Success Story

Invest in the best available CAM software

When Copsey Engineering committed to set itself as a benchmark in the subcontracting industry, the Essex manufacturer made its first step from 3 to 5-axis machining with the acquisition of an OKK 5-axis machining centre...

About Copsey Engineering

Copsey Engineering is a leading engineering company with over 30 years experience. They have a highly skilled workforce in 24-hour operation to meet all of your project needs. Copsey Engineering pride theirselves on their efficient and effective response to both new and existing clients. They strive to be at the leading edge of engineering, and are constantly investing in the latest machine tools. Copsey Engineering have a wide range of materials held in stock and the capacity and experience to create components with both wide and fine tolerance.

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...and CAM software from OPEN MIND Technologies to drive the business forward.

Since acquiring the OKK VP600 machine and its first seat of *hyper*MILL® in 2006, the company has since invested over £1.2m in machine tools with the inclusion of three Mazak 5-axis machines and an additional three seats of *hyper*MILL® to support the machine purchases. As Copsey Engineering, Managing Director, Mr Stephen Collins comments: "We didn't want to be a 'Fred in the Shed' subcontractor, so we invested in the best available machine tools and CAM software. From a CAM perspective, we investigated the market and noted the amount of marquee OEMs using *hyper*MILL®. Our investigations led to demo's from five leading vendors and we instantly noted why the blue-chip OEM's use *hyper*MILL®."

Increased 5-axis capabilities

The learning curve for full 5-axis machining was followed by the onset of the 2008 recession that limited the available 5-axis workflow. During the downturn, the company won a defense contract to manufacture 30,000 steel axles and hubs. Processing over 30 ton of material each week for 9 months, the company comfortably saw its way through the downturn. Since the recession, the Witham company has flourished with its increased 5-axis capabilities. The ensuing success is what brought an influx of Mazak 5-axis machines & *hyper*MILL® seats over the last 2 years.

Exceeding the remarkable business levels achieved during the downturn, 27 employee Copsey Engineering runs its machine shop 24 hours a day and six days a week. Supplying small infrequent batch runs, the irregular schedule of parts of varying complexity would create bottlenecks and scheduling issues for most manufacturers. However, at Copsey, additional *hyper*MILL® seats were acquired to enable shop floor machinists to generate their own component programs at the side of the machine tools. As Mr Collins continues: "With our through flow of complex parts, one programmer on *hyper*MILL® wouldn't have been sufficient. Instead of one programmer trying to impossibly program 10 jobs, we now have four guys doing 2-3 jobs each, so no machine lies idle waiting for a program to be generated."

Reduced lead times

Since employing *hyper*MILL® and the 5-axis Mazak machine tools, turnover for the aerospace, defense, marine, automotive, broadcasting, medical and agricultural sub-

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Managing Director Stephen Collins with one of many Mazak 5axis machines at the facility.

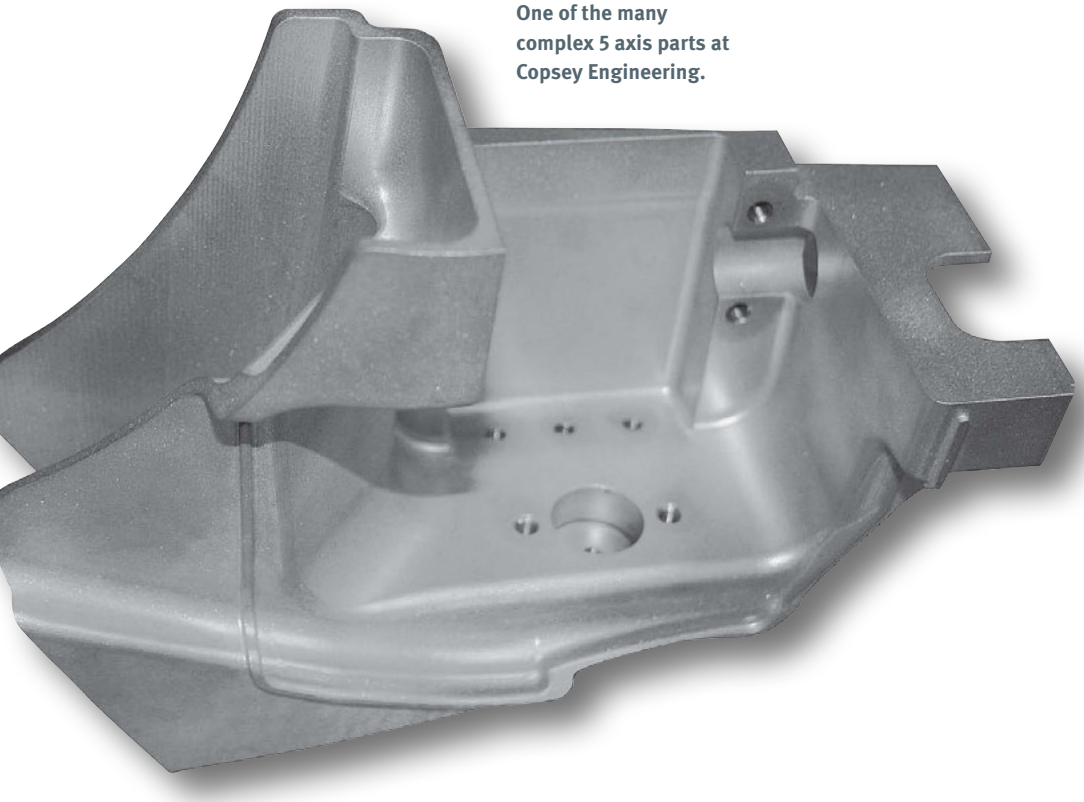
contractor has grown by over 30% whilst profit margins have drastically improved. This is credit to *hyper*MILL® being utilised for 3-axis as well as 5-axis components. As Mr Collins states: "Our 3-axis Mazak machines have always been programmed using the Mazatrol control on the machines. By programming even 3-axis parts with *hyper*MILL® we have reduced lead times and increased profit margins by over 60%."

