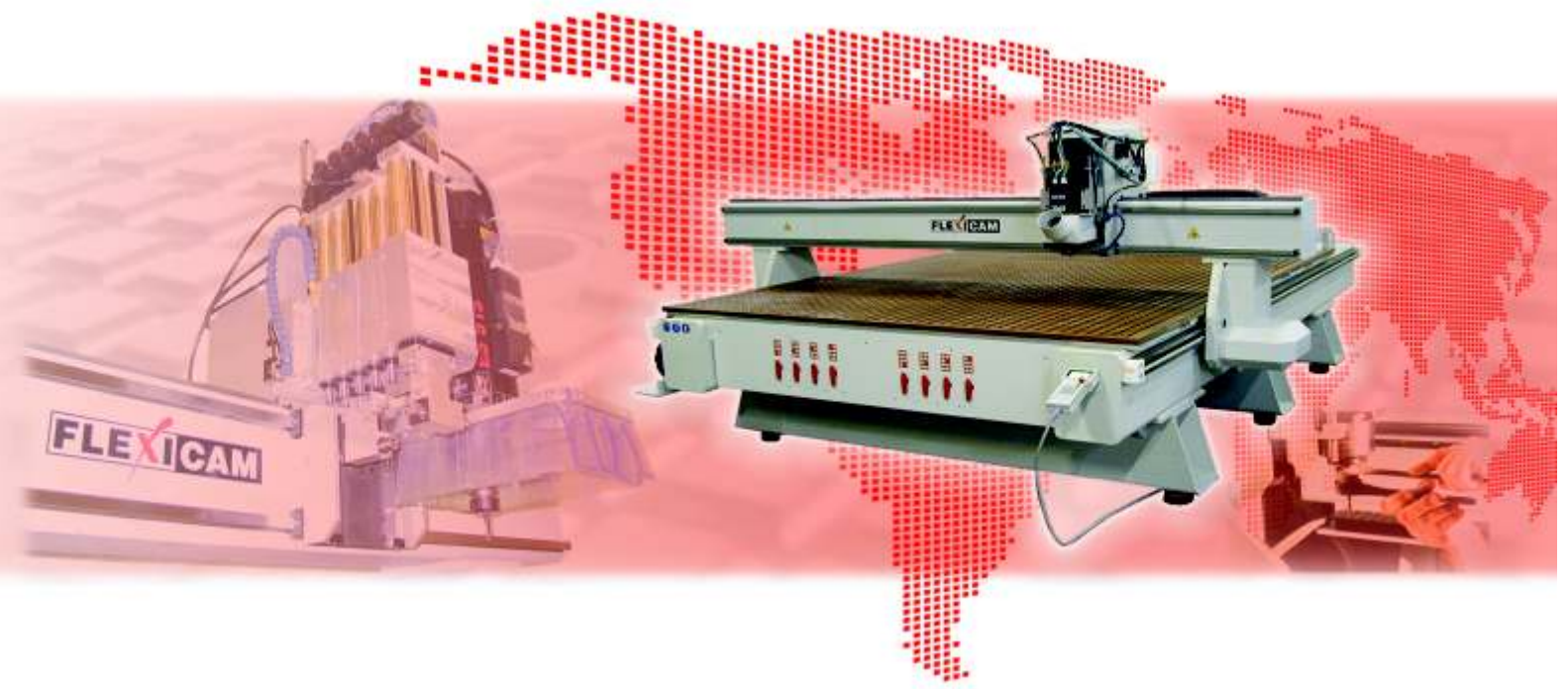


# **FLEXICAM**

CNC Routers



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Global Offices



FlexiCAM's headquarters are in Eibelstadt, Germany, 5 minutes from the historic town of Würzburg, and 1 hour east of Frankfurt. FlexiCAM has offices around the world, with employees receiving training at our head office in Germany before working in our branch office. For further localized support we have local Solution Partners, who come to our factory in Germany to participate in scheduled training sessions to keep them up to date on our newest technology and training on our extensive product line.

By design, all FlexiCAM products have the ability for online support through the Internet. With offices around the world, we are able to provide you with support from any of our offices, even if it is in the middle of the night there will be an office open somewhere. There is always a trained technician available to help you with questions you might have. Support by technicians in all offices is conducted in English to avoid any communication barriers.

Working with our team you will find it easy to choose a product, making use of our cutting edge technology, to automate your tasks, faster and easier than you ever thought possible.



FlexiCAM CNC Routers' primary mission is to ensure you, our customer, is completely satisfied with your dealings with us from beginning to end. First, that means that we want you to be comfortable from the minute you start talking to us. Our factory-trained sales team will take the time to explain every aspect of each machine, whether large or small, and will never pressure you into something unwanted. If you have a specific application that you would like to use the machine for, we will offer you a demonstration of your type of work on a machine you may be considering. The same salesperson will take time to explain benefits and options, including software, router bits, and any other components that go into creating a cutting solution for you.

But that's just the beginning of your relationship with FlexiCAM. We want to be your one stop solution for any supplies, accessories and components that you use with your router. As well as being able to obtain support from your local FlexiCAM Customer Service Centers, we give you access to our global network of trained sales and technical staff combining for hundreds of years of experience, available for you to use as a resource. If you have any questions about your machine's operation, please feel free to contact us if ever you need a quick refresher or need help with operation or job setup. Compare prices, quality of workmanship and our service, and you will certainly want to be a FlexiCAM customer.

We strive to give you the best value for your money, and above all we build our machines for quality. With internationally known component manufacturers you can be assured of reliability, with *Gear Boxes* from Germany, *Servo Motors* from Japan, *Bearings* from Germany, *Spindles* from Italy, we integrate components from the world over, to ensure that you are getting the best quality parts available to you, all delivered at a fair price.

FlexiCAM is more than a manufacturer of CNC Routers, we are also a manufacturer of the motion control systems that are used on our machines. This tight integration ensures that you are getting a system that is specifically designed to work with the mechanics. We continually develop our control systems, offering you upgrades to your firmware so that your system stays current with what we are shipping out our factory's doors.

I invite you to contact a member of our team, be it for a question regarding a router bit selection, or for development of a production automation solution, and allow us to show you the difference we can make for your business.



Alexander Vogel  
President



## Who are we

With numerous offices and technology centers all around the world, FlexiCAM has grown to become a market leader in the CNC router industry. With constant innovative additions to our product line and our commitment to quality products has insured FlexiCAM as a industry leader in manufacturing solutions.

## History

FlexiCAM GmbH. is part of the Vogel Group which was established in 1988 by Alexander Vogel. Before the introduction of FlexiCAM Routers, the Vogel Group was a solution provider for router customers, servicing, customizing, selling and conducting maintenance on routers manufactured by European and North American companies. From these experiences we learned, what to do and what not to do when manufacturing, and taking care of the customer. After extensive development and testing, the FlexiCAM product line was released in early 1998, to a great response.

Since that time, FlexiCAM has continued to develop its control technology, offering customers upgrades to the latest options and features that have been added to the system. We strive to make sure that your system doesn't become outdated by delivering remote firmware upgrades available for your controller, so you can have the same product that is shipping out of the factory.

The product line has continued to evolve with our moving table systems, as well as our Advanced Control Systems, allowing for customized application solutions, for ever demanding customer requirements.

## Customer Service Center

**Platinum Partners** Trained sales personnel and technicians are on staff to provide you with options for optimizing your business' production, with a one-stop shop for machinery, CAD and CAM software, tooling, and application engineering. These factory trained technicians and sales engineers will help you find a machine that will work best for your budget and production requirements.

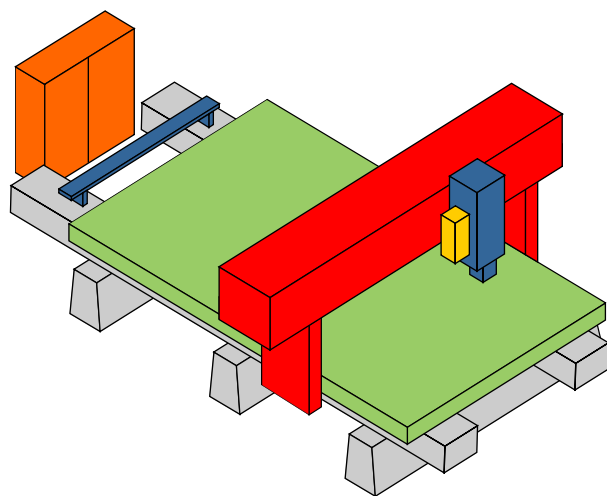
**Gold Partners** After completion of training at FlexiCAM, our gold level partners can educate you on our entire product line, and work with you in creating a solution to best fit your needs. With their in-depth product knowledge of our product line, Gold Partners can instruct you on which model to purchase, discussing capabilities about each model based on your specific requirements. A factory technician will install your machine. Your Gold Partner will be your first line of support as well as our factory helping you with remote internet service and telephone support.

**Silver Partners** Are professionals in related machinery or software industries who work with FlexiCAM and yourself in providing a package of software and machinery that will best suit your requirements. As with all our equipment, you will have access to our world-wide support network.

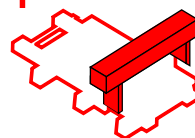


## Creating Your Cutting Solution

### 5 Easy Steps ■ ■ ■ ■ ■

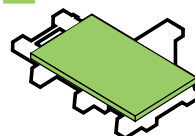


#### 1 Step 1. Selecting Series and Model ■



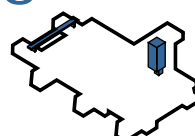
First, determine which series of FlexiCAM machines best suits your application. Next determine what working area is required and the desired model size.

#### 2 Step 2. Selecting Tabletop and Hold down ■



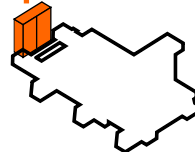
Select from a phenolic or aluminum table top and the method of hold down. Either vacuum or mechanical or both systems available.

#### 3 Step 3. Selecting Spindle ■



The spindle selected will be based on the type of material that is primarily used and the desired finish needed. Fully automatic tool changing systems are very efficient for multiple tools.

#### 4 Step 4. Selecting Control System ■



Select either a Standard Servo or ACS as your control system.

#### 5 Step 5. Selecting Options ■



Accessorize the router to allow for ultimate versatility. For example, adding Aggregates allows for much more capabilities and efficiency.

**SE**

Work horse router, high accelerations, low amount of inertia mismatch, ideal for high speed spindles

**Stealth**

Designed for versatility, good for wood, plastics, and metals, many options available

**PRO**  
NBM

Nested based manufacturing, designed for cabinet manufacturers

**XL**

Great for heavy cutting, high clearance applications and multiple spindle configurations

**XXXL**

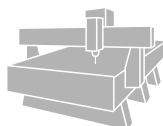
Large format router for grand scale manufacturing

**Viper**

Fixed gantry moving table, excellent for micro machining, mold making, high precision work

**COBRA**

Heavy duty fixed gantry, moving table machine







## Step 1. Selecting Series and Model

### What is FlexiCAM CNC equipment mainly used for?

The machines are designed to process large-format sheet material especially for: Woodworking, Aerospace, Signmaking, Neon Fabrication, Plastic and Acrylic Processing, Cabinetry and Counter Tops, Engraving, Exhibit Design, Moldmaking, Vacuum Forming Industry. Besides the above 'standard' applications there are many FlexiCAM systems installed for specialized applications like shape cutting of CDs, working with aluminum and plastic profiles and many more... All our tables are fully steel constructed systems, not just the base frame of the table, like with many machines in the market.

### Which FlexiCAM machines are 3D capable?

All FlexiCAM systems are standard with 3-Dimensional cutting capabilities, after market 3D CAM software will deliver the 3D design and toolpathing capabilities.

### What table bed size is recommended?

If there is enough space available, select your table according to the material you plan to work with most.

For example:

- Signmakers or neon companies who mainly work with aluminum, acrylic as well as PVC would probably select either a Stealth 2030.

If you plan to only process aluminum, you can use the Stealth 1530 or 1525, depending on the sheet size you plan to use.

- Engravers process small and medium aluminum sheets, sized 4'x8' or 40"x78" would consider the S2 1525.

If there is limited space available and only occasional work with full-sized sheets required, the FlexiCAM Stealth (for sheet sizes 6'x10') or the Stealth (for sheet size 5'x10') are the ideal machines to eliminate the process of cutting sheets in multiple passes or tiling.

### Why use planetary gear boxes powered with AC Servo systems instead of timing belts?

Timing belt systems may be appropriate for low cost Stepper systems. Due to the low speed (max. 2000 rpm) Stepper motors only need small gear ratios (usually 3:1 to 5:1). Tuning is not necessary with Stepper motors. Servo motors are available with motor speeds up to 6,000 rpm or higher. They also provide a much higher dynamic response, and work best with high precision planetary gear boxes with larger gear ratios (10:1 up to 50:1). Planetary gear boxes are ideal because of their high efficiency (98%), their rigidity as well as their high torque. They are significantly more expensive compared to timing belt solutions. FlexiCAM uses high precision planetary gear boxes on all rack and pinion systems which are powered by AC Servo motors.

### Ball Screw or Rack & Pinion Drive systems?

Depends on the application

Ball Screw systems: Very precise, rigid and free of backlash. For short distances (z axis, small machines, especially engravers) they are an excellent choice. Disadvantages: Ball screw systems are comparably slow, especially with the large systems there is a problem with the critical speed, at a high rotation speeds the screw begins to vibrate (resonance). The longer and thinner the screw, the slower the critical speed. With big systems the ball screw is not a good solution because it sags heavily and must be supported by a special constructed frame. As an alternative, screws with a large diameter and a high pitch can be used, however these are very expensive and require much larger motors. The FlexiCAM Viper II, and Cobra use ball screws on the X, Y and Z axis as a standard.

Rack and Pinion Advantages: Movements over long distances can be achieved more easily and cost effectively by racks than by ball screws. Racks allow for higher speeds. The amount of error in Rack & Pinion is normally less than +/- .002" which is about a 1/4 the thickness of a hair. Most large format FlexiCAM systems (larger than 4'x8' or 1.5m x 2.5m) use rack and pinion on x and y axis.

