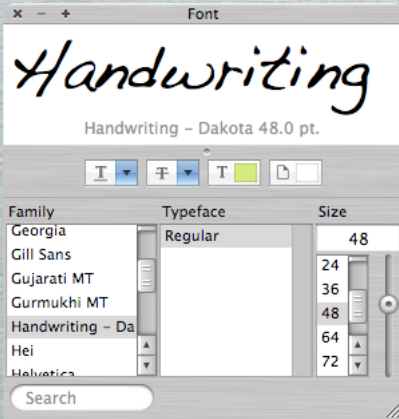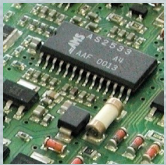
Cenon CAM - Shape your Ideas !

# *Overview*

Cenon CAM is an universal manufacturing software, and as such Cenon can be a versatile tool in many different applications. To give an overview of what is possible with Cenon, some of the main areas will be introduced here.

### Electronics
Cenon has been developed by a team with a strong background from developing a Printed Circuit Layout System. This knowledge plus the application of Cenon in the in-house Electronics-production of vhf, helped creating a **versatile tool** for any fields related to Electronics.

### Industry
In the industrial setting, where **reliability and speed** is demanded like in no other field, Cenon has to offer strong advantages with it's combination of **rock-stability** and a **clean and easy User-Interface**.
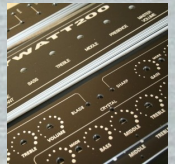
### Engraving
High **quality calligraphy** and logos are keywords of todays engraving business. Cenon provides strong algorithms such as **Pick-Out** and **Contour-Filling**. For **high speed engraving** specialized Single-Line Fonts are available.
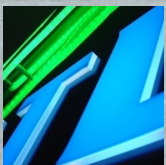
### Sign Making
The most eye-catching application of Cenon is without any doubt Sign-Making. Spectacular displays and applications of any size are possible. Cenon allows technics like **Push-Through t**o go beyond the size-limits of the machine.
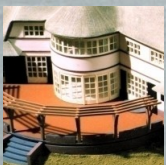
### Model Making
The popularity of model-making makes it clear - models are more demanded than ever, especially in architecture. **Seeing**, **Feeling**, **Touching** - made to make **lasting impressions**. Of course, Cenon can help...
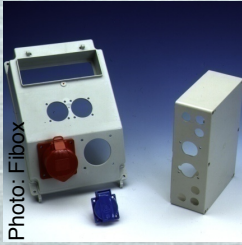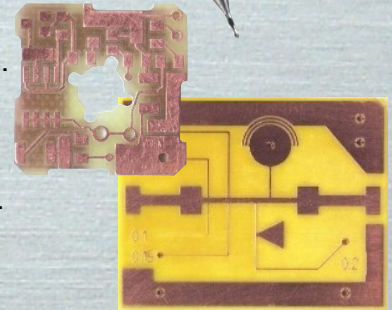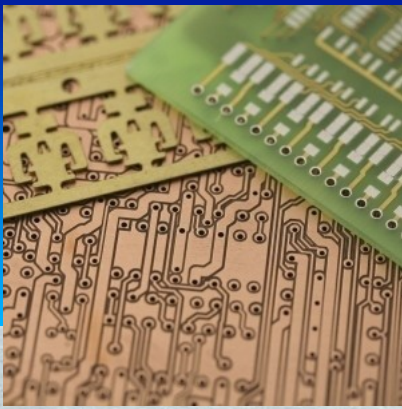
*Cenon CAM - productive since 1992.*

# *E*lectronics



Photo: Fibox

**Cenon CAM** is a specialist in all areas of Electronics. Starting from the outside, all tasks of creating a proper **Casing** can be performed with ease. Cenon CAM has already proven it's strengths in the large scale productions of well known case manufacturers.

