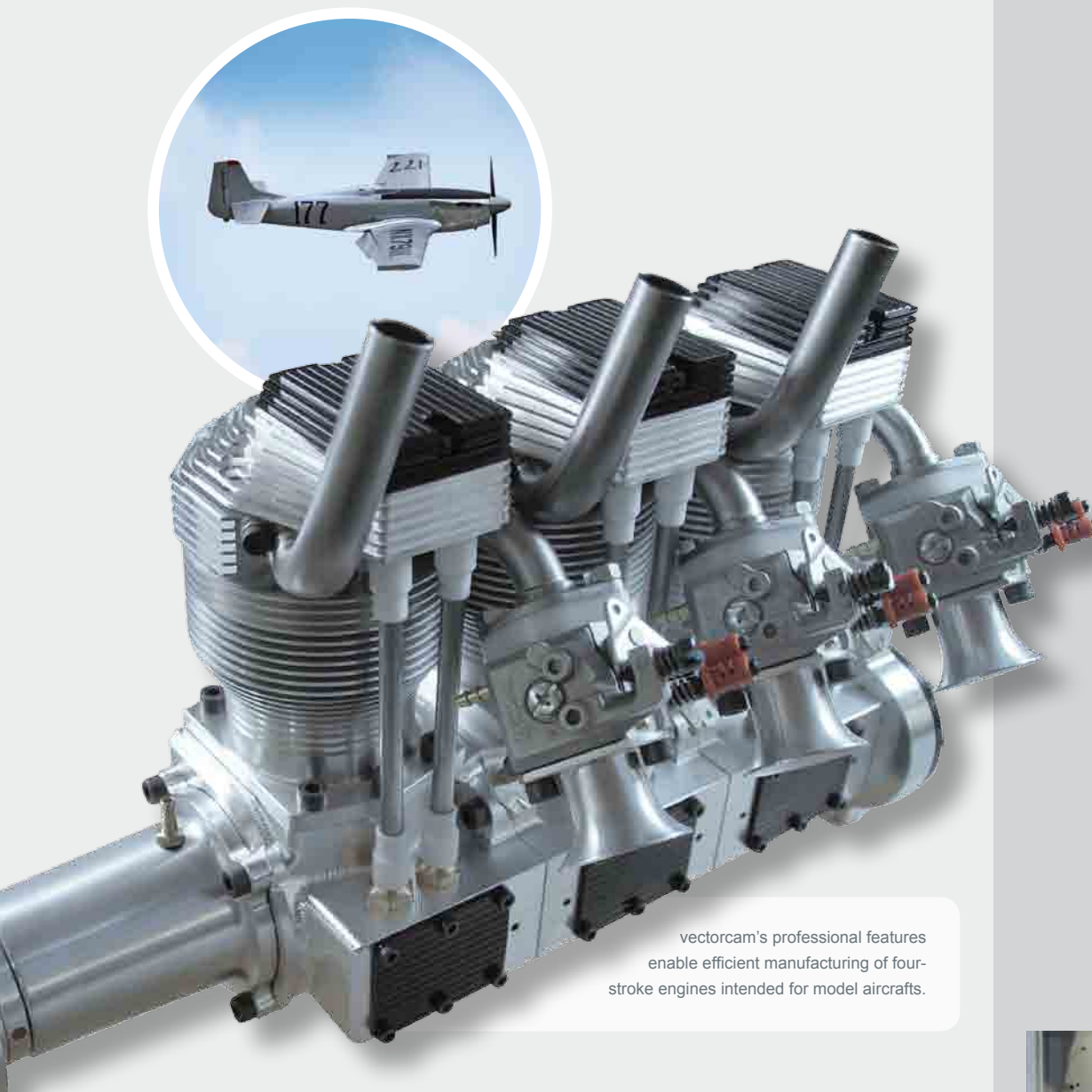


# vectorcam



CNC Programming – fast and precise



vectorcam's professional features enable efficient manufacturing of four-stroke engines intended for model aircrafts.