# S2



Applications include: Aluminum Composite Material, High Production Panel Processing, Acrylic fabrication, Sign making

The S2 is an exceptional value for the money, offering rigid steel construction throughout, our industry leading controls, AC Servo Motors, and planetary gear boxes. The S2 is designed so that you don't need to use 2 manual spindles, or a single drill, as the system is designed with a reliable, proven toolchanger allowing for more flexibility. This system is great for a medium to heavy use environment, be it in the woodworking or industrial markets or configured with options such as the OCS system for high speed sign making. The S2 is designed to accommodate all popular sheet sizes, so no matter what industry you are in you are able to get a machine that fits your market, without needing to spend more money for a machine that it designed for a different industry. This series of machines also comes standard with a 7.5hp manual spindle, which can be upgraded to an 11hp Automatic Toolchange Model. Contact one of our local offices to discuss configurations that are available specifically for your industry.

The S2 is offered in 7 models and sizes:

Model:	1326 ■	1515 ■	1527 ■	1530 ■	1540 ■	2030 ■	2040 ■
Size:	50" x 100" 1270 x 2540mm	60" x 60" 1524 x 1524mm	60" x 100" 1524 x 2540mm	60" x 120" 1524 x 3050mm	60" x 161" 1524 x 4080mm	80" x 121" 2040 x 3080mm	80" x 161" 2040 x 4080mm
Part #:	P/N 80-25-1326	P/N 80-25-1515	P/N 80-25-1527	P/N 80-25-1530	P/N 80-25-1540	P/N 80-25-2030	P/N 80-25-2040

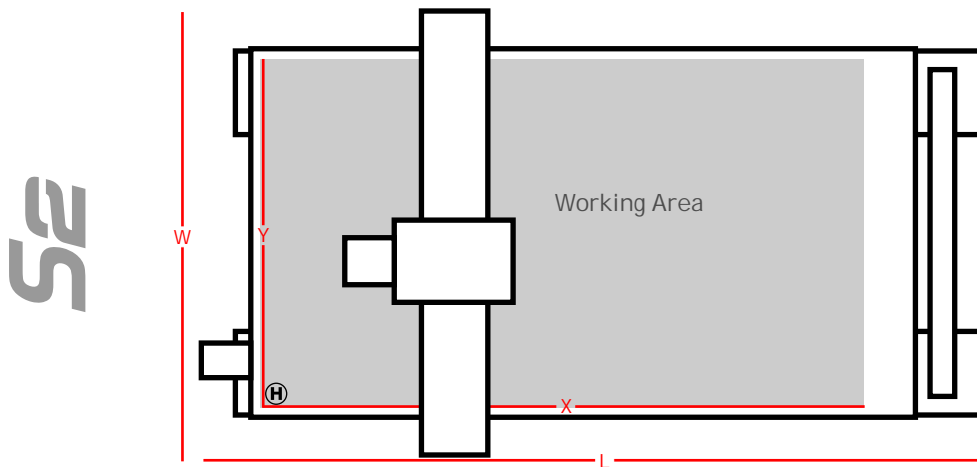


### ☒ Dimensions for the S2

Model Number	1326	1515	1527	1530	1540	2030	2040
Y Process Area Width	50"	60"	60"	60"	60"	80"	80"
X Process Area Length	100"	60"	100"	120"	161"	121"	161"
W Overall Width	70"	80"	80"	80"	80"	100"	100"
L Overall Length	130"	90"	130"	150"	191"	151"	191"
Height	60"	60"	60"	60"	60"	60"	60"
Weight	3500lbs	3300lbs	4400lbs	5500lbs	6100lbs	6600lbs	7700lbs

Model Number	1326	1515	1527	1530	1540	2030	2040
Y Process Area Width	1270mm	1524mm	1524mm	1524mm	1524mm	2040mm	2040mm
X Process Area Length	2540mm	1524mm	2540mm	3050mm	4080mm	3080mm	4080mm
W Overall Width	1778mm	2032mm	2032mm	2032mm	2032mm	2548mm	2548mm
L Overall Length	3302mm	2286mm	3302mm	3812mm	4842mm	3842mm	4842mm
Height	1524mm	1524mm	1524mm	1524mm	1524mm	1524mm	1524mm
Weight	1590kg	1500kg	2000kg	2500kg	2773kg	3000kg	3500kg

Please Note: All sizes and weights are the approximate standard and are subject to change depending on which options are added.



### Specifications

Z-Axis Travel:	9" , 229mm
Z-Axis Clearance:	8" , 204mm
Max Cutting Speed:	XY 1000 ipm, 423mm/s
Max Rapid Traverse:	XY 1200 ipm, 508mm/s
Resolution X/Y:	0.0004" , 0.01mm
Resolution Z:	0.0004" , 0.01mm
Repeatability:	+/- 0.002" , +/- 0.05mm

### Standard Features

- 3D computerized routing system
- AC Servo motors with high precision planetary gear boxes
- Preloaded backlash-free ballscrew on Z axis
- Aluminum T-slot profile or phenolic (1" / 25 mm thickness) worksurface
- HPGL & GCode compatible
- Network connection via TCP/IP, 10Base2 or 10BaseT
- Remote Administration via Internet (TCP/IP)
- 12 month warranty
- 7.5hp/ 5.6 Kw Spindle 24,000rpm max Tool Diameter 5/8" 16mm
- Dust Collector attachment for manual tool change systems

# Stealth

2007



Applications include: Non-ferrous Metal Sheet Processing, Melamine, Particle board, Plastic Sheet Processing, Cabinet Makers, Solid Surface, Electric Sign Companies, Packaging, Large 3D Models

The Stealth is designed for high production shops, and comes equipped with our standard powerful AC Servo drive system. These machines are great for all types of demanding applications such as solid surfaces, molds, machining metal, and cutting plastic parts. With these machines being designed for production type environments, there is a large range of manual tool change and automatic tool change spindles available to address specific application requirements.

With 8 inches of clearance the Stealth is capable of cutting sheet material as well as large 3D objects such as molds, dimensional signage, and architectural fixtures. The Stealth is also available in a high clearance option for industries such as packaging and 3D model making. The Stealth series is ideal for users who in particular want to process slabs from acrylic, PVC, aluminum or other non-ferrous metals, wood, composites etc. The Stealth base frame is welded as one solid unit, using the proven Tube on Tube design which has been popular in the aerospace business since the inception of CNC routers in the 1970's. The work table is specifically designed for demanding applications, with the heavy construction aiding in counteracting vibration created from cutting forces. The work table is specially designed for heavy duty processing and allows vibration-free operation. The base construction of the Stealth is very heavy and cannot be taken apart. The Stealth is welded into one solid base unit made from heavy steel tubes, stress relieved and machined.

The Stealth can be fitted with almost all options available from FlexiCAM including Rotary Axis, ACS, OCS, Auto Lubrication, and the list goes on and on. Contact one of our offices to discuss the configuration that will work best for your requirements.

The Stealth is offered in 11 models and sizes:

Model:	1515	1525	1530	1540	1550	2030	2040	2060	2530	2540	2560
Size:	61" x 61"	61" x 104"	61" x 121"	61" x 161"	61" x 197"	80" x 121"	80" x 161"	80" x 242"	100" x 121"	100" x 161"	100" x 242"
	1550 x 1550mm	1550 x 2640mm	1550 x 3070mm	1550 x 4090mm	1550 x 5000mm	2030 x 3070mm	2030 x 4090mm	2030 x 6140mm	2540 x 3070mm	2540 x 4090mm	2540 x 6140mm
Part #:	P/N 80-05-1515	P/N 80-05-1525	P/N 80-05-1530	P/N 80-05-1540	P/N 80-05-1550	P/N 80-05-2030	P/N 80-05-2040	P/N 80-05-2060	P/N 80-05-2530	P/N 80-05-2540	P/N 80-05-2560

# Stealth



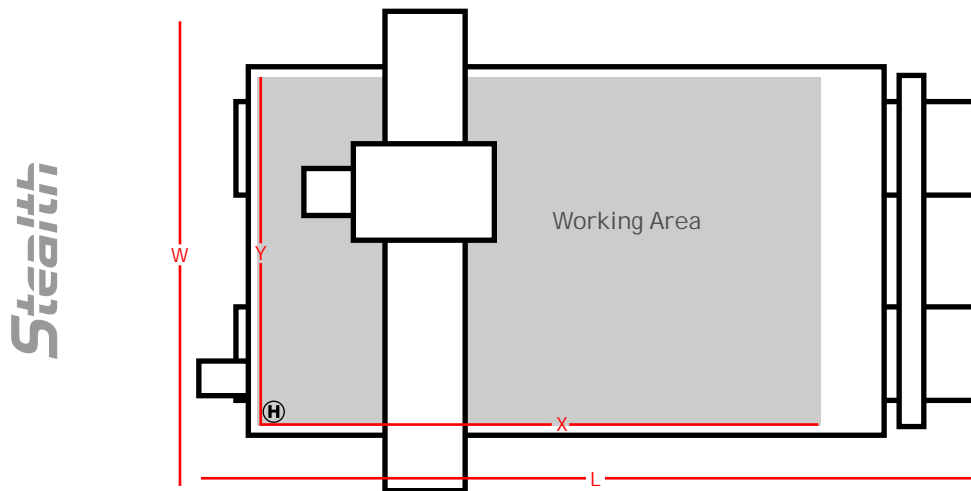
Step 1

## ☒ Dimensions for the Stealth

Model Number	1515	1525	1530	1540	1550	2030	2040	2060	2530	2540	2560
Y Process Area Width	61"	61"	61"	61"	61"	80"	80"	80"	100"	100"	100"
X Process Area Length	61"	102"	121"	161"	197"	121"	144"	166"	121"	161"	242"
W Overall Width	69"	69"	69"	69"	69"	94"	94"	94"	112"	112"	112"
L Overall Length	92"	125"	145"	185"	227"	145"	168"	190"	190"	185"	264"
Height	65"	65"	65"	65"	59"	65"	65"	65"	65"	65"	65"
Weight	3500lbs	4600lbs	5700lbs	6000lbs	8400lbs	7100lbs	8300lbs	9200lbs	10800lbs	12100lbs	14800lbs

Model Number	1515	1525	1530	1540	1550	2030	2040	2060	2530	2540	2560
Y Process Area Width	1550mm	1550mm	1550mm	1550mm	1550mm	2032mm	2032mm	2540mm	2540mm	2540mm	2540mm
X Process Area Length	1550mm	2591mm	3074mm	4090mm	5004mm	3074mm	3658mm	3658mm	3074mm	4090mm	6147mm
W Overall Width	1753mm	1753mm	1753mm	1753mm	1753mm	2388mm	2388mm	2388mm	2845mm	2845mm	2845mm
L Overall Length	2337mm	3175mm	3683mm	4699mm	5766mm	3683mm	4268mm	4268mm	4826mm	4699mm	6706mm
Height	1651mm	1651mm	1651mm	1651mm	1651mm	1651mm	1651mm	1651mm	1651mm	1651mm	1651mm
Weight	1591kg	2091kg	2590kg	2727kg	3818kg	3227kg	3473kg	4181kg	4909kg	5500kg	6727kg

Please Note: All sizes and weights are the approximate standard and are subject to change depending on which options are added.



## Specifications

Z-Axis Travel:	9.5", 240mm
Z-Axis Clearance:	8", 200mm
Max Cutting Speed*:	XY 1200 ipm, 508 mm/s
Max Rapid Traverse*:	XY 2360 ipm, 1000 mm/s
Resolution X/Y:	0.00004", 0.001mm
Resolution Z:	0.000016", 0.0004mm
Repeatability:	+/- 0.002", +/- 0.05mm

\* For maximum speed additional safety devices may be required.  
Speeds can vary based upon machine configuration.

## Standard Features

- 3D computerized routing system
- AC Servo motors with high precision planetary gear boxes
- Preloaded backlash-free ballscrew on Z axis
- Aluminum T-slot profile or phenolic (1" / 25 mm thick) work surface
- Gcode & HPGL languages supported
- Network connection via TCP/IP, 10Base2 or 10BaseT
- Remote Administration via Internet (TCP/IP)
- 12 month warranty

**PRO**  
NBM



Applications include: Kitchen Manufacturers, Closet Manufacturers, MDF Door Manufacturers, Commercial Fixture Manufacturers

The Pro NBM is designed for Wood Shops requiring an affordable CNC system, without compromising on quality and performance. NBM systems have all of the features needed for high productivity, without the extra options that are never used, that add thousands onto the selling price of the equipment.

Operators will love the ease of use, and intuitive navigation of the Servo Control System. Online help at the controllers keypad, aids in showing the operator current configuration parameters and settings, and prompting the user for any settings that haven't been configured properly, insuring trouble free operation. Our open based file system is compatible with all popular CAD and Cabinet Automation Systems. Our team can integrate your existing software, or sell you a complete cutting edge Cabinet/Closet /Countertop software and router solution that works as a turnkey solution for you, at a very affordable price.

Designed for 4'x8' 5'x8' 5'x10' and 5'x12' sheets. As well as being able to handle one sheet at a time The 1560 and 1580 Machines can be configured for 2 sheet, front/back operation, allowing reduced cycle time and better use of labor. Heavy steel construction, large linear bearings, high pressure vacuum table top, pop-up pins for quick sheet change over, ethernet connection, Internet support and Internet maintenance. High speed toolchangers with up to 18 tool positions available. The high speed drill bank allows for up to 9 holes drilled simultaneously, 5 holes oriented in the X-axis, 5 holes oriented in the Y axis. Drill banks are also available with up to 20 drills and can be setup in a custom drill pattern.

All machines include training for CNC operation, CNC Cutting Methods and Techniques, Router Bit Education, and Software Training. A Bar code reader is included for accuracy of job loading, reducing material waste, and operator error. The Pro NBM is not limited to top down machining of flat sheet stock. Setup for pods for edge drilling, fixtured setups, 3D carving, part profiling, and aggregates are all available as options that can be installed onto your NBM. The NBM is at home as much with hardwood and softwood as it is with plywood and laminate materials.

A lot of routers look alike, but they aren't all built alike. Make sure that you look for the FlexiCAM name to insure quality, reliability and backup service and support, to make your purchase pain and regret free.

