

Cimagraphi

About GraphiTech

GraphiTech are leading developers of artistic CAD/CAM solutions crafted for the manufacture and reproduction of detailed artistic and industrial designs.

Our products constitute a new world of opportunities for industrial designers and manufacturers in engraving, sign-making and milling that reduce costs and time to market. GraphiTech products include artistic CAD\CAM, 2.5 / 3 axis milling and reverse engineering solutions.

Marketed throughout Europe, Asia and the Americas, GraphiTech's clients are provided with full training and customer support.

Cimagraphi

The mainstay of GraphiTech's products, Cimagraphi provides creative freedom and milling capabilities to ensure the production of detailed and intricate designs. Cimagraphi can be used in a wide range of applications from small intricate pieces to industrial applications - with precise accuracy assured. State of the art lasers, scanning and milling technologies generate 2D or 3D computer models.

Cimagraphi, GraphiTech's flagship product, is a 3D artistic CAD/CAM that opens new worlds of opportunities for artistic and industrial designers. Applying CAD\CAM principles to freehand designs, Cimagraphi's unique artistic solution automates the design and milling of the most refined and detailed designs, and can be used for a wide range of applications.

Cimagraphi provides powerful tools for 2D-logo designs and 3D surface sculpting. The package includes 2.5D, 3D and 5 axis milling modules as well as a wide variety of outputs to CNC machines, engravers and routers. Cimagraphi is ideal for mold makers who need to add logos to their parts, jewelers creating free form designs, engravers, sign-makers, woodworkers and others who wish to integrate Artistic CAD/CAM into their traditional methods of work.

- Implement innovative designs
- Decrease turnaround time increases production potential
- Conserve materials usually lost in manual production

What is Artistic CAD/CAM?

The expression **Artistic CAD/CAM** was coined by GraphiTech to describe CAD/CAM specifically developed for the design and production of complex artistic designs. Traditional CAD/CAM systems have not been able to support intricate detailing as the complexity of surfaces and entities involved cannot be mathematically defined. Ornamentation, shapes and patterns that can be drawn freestyle, can now be captured offering **Artistic CAD/CAM**, designers the freedom to create

objects with a 'hand crafted' quality, emulating work usually done by individual craftspeople. Used in a wide variety of applications from fashion items to industrial molds, Cimagraphi provides the freedom and flexibility required by modern workshops while ensuring accuracy, efficiency and savings of a computerized system.

Who is the product for?

Mold-makers, metalworkers, jewelers, sculptors, ornamentation designers, woodworkers, engravers and sign-makers are some of the designers who are integrating artistic CAD/CAM into their work methods to ensure sound business development.

Cimagraphi Applications

Cimagraphi appeals to a wide range of markets, many of which produce traditionally hand-crafted objects. These include artistic metalworking, woodworking, ornamentation, jewelry and sculpting as well as mold and die making.

Here is a partial list of applications for Cimagraphi:

Home	Fashion	Ornaments	Paper Goods	Industry
Ceramic Tiles	Jewelry	Religious/ Ancient Artifacts	Greeting Cards	Hot Stamps
Wood furniture	Eyeglasses	Medals & Coins	Letterhead	Inserts
Glass	Buckles	Silver Frames	Books	Scales & Panels
Chandeliers, Marble	Buttons	Antiques reproductions	Paper cutting	Roller Dies
Kitchenware & cutlery	Shoe trimmings	Trophies	Embossing & Engraving	Tire molds
Porcelain & China	Leatherwear	Figurines	Paper tableware	Molds Engraving
Wallpaper			Packaging	Gravestones
				3D Signs
				Food: Chocolates, biscuits

Cimagraphi's software

Cimagraphi has 3 design modules as well as a manufacturing module. The system is fully configurable and is available in a variety of levels depending of the users' markets and budgets.

Trace

Vectorized and edit scanned picture...

The Trace module automatically converts scanned images into vector images (raster-to-vector). A raster image is build of pixels, which are not machinable formats. The Trace module converts any picture into wire-frame vectors which are then machined on a CNC machine.

Importing and vectorizing standard bitmaps formats including: BMP, PCX, TIF, JIF, JPG, PNG, PCD, EPS, WMF, TGA as well as importing vector images such as DXF, HPGL and PostScript, enable Trace to handle intricate graphic design with surprising ease.

Image tracing is controlled by a set of easy-to-use parameters, generating outlines or centerlines. Special tools are provided for the optimization of color tracing and separation.

Powerful editing tools allow the user to move contours, re-shape, force sharp corners or tangent points, filter lines or curves, reduce the amount of points, and filter short chains. Users can also sketch (freehand) the desired contours, overlay the image and define zones of interest for future use. The layout can be organized in multiple layers for ease and flexibility.

The graphic design can be exported into all other modules, using internal mail (copy-paste technique).

GrafiCAD

Creates and draws frames and text layout within one environment...

Whether drawing, drafting or adding text, this module enables users to create and edit 2D elements. Edit traced images, add and create precise geometric figures, and use quick and easy sketching functions to draw or digitize simply by using a mouse.