*“The decision to apply **vectorcam** was definitely the best. This programme helps us to organize complex production processes economically.”*



Dipl.-Ing. Johann Kolm of CNC Technik KOLM / Kolm Engines. For more information visit: [www.kolmengines.com](http://www.kolmengines.com)



vectorcam – Professional CAD/CAM and CNC Programming for more than 20 years.



## Welcome to vectorcam

The vectorcam company is an established specialist for professional CAD/CAM and CNC solutions – for more than 20 years now!

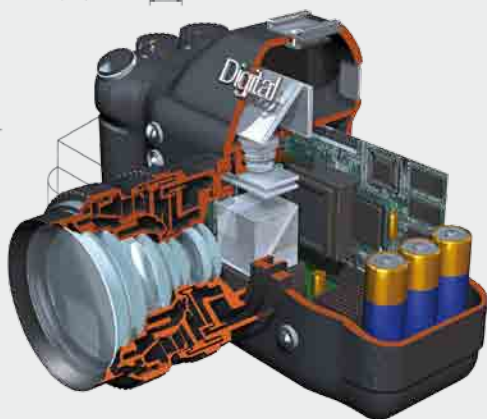
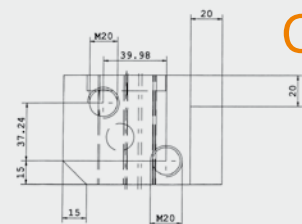
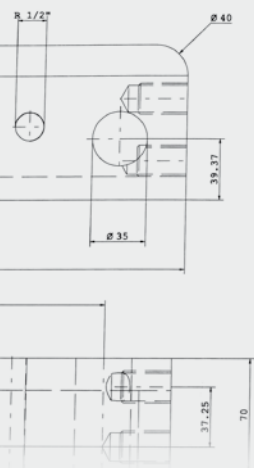
The success of a company is based on the integration of modern technology into manufacturing processes. Nowadays, more and more complex requirements have to be met in ever decreasing times. Therefore, precision, flexibility, speed and innovative capacity are the imperative attributes included in the advanced vectorcam CNC programming software and, traditionally, are of most importance for our company.

Our declared objectives have always been to present innovative, easy-to-learn and modular constructed CNC programming systems with an attractive price-performance ratio. This is the key to our success and explains the large number of satisfied clients inspired by our software throughout all these years. vectorcam's wide range of individual modules can be exactly adjusted to customer requirements – and, of course, will also enable you to gain the decisive advantage!

Continuous development will secure your investment in important future tasks. Only the most modern modules are used in our software system, so that vectorcam is already in the position to support the full power of Microsoft Windows 64-bit-technique. Equally important for your company is the support of latest computer technology. In this area as well, the vectorcam CAD/CAM systems stand for highest standards. Computing-intensive processing strategies are performed automatically with all available processors (multi-core, multi-threading).

Read on to learn more about the programme features of vectorcam. You will be surprised how comfortable and practice-orientated vectorcam is structured – a clever solution for your enterprise as well!

The market changes and workpieces become more and more complex. Short cycle times require flexible, trouble-free and economically optimized processes that vectorcam helps to realize.



## CAD – from the idea to the product

The basis for any CNC programming is the geometry of the workpieces. With the vectorcam software you can edit 2D-contours as well as complex 3D-models.

The user designs the workpieces directly in the CAD part of vectorcam or has the possibility to import them from different CAD systems via integrated or optionally available interfaces (see overview "Data-import" on the back of this brochure).

Very powerful features for edge, surface or optional solid modelling guarantee the extremely fast creation of parts, parametric design, assemblies, sheet metal parts, drawings and piece lists etc. These are only some of the highlights which define our professional CAD solutions.

## CAM – control independent programming

vectorcam provides everything you need for fast and comfortable CNC programming. vectorcam supports the machining types of milling, drilling, turning, laser, wire EDM, cutting, etc. up to 5-axis.

Each defined CNC processing is stored in a job list. The jobs are associative to the geometry of the workpieces. If the programmer changes the parameter of a job or the geometry, only a single button-press is needed to calculate the new tool paths.