The Pro NBM Systems are offered in 7 sizes:

Model:	1525	1530	1540	1560	1580	2030	2040
Size:	61" x 104" 1550 x 2580mm	61" x 121" 1550 x 3080mm	61" x 161" 1550 x 4080mm	61" x 240" 1550 x 6096mm	61" x 318" 1550 x 8078mm	80" x 121" 2040 x 3080mm	80" x 161" 2040 x 4080mm
Part #:	P/N 86-06-1525	P/N 86-06-1530	P/N 86-06-1540	P/N 86-06-1560	P/N 86-06-1580	P/N 86-06-2030	P/N 86-06-2040

# Pro NBM



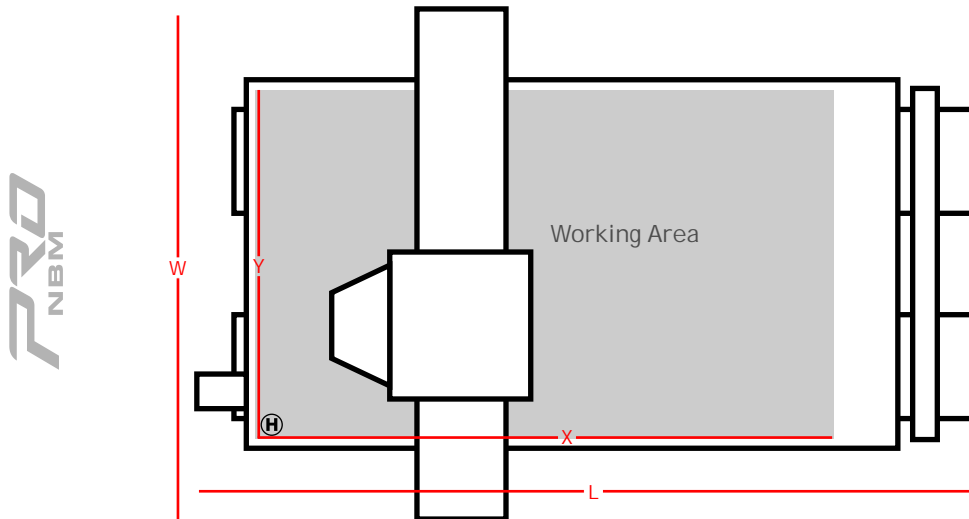
Step 1

## ☒ Dimensions for the Pro NBM

Model Number	1525	1530	1540	1560	1580	2030	2040
Y Process Area Width	61"	61"	61"	61"	61"	80"	80"
X Process Area Length	104"	121"	161"	240"	318"	121"	161"
W Overall Width	102"	102"	102"	102"	102"	122"	122"
L Overall Length	134"	151"	191"	270"	348"	151"	191"
Height	65"	65"	65"	65"	65"	65"	65"
Weight	5400lbs	6200lbs	6800lbs	10500lbs	13500lbs	9000lbs	9500lbs

Model Number	1525	1530	1540	1560	1580	2030	2040
Y Process Area Width	1550mm	1550mm	1550mm	1550mm	1550mm	2032mm	2032mm
X Process Area Length	2642mm	3074mm	4090mm	6096mm	8078mm	3074mm	4090mm
W Overall Width	2591mm	2591mm	2591mm	2591mm	2591mm	3099mm	3099mm
L Overall Length	3404mm	3836mm	4852mm	6858mm	8840mm	3836mm	4852mm
Height	1651mm	1651mm	1651mm	1651mm	1651mm	1651mm	1651mm
Weight	2455kg	2818kg	3091kg	4763kg	6124kg	4091kg	4318kg

Please Note: All sizes and weights are the approximate standard and are subject to change depending on which options are added.



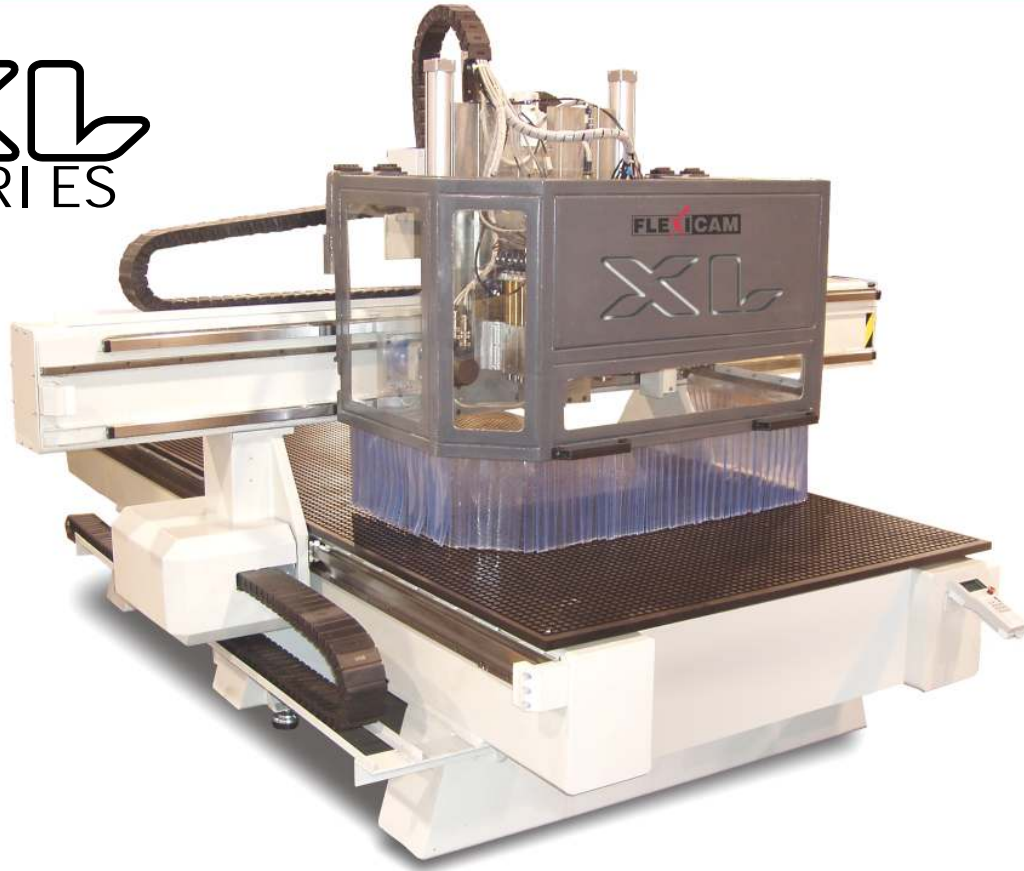
## Standard Features on the Pro Nested Base Manufacturing systems:

- Spindle 8 KW (11 hp), 24000 RPM 12 position tool changer (up to 20 depending on model)
- 9 position Drill Bank - 5 drills in the X-axis and 5 in the Y axis, allowing for high throughput
- Wide carriage with dual slides allowing for complete coverage of the spindle and the drill bank
- Extended Gantry for full table coverage of the bed with the boring block and the spindle
- Dust collector for automatic tool change spindle
- Rotary vane vacuum pump
- Phenolic surface table top
- Barcode Scanner for quick and easy loading of jobs

## Productivity Options

- Pod Assembly for raised part processing
- Vacuum lift for loading material onto machine
- Air floatation table top for material handling
- Second vacuum pump or liquid ring pump for small part manufacturing
- Spindle upgrades to 20hp
- Pop-up pins for fast material positioning

# XL SERIES



Applications include: **Work Cell Manufacturing, Aerospace, Demanding Woodworking Applications**

The main markets for the XL are customers working with; large diameter tooling, requiring aggregates for specialty machining, have high throughput requirements, or customers who just want the flexibility to be able to cut most everything. Designed with reliability at its core, the XL is built to fit individual customers specifications, through their choice of the 100's of options offered by FlexiCAM.

The phenolic table top is designed for flexibility in fixturing and zoning using a Multi-Platen Table Top. Table top plugs allow for you to customize vacuum zoning every few inches of work space, insuring maximum vacuum for each component on the table bed, creating faster throughput and better cut quality. The toolchanger is available with a linear sliding ride along toolchanger, which is a first in this class of machine. With this style toolchanger, performance and cycle times are unmatched by the competition. No short cuts where taken in the design of the high speed rotary toolchanger, as it is driven via a servo motor, insuring your tools are indexed correctly every time. Dust collection is available with up to a 10" connection at the machine to insure that you get maximum chip removal while cutting, reducing the sheet to sheet time by minimizing table top cleanup. A full gantry enclosure is also an option for this series of machine, insuring that dust stays contained on the table bad to be picked up by the chip collection.

The C-Axis, for rotating aggregate tools, is a highlight option on the XL series, as well as the addition of Specialty Cutting Groups for a high level of manufacturing flexibility. If you have a specific tool that you would like added onto the machine for your application, this can also be accommodated.

The XL Series is offered in 10 models and sizes:

Model:	1525	1530	1540	1550	2030	2040	2060	2530	2540	2560
Size:	60" x 104"	60" x 121"	60" x 161"	60" x 197"	84" x 121"	84" x 161"	84" x 242"	96" x 121"	96" x 161"	96" x 242"
	1550 x 2640mm	1550 x 3070mm	1550 x 4090mm	1550 x 5000mm	2030 x 3070mm	2030 x 4090mm	2030 x 6140mm	2540 x 3070mm	2540 x 4090mm	2540 x 6140mm
Part #:	P/N 83-06-1525	P/N 83-06-1530	P/N 83-06-1540	P/N 83-06-1550	P/N 83-06-2030	P/N 83-06-2040	P/N 83-06-2060	P/N 83-06-2530	P/N 83-06-2540	P/N 83-06-2560



# XL Series



Step 1

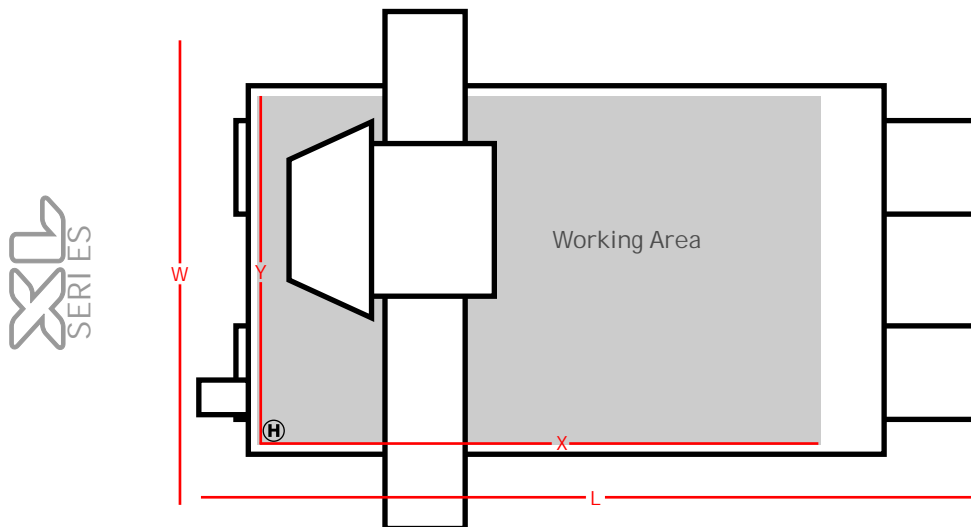
## ☒ Dimensions for the XL Series

Model Number	1525	1530	1540	1550	2030	2040	2060	2530	2540	2560
Y Process Area Width	60"	60"	60"	60"	84"	84"	84"	96"	96"	96"
X Process Area Length	104"	121"	161"	197"	121"	161"	242"	121"	161"	242"
W Overall Width	105"	105"	105"	105"	129"	129"	129"	141"	141"	141"
L Overall Length	134"	151"	191"	227"	151"	191"	272"	151"	191"	272"
Height	80"	80"	80"	80"	80"	80"	80"	80"	80"	80"
Weight	8100lbs	9300lbs	10200lbs	12600lbs	13500lbs	14250lbs	16200lbs	14700lbs	19800lbs	29700lbs

Please Note: All sizes and weights are the approximate standard and are subject to change depending on which options are added.

Model Number	1525	1530	1540	1550	2030	2040	2060	2530	2540	2560
Y Process Area Width	1524mm	1524mm	1524mm	1524mm	2134mm	2134mm	2134mm	2439mm	2439mm	2439mm
X Process Area Length	2642mm	3074mm	4090mm	5004mm	3074mm	4090mm	6147mm	3074mm	4090mm	6147mm
W Overall Width	2667mm	2667mm	2667mm	2667mm	3277mm	3277mm	3277mm	3582mm	3582mm	3582mm
L Overall Length	3404mm	3836mm	4852mm	5766mm	3836mm	4852mm	6909mm	3836mm	4852mm	6909mm
Height	2032mm	2032mm	2032mm	2032mm	2032mm	2032mm	2032mm	2032mm	2032mm	2032mm
Weight	3675kg	4219kg	4627kg	5715kg	6124kg	6464kg	7349kg	6668kg	8982kg	13472kg

Please Note: All sizes and weights are the approximate standard and are subject to change depending on which options are added.



## Specifications

Z-Axis Travel:	11" , 280mm
Z-Axis Clearance:	8" , 200mm
Max Cutting Speed:	XY 2400 ipm, 1016mm/s
Max Rapid Traverse*:	XY 3600 ipm, 1.5m/s
Resolution X/Y:	0.00004" , 0.001mm
Resolution Z:	0.000016" , 0.0004mm
Repeatability:	+/- 0.002" , +/- 0.05mm

\* For maximum speed additional safety devices may be required.

## Standard Features

- Up to 2 gantries
- Up to 8 tooling positions for any combination of spindles or boring units at each tool plate
- Available with up to an optional 35 positions for tool holders
- High Precision Rack and Pinion Drive on X and Y axis, designed to handle high accelerations & decelerations
- Ballscrew Drive on Z-Axis
- Extremely-High Speed Servo Drive systems

# XXL



Applications include: Aerospace, Boat Manufacturers, R.V. Manufactures, Trailer Manufacturers, Mobile Home Builders, and Truck Manufacturers

This series of machines is designed for large panel processing, large format part cutting, production line manufacturing, and machining of large molds and patterns. With the option of multiple gantries you are able to exponentially increase your production, and at the same time create redundancy for daily maintenance and servicing, so that you always keep production going throughout 3 shift operations.

All machines are installed on site by the factory technicians.