Photo: Detailor

**PCB Prototyping -** Special algorithms for engraving insulations of Printed Circuit Boards are part of Cenon for more than a decade now.
**Front Panels** or **Cooling** Devices of any size and shape, including threads, engraving of text and logos, single items or batch production.
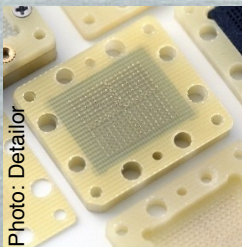
The advantage of a flexible manufacturing tool like Cenon is that there is practically no limit of application. If a **Test-Adapter** for integrated circuits is needed right now - just do it!
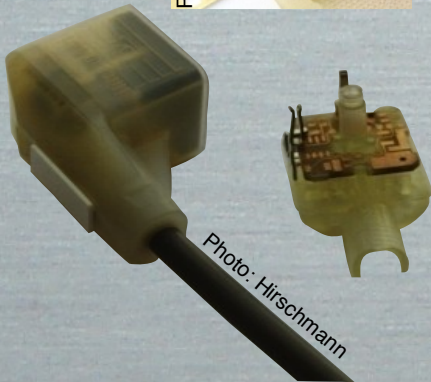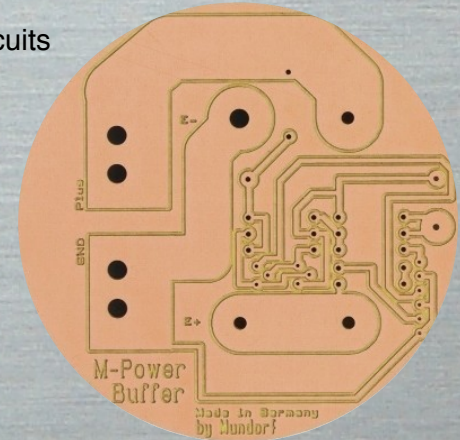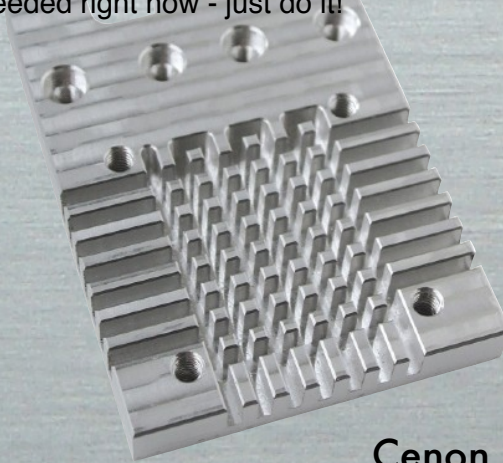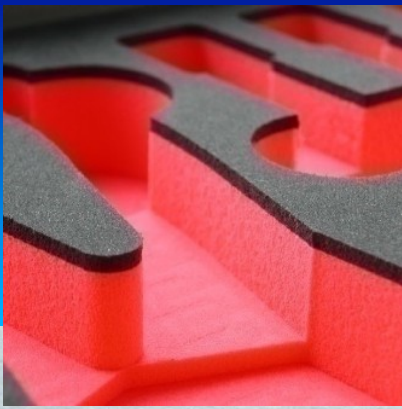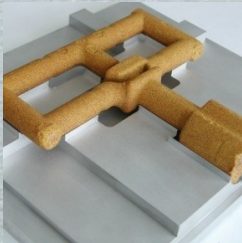
Photo: Hirschmann

## Cenon CAM - Shape your Ideas !

# *I*ndustry

The industrial requirements are high, most of all reliability and speed are demanded. **Serial-Numbers** and **Batch-Production** allow fast labeling of items or type plates. **Lock-switches** and **Templates** give protection against accidental modifications by the manufacturing staff.

The picture shows an example of the individual production of industrial work-piece fixtures.

The **clean User-Interface** of Cenon and the **ease of use** make Cenon ideal for the flexible production of high quantities.

The selection of material is not limited by Cenon - also fragile ceramics can be processed with the right tools.

