

ALPHACAM STONE

SPECIFICALLY DESIGNED FOR MACHINING STONE





ALPHACAM

AN EASY-TO-USE CAD/CAM SOLUTION FOR THE STONE INDUSTRY

From CNC machining of simple kitchen worktops to complex three dimensional stone carvings, ALPHACAM Stone is the tool of choice for the modern stone craftsman. CNC machines capable of up to 5-axis simultaneous cutting are easily programmed, including CNC bridge saws.

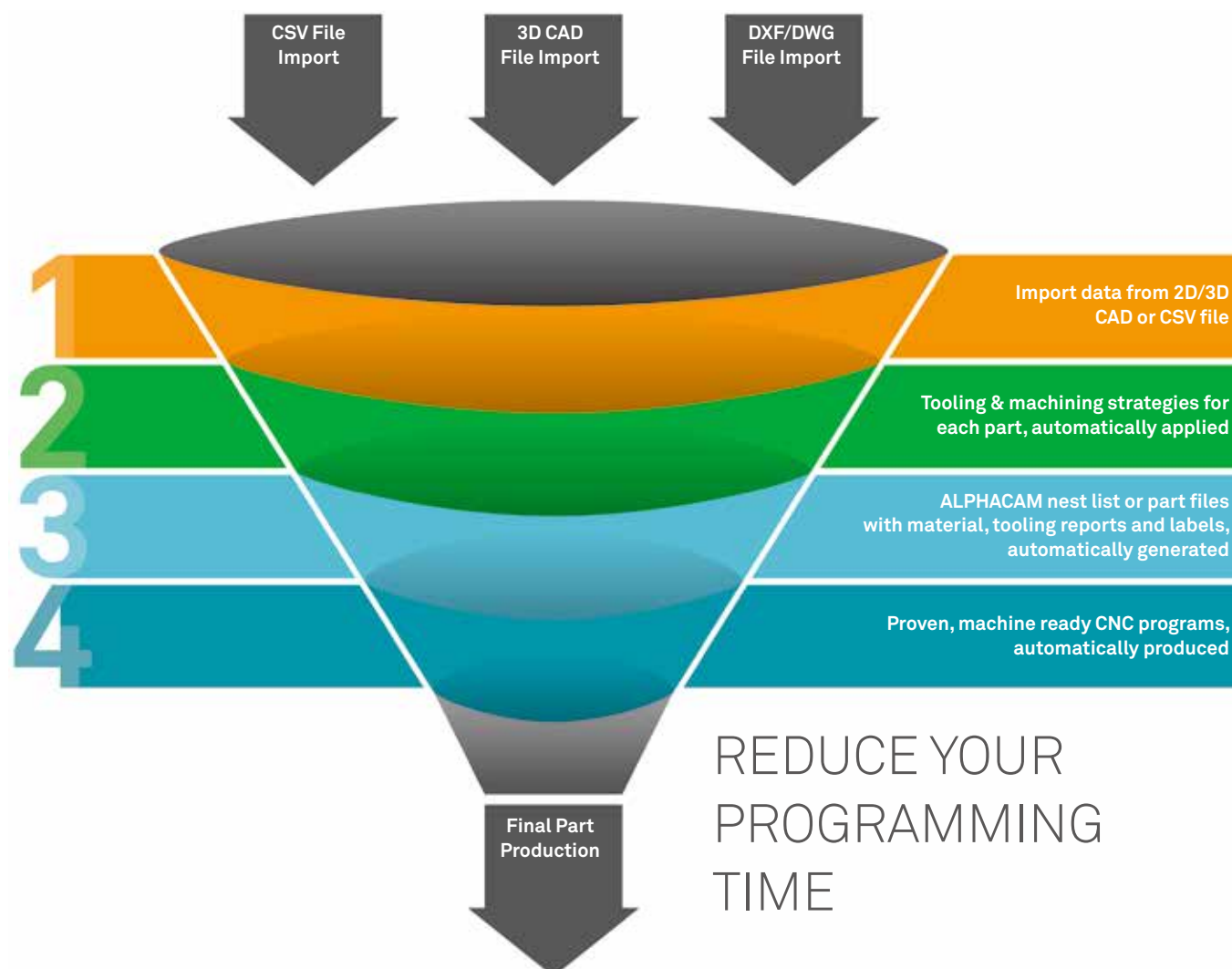


We have been using ALPHACAM Stone to program our Titan and Fusion for over a year and a half. I have found ALPHACAM very user friendly and would recommend it to any stone fabricator with CNC technology.

Bryan Fischer
PT Tile Holdings LP

AUTOMATE WITH ALPHACAM

COMMUNICATE YOUR ENGINEERING DATA DIRECTLY
FROM YOUR CAD SOFTWARE TO YOUR CNC MACHINERY



Using a conventional CAM system each file would have to be processed individually by inserting the file, extracting the features, applying tool directions and toolpaths, saving the file and NC code, and then generating the required reports. ALPHACAM can do this repetitive labour intensive work automatically.