Machines are available with:

- Standard bed lengths up to 55ft, contact FlexiCAM for larger sizes
- Available machine width 8ft - 10ft - 12ft / 2.5m - 3m - 3.5m
- Gantry clearances 8" 11" 15" 24" 36" / 200mm 280mm 380mm 610mm 915mm
- Up to 4 gantries
- Up to 8 tooling positions for any combination of spindles or boring units at each tool plate
- High Precision Rack and Pinion Drive on X and Y axis, designed to handle high accelerations & decelerations
- BallscREW Drive on Z-Axis
- Extremely-High Speed Servo Drive systems
- Available with redundant backup controls to ensure machine up time
- ACS or Standard Servo Control available
- Air Flootation Load Unload Systems
- Feedrates of 3600 IPM / 1.5m/sec

The XXL is offered in 3 models and various lengths:

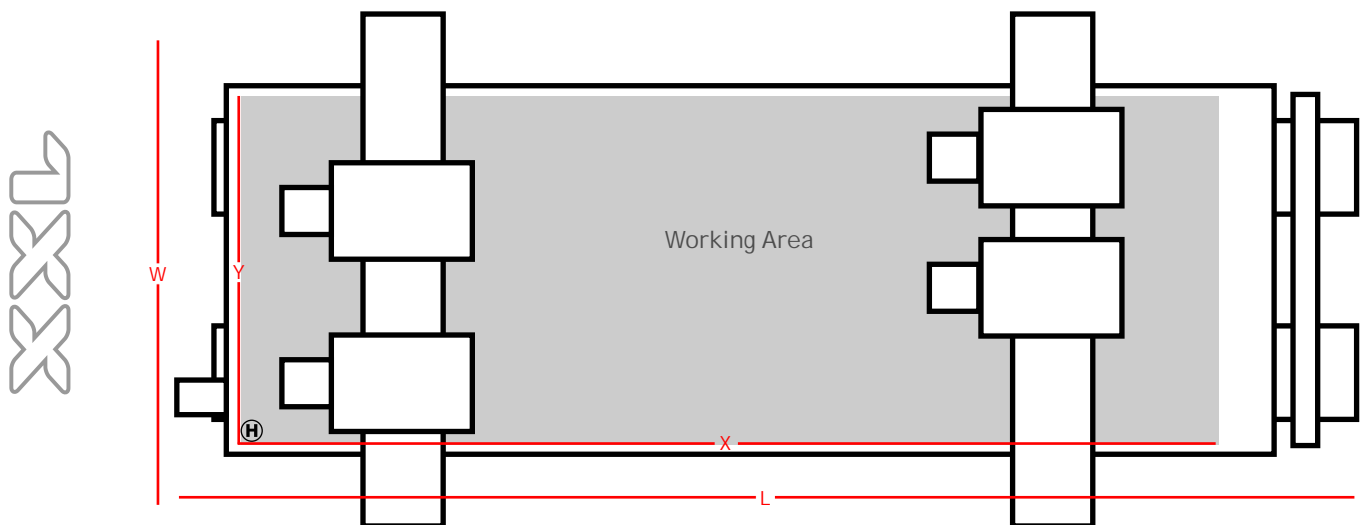
Model:	25xx/xx8	30xx/xx10	35xx/xx12
Size:	100" x XX" - Length on request 2540mm x XXmm	120" x XX" - Length on request 3040mm x XXmm	140" x XX" - Length on request 3540mm x XXmm
Part #:	P/N 80-06-2500	P/N 80-06-3000	P/N 80-06-3500

# XXL Series

## ☒ Dimensions for the XXL Series

Model Number	25XX	30XX	35XX	25XX	30XX	35XX
Y Process Area Width	100"	120"	140"	2450mm	3040mm	3540mm
X Process Area Length	Custom	Custom	Custom	Custom	Custom	Custom
W Overall Width	140"	160"	180"	2950mm	3540mm	4040mm
L Overall Length	Custom	Custom	Custom	Custom	Custom	Custom
Height	80"	80"	80"	80"	80"	80"
Weight	10,000lbs+	12,000lbs+	14,000lbs+	4550kg+	5450kg+	6350kg+

Please Note: All sizes and weights are the approximate standard and are subject to change depending on which options are added.



## Specifications

Z-Axis Travel:	11" , 280mm
Z-Axis Clearance:	11" , 280mm
Max Cutting Speed:	XY 2400 ipm, 1016mm/s
Max Rapid Traverse*:	XY 3600 ipm, 1.5m/s
Resolution X/Y:	0.00004" , 0.001mm
Resolution Z:	0.000016" , 0.0004mm
Repeatability:	+/- 0.002" , +/- 0.05mm

\* For maximum speed additional safety devices may be required.

## Standard Features

- Standard bed lengths up to 55ft, contact FlexiCAM for larger sizes
- Available machine width 8ft - 10ft - 12ft / 2.5m - 3m - 3.5m
- Up to 4 gantries
- Up to 8 tooling positions for any combination of spindles or boring units at each tool plate
- Available with up to an optional 35 positions for tool holders
- High Precision Rack and Pinion Drive on X and Y axis, designed to handle high accelerations & decelerations
- Ballscrew Drive on Z-Axis
- Extremely-High Speed Servo Drive systems
- Air Floatation Load Unload Systems

# Viper



Applications include: High Speed Machining, Micro-tooling, Micro Machining, Milling, Drilling, Thread Milling, Engraving

The Viper is designed as a high speed machining center for 2D and 3D parts. The system is designed with the characteristics of high accelerations, high accuracy, a very stiff system with a moving bed design, and flexibility in configuration of options.

For flexibility in configuration, the system is designed to handle up to 4 high speed spindles or 2 standard speed spindles. Spindle selection is adjustable on the system, handling low hp spindles with speeds of up to 100,000rpm and spindles with up to 20hp with 24000rpm. Table tops are also designed to be flexible with steel fixturing table top, aluminum T-Slot, or either a phenolic or aluminum vacuum table designed for vacuum fixturing parts.

This system is the perfect machine for rapid prototyping customers, with the benefit of being able to be operate in both an office setting or a machine shop setting. It can achieve this as it can be configured for a completely sealed system, recycling coolant system, small footprint, and low noise from operation. The Viper Series is well suited for micro tooling applications, where tooling with less than 6mm in diameter is required.

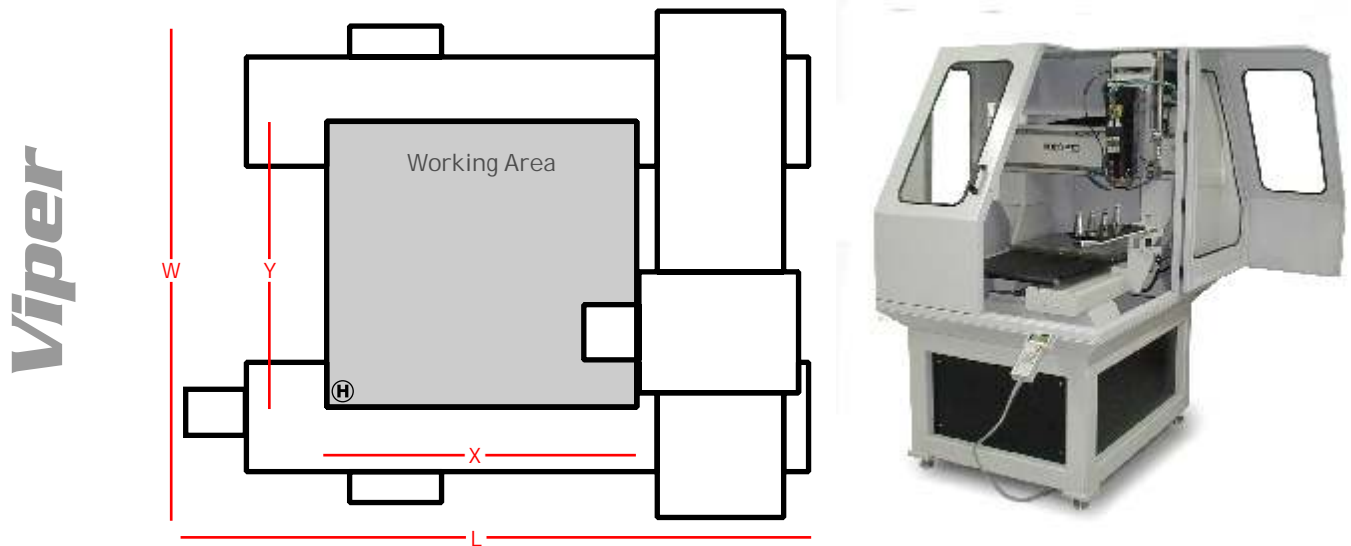
The Viper is offered in 4 models and sizes:

Model:	606	1209	1212	1225
Size:	25" x 25" 650 x 650mm	37" x 50" 950 x 1270mm	50" x 50" 1270 x 1270mm	100" x 50" 2540 X 1270mm
Part #:	P/N 80-08-0606	P/N 80-08-1209	P/N 80-08-1212	P/N 80-08-1225

## ☒ Dimensions for the Viper

Model Number	606		1209		1212		1225	
Y Process Area Width	25"	650mm	37"	950mm	50"	1270mm	50"	1270mm
X Process Area Length	25"	650mm	50"	1270mm	50"	1270mm	100"	2540mm
W Overall Width	57"	1448mm	71"	1804mm	71"	1804mm	71"	1804mm
L Overall Length	56"	1423mm	108"	2744mm	112"	2845mm	212"	5384mm
Height	74"	1880mm	74"	1880mm	74"	1880mm	74"	1880mm
Weight	1750lbs	795kg	2550lbs	1160kg	3250lbs	1477kg	6250lbs	2840kg

Please Note: All sizes and weights are the approximate standard and are subject to change depending on which options are added.



## Specifications

Z-Axis Travel:	11" , 280mm
Z-Axis Clearance:	11" , 280mm
Max Cutting Speed:	XY 1370 ipm, 580 mm/s Servo*
Max Rapid Traverse:	XY 1370 ipm, 580 mm/s Servo*
Resolution X/Y:	0.00004" , 0.001mm
Resolution Z:	0.000016" , 0.0004mm
Repeatability:	+/- 0.002" , +/- 0.05mm

\*Depending on machine configuration

## Standard Features

- AC Servo motors
- Preloaded backlash-free ballscrews (X, Y and Z axis)
- High precision aluminum worktable, 1 1/4" / 30 mm thickness
- T-slot 1/4" or 6mm, matrix 2" or 50mm
- Covers on X axis, bellow on Y axis for linear rails and ballscrew
- HPGL & GCode compatible
- Network connection via TCP/IP, 10Base2 or 10BaseT
- Remote administration via Internet (TCP/IP)
- 12 month warranty

# COBRA



Applications include: Solid Wood Furniture Manufacturing, High Speed Mold Making, High Production Panel Processing, Plastic Parts Fabrication

The Cobra is the big brother to the Viper Series, both series being designed with moving beds and stationary gantries. With this style of system, the bed that the material is mounted onto is driven forwards and backwards to create travel on the X-Axis. The Y-Axis is built with an extra wide carriage to ensure a very stiff mounting position for the spindle to be attached to. The carriage is driven in the X/Y-Axis at very high rates of speed, along the 35mm linear rails. Each axis is driven by high precision ground ballscrews enabling smooth motion, and great precision.

The Cobra is available with either the Standard Servo System or the ACS, both true closed loop servo controllers. These drive systems coupled with the very stiff mechanical design, create a unit that is not only extremely rigid, but also highly accurate, perfect for applications requiring the best edge quality available at incredibly fast cutting speeds of up to 3100ipm. Typical applications for this series of machine are those requiring short cycle times such as customers cutting parts from sheets, be it cabinet door manufacturers, nested cutting applications, plastic fabricators, or machine shop part manufacturing.

The Cobra is offered in 11 models and sizes:

Model: 1515	■ 2015	■ 2515	■ 3015	■ 1525	■ 1530	■ 1537	■ 3015 TT	■ 3025 TT	■ 3030 TT	■ 3037 TT
Size: 60" x 60"	60" x 81"	60" x 96"	60" x 120"	96" x 60"	120" x 60"	144" x 125"	60" x 60"	60" x 96"	60" x 120"	60" x 144"
1540 x 1540mm	1540 x 2060mm	1540 x 2440mm	1540 x 3080mm	2440 x 1540mm	3050 x 1540mm	3660 x 3090mm	1540 x 1540mm	1540 x 2440mm	1540 x 3050mm	1540 x 3660mm
Part #: P/N 80-07-1515	P/N 80-07-2015	P/N 80-07-2515	P/N 80-07-3015	P/N 80-07-1525	P/N 80-07-1530	P/N 80-07-1537	P/N 80-08-3015	P/N 80-08-3025	P/N 80-08-3030	P/N 80-08-3037

TT = Twin Tables, includes Advanced Control System



# Cobra



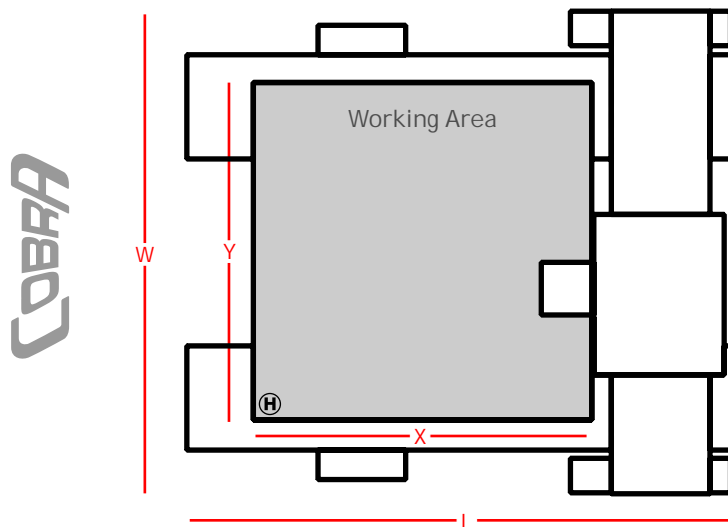
Step 1

## ☒ Dimensions for the Cobra

Model Number	1515	2015	2515	3015	1525	1530	1537	3015TT	3025TT	3030TT	3037TT
Y Process Area Width	60"	81"	96"	120"	60"	60"	60"	60"	60"	60"	60"
X Process Area Length	60"	60"	60"	60"	96"	120"	144"	60"	96"	120"	144"
W Overall Width	108"	129"	144"	168"	108"	108"	108"	216"	216"	216"	216"
L Overall Length	130"	130"	130"	130"	204"	256"	300"	130"	204"	256"	300"
Height	72"	72"	72"	72"	72"	72"	72"	72"	72"	72"	72"
Weight	5400lbs	6800lbs	7200lbs	8800lbs	7200lbs	8800lbs	9900lbs	11000lbs	16000lbs	18200lbs	19800lbs

Model Number	1515	2015	2515	3015	1525	1530	1537	3015TT	3025TT	3030TT	3037TT
Y Process Area Width	1540mm	2060mm	2440mm	3050mm	1540mm	1540mm	1540mm	1540mm	1540mm	1540mm	1540mm
X Process Area Length	1540mm	1540mm	1540mm	1540mm	2440mm	2440mm	3660mm	1540mm	2440mm	3050mm	3660mm
W Overall Width	2743mm	3277mm	3658mm	4267mm	2743mm	2743mm	2733mm	4386mm	3748mm	4276mm	3748mm
L Overall Length	3302mm	3302mm	3302mm	3302mm	5182mm	5182mm	7620mm	3302mm	5182mm	5182mm	7620mm
Height	1829mm	1829mm	1829mm	1829mm	1829mm	1829mm	1829mm	1829mm	1829mm	1829mm	1829mm
Weight	2455kg	3091kg	3273kg	4000kg	3273kg	4000kg	4500kg	5000kg	7272kg	8272kg	9000kg

Please Note: All sizes and weights are the approximate standard and are subject to change depending on which options are added.