The picture on the right shows the main part of a Tool-Revolver. All the vhf-machines are manufactured using Cenon, giving the developers a first-hand experience to steadily optimize Cenon for a real-world production process.

CircularBatch1.cenon

SN-100544    SN-100546

SN-100543    SN-100545
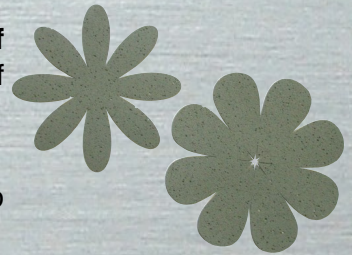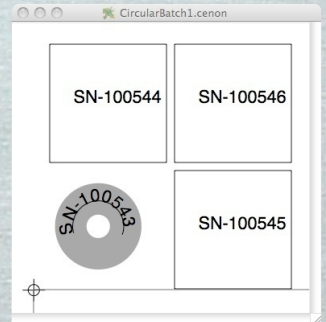
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Photo: Harisch
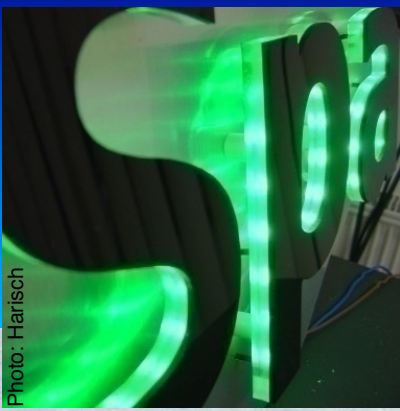
# *S*ign *M*aking

Sign Making is for sure the **most eye-catching** application of computer aided manufacturing. Be it samples for commercials, entrance signs, or large-scale advertisements...

Photo: Tinals Werbung

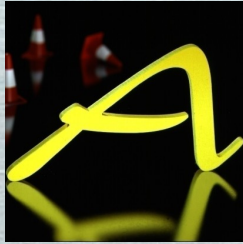For large-scale advertisements, exceeding the size of the machine, a **Push-Through technic** (Panelling) is supported by Cenon. This allows manufacturing of selected portions of a graphics.

Photo: Blühendes

Several Castles and Cities already decided for Cenon as their tool to create displays to highlight their beautiful places.
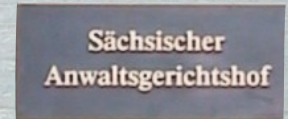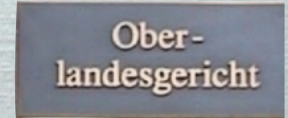
Photo: Gohlert

Photo: Kupfer Ecke

Photo: Blühendes Barock

**Cenon CAM - Shape your Ideas !**
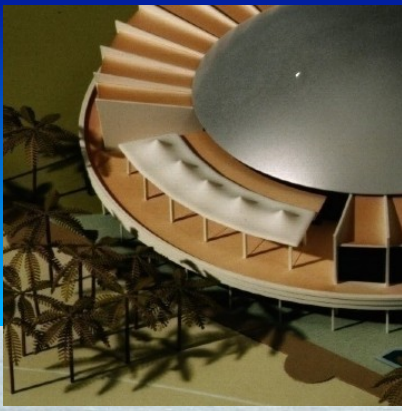
# *Model Making*

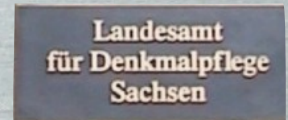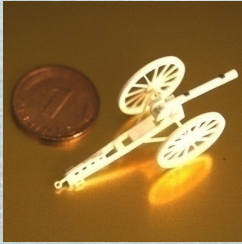Whether a **small scale** model of a cannon, filigree palm leaves, or a **men-high** skeleton of a Tyrannosaurus Rex, made from wood - Cenon teams up with your imagination.

*Model-Making, because **"Seeing is Believing"***

For building **Architecture models**, Cenon allows you to import architectural data in the DXF format, making it possible to turn existing data into a model.