Handling text is as easy as a word editor; use TrueType fonts or Cimagraphi's more than 170 fonts. Powerful typesetting capabilities allow users to set parameters such as font size, alignment, positioning, rotation angles and directions. Text can be typed along specific contours or ellipses. Industrial Engravers can make serial number plates or create rulers and dials using an advanced wizard. A powerful Font Editor allows users to create fonts and save them for future use.

The design can be saved in layers for future use and flexibility. Editing elements is easily done with the trim function as well as precision measurements of dimensions. Users are alerted to disconnections or overlapped entities.

Picture to Part (P2P)

Freehand 3D surface sculpting ...

The Picture to Part is a surface-sculpting module, which enables users to sculpt and mold 3D surfaces and imitate hand-crafted work. Begin with 2D geometry, digitized data or color images – they can easily be converted into 3D images using Cimagraphi's P2P variety of tools. P2P also enables the user to create surfaces using *cloud of points* generated by a 3D scanner (mechanical or laser probes). This feature enables **reverse engineering** operations (reading in actual part geometry, producing fractal design and working on modifications).

Creating such 3D surfaces is a complex procedure. Often, it is necessary to edit and change parameters to achieve the optimum result. Cimagraphi's unique script manager will allow you to edit and change parameters and re-calculate your surface in seconds without the need to reset and re-build the surface again.

Mill

Prepare the job for milling...

Generating a toolpath (NC data) is easy using Cimagraphi's automated tools. The **Mill** module controls the actual machining and engraving process of objects. The "Milling Expert" guides users through the toolpath generation process, prompting selection from a library of stock materials, tools and pre-defined strategies. Strategies supported by Cimagraphi include clean areas, contours, on-line slots, drill cycles and automatic detection of un-machined areas for 2¹/₂, 3 and 5-axis milling. NC data can be output for 4th rotary axis for cylindrical milling. All machining knowledge can be saved within a script, which can be applied later to different parts. Should the design need modification or a tool require changing, Cimagraphi will automatically regenerate the updated toolpath. A photo-realistic simulation enables users to verify toolpaths before milling.

Finally, Cimagraphi automatically exports the final toolpath to the machine controller through a wide range of post-processors.

***Cimagraphi - the right choice for
Artistic CadCam***

CimiGraphi Specifications and Features

(Formerly Version 7 - Feature Highlights)

specifications:

General:

- 32 bit application
- Open GL photo realism

Data Interface:

- DXF, IGES, VDA, EPS, STL, HPGL, VRML, STEP, 3DM

Trace:

- Color Tracing
- Outline and center line
- Dynamic editing and filtering tools
- Multiple raster formats (bmp, jpg, tiff, pcx, wmf...)
- Layer Manager
- Batch Tracing
- Raster picture editing

features:

GrafiCAD:

Draft

- Creating and editing lines, arcs, frames
- High precision digitizing
- Built-in font editor
- Full support of transformations such as move, rotate, scale, stretch, and mirror
- Nesting
- Mathematical curve generation
- Dimensions

Text

- Graphical text editor with complete text attribute control
- Generation of dials and rulers
- Stack and magazine for automatic signs
- True Type ® font support

Picture to Part:

- Reverse engineering
- Cloud of points input
- 3D surface creation from 2D contours
- Gray scale analysis & image filters
- User-definable textures
- Surface editing tools
- Sketching & Automatic Z-Level contour tracing
- Freehand & precise cross section control
- Asymmetric Embossing
- WACOM pressure sensitive tablet support
- A "handmade" touch function
- Multiple surface – Assembly mode
- Weaving tool

Mill:

- High precision tool path generation supporting spiral, parallel, contour, offset machining, drill cycles
- Unmachined area detection
- Machining on surfaces by projection or wrapping
- Open post-processor
- Job management
- Photo realistic simulation
- Macro (automation)
- Full tool entry/exit control
- Tool path optimization
- Rapid Motions display mode

All features supported in Platinum Version. Please refer to the IPL for detailed breakdown and availability per package.

The following is a basic outline for using the P2P module:

Use the **Trace**, and **GrafiCAD** modules to create 2D geometry which are then transferred to the **P2P**.

Each geometry is assigned a characteristic cross section and a method of sculpting.

By applying the embossing process, the surface is slowly molded into the desired shape – similar to building a clay model layer upon layer. Areas can overlay or overlap each other until achieving the desired result. Open contours enable users to achieve the look of a cloth fold with the *Fade* function. While working, the surface can be shown from any angle, shaded or wire frame in order to view the final product. **What you see is what you will produce!**

Surfaces can also be produced or modified by applying a freehand tool – using the mouse to sculpt over the surface.

3D Texture can be applied to the surface using imported 2D geometries or color picture shade analysis.

Shade analysis converts color images into 3D surface.

Ruled surfaces allow users to apply various cross sections between leading contours.

Using **Reverse Engineering** it is possible to import an ASCII file containing random cloud of points in any order generated with a 3D scanner. The P2P is using a set of parameters to calculate the surface and allow its modification with all its existing tools.

Fractal mathematics reduce the amount of surfaces according to the curvature and nature of the surface in a given tolerance, resulting in smaller file sizes, higher quality and rapid processing even for complicated designs.

The final surface is exported and machined in the **Mill** module.