## Specifications

Z-Axis Travel:	11" , 280mm
Z-Axis Clearance:	11" , 280mm
Max Cutting Speed:	XY 1650 ipm, 700 mm/s
Max Rapid Traverse*:	XY 3190 ipm, 1350 mm/s
Resolution X/Y:	0.00004" , 0.001mm
Resolution Z:	0.000016" , 0.0004mm
Repeatability:	+/- 0.002" , +/- 0.05mm

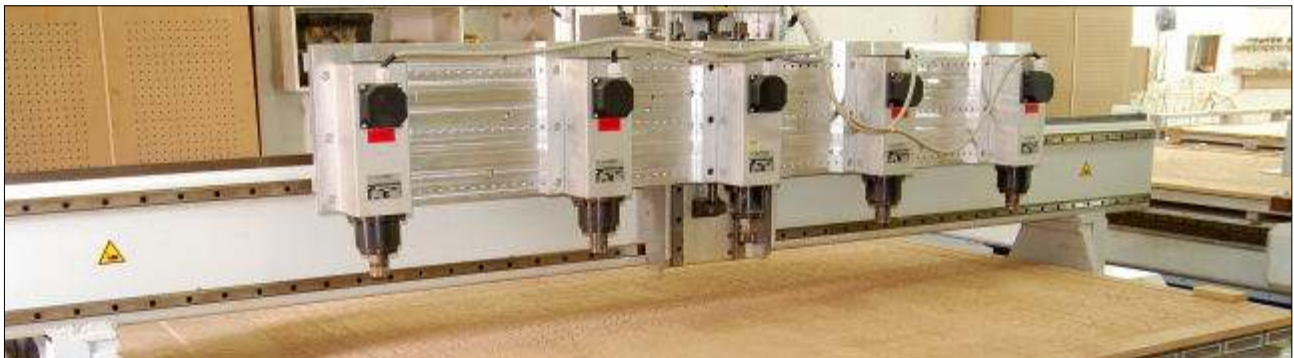
## Standard Features

- 3D computerized routing system
- AC Servo motors
- Preloaded backlash-free ballscrew on all axis
- 35 mm linear bearings on X and Y axis
- 40 mm fixed high pitch ballscrew\*
- Solid, stress relieved and machined aluminum work surface (40 mm thickness)
- GCode compatible
- Network connection via TCP/IP, 10Base2 or 10BaseT
- Remote Administration via Internet (TCP/IP)
- 12 month warranty

# Custom Machines



At FlexiCAM we understand that not all customers' applications are going to be able to use a standard machine. Because of this we will work closely with you to find a solution for your specific needs. Be it a custom control, so that you are able to work with your existing equipment without retraining your operator, or a custom piece of equipment that you need mounted onto a gantry positioning system, we have the background, experience, and expertise to create a solution that is going to get your job done. If you have an operation where you only want to have the operator load the machine and press the GO/STOP button, we can configure the interface so that the operator can do nothing to erroneously configure the machine.



As we develop our own motion control systems, we can custom tailor solutions for your specific needs, be it integration of inline assembly manufacturing systems, that require automatic loading/unloading, to integration of custom sensors. As well as custom electronics, we also custom tailor mechanical solutions, from custom made pick and place systems to, very high clearance machines for trimming or creation of molds. For many high through put applications, multiple spindle systems are a great solution and a specialty of ours. These allow you to increase through put without increasing the number of machines purchased.

Specialty heads for the machine such as rivet guns, 100,000rpm spindles, drill and tapping heads, ink marking systems have all been integrated into specialty machines at one point and can be put into a customer solution for your company. Call one of our regional offices and discuss with our sales engineers about what we need to do to get your business.



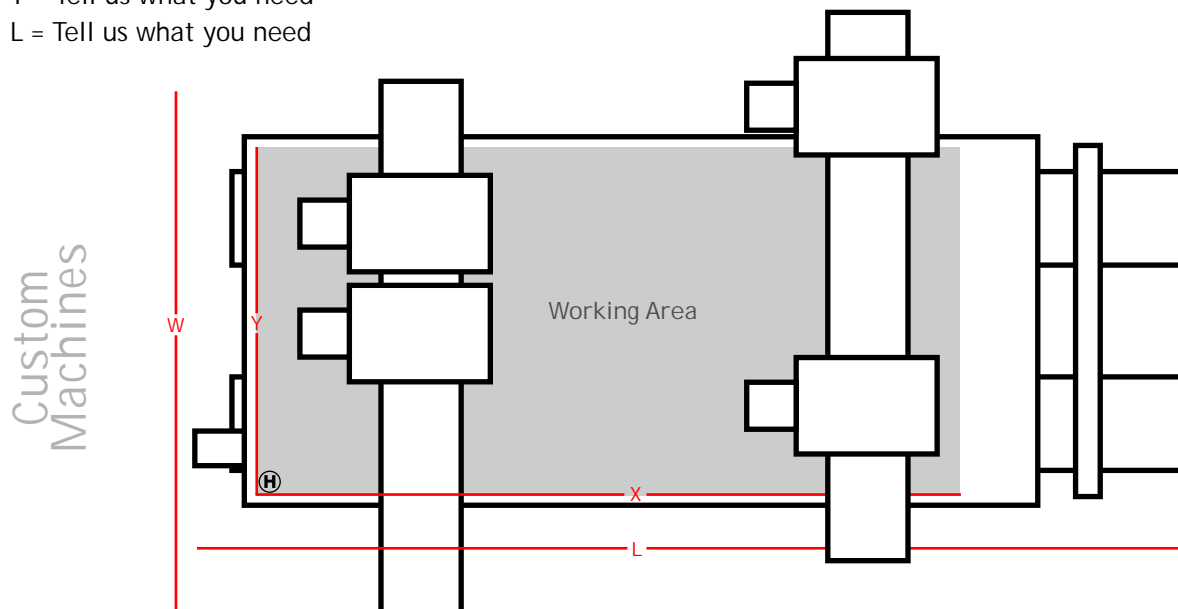
4 Headed router using High Speed Precise spindle for high speed trimming of molds

W = Tell us what you need

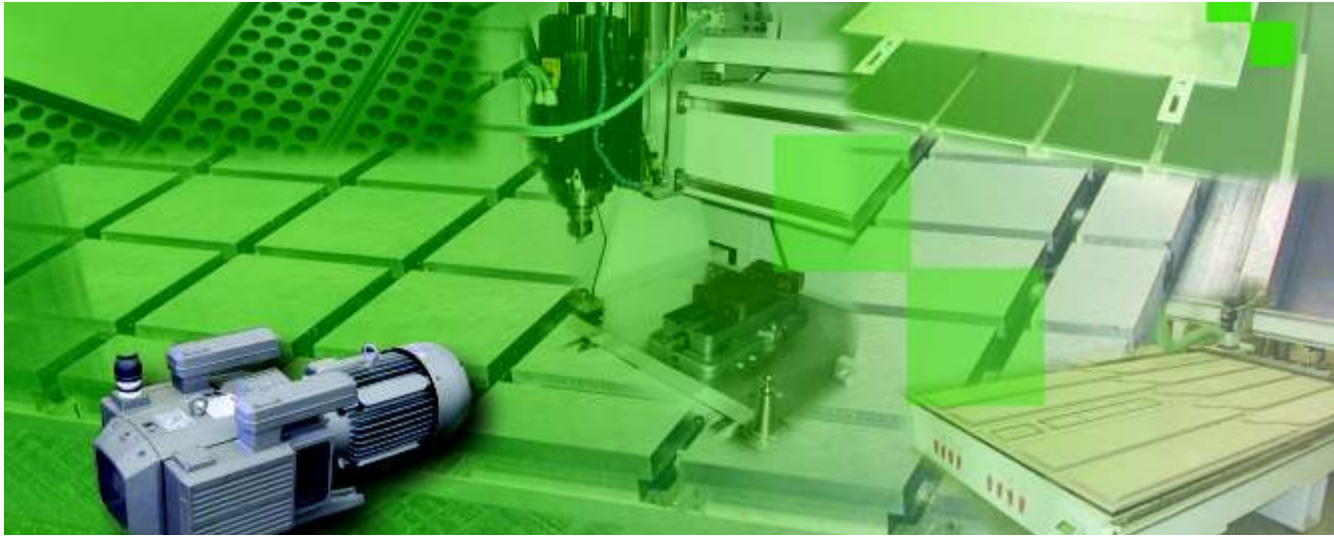
X = Tell us what you need

Y = Tell us what you need

L = Tell us what you need



Custom toolchangers, custom sensors and specialty groups all available.



## Step 2. Selecting Tabletop and Hold down

### Which material hold down method is best?

There are various solutions for hold down:

#### T-slot table

- + fixturing of all kinds of work pieces
- + misting / lubrication can be used
- + no additional sacrificial material is necessary to underlay the work piece
- thin, large format sheets will vibrate while cutting
- the smaller cut out pieces can move freely

#### T slot plate with vacuum table (regenerative blower)

- + fixturing of all kinds of pieces
- + misting / lubrication can be used
- + thin, large format pieces are fixed while routing
- + cut out pieces stay fixed and do not slip away
- + small pieces can be fixed by T-slots with clamps
- small pieces are not held down by the vacuum

#### Phenolic table top with high pressure vacuum (grid)

- + engraving materials are held down with very high pressure
- + a special sacrificial material sheet can be made for mass production
- + misting / lubrication can be used
- + clamps can be used with inserts
- only useful for engraving, 3D routing and mass production

#### Phenolic table with high pressure vacuum system (grid) and MDF sheet between material and the table top

- + flat, medium and large format materials are held down with medium pressure
- + good for cutting jobs
- + phenolic table allows you to use clamps (with inserts)
- fixture is not as good as without MDF
- small pieces cannot be fixed by vacuum
- best for flat sheet materials such as plastic and plywoods

#### High flow blowers

- + ideal for large machines / large format sheets
- + excellent for cutting large pieces (like channel letters) out of aluminum sheet material
- + misting / lubrication can be used
- very noisy (without muffler)

#### Customer specific clamps

Customer specific clamps are often used for mass production. In most cases the production of single pieces is not profitable with customized clamps. Customer specific clamps can be installed on T-slot tables or phenolic tables. We suggest phenolic tables, because they are easier to handle. In addition it is easy to drill and tap (with inserts) the phenolic table for use with clamps. We have various clamps to offer you. There are manual, pneumatic or hydraulic systems. In general hydraulic systems are too expensive. The clamping power of pneumatic systems is usually sufficient.

### What is the black material on the table?

The material is PVC foam (Sintra, Forex, Komacel, etc.). It is fixtured on the aluminum t-slot profiles by double-sided tape and then milled flat by the machine. This ensures that the spindle and table surface is at an equal distance all across the table. It is also possible to route ex. 0.1 mm deeper to avoid a burr (especially with soft aluminum). After several weeks of usage, when the grooves begin to impair the vacuum, the whole table should and can be milled flat again. When there is only 1-2 mm of material left, the material needs to be replaced. By using PVC as sacrificial material you will save a lot of time and work finding the right sacrificial material for each job.

## Vacuums

We Offer Oil less and Oil lubricated rotary vane pumps. The application normally dictates whether an oil-less or oil-lubricated vacuum pump should be used. Either type may be used in most applications. The dry running rotary vane pumps need a very minimal amount of maintenance, making them perfect for a lot of shops. Oil filled pumps require more maintenance and servicing but operate at about 20% higher vacuum pressure and operate with less noise, they do operate cooler, which can be a benefit in some climates.

### Part Number Rotary Vane Vacuum Pumps

Rotary vane pumps have lower noise and vibration levels than blower style vacuums. The regenerative blower is also basically vibration-free, but the impellers may generate high-pitched noise.

P/N 82-05-0100 3.0hp /(2.2Kw ) High Pressure Vacuum Pump 3 Phase

50Hz, 67 m3/h ,100 mbar abs. or  
3.5hp / (2.6Kw) USA 60Hz, 49 cfm, 25" Hg  
includes filter, on/off switch, overload  
pump requires 3x230V or 3x400V  
Single phase available for 200-240V P/N 82-05-0110

P/N 82-05-0200 5hp (4Kw) High Pressure Vacuum Pump 3 Phase

50Hz, 140 m3/h, 60 mbar abs. or  
USA 60Hz, / 113 cfm 28.2"Hg  
includes filter on/off switch, overload  
pump requires 3x230V or 3x400V  
Single phase available for 200-240V P/N 82-05-0210

P/N 82-05-0300 10hp /(7.8Kw) High Pressure Vacuum Pump 3 Phase

50Hz, 250 m3/h, 200 mbar abs. or  
12hp/(9.5Kw) USA 60Hz, 173 cfm, 25"Hg  
includes filter on/off switch, overload  
pump requires 3x230V or 3x400V

P/N 82-05-0336 Oil Lubricated Rotary Vane pump version available with 29.2"Hg, 3mbar abs.

P/N 82-05-0322 Duplex Stand to stack second pump on top with Pump Management

P/N 82-05-0333 Triplex Stand to stack 3 pumps on top of each other with Pump Management  
Additional Vacuum pumps required



### Liquid Ring Vacuum pumps

Liquid ring vacuum pumps are versatile machines because they are able to handle wet air that may be vacuumed up. The Liquid Ring pump can operate at extremely high pressures while maintaining a large vacuum flow, making it perfect for jobs where many smaller parts need to be cut from a sheet. They do require a little more monitoring during operation and maintenance than the dry running pumps. These systems are build very rugged to provide years of trouble free operation. They operate at very low noise levels, and have continuous operation over the full vacuum range. These system come standard configured for air cooling, and have a standard electrical control panel for operations.