Cenon's relief function can help creating **topographic landscapes** from as little as a scan of a map.



**Industrial models** like this mobile recycling plant, or the model of a swiss **steam locomotive** of 1908 (below), show the multitude of applications of Cenon.

All examples are works designed or manufactured with Cenon. The Aluminum Tarantula spans 80 cm.
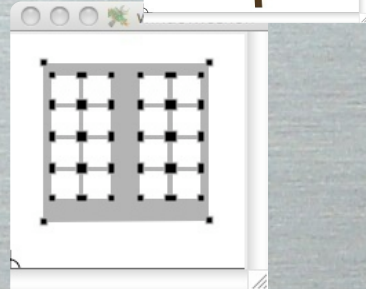
**Cenon CAM - Shape your Ideas !**

# *Engraving*

Fancy Patterns, Lasting Calligraphy, or Deep Impressions. Engraving is a field of growing diversity and complexity. From simple engravings to complex coining-dies and **embossing-stamps**.
The button demonstrates the engraving of curved surfaces.

**High-Speed engraving** of ball-pens with Single-Line Fonts (here Kaufmann) are as well supported as engraving with PostScript or other Outline-Fonts.

*vhf has created a set of **Single-Line Fonts** suitable for Cenon and other engraving software.*

A sign engraved in **Steel**.
The "Times"-example below displays the result of Cenon's **Pick-Out** algorithm, while the Screenshot of the Logo shows how Pick-Out and **Contour-Fill** are delivered to the machine.

# Wood - Working

**Wood** - an easy to shape material with endless applications, not only for **Furniture Making**...

With Cenon all the **artistic tools** available for desktop publishing can also be applied to wood.

This **Inscription** of a crib shows how easy it is to apply fancy decorations and text to wood.

To the right a pattern **engraved** into a wood surface, and a **carving** using Cenon's Pick-Out function.
Also **Reliefs** can be done by applying Cenon's Relief-Function...

Be it a **Bavarian Ceiling Ornament**, Christmas decoration, or a **Roller Coaster** for marbles, almost everything is possible with wood and Cenon CAM.

Cutting, Drilling, Pockets, Threads, Inlays, Fittings, ...

Photo: Goldblume

Photo: Weinmann

Photo: Weinmann

Photo: Quadrilla

**Cenon CAM - Shape your Ideas !**

# *Camera+Targeting*

### Shaping after Printing
How to cut or drill a batch of offset-printed Front-Panels, Foil-Keyboards, or Advertising Signs? Cenon's Camera+Targeting recognizes Markers, printed during the printing process and rotates and moves the output to fit the working piece.

### Fitting a Stretched Fabric
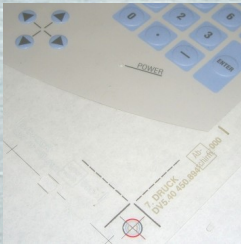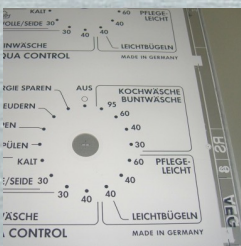Advertisement Banners run out of large printers, and then need to be cut into shape... somehow. Problem, the printers are not exact and the print is streched. The solution is Cenon's Camera+Targeting. Markers on the print will be recognized and the output scaled and rotated to fit the print!

### Connecting Lose Ends
Whenever Positions, Rotations, or Scalings have to be determined, be it in combining manufacturing steps or in special applications, Cenon's Camera+Targeting can help.

### Rotating + Moving + Scaling + Transformation
Whatever transformation is needed to fit a graphics on the machine, Cenon transforms using a flexible transformation-grid.