Automation Manager allows 2D and 3D CAD files, along with solid models from third party suppliers, to be batch processed, from file preparation right through to applying toolpaths, with NC code being generated automatically. In addition, the file creates a full report structure, along with part labels and bar coding.



CAD IMPORT / CONSTRUCTION

2D and 3D geometries can either be created or imported into ALPHACAM Stone. Traditional formats such as DXF, DWG and IGES are all supported, as well as the new generation of solids, such as Parasolid. STL files, a common file format in the industry, especially when using laser scanners to copy existing hand carved forms, can easily be imported, manipulated and machined.

CONTOURING

2D geometries can be contoured using any shape or size of tool. The profile of form cutters are created within the system and their effective diameter and programming depth point controlled. The subsequent profiles generated by these tools on the parts are displayed graphically using the advanced solid simulation available within ALPHACAM Stone. Tool radius compensation is fully supported and a tool lead-in and out easily created. This means that the entry and exit points of a cutter can be controlled, often required if a tool needs to plunge at the centre of a previously core drilled hole. The lead-in and out can be sloping, reducing tool wear and be either a line or arc, or both a line and an arc. An overlap can be introduced to ensure that no cutting witness is left at the start/end of cut.

Contouring is used extensively when machining and polishing mouldings found on the edge of granite kitchen worktops. By supporting tool radius compensation, the diameter of the tool can be adjusted on the machine controller, thereby allowing for tool wear.

MACHINING STYLES

When cutting and polishing a contour, multiple tools need to be used. This is achieved within ALPHACAM Stone by creating a machining style. A machining style is a combination of one or more operations saved under a unique name, which can then be applied to any geometry. This avoids the repetitive work needed to apply similar machining operations with numerous tools to the same geometry, reducing time and avoiding costly mistakes.

POCKETING

A closed geometry can be pocketed (recessed), with an unlimited number of closed geometries (islands) left standing within it. ALPHACAM Stone has full look ahead; meaning that the tool will remove as much material as it can without gouging (fouling) the part. If a pocket is incomplete because the tool is too large, a smaller one can subsequently be selected to remove the remaining material. ALPHACAM remembers the residual material and pockets only in these areas, rather than retracing the path followed by the first tool, cutting 'fresh air' and therefore saving time. A helical tool path can be used to plunge the tool into the part at the start of the cut, if required due to the nature of the material being machined.



POLISHING

Elliptical and circular surface polishing strategies allow top and recessed surfaces to be finished. Full gouge detection is always active, though a negative stock is available to allow the polishing tool to overlap the top edge of surfaces when required. Surface polishing also involves multiple tools to achieve the surface finish required and again lends itself to the use of machining styles.

CORE DRILLING

Core drilling within ALPHACAM Stone is fully supported. Breakout on the underside of worktops can be controlled to prevent edge chipping of the material. Roughing of both 2D and 3D cavities, using a core drill, can be automatically generated. This includes interruption of the machine tool when the maximum depth of cut has been achieved by a core drill, allowing the operator to safely enter the machining area and remove the resulting material pillars, before restarting the program.

2.5D MILLING

If a profile is required around a contour or pocket, 2.5D machining is available within ALPHACAM Stone. Rather than using a form tool, a 2D profile or draft angle can be cut using a flat or radius tool by driving the profile around a geometry. The tool then follows this geometry, in multiple depth passes,

moving out and down as it goes, in order to generate the profile. This is a very efficient way of machining, because as the tool is only moving in 2-axes at any one time, G2/G3 arc moves can be supported. This machining technique is used to rough out a profile before using a form tool, avoiding any unnecessary wear and stress on it, or sometimes eliminating the need for an expensive form tool altogether.

DISC CUTTING

One of the most powerful tools available on a CNC stone cutting machine is the disc, and ALPHACAM provides disc cutting functionality unrivalled by any other CAD/CAM system. Profiles can be machined around contours, such as mouldings on the side of fire place surrounds, using a disc either horizontally, vertically, or normal to the profile. The programmable safety guard around the disc can be defined within ALPHACAM Stone and automatically controlled, to avoid any fouling of the part. As well as finishing a profile, all the excess material is also roughed away. Parameters such as width and depth of cut can be controlled, as well as the lead-in and out safety distance of the disc. When roughing the profile, to ensure that the blade is cutting using its full width and therefore avoiding unnecessary stresses, a width of cut greater than the blade can be specified. The machine tool can then be interrupted, allowing the operator to break and clear away the vanes left, before finishing commences. When finishing a profile, it can be cut with the side of the disc, either vertically or horizontally and by a given step length. Discs can also be used to rough or finish machine 3D surfaces and STL files. This technique is often used to machine the curved underside surface of stone spiral staircase treads.