P/N 82-05-0700 300 CFM 29" Hg 20 Hp 230/460Volt

P/N 82-05-0800 450 CFM 29.5" Hg 25 HP 460 Volt

P/N 82-05-0900 550 CFM 29.5" Hg 40 HP 460 Volt



### Regenerative Blower Vacuum pump - Medium Pressure & Flow

Regenerative blower work well for operations require holding larger parts. The pressure is much less than the other pumps, but it does move a large volume of air. This pump is well suited for cutting parts that are fairly porous and allow a lot of air to flow through them, or for holding larger parts. These vacuums are almost maintenance free.

P/N 82-07-0100 4hp (3Kw) Regenerative Blower 3 Phase

300 m3/h 177cfm (50 Hz) or  
300 mBar / 8.9" Hg (60 Hz) - USA  
includes overpressure valve, dust filter, on/off switch,  
circuit breaker  
pump requires 3x230V or 3x400V

P/N 82-07-0110 4hp (3Kw) Regenerative Blower Single Phase

includes the inverter drive for operation from single phase 200-240V

P/N 82-07-0200 10hp /(7.5Kw) Regenerative Blower

500 m3/h 294 cfm (50 Hz) or  
12hp/(9Kw)630 m3/h 370 cfm (60 Hz) - USA  
350 mBar / 10.3" Hg  
includes overpressure valve, dust filter, on/off switch, circuit breaker  
pump requires 3x230V or 3x400V



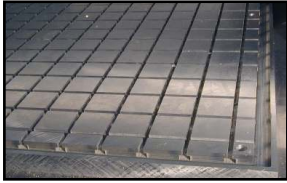


## Table Tops

All FlexiCAM machines include a standard table top, EITHER the aluminum extruded T-Slot for the mechanical hold down OR a 1" thick phenolic work surface (requires zoning). There are also other options available for the mechanical and vacuum hold downs table tops as well as pod systems.

Part Number

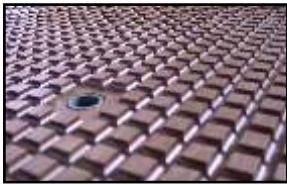
P/N 82-01-\_\_\_\_\_ High Precision Aluminum T-Slot Table  
 last 4 digits  
 dependant on  
 model number High precision stress free aluminum worktable, 1" (25mm) thickness  
 with 1/4" (6mm) T Slot size or 2" (50mm) T slot matrix, available for all models



### High Pressure Vacuum tables

This is the standard Phenolic table top used with the High Pressure Vacuums. The zoning is not included, and needs to be selected

- P/N 82-02-0100 High Pressure Vacuum table Single Zone
- P/N 82-02-0200 High Pressure Vacuum table Two Zone  
Individually valved
- P/N 82-02-0400 High Pressure Vacuum table Four Zones  
Individually valved
- P/N 82-02-0600 High Pressure Vacuum table Six Zones  
Individually valved, and not available for the 1515 models
- P/N 82-02-0800 High Pressure Vacuum table Eight Zones  
Individually valved, and only available for 20+, 25+, 30+ and 35+ series



P/N 82-03-\_\_\_\_\_ Flat Phenolic surface for use with Double sided pods  
 last 4 digits  
 dependant on  
 model number



The proven vacuum clamping system with hose connections for smooth tables. Maximum holding forces, high flexibility due to the wide range of available vacuum blocks, maximum precision and damage-free clamping of the work pieces make this system ideal for almost all clamping tasks.

### Regenerative Blower Vacuum tables

An alternate Phenolic table top used with the Regenerative Blower Vacuums. The zoning is not included, and needs to be selected.

- P/N 82-06-0000 Reverse Valve Vacuum for air loading onto the table  
available for all the models with one Regenerative blower
- P/N 82-06-0100 High Pressure Vacuum table Single Zone  
available for all the models with one Regenerative blower
- P/N 82-06-0200 High Pressure Vacuum table Two Zone  
available for the models, (except 1515 & 1525) with two Regenerative blowers

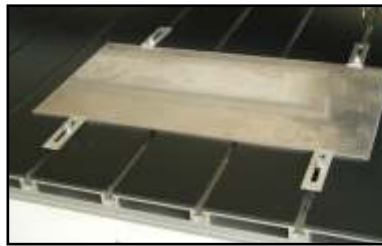


## Extruded Aluminum T-Slot Vacuum Table Top

A combination mechanical hold down as well as the additional benefit of being able to use just vacuum to hold down a part. These type of tables typically get zoned into smaller areas and use 1 or 2 regenerative blowers

### Part Number

- P/N 82-06-0600 T-Plate table Six Zones  
available only for the models 1515 & 1525 with one Regenerative blower
- P/N 82-06-2000 T-Plate table Twenty Zones  
available only for the models 1515 & 1525 with one Regenerative blower  
or all other models with two or more Regenerative blowers
- P/N 82-06-0900 T-Plate table Nine Zones  
available only for 20XX models with one or two Regenerative blowers
- P/N 82-06-2600 T-Plate table Twenty Six Zones  
available only for the 20XX models with one, two or four Regenerative blowers



### High precision steel worktable 1 1/4" (30mm) thickness

Matrix of tapped holes M6 or 1/4"-20, Pitch 50 mm or 2"

- P/N 80-09-0100 High precision steel worktable 605/22
- P/N 80-09-0110 High precision steel worktable 1008/33
- P/N 80-09-0120 High precision steel worktable 1209/34

### High precision aluminum T-slot worktable 1 1/4" (30mm) thickness

6 mm or 1/4" T slot size, 50 mm or 2" T slot matrix

- P/N 80-09-0200 High precision aluminum T-Slot worktable 605/22
- P/N 80-09-0210 High precision aluminum T-Slot worktable 1008/33
- P/N 80-09-0220 High precision aluminum T-Slot worktable 1209/34

### High precision steel vacuum table 1 1/4" (30mm) thickness

With grid / gasket (matrix 50 mm or 2")

Additional matrix of tapped holes M6 or 1/4"-20, 4 zones, individually valved

- P/N 80-09-0300 High precision steel vacuum table 605/22
- P/N 80-09-0310 High precision steel vacuum table 1008/33
- P/N 80-09-0320 High precision steel vacuum table 1209/34

- P/N 80-09-1000 Drain Tray for 605/22
- P/N 80-09-1010 Drain Tray for 1008/33
- P/N 80-09-1020 Drain Tray for 1209/34

- P/N 80-09-1100 Full Enclosure (includes drain tray) 605/22
- P/N 80-09-1110 Full Enclosure (includes drain tray) 1008/33
- P/N 80-09-1120 Full Enclosure (includes drain tray) 1209/34





## Step 3. Selecting Spindle

### What type of spindle should I select?

For starters and general purpose usage, we recommend a 7hp, 5Kw, 24,000 rpm spindle as the basic standard. This spindle is powerful enough to process soft aluminum at low speed, it can handle medium size woodworking tools and the results on acrylic (edge quality) are sufficient for most applications. The spindle is robust and maintenance-free, and it is ideal for new or inexperienced operators.

High Frequency spindles allow higher feed rates and guarantee a perfect edge quality in acrylic as well as engraving and work with small bits, however they are expensive, sensitive and have a limited lifetime before the bearings need to be replaced. At low speeds the performance (torque) of HF spindles decreases. This can be a problem when cutting material like soft aluminum or wood as the material starts melting or burning at high speeds. Another thing to keep in mind is the limited tool capacity of HF spindles. If you decide to buy a HF spindle, you have to take into consideration, the ongoing maintenance and eventual replacement of the bearings. Nevertheless, HF spindles are the perfect choice for high speed processing of aluminum, acrylic and several types of plastic.

If you need an Automatic Tool Changer (ATC) the 11hp, 8kw 24000rpm, ISO-30 spindle is a popular solution for a lot of applications. With the ISO-30 tool holders you have access to a large selection of ISO-30 aggregates for special applications. Automatic tool change does add some cost to the system price, but in most cases it reduces so much time in job cycle time, especially in anything requiring quantity manufacturing, that it pays for itself in no time.

FlexiCAM has many configurations of toolchangers, depending on the application, budget and machine chosen. Our most popular toolchanger is a stationary rack style toolchanger, it is robust and has the minimal amount of parts as possible so it is the most reliable. It is able to hold any size aggregate and is offered on all our moving gantry style systems. A cover is available for the rack style system which works well in environments where there would be a lot of mess while cutting. The possibility of up to 25 tool positions is available with this style on large machines.

The second style is a carousel style which has a slightly shorter tool change time, as it travels with the gantry. The integrated cover is a bonus for dusty environments. This style tool changer only supports up to 10 tools. Our system uses a Servo motor to power the tool changer, rather than a Stepper motor found in lower quality machines.

The third style is the ride along Carousel which is available on the XL series. This series has the Carousel toolchanger ride along with the Spindle so that no travel on the machines X/Y axis is required to get to the toolchange location. This is for applications having very critical chip to chip cycle times. On the Viper series of machines we offer the third style of toolchanger, the swing arm. This allows the router bits to be kept out of the work area of the table, and swing into it for very fast toolchange times.

The fourth style toolchanger we have is a gantry mounted stationary toolchanger, which allows a high speed toolchange with a minimal amount of moving parts in the toolchange system, adding to the reliability of the system. Enclosed toolchangers can be mounted on either end of the gantry.

### Is it possible to engrave with a standard spindle?

Yes, it is. The engraving option is only necessary for materials with large tolerances in material thickness (e.g. acrylic) to avoid variations in engraving dept



## Automatic Tool Changer Spindles




FlexiCAM offers several versions of tool changers (Turret mounted to gantry or carriage, worktable mounted). Please ask for a quote based on specific spindle, type of mount and number of tools. The following are standard configurations for the ATC systems, regardless of spindle, are equipped with 10 tool positions (except Viper) and 4 tool holders. All toolholders and tool sensors are mounted to the work table. Main air requirement for the ATC is dry, clean (0.1um)oil-free compressed air(> 7 bar/100psi) Air Pressure sensor is included. Dust Collector/pressure foot are not included.

RPM ■ Part Number	Hp	■ Kw	Holder x
20,000 P/N 81-02-0200	10	7.5 ER40 tool holders available for 3x400v systems	HSK-63F
20,000 P/N 81-02-0220	18	13.5 ER40 tool holders available for 3x400v systems	HSK-63F
20,000 P/N 81-02-0230	20	15 ER40 tool holders available for 3x400v systems Liquid Cooled	HSK-63F
24,000 P/N 81-02-0100	5	4 ER32 tool holders available for 1x230v, 3x230v and 3x400v systems	ISO-30
24,000 P/N 81-02-0110	11	8 ER32 tool holders available for 3x230v and 3x400v systems	ISO-30
24,000 P/N 81-02-0130	18	13.5 ER32 tool holders available for 3x400v systems	ISO-30
30,000 P/N 81-02-0300	5	4 ER16 3/8" (10.5mm) max. tool dia available for 1x230v, 3x230v and 3x400v systems	ISO-20
40,000 P/N 81-02-0400	2	1.5 ER16 3/8" (10.5mm) max. tool dia available for 1x230v, 3x230v and 3x400v systems additional regenerative resistor for short tool change cycles	ISO-20
40,000 P/N 81-02-0500	3	2 ER16 3/8" (10.5mm) max. tool dia available 3x400v systems liquid cooling includes heat exchanger	HSK-25E



## Spindles - Manual Chuck

FlexiCAM offers a various numbers of spindle options to suit your job requirements. The following spindles are the standard selections, please contact your local FlexiCAM sales partner if you have an application that requires a custom spindle solution.

RPM 	Hp	 Kw	Collet Size 
<i>Part Number</i>			
24,000 P/N 81-01-0100	3	2	ER20 Collet max. 1/2" (12.7mm) tool dia Dust collector/pressure foot not included
24,000 P/N 81-01-0200	7	5.6	ER25 Collet max. 5/8" (16mm) tool dia Dust collector/pressure foot not included
18,000 P/N 81-01-0300	13	9.5	ER40 Collet max. 1 1/4" (30mm) tool dia Dust collector/pressure foot not included
24,000 P/N 81-01-0110	3	2	ER20 Collet max. 1/2" (12.7mm) tool dia Dust collector/pressure foot not included
24,000 P/N 81-01-0210	7	5	ER25 Collet max. 5/8" (16mm) tool dia Ceramic bearings, Dust collector/pressure foot not included
30,000 P/N 81-01-0221	5	4	High Frequency Spindle 5/8" (16mm) max. tool dia Dust collector/pressure foot not included air dryer/filter assembly, air pressure sensor requires dry, clean, oil free compressed air
40,000 P/N 81-01-0301	2	1.5	ER20 Collet max. 1/2" (12.7mm) tool dia Dust collector/pressure foot not included air dryer/filter assembly, air pressure sensor requires dry, clean, oil free compressed air
60,000 P/N 81-01-0331	2	1.5	High Frequency Spindle 1/4" (6.35mm) max. tool dia Dust collector/pressure foot not included air dryer/filter assembly, air pressure sensor requires dry, clean, oil free compressed air

### Engraving Option

P/N 81-03-0100

Engraving Spindle - Independent motor, no router required  
4mm standard cutters, optional 3mm, 6mm, 1/8", 1/4", 11/64"  
bottom loading spindle standard, top loading spindle optional





## Spindles Options

Additional specific options available for your Spindle. All ISO-30 & HSK-63F Spindles include: 1 1/4" (30mm) max. Shank diameter, Electric fan for cooling (up to 13.5kw) Liquid Cooled for 15 kw(incl. Heat exchanger)

### Part Number

- P/N 81-05-0100** Dust Collector for Manual tool Change systems  
Connects to 4" (100mm) vacuum hose
- P/N 81-05-0200** Pressure Foot for material holddown and chip extraction  
Only for manual tool change, requires dry, clean, oil free compressed air
- P/N 81-05-0300** Dust Collector for Automatic Tool Change systems  
Connects to 4" (100mm) vacuum hose
- P/N 81-09-0000** Rotary Tool Changer  
10 tool position turret mounted to Gantry, requires ACS.  
This system is driven by a Servo motor, not a Stepper motor,  
to provide high speed reliable tool changes
- P/N 81-09-0100** Auto Cover for ATC  
Automatically covers unused tool holders for the linear style  
changer
- Price deduction from ATC system** Quick Change Option  
Pneumatic release of tool holder, includes one toolholder  
and collet
- P/N 83-02-1000** CNC Rotary Axis  
Requires the ACS, mill out intricate columns, chair legs,  
corbels, statues, gun stocks and such, with this option.
- P/N 83-02-9000** Dual Slides  
For mounting multiple spindles or other options such as  
engraving spindles, drills and boring blocks. This can be  
used as an inexpensive toolchanger for those requiring  
only two tools.