The complete processings can be saved and be re-used in different files, so that re-programming is no

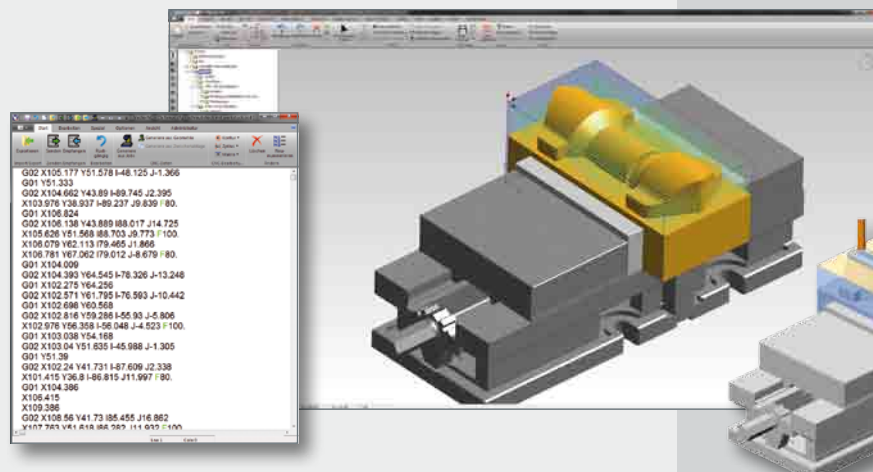
more needed. By this way programming times and costs will be reduced.

Perfectly adjusted post-processors generate from the job list the CNC code, easy to read from the machine operator. Hundreds of post-processors for all current CNC controls are available and in use at our customers.

The simulation shows the CNC processing on the screen. In this way the complete CNC machine with clamping device, blank and finished part, tool geometry incl. holder can be featured.

The displayed screenshots visualize the in vectorcam already defined processing.

The simulation – placed on right side – shows the milling process of a motor component.



## 2D/2.5D Milling | Drilling

vectorcam provides a wide range of functions for the use of complex 2D/2.5D milling operations while the handling remains quite simple and rapid. The logically constructed dialogue boxes guide the user within shortest time to professional results.

The 2D/2.5D CNC programming is based on 2D contours or takes place directly on the 3D model. This generates a substantial advantage: The model data like depths of cut, open sides, steps, bore diameters, etc., will be detected and automatically considered during the processing. Due to this technique, often more than 80 % of programming time is saved.

### Large scale of 2D/2.5D-functions

- Drilling incl. drilling detecting and drilling assistant
- Face milling
- Contour milling
- Engraving of any shapes and letterings
- Pocket milling
- Rest milling
- Thread milling (external and internal)
- Hole helix
- Deburring / chamfer milling
- Profile shaping
- Milling of standard shape features (step, fillet, chamfer, rounding, slot, nut)
- HSC Milling

Z-movements, contour approach and depart movement etc. is determined by the user according to his specified requirements.



Drilling operations can be saved as a finished process (centre drilling – drilling – tapping). These operations can be compiled in the drilling assistant. Integrated hole form tables as well as automatic transfer of the drilling geometry support the user at each stage of CNC programming.

The integrated tool library and material database round off the package and deliver efficient technology data that guarantee an optimal cutting process.





## 3D Milling

vectorcam offers advanced technologies for generating 3D milling paths. The collision detection checks the 3D model during the whole tool path calculation with raw part, tool geometry as well as defined clamping tools and machining limits.

Diverse machining strategies enable high-quality processing of freeforms in every detail. Herewith combined are optimal tool paths for efficient and economic manufacturing.