Kamera

Muster Definition

Einstellungen    Neustart
Muster definieren    Referenzpunkt definieren


X: 1.4111  Y: 143.2278  Width: -14.8167  Height: 33.8667  mm  100%  Flower.cenon
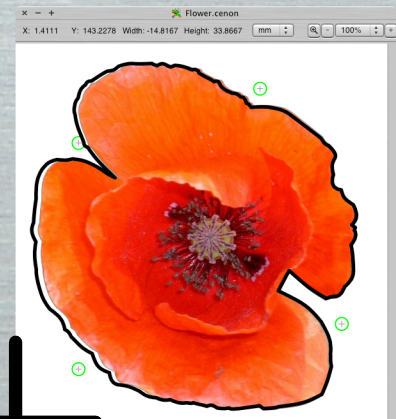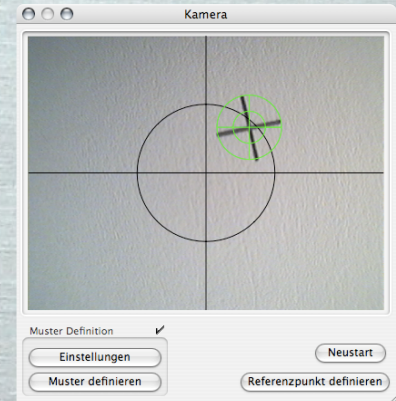
*On-screen preview of a transformed output.*

## Cenon CAM - Shape your Ideas !

# Engraving Fonts

The **vhf engraving fonts** are high-quality single-line and multi-line fonts that have been developed especially for the high speed engraving process. The fonts contain no filling and do not have to be cleared out time-consumingly, like the usual outline fonts. All fonts are provided as a single-line and a double-line variant.
You can order the engraving fonts separately or as a package.

The vhf fonts are available in Type 1 (PostScript) and OpenType format and can be used with Windows (Windows 2000 or later), Apple Mac OS X, Linux, and other systems.
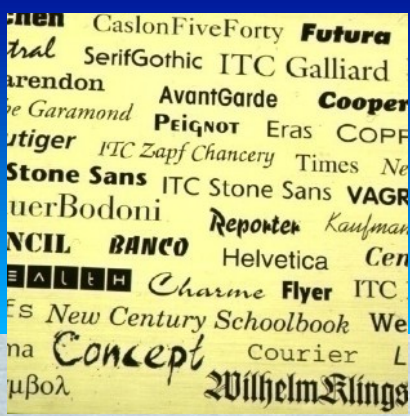
Cenon CAM - Shape your Ideas !
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Alternate 1 Line
Arcade 1 Line
AuntJudy 1 Line
Civitype 1 Line
DIN Engschrift 1 Line
DIN Mittelschrift 1 Line
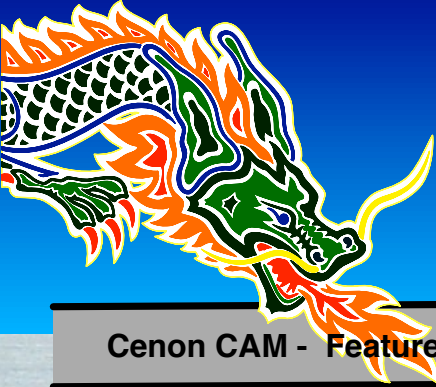George 1 Line
Kaufmann 1 Line
Madeleine Italic 1 Line
Paintbrush 1 Line
Romantique 1 Line
Standard 1 Line
Surf 1 Line

# *Features*



## Cenon CAM - Features

**Editing:**

| | |
|---|---|
| Lines, Bezier-Curves, Arcs, Poly-Lines, Rectangles, ... | ✓ |
| Complex Paths, Text on Path, Groups | ✓ |
| Rich Text with full Text Attributes | ✓ |
| Marker | ✓ |
| Raster-Images | ✓ |
| Threads, Sinkings | ✓ |

| | |
|---|---|
| Multiple Undo / Redo | ✓ |
| Inspector for object manipulation | ✓ |
| Transformation Functions like Rotation, Scaling, etc. | ✓ |
| Raster to Vector-conversion | ✓ |