## *In their own words...*

After operating my first CNC routers for many years, when it came time to buy my second router I knew exactly what I wanted which lead me to FlexiCAM. Anytime I have a question with my software or machine, FlexiCAM is able to remotely connect into my system and walk me through the steps to show me what I need to know.

- Gerry Calabrese



Gerry Calabrese Seavisions - Florida





## Step 4. Selecting Control System

### How are the FlexiCAM Machines controlled?

FlexiCAM systems run on the industry standard EIA 274-D G-Code standard (Electric Industries Alliance Standard). In addition to this HPGL can also be used for controlling machine motion for integration into software from the graphics arts industries. Post processors or drivers are available for all popular software packages. Because of the industry standard G-code that we use it is easy to create a post processor even for custom software solutions. With the ACS we are able to tie into items such as production lines, or assembly plant controls, so that the machine can be added inline for automation applications using communications via SERCOS and CANopen.

### What type of control system would work best for me?

Depending upon the features, FlexiCAM offers 2 different control systems, each with its own advantage.

The Standard Servo Control is a true Servo control system where the controller is actually receiving data from the motors for controlling them allowing for excellent speed, smoothness of motion and fast accelerations. As with all of our systems remote diagnostics and configuration are standard on the machine. The keypad interface is clearly lit, with a easy to use interface and lots of portability so you can walk around the table with it.

The ACS Controller has a graphical user interface with optional touch screen interface for rugged work environment and easy to use interface. This system offers amazing performance in 3D at extreme speeds. Advanced features such as rotary axis for aggregates and rotary tables are available with this system.

### How are the FlexiCAM machines controlled?

FlexiCAM systems are GCode and HPGL compatible. Additional commands are implemented like setting cutting depth, speeds and for performing three axis motions in HPGL. For most signmaking programs such as CASmate, EnRoute, Signlab, FlexiSign, Type3, ArtCAM etc. special drivers are available. They are usually based on extended HPGL. It is also possible to use plain HPGL files with the machine. In this case the user has to enter the parameters (cutting depth, speeds etc.) at the keypad. With our ACS you are able to do many unique automation tasks with an integrated Program Logic Controller (PLC) so that your factory or process automation task can have custom integration into our system. For several CAM programs such as MasterCAM, AlphaCAM etc. special drivers are also available. They are mainly based on Gcode.

### What is the advantage of a network connection?

As all of our systems have a standard ethernet connection, it is important that you understand the advantages involved with a network over a serial connection or RJ485. Multiple FlexiCAM systems have access to multiple PC workstations, this is different from systems which connect to one PC through a serial connection, the user has access to several workstations through the network via keypad. In larger companies with several FlexiCAM systems, it is possible to have access to one or multiple central workstation(s) from every system.

#### High speed:

While the speed with serial interfaces is limited to 9600 or 19200 Bit/s, the transmission speed of networks is usually 10 to 100 MBit/s. Due to the high speed, it is possible to copy the complete job to the machine before cutting. This saves material and time in case of a software crash (Blue screen).

#### No transmission problems (even with long cables)

While a cable length of more than 30 m, usually causes problems with serial connections, standard network cables can be used for distances up to 300 m. In addition fibre optic cabling systems can be used for distances of several kilometers. The influence of electrical noise (power cables etc.) is also reduced to insure you don't destroy expensive material on your machine from electrical noise.

#### Repetitive Jobs

Serial transfer requires a new transmission of the cutting job from the software in the case of large jobs. With network connection the user can choose the job from the keypad of the machine. Subdirectories and long file names are supported. If the job is required several times, the user can load the job several times or copy it to the local hard drive. In this case the workstation is not needed to run the repetitive jobs.

Usually the machine is located in the production facilities while the graphic workstation is located in the office. The FlexiCAM user only gets a production list with material description (type and size of material) as well as the required tools. The machine is set up according to the production list and the cutting job is started over the network.



## ACS Control

The ACS control system has a graphical user interface with optional touchscreen and handwheel, making it perfect for customers who are used to working with machine tools from other CNC applications. It is designed to hold up in a rugged work environment, even with the touch screen, and has an easy to use interface on it. This system is set apart from other controllers as it integrates a dual channel PLC to go along with the motion control system. This system offers amazing performance at extreme speeds while performing 3D machining operations. Advanced features such as rotary axis for aggregates, rotary tables and realtime surface compensation options.



### Features

- Powerful NC operating system with programming to ISO/DIN66025
- Integrated PLC, programmable in all languages to IEC 61131-3
- Extended command set and additional formula interpreter for the generation of mathematically sophisticated part programs
- Availability to have up to 12 axes of which 6 interpolate simultaneously
- Networking and PC-MMI interfacing are implemented via TCP/IP
- Network connection via Ethernet (TCP/IP, 10BaseT or 100BaseT)
- Graphical user interface based on a Windows 2000 Professional workstation with additional software packages for axis optimization, advanced remote diagnostics etc.
- Handwheel function for superimposed motions (optional)
- Look-ahead function to optimize processing speeds Geometry filter to reduce the density of points
- Block preparation for processing extremely short NC blocks
- Feed-forward to compensate the following error
- Reverse travel and restart on the contour
- Spatial rounding for fast jolt-free motions
- Variable acceleration profiles for changing load conditions
- Block search for entering anywhere in prolonged machining operations
- Recording of axis positions followed by data reduction and generation of polynomials
- Tangentially slaved C axis for tool alignment during contour machining
- Synchronous/gantry axes
- Tool management for selection of any tools with compensation and geometry data
- Analog output dependent on the contouring speed to improve performance and dosing etc.
- Fast inputs and outputs for immediate reactions in the NC program
- Spindle lead/backlash compensation to balance out mechanical errors
- PLC positioning axes in parallel with contour machining
- Touch trigger inputs for fast recording of measured data
- Multiple channels for simultaneous machining of several NC programs
- 3D online spline for processing teach-in contour points in space coordinate transformation for easy programming
- Modally active comparison operations for flexible program execution
- Adaptive control to improve the quality of and to shorten machining times
- Tool slaving in space (6-axis) taking the machine geometry into account
- Fast Z axis slaving to focus on the workpiece surface
- 3D axis compensation to compensate for mechanical tolerances
- Additional digital drive bus interfaces such as SERCOS and CANopen or RS232 interfaces are also available (eg. for interfacing of further machine facilities such as identification systems)

### Custom Controller

We also integrate other manufacturers' motion controllers upon request. We can integrate most industry standard control systems as well as specialized PC-based controls. These controllers are useful when full PLC control is required for specific automation tasks.

## TURBO

### Turbo Option

For customers with demanding throughput requirements, we offer the high performance Turbo option, allowing for extremely high machine speeds. The high performance Turbo option is an upgrade to the whole drive system giving you a stiffer faster cut, with very high accelerations. As most of the time spent in machining parts, is spent getting up to speed or slowing down, the acceleration or deceleration performance increase becomes the most important features for this option. You can expect to see shorter cycle times and an increase in edge quality in 2D jobs. In 3D jobs you will be able to significantly decrease cycle times, because in most 3D jobs the machine is constantly in a state of acceleration/deceleration, and rarely is able to get to full speed. This option is available with our standard controller or ACS control system on only the XL series.



## Control Options

Fast, affordable customization is available for ACS control system. Options such as the Rotary Axis, for machining of parts such as gun stocks or furniture legs, can easily be achieved with the Pro or Cobra Systems in combination with the ACS and the Rotary Axis. Another ACS option which is highly sought after is the programmable C-Axis for orienting an aggregate in any direction, for applications requiring such tasks as drilling on different angles.

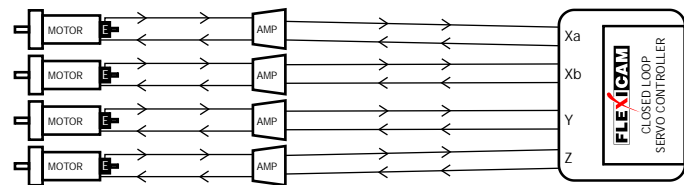
**P/N 83-08-0010** FlexiCAM ACS Control System  
 15" TFT graphical display along with handwheel  
 Multi-functional keyboard with integrated trackball  
 Integrated industrial PC-based on Windows XP Professional with hard disk, LAN  
 Advanced remote administration

**P/N 83-08-0110** Touch Screen Option for FlexiCAM ACS



## Standard Servo Controller

FlexiCAM manufactures its own PC driven Servo control system. This is a true closed loop Servo controller, not a Stepper controller running Servo motors. At the heart is a 64 bit motion controller, with look ahead functionality, incredibly fast 3D contouring, easy to use keypad interface, 100's of Megs of storage, ethernet connection, and many other features all standard. Support is made easy with "Remote Service", the ability for us to run your machine and configure it from our factory.



An illustration of how a Closed Loop system interfaces

## Graphical User Interface P/N 83-08-8200

The graphical user interface is an option that can be added at time of order with your machine, or upgraded to later on. It can be a great peace of mind option for the shop that wants to be able to see in detail what is happening on the machine. As well as being a great addition to our standard keypad, it allows for added functionality such as the ability to modify G-code, job cycle reporting, maintenance reminders, and a long list of great features for making day to day operation of machine for customers requiring added detail in operation. Operation of the machine further simplified by touch screen controls.



## Key Pad P/N 83-08-0010

When working with larger machines it isn't always convenient to have your controls fixed at the home position of the machine, especially when your machine is more than 5' long. Our keypad allows you to walk around the machine with controls in hand, for setting origin positions, park positions, material height, and having an emergency stop switch always at hand, in case of that forgotten screwdriver sitting on the table. The keypad has a backlit LCD for ease of viewing, and is designed in a simple to use format. When starting up, the operator goes through the functions on the left hand side of the controller and once he comes to the bottom key you are ready to start running a job. The keypad can display any language you choose, in case you have an operator who might be comfortable in a language other than English. Updates such as changing the language on the controller can be done remotely from our office without a visit from a technician



## *In their own words...*

Great rewards are enjoyed by those who take the time to learn about an industry before getting into it. 6 months of looking at virtually every CNC router available has led us to purchase the FlexiCAM Stealth. We were happy to have discovered it and now that we're operational, we're nothing short of thrilled with the accuracy and ease of operation. In our business, details are everything, and now with our FlexiCAM CNC, the details have gotten a whole lot easier.

- Greg Reid



Greg Reid Reid Signs - Seattle, WA



## Remote Support

All machines must be purchased with Installation and training to ensure that you are setup correctly from day one, and can get up to speed as quickly as possible. The learning curve for CNC Routers is quite short. There are really 3 components that go into getting up to speed on the equipment.

1. Learning to operate the router, (believe it or not), this is the easiest part
2. Learning to use the CAD/CAM software for designing your job and creating a toolpath
3. Learning how to route material, learning the feeds and speeds and bit selection

When the technician leaves, you are not alone! With our Remote Support package that comes with all our equipment, as long as you have a computer with an available internet connection at the office, we are able to connect through to the router, and actually log into it to do full diagnostics as if we were onsite. On our servo systems we are able to log into the controller and see exactly what is happening on the system, as it is a true closed loop servo control. It is not possible to be able to see what is happening on the machine with a step direction controller running Closed loop servo amplifiers and Servos.

### Advanced Remote Support

For customers with demanding operations requiring 100% up time, we suggest our Advanced Remote Support. With the Advanced Remote Support, not only are our technicians able to login to your controller through the Internet, they are also able to see what is going on with your operation through an internet video link, and talk to your operators through the internet as well. With the wireless camera, you are able to walk around the machine and our technicians can see exactly what you are seeing giving you almost the same capabilities as having a technician right there.

### Onsite Training

Every machine is setup and installed by a factory trained technician from a Platinum Level. FlexiCAM Solution Provider or by a technician working directly for FlexiCAM. This will include a minimum of 1 day setup and 1 day training, but normally consists of 3 or 4 days of training, depending on your experience with each of the sections listed above.

Once you have placed your order for a machine, we will confirm your order, and notify you with an expected shipment schedule. If requested, we can send out the software portion of the order, so that you have ample time to familiarize yourself with the software. This helps to optimize your time with the trainer when they arrive, and also will increase your absorption of the content while their trainer is there.

### Customer Service Centers

If you would like to reduce your learning curve for the machine, we do offer training at our office locations where you can come and do training at our sites, away from day to day interferences and allow you to get to work as soon as your machine is installed. Coming to our Customer Service Centers is also available for a refresher course on your machine, for advanced training, or for training of new operators. This allows you to keep your production going while bringing other staff up to speed on your equipment.

### Worldwide Regional Offices

FlexiCAM is headquartered in Eibelstadt, Germany where our production facilities are located. FlexiCAM has factory trained personnel and technicians at branch offices around the world, to provide you with the best experience possible with our products. At each of these locations we stock spare parts and have training available for all our customers, be it their first time training before their machine arrives, or providing training for a newly hired machine operator. Any of our offices can be contacted by any of our customers, allowing for a huge coverage of time zones, meaning that there is almost always someone available at one of our offices to answer a question that you might have. Local languages and English are spoken at each of our offices. Each of our branch offices helps train and support our customer service centers around the world.



## *In their own words...*

Our company designs and produces parts cut from carbon fiber plates. The parts we manufacture are held to very close tolerance and finish is also of great importance. Our machine runs 5 days a week with only one failure in over two years of operation. The motor inverter died and FlexiCAM over-nighted a new one to us and had us back up and running within one day. The supplied software is easy to install and use as well. We are considering getting another machine to keep up with our growing business.

- Mark Pozzuoli



Mark Pozzuoli MJB Carbon - New Jersey



## Step 5. Selecting Options

### Options

Because FlexiCAM serves so many markets we have a huge selection of configurations available. Not all options are available for each series of machines so carefully look at the list of machines and what these options are appropriate for it. The following is a partial list of some of our options available, but does not constitute all of them. If you have an option that you think would be highly useful to you in your work, please contact us to discuss how we can integrate it for you, because if you need this option, chances are there are another 100 customers out there that could use it as well.