To demonstrate this, Mr Collins refers to a long term job the company has been producing for over nine years; "We have one job that requires holes in all sides and multiple set-ups. Unfortunately there hadn't been a price increase on the combined electrical boxes for nine years and it was becoming unprofitable. By moving the complex job from a 3 to 5-axis machine, we reduced the lead time of a batch of 100 from 3 days to 4 hours. This improved our capacity and more than doubled the profit margin on this job." Whilst the customer was still enjoying a 9 year old price.

The company is more than happy with its decision to purchase *hyper*MILL®, confident that it can produce any job that comes through the door. As Mr Collins says: "With *hyper*MILL® we have the confidence to tackle any job, in this respect we have expanded the scope of our work and brought in more complex and more profitable work from a wider range of prestigious industry sectors."

More flexibility

With regard to flexibility, *hyper*MILL® has been a revelation for Copsey Engineering. Running a multitude of 3 and 5-axis machines, OPEN MIND has provided postprocessors for all machines. The benefit is that all jobs only need to be programmed with *hyper*MILL® once and can then be transferred from one machine to the next. If one particular machine is already in production, a job can be moved to an alternate machine. This flexibility afforded by *hyper*MILL® enables the company to be less rigid with its planning and scheduling of jobs.



One of the many complex 5 axis parts at Copsey Engineering.

Discussing this situation, Copsey Engineering's Works Manager, Mr Mick Brown says: "The flexibility from OPEN MIND's post-processors have been a major boost to the through-flow and scheduling of our workload. However, as someone using *hyper*MILL® daily, it's the speed the CAM software gets us through programming to final part that is a real time saver. *hyper*MILL® allows us to incorporate vices and workholding devices into the program, so we can visualize awkward jobs on the screen and ensure our toolpaths and set-ups are correct. If we ever make errors, *hyper*MILL®'s collision avoidance feature is second to none."

Mirroring function

Other features the Works Manager likes within *hyper*MILL® are the hole feature recognition that intuitively works through the model and laying out features. Whereas the profiling application enables the programmer to locate where the tools should be in relation to surfaces, simplifying complex shape production.

Another feature that is a major plus for Copsey Engineering is *hyper*MILL®'s mirroring function. The ability to program a right/left hand part and allow *hyper*MILL® to quickly re-calculate the program for the opposite hand regularly saves the drawing office hours of programming time each week.

Ongoing growth

As Mr Brown continues: "We have been manufacturing camera tripods for the broadcasting industry for years. With a number of left and right hand parts, programming times have been drastically cut. From a productivity perspective, we used to machine tripod heads on the lathe and then machining centre in over 45 minutes. By optimizing our toolpaths in *hyper*MILL® we have cut the time to 20 minutes."

"The arrival of OPEN MIND's *hyper*MILL® CAM package has improved our cycle times and productivity, increased our capacity and also delivered complete flexibility for work scheduling whilst reducing on-machine programming times. Away from the shop floor, it has proven easy to use and intuitive and has allowed us to target more complex work from a wider range of industry sectors. This is a major factor in our ongoing growth and upturn in our turnover and profit margins. We picked OPEN MIND based on the recommendations of leading OEMs and we haven't been disappointed. It's delivered everything we wanted and much more," concludes Mr Brown. ■

Works Manager Mick Programming Complex Parts With *hyper*MILL®

About OPEN MIND Technologies AG

OPEN MIND is one of the world's most sought-after developers of powerful CAM solutions for machine and controller-independent programming.

OPEN MIND designs optimized CAM solutions that include a high number of innovative features not available elsewhere to deliver significantly higher performance in both programming and machining. Strategies such as 2D, 3D as well as 5axis milling/mill turning, and machining operations like HSC and HPC are efficiently built into the *hyper*MILL® CAM system. *hyper*MILL® provides the maximum possible benefits to customers thanks to its full compatibility with all current CAD solutions and extensive programming automation.

OPEN MIND strives to be the best and most innovative CAM/CAD manufacturer in the world, helping it become one of the top five in the CAM/CAD industry according to the NC Market Analysis Report 2015 compiled by CIMdata. The CAM/CAD solutions of OPEN MIND fulfil the highest demands in the automotive, tool and mould manufacturing, production machining, medical, job shops, energy and aerospace industries. OPEN MIND is represented in all key markets in Asia, Europe and America, and is a Mensch und Maschine company.