### High-performanced 3D milling strategies

- Z-constant high speed roughing function:  
This function removes large material volumes quickly by high Z infeed motion, followed by smaller z-constant upward steps. This method reduces the milling time of the CNC machine by more than 70 %.
- HSC-Strategy:  
By continuously rotating tool movements and avoidance of full cutting, higher feed rates and lower tool wear can be achieved.
- 3D rest material machining:  
This technology calculates and processes areas which have to be removed with small tools.
- Automatic detection of plane surfaces:  
This strategy ensures that not too much material is left between two Z infeed motions.
- Intelligent start up and plunging strategy (Helix, ramp, position, external plunging)
- Machining within a limited area or by the defined blank
- Finishing:  
Z-constant, contour-parallel / radial pattern / X-parallel
- 3D engraving:  
Engraving of any texts (Windows fonts) or shapes
- Along curve (projection)
- and much more



## Multi-axis machining



With few clicks vectorcam calculates efficient tools for multi-axis drilling, milling, turning and wire EDM.

Multi-face machining is supported by automatically positioning of 4-axis (3+1) and/or 5-axis (3+2) and by wide-ranging simultaneous machining.

### Multi-axis strategies

- 4- and / or 5-axis to be indexed fully automatically
- 4-axis drilling
- 4-axis engraving
- 4-axis pocket milling / contour milling
- 4-axis 3D-rotation finishing
- 5-axis drilling
- 5-axis roll milling
- 5-axis finishing (X-parallel / contour-parallel)
- C-axis
- Combined turning and milling machining
- and much more

## Turning

For the optimal programming of turned parts, the user activates the turn-mode in vectorcam. By this the axis system changes to the xz-plane, as the cutting machine operator is accustomed to his CNC machine. All inputs follow subsequently in diameter, radius (x-axis) and length (z-axis).

Various functions for roughing, finishing, facing, cutting off, grooving, thread cutting, drilling, etc. generate short tool paths for the quick and efficient chipping of turned parts.



## Wire EDM | Cutting

The flexible vectorcam cutting module can be applied with following techniques:

Wire EDM, laser machining, plasma and flame cutting as well as waterjet cutting.

For 2D or 4D contours the software generates roughing and finishing cuts for stamps and stencils. Several nesting modules distribute any contours to different panels. An automatic cutting processing program calculates subsequently the optimal machining sequence and places first cuts and micro-steps in the positions desired by the user.



# Technical data and facts around vectorcam

## Hardware requirements

- Windows® (32/64 bit):  
Vista / Windows 7 / Windows 8
- Pentium / AMD Processor  
(recommended: multi-core)
- 32 bit: 4 GB RAM / 64 bit: 8 GB RAM
- 500 MB available hard disk memory
- Open GL-capable graphics card  
(recommended: NVIDIA®)
- 3-button mouse with wheel

## Data import

Integrated or optional interfaces enable the import of CAD data from different systems.  
Table: integrated interface • | optional interface •

Data interface	Data identification	Import	Export
DXF	dxf	•	•
IGES	igs	•	•
STEP	stp, step	•	•
Stereolithography	stl	•	•
Rhino	3dm	•	•
Open Cascade	BRep	•	•
Bitmap	jpg, bmp, tif	•	•
Programmable PLC	plc	•	
Point coordinates	xyz	•	
Autocad dwg	dwg	•	•
ACIS	sat	•	•
JT	jt	•	•
Inventor	ipt, iam	•	
SolidWorks	sldprt, sldasmx	•	
Parasolid	x_t, x_b, xmt_txt, xmt_bin	•	•
Pro/E (2000 - Wildfire)	prt, xpr, asm, xas	•	
Solid Edge	par, psm, asm	•	•
CATIA	CATPart, pCATProduct	•	

CNC programmes with DIN/ISO- or Heidenhain plain text format can be converted back to geometry elements.

## CNC data communication

For the save and quick data communication between your CNC programme and the machine, several solutions (USB-memory, DNC, V.24 /RS 232-data line, network, etc.) are available. A comfortable CNC programme manager incl. programme comparisons and lots of editing and search functions complete the product range.

## Software maintenance

With the vectorcam update-service you will keep your licence at any time up on the latest developments. You have access to an area individually installed for you on our website where you always can find the latest vectorcam version for downloading as well as further useful information about the software.

## Service features

Our hotline assures fast and trouble-free service. Our free support is possible via phone, email or internet-conference. So excellent customer support is always guaranteed – even across long distances.

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