In common with most other business sectors, stonemasonry is becoming an increasingly competitive market. But, that's where the benefits of ALPHACAM Stone really come to the fore. It provides the flexibility to enable us to utilise our in-house skills and experience to best effect .”

Maurice O'Donoghue

Betriebsleiter Georg Ackermann GmbH



4/5 AXIS SIMULTANEOUS

When using 4 and 5-axis machine tools, all of these cutting techniques are supported during planar machining. Often referred to as 3 plus 2, because the 2 rotational axes of the machine are used to orientate the machine head into position, then locked and fixed for rigidity, before 3D machining commences using the remaining 3 linear axes. This allows for areas of a part to be machined which would otherwise be inaccessible, were a conventional 3-axis machine used.



For a typical fireplace we'd have to realign the saw around eight times. With ALPHACAM we simply line up on one corner and press 'go.' We can then leave the machine running, and it'll finish the job in the one setup.”

Rob Goode

Owner - Goode Stone Supplies

ART WORK

Art work can be digitized and text easily sized and wrapped around a base geometry for sign and grave stone machining. Conical shaped tools, either with a flat bottom or point, can be used to 3D engrave any art work. This machining technique is similar to contouring, apart from when the tool comes to a point, at which time it pulls out of the part towards the point and then back again, leaving a sharp corner, often referred to as embossing. Any 2D toolpaths generated, including art work, can be projected onto a 3D surface, allowing the tool to rise and fall with the form. The projection of tool paths is fully supported up to and including full 5-axis, in which case the tool can also be kept normal to surface.

POST PROCESSING

Powerful post processing capabilities mean that all the advanced functionality of a CNC controller can be supported, including plane rotation. This allows for tool radius compensation and arcs to be used at any angle which dramatically reduces the amount of NC code required, smoothes machine movement and improves accuracy, as tool size and wear can be compensated for on any plane.



SOFTWARE THAT GROWS WITH YOU

- **ALPHACAM Essential** - The ideal entry level product for basic 2D CNC work.
- **ALPHACAM Standard** - The perfect product for shops and subcontractors.
- **ALPHACAM Advanced** - Targeted at the manufacturer who works with complex, free-form patterns and tools.
- **ALPHACAM Ultimate** - Adds support for full 4/5-Axis simultaneous machining for high specification architectural components.

SOFTWARE & SUPPORT

We have a support network of engineers who understand your business through experience. We will guide you through the modules and recommend the most appropriate combination of software, training and services that suits your needs.

SUPPORT PLAN

The financial cost of unplanned downtime can be expensive and lead to additional costs to your business. We understand it's essential to maximize productivity, which is why our support plans are specifically designed with your success in mind.

Support Portal

A highly efficient tool for contacting our experienced and knowledgeable Technical Support Team. It shows the status of current and previous cases and gives access to a comprehensive knowledge base.

eSupport - Strength in Numbers

A true community is greater than the sum of its parts. When users help each other, everyone wins. Ask questions, get answers. Whether from another community member or one of our support technicians, chances are, this is the place you'll find the help you need.

Telephone Support

Provides direct telephone contact to the Technical Support Team, for resolution of more involved issues.

Web Rescue

A direct PC to PC service allowing our Technical Support Team to resolve your issues.

Software Updates

Receive software updates giving you the latest functionality and ensuring maximum productivity and efficiency.



Hexagon Manufacturing Intelligence helps industrial manufacturers develop the disruptive technologies of today and the life-changing products of tomorrow. As a leading metrology and manufacturing solution specialist, our expertise in sensing, thinking and acting – the collection, analysis and active use of measurement data – gives our customers the confidence to increase production speed and accelerate productivity while enhancing product quality.

Through a network of local service centres, production facilities and commercial operations across five continents, we are shaping smart change in manufacturing to build a world where quality drives productivity. For more information, visit [HexagonMI.com](https://www.hexagonmi.com).

Hexagon Manufacturing Intelligence is part of Hexagon (Nasdaq Stockholm: HEXA B; [hexagon.com](https://www.hexagon.com)), a leading global provider of information technologies that drive quality and productivity across geospatial and industrial enterprise applications.



COORDINATE MEASURING MACHINES



3D LASER SCANNING



SENSORS



PORTABLE MEASURING ARMS



SERVICES



LASER TRACKERS & STATIONS



MULTISENSOR & OPTICAL SYSTEMS



WHITE LIGHT SCANNERS



METROLOGY SOFTWARE SOLUTIONS



CAD / CAM



STATISTICAL PROCESS CONTROL



AUTOMATED APPLICATIONS



MICROMETERS, CALIPERS AND GAUGES



DESIGN AND COSTING SOFTWARE