**Infrastructure Features:**

| | |
|---|---|
| State of the Art Graphical User-Interface | ✓ |
| Plug-In Functionality | ✓ |

**Production Features**

| | |
|---|---|
| Milling, Engraving, Drilling, Plotting, Cutting, ... | ✓ |
| 3-D Relief-Output of Images and Color Shadings | ✓ |
| Engraving with Pick-Out (Carving) | ✓ |
| Batch Production with Serial Numbers | ✓ |
| Angular Approach of dipping depth | ✓ |
| Step-wise Cutting | ✓ |
| Tool-Radius Correction (inside + outside) | ✓ |
| Vector Algorithms, Raster Algorithms | ✓ |
| Filling in desired direction and Contour-Filling | ✓ |
| Placement of webs to keep parts together | ✓ |
| Settlement (polishing) Run | ✓ |
| Optimization of output paths | ✓ |
| Assignment of tools to layers for easy manufacturing | ✓ |

| | |
|---|---|
| **Camera+Targeting** | Optional |
| **Printed Circuit Board Prototyping** | Optional |
| Isolation Engraving with Rub-Out, Blow-Up, ... | |
| **Engraving Fonts** | Optional |

**Machine Handling:**

| | |
|---|---|
| Tool Management and tool magazines | ✓ |
| Position-Management | ✓ |
| Save Output data to File | ✓ |
| Direct Graphical Control of machine | ✓ |
| Adjustment of Spindle Revolution and cutting Speed | ✓ |

**Some of the supported Machine / CNC Features**

| | |
|---|---|
| Output to HPGL, DIN 66025, Isel, CNC-systems & plotters | ✓ |
| Lines (2-D+3-D), Arcs, Helix, Bezier-Curves | ✓ |
| Support of Spindle, Tangential Knife | ✓ |
| Leveling | ✓ |
| Reading back of machine Position | ✓ |
| Configurable Switches for suction, clutch, ... | ✓ |

## Import/Export:



**Import:**

| | |
|---|---|
| DXF | ✓ |
| Drill Data (Excellon, Sieb&Meyer, Wessel, ...) | ✓ |
| Gerber (RS-274X) | ✓ |
| HPGL | ✓ |
| PostScript (PS and EPS), PDF | ✓ |
| SVG (Scalable Vector Graphics) | ✓ |
| Raster-Images (TIFF, JPG, GIF, ...) | ✓ |
| Text-Lists for flexible batch production of labels | ✓ |
| Separation of colors to layers | ✓ |

**Export:**

| | |
|---|---|
| DXF | ✓ |
| Gerber | ✓ |
| HPGL | ✓ |
| PostScript (EPS) | ✓ |
| PDF, PostScript (PS) | Print functionality |

# *P*roduct *L*ist

## Order Information

| Products | Web-Site |
|---|---|
| Cenon CAM | www.Cenon.com |
| Option: PCB Prototyping | www.Cenon.com |
| Option: Camera+Targeting (including Camera, Framergrabber, ...) | www.Cenon.com |
| Auto-Update Service (get the latest Release hassle free) | www.Cenon.com |
| vhf engraving fonts, complete package (13 fonts) | www.vhf-interservice.com |

You find the address of your Dealer on the back pages of the brochure.

**www.Cenon.com**

Mac    Universal
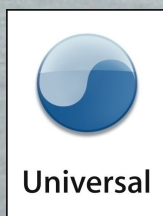
**vhf interservice GmbH**
Im Marxle 3
72119 Altingen, Germany
fon        0 70 32 / 970 97-0
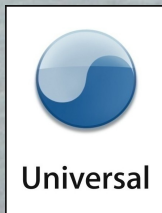fax        0 70 32 / 970 97-50
eMail     interservice@vhf.de
www      www.vhf.net

*Cenon - Manufacturing with Style*

Your Dealer:

**Mac**

**Universal**

**vhf**

**www.Cenon.com**