

# Croom Precision Medical

## Alphacam takes 9-Axis Machining in its stride

Having a 9-axis CNC machine driven by Alphacam gives a manufacturer of high precision medical products the option of additional all-round flexibility and absolute top performance when an especially complex part requires it.

While the bulk of Croom Precision Medical's work is 3- axis, and around 15% being 5-axis, they do have a state-of-the-art Citizen Cincom M32 9-axis Swiss Auto lathe when they need to achieve super-efficient and economic machining of complex parts in short cycle times.

As most of the parts they manufacture are implanted into the human body, it is absolutely critical they are extremely high precision. With a lot of the implants being exported to the United States where they are strictly regulated by the Food and Drug Administration, Croom Managing Director Patrick Byrnes says everything has to be absolutely perfect. "The design has to be perfect, the specification has to be perfect, the machining has to be perfect, the finishing has to be perfect. There's absolutely no room for any errors."

To achieve this perfection they use the market leading Alphacam software as both their CAD and CAM system. Their main product ranges are knee replacements, hip systems and shoulder prosthesis, and Alphacam is instrumental in the production of them all.

The majority of their parts are manufactured from cobalt chrome and medical grade titanium, through 3D milling on Fancu Robodrills, a range of Bridgeports and Hitachi Seiki, along with their Citizen and Star lathes. Patrick Byrnes says the ability to quickly produce CNC code that can be post processed with ease to any machine on the shopfloor is critical to their entire manufacturing process.

A patella base-plate in their knee system is a typical example of how Alphacam saved them a considerable amount of programming time. The part involved milling, drilling and tapping, and with its various sized slots was quite complex. "The first finished product came off the mill about 12 hours after starting the project. Without Alphacam the process would take much longer, and it's this speed which gives us a definite edge over our competitors who don't have that software."

Axis	MC COORD	Operation
X1	216.000	-2.000
Z1	5.000	-1.000
Y1	-0.032	-276.000
X2	0.000	-241.000
Z2	4.000	-1.000
Y2	0.000	-22.500
X3	0.000	-2.000
Z3	0.000	-1.000
A4	1505.000	-1.000

### About The Company :

Name : Croom Precision

Business : Medical

Website :  
www.croomprecision.com

### Benefits Achieved :

- Reliant efficient toolpaths created
- Collision free manufacture
- Interoperability with leading CAD solutions

### Comments:

***" Alphacam really comes into its own by ensuring we can produce high precision, complex parts quickly and competitively. Without Alphacam, the Citizen would take much longer to program – but the software is equally at home with 9-axis programming as it is with 3 and 5-axis"***

**Patrick Byrnes**  
Managing Director

### Vero Software Limited

Hadley House, Bayshill Road, Cheltenham, Gloucestershire, GL50 3AW, UK  
Tel : +44 (0) 1189 226677 Web : www.alphacam.com

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Patrick Byrnes (pictured second image from bottom) says they originally used another CAM package, which proved to be too slow and was also difficult to train their staff on. "But Alphacam is so user-friendly that it's very easy to teach our operators how to use it."

As Alphacam is used extensively in the Republic of Ireland where Croom is located (the company is named after the village it is based in, in County Limerick), it is taught in a number of colleges and at the Irish Training Agency, FÁS. "It's important to us that our apprentices have a good working knowledge of Alphacam because we don't have time to train someone from scratch, so we expect it as the norm now that a first year apprentice will have a basic grounding in Alphacam up to 3-axis."

More than 50 highly skilled and intensively trained employees work out of a 20,000 square foot purpose-built facility on a 2-acre site offering plenty of scope for expansion. And ironically, it is the current financial difficulties facing the Republic of Ireland that is driving Croom's changing approach to the market place. With Alphacam giving them the ability to manage increasingly complex geometries in a simple way, switching from predominantly 2D to mainly 3D work means the company can focus on high value business in a niche market, instead of trying to compete with China for low value business. "Alphacam really comes into its own by ensuring we can produce high precision, complex parts quickly and competitively."

And with geometries getting even more complex all the time, the day may well be not too far into the future when 5-axis and even 9-axis machining becomes the norm. But Croom are well prepared. Their Bridgeport mills give full 5-axis machining capability, and the 9-axis Citizen Cincom achieves simultaneous machining and parallel machining using two spindles and three tool posts – Gang tool post, Turret tool post, and Back tool post – with drastically reduced cycle times.

Patrick Byrnes says while Alphacam is the bread and butter of their 3-axis and 5-axis machines, it also works perfectly on the 9-axis machine. "Without Alphacam, the Citizen would take much longer to program – but the software is equally at home with 9-axis programming as it is with 3- and 5-axis."