### General Options

There are many options that most customers choose with their machine such as the misting system or the dust collector attachment, but there are also a lot of specialty options for different work environments or production requirements. As an example of options for specific work environments, options such as stainless steel racks, and air conditioning for the control enclosure are really only going to be a consideration to customers in a very hot, humid climate.

The following pages review the upgrades, aggregates, boring heads, saws and accessories that are available to customize your FlexiCAM to your specifications.

Floating Z Axis



CNC Rotary Axis



Saw/Double Horizontal Drill  
& ATC Spindle



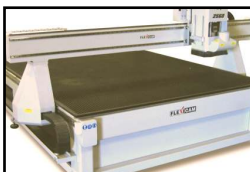
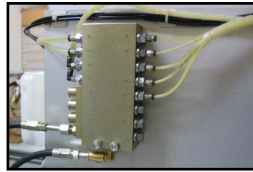




## Upgrades

These are upgrades available to your machine at time of order or at a later date.

- P/N 83-02-0800** Bar code Scanner  
Designed to simplify operation of the FlexiCAM, it integrates with most popular CAM packages and is included standard with the PRO NBM Configuration
- P/N 83-02-0000** Automatic Central Bearing Lubrification  
Recommended for solid surface, woodworking or other applications where abrasive materials are used. Grease based lubricant is used rather than an oil type, to avoid dripping
- P/N 83-02-1000** CNC Rotary Axis  
Incl. manual tailstock, 3 jaws chuck diameter 100mm/4", Servo motor & drive, controller card  
Requires the FlexiCAM ACS Control
- P/N 80-06-9000** Add 3" to Z clearance - Upgrade from 8" clearance to 11"  
Recommended for use with aggregate tooling. Clearance is measured between bottom of gantry and table top
- P/N 80-05-9000** Add 7" to Z clearance - Upgrade from 8" clearance to 15"  
Clearance is measured between bottom of gantry and table top
- P/N 83-03-0100** Additional Carriage - Stealth  
Includes additional individual Y Axis motor
- P/N 83-03-0200** Additional Carriage - XL  
Includes additional individual Y Axis motor
- P/N 83-03-0300** Additional Carriage (carriage can remain in PARK if not needed) - Cobra  
Additional Y and Z Axis motors, spacing is controlled by software. The main application is tandem cutting of parts with variable tool spacing



## *In their own words...*

Silvercrest signs began a few years ago as a small startup sign shop. Whenever we got a nice sign we would spend several weeks cutting out the sign components, using various hand held tools and a band saw to produce the complex parts. We really enjoyed creating this type of sign but found them to be very labor intensive. We went out on a limb and purchased a premium FlexiCAM CNC Router. We have now had our FlexiCAM for a couple of years and it alone has completely transformed our business. We now focus completely on high end multi dimensional signs. Now the job that used to take weeks has been reduced to just hours. Every time we turn on our FlexiCAM router we wonder how we could live without it. It has been the best business decision that we've made. Thank you FlexiCAM! Your machine has allowed us to create the signs we love with more speed, more precision, and more creativity than we could have ever imagined. We truly value the close relationship that we have built together.

- Brady Ellis



Brady Ellis Silvercrest Signs - Utah



### Upgrades

These are upgrades available to your machine at time of order or at a later date.

- P/N 83-03-1100** Extended Gantry - 2 carriages  
With the extended gantry, each carriage can cover the complete working area
- P/N 83-03-1200** Extended Gantry - 3 carriages  
With the extended gantry, each carriage can cover the complete working area
- P/N 83-03-4000** Wide carriage for 2 or 3 spindles  
Main application is the tandem cutting of parts with variable tool spacing 2 or 3 spindles are mounted to the same carriage, distance has been adjusted manually maximum distance between the outer spindles is 750mm



- P/N 83-04-0015** Network Surge Protector  
Protect your controller against power outages and power surges.
- P/N 83-99-1000** Stainless Steel Linear Bearings Upgrade  
Price and availability vary for each series and size of machine
- P/N 83-99-2000** Stainless Steel Linear Bearings Carts Upgrade  
Price and availability vary for each series and size of machine
- P/N 83-99-3000** Stainless Steel Rack & Pinion Upgrade  
Price and availability vary for each series and size of machine

### *In their own words...*

Radiorobot was formed to be an innovative design/build prototyping company. We cut our teeth working in the industry and have experience with many production tools and methods. Our jobs have ranged from prototypes for inventors, precise mechanical apparatus for kinetic sculptors, to challenging 3-d models for mold makers. Our decision to add a CNC router was based on our need not only for a CNC machining center, but one that could handle a range of creative situations. We knew that we needed a machine that was solid, flexible and above all a serious production tool. FlexiCAM met that need, and did so with the dedicated support of a kind knowledgeable staff that has stood behind their product when we needed them to be there.

- Nathaniel Taylor

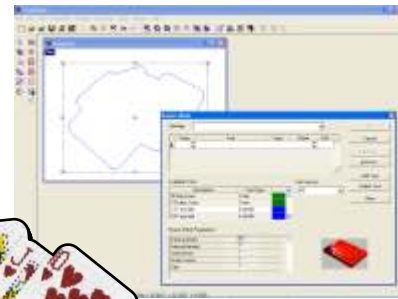


Nathaniel Taylor Radiorobot - California





# OCS OPTICAL CUTTING SYSTEM



Works Great with:

- Brass
- Aluminum
- Plywood
- MDF
- Melamine
- Acrylic
- Polycarbonate
- Sintra ®
- Sign Foam
- Gator Foam ®
- Corrugated Plastic



FlexiCAM introduced the Optical Cutting System (OCS) in response to the growing market of flat bed printers and the demand for an efficient solution to trimming printed parts laminated to thicker materials. Because not all printers print to the exact same size, and because graphics are not always printed or mounted square to the board, a solution was required for addressing these problems, thus the creation of OCS. This OCS is highly cost effective for short run jobs, and for jobs when die cutting just isn't going to work on substrates such as aluminum or thicker wood. The system uses its optical sensors for calibration of how the graphics are positioned on the board, and handles all corrections for printing and mounting problems, creating a great replacement for short run die cutting jobs. By eliminating outsourcing of parts to be trimmed, you are able to become more competitive with pricing on jobs, able to reduce turn around times, and add capabilities for other types of cutting to your business.

## Ease of use:

Only one basic control system is required for the operator to learn. The basic hand held controls make getting a new operator up to speed a painless task, requiring hours rather than days to complete. Training videos for use of the software are included, so by the time that our trainers arrive to do the setup and installation, you will have a good understanding of the fundamental skills and our trainers can pickup from where the video's left off, getting you into production right away.

## Router Unique Features & Benefits:

FlexiCAM machines are designed for high throughput machining, so you are not limited to small bits, or cutting thicker material in multiple passes to get all the way through. With manual tool change spindles starting at 7.5hp and Auto tool changing spindles starting at 5hp, there is certainly enough power to cut Plywood in a single pass as well as being able to cut out letters from Non-Ferrous metals, such as aluminum and brass. The FlexiCAM OCS allows for the use of standard router bits from any local suppliers to you, keeping your operating costs of the machine low.

## Software:

Included with the FlexiCAM OCS, is FlexiRoute. FlexiRoute is our easy to use and easy to program for converting your vector graphics from Adobe Illustrator ® or CorelDraw ® and converting them into cutting path information for the knife or router to follow. The software walks you through the process of selecting the fiducial, followed by creating the compensation and offset automatically for correction of graphics. With FlexiRoute there is only one piece of software to learn and this handles all requirements for the system. FlexiRoute enables you to do everything from trimming graphics, to creating complex 3D parts.

## Why OCS?

Because FlexiCAM does it's own development on its software for controls, costs can be significantly minimized on the integration of algorithms for compensation of the stretch and skewing of parts, as well as handling of data from the fiber optic sensors. By doing this we are able to offer more machine for less cost than our competitors. How this benefits you:

- Perfect registration every time
- Bar coding available for fast setup
- Reduction in setup time
- Reduction in waste material

## Oscillating Knife Option:

The oscillating knife option is a natural additional for OCS customers requiring cutting of softer materials such as poster board or foams, or any other applications where a router bit will rip rather than cut. The oscillating knife is also effective in cases where you can't afford to have the width of a router bit between objects, as parts are nested to closely together for a router bit to fit between them

The oscillating knife can be thought of as being a high speed jigsaw with a scalpel blade on it. The control system insures that the blade is facing the correct direction and steers the knife through the material so that it always stays on course. The knife system can work in conjunction with the router so you actually have a knife and a router working on the same job cutting out parts in 2 separate manners. The OCS takes care of the compensation of swapping between the router and the knife, taking into account the fiducial marks found



## Scanning & Digitizing options

With FlexiCAM being the recognized industry leader in 3D CNC routing, we strive to supply turnkey solutions for customers which not only includes 3D machines, and 3D software but also with equipment for rapid reverse engineering of existing parts. Depending on the size of the part, and how many sides of a part need to be digitized and the resolution of the part, we can supply you with an option for most everything. The Size of the part for digitizing is virtually unlimited with resolutions of up to .0001", and parts as big as a car being able to be digitized with some of our solutions. Our newest feature that we have added is the ability to be able to digitize objects on our rotary axis so that you can scan from all sides, this feature is also available for our portable scanning solutions. It is best to talk to FlexiCAM or one of Customer Service Centers regarding what option would work best for your specific application.

**P/N 83-04-0110** 2D Digitizing  
Included on each of our standard control systems is the ability to be able to digitize parts. A part is taken and placed on the bed of the machine. The operator next takes the machine and jogs around the parts using a laser to indicate where the machine is positioned in relation to the part. As the points and arcs from where the laser is positioned, are stored into the controller a .dxf file is built in the controller. Once the user has completed entering the points, the file is then saved back onto the design computer over Ethernet so that it can be opened and manipulated inside of a CAD package.



**P/N 83-04-0120** Touch Sensor Digitizing  
Using a touch probe, parts on the table are digitized in 2D or 3D creating a point cloud of data. This point cloud can then be imported into most popular CAD packages for verification, modification, or inspection. Different tips for the probe can be acquired depending on the resolution required of the scanned part. This a good option for doing comparison and verification, of existing parts, and duplicate parts that have been cut on the machine



**P/N 83-04-0130** Surface Probing  
For Applications when the material surface is not perfectly flat and cutting to a fixed depth is required, as well as the squareness of the material is an issue, this options is a most valuable feature of the machine. As well as creating a surface compensation table for the materials flatness, the system also probes the edges of the material, and verifies where the origin position should be for running the job from. This is very useful when you have items such as cast material, which don't always have straight edges.



**P/N 83-04-0140** Floating Head  
This system is designed for real time compensation of material surface. Feedback is given back to the controller from a ring around the tool indicating the height of the current area. The G-Code file is then compensated and modified in real time as the machine is cutting to insure that the desired depth of cut is relative to the current position on the material. This system can even working on pieces that are being moved while the machine is running as all compensation is done in real time.





### Auto2D Digitizing



P/N 83-05-9010

Basic digitizing is a standard on all of our standard Servo control machines. A part is placed on the machine bed that is to be digitized, and the operator jogs the laser alignment head above the part storing points as arcs or lines, which is then saved as a .dxf file for you to modify in your CAD package. Because many of our customers had a lot of templates to digitize, we created a system that would automate the digitizing process, which comes in the form of our Auto2D Digitizing system. With this system, you enter some basic information on the geometry, move the machine close to an edge and then press go. The system will then move around the part storing points, and saving it back to your computer to be opened in any CAD/CAM program for editing or applying toolpaths to.

### Piezo Digitizing system



P/N 83-05-9020

For customers looking for an affordable solution for scanning small parts where time is not critical look no further than this solution. With this digitizing system you can place any part, be it metal, wood or any other material, onto the bed, and the digitizer will reverse engineer the part for you. This system of digitizing is done with a Piezo Electric Sensor, where a needle type device comes down and touches the part to be digitized. If the part can not be touched, you should consider one of our laser solutions. This system comes in 2 Sizes 6"x4"x2.4" / 152.4mm x 101.6mm x 60.96mm and 12"x8"x2.4" / 304.8mm x 203.2mm x 60.96mm with resolutions up to .002" / 0.05mm.

### Machine Mounted 3D Scanner



P/N 83-05-9030

This system is designed to be operated with our Standard Servo Control or ACS and is a non-contact digitizing system. With this device you are able to reverse engineer objects into 3D point cloud data which can be brought into most standard CAD packages. This system is configurable for scanning at a large variety of depths. You can easily change lenses depending upon the part that needs to be scanned. Focal lens lengths for the scanner range from 5/8" - 10" / 16mm - 250mm

### Portable 3D scanner



P/N 83-05-9910

This system is designed for portability, ease of use, and flexibility. With this system you can scan in a person, bring the model created from the scan into the computer and then machine them back out onto your router table! There are many times when a part can't be moved from where it is to be digitized so this solution allows you to do what most can't. If you had a heritage home that required a piece of molding scanned for repairs, you could easily take this to the site, capture the part, and bring that part into your computer to fix the damaged piece. The scanner doesn't require a computer to be hooked up to it for operation, as it has its own LCD screen on it for previewing shots. Another interesting feature with this scanner is the ability to view the 3D model that you have captured with the materials picture overlaid on it, as the scanner also works as a digital camera. So instead of just seeing a wire frame image you get to see a model with its real surface texture on it. One feature that really sets this option apart from other digitizing systems is its ability to take a full scan of up to 4'x4' / 1.2mx1.2m in 0.6 seconds. An optional rotary stage is also available with this scanner.

## *In their own words...*

From the maintenance end of our operation, the Stealth is the best performance router we have. The downtime we have is zero for machine problems. We have had only one instance in the past year where I had to order a part for the router and the part was delivered Next Day Air. Service after the sale is outstanding. We at M7Aerospace run various parts to which the Stealth is unsurpassed by its performance. Kevin Zick has been operating this FlexiCAM Router for ten months. With no previous machine operating skills, he was able to learn how to operate this router very quickly and easily. This router takes very little time to set up for each work order and that is nice. The program is already downloaded to the machine from the programmers. The router having twelve tool holders is a plus for jobs requiring six or more tools to complete the work order. All job orders that he works are done in "automatic" mode and he very seldom has to use any manual settings within a program.

- Jerry Shelley



Jerry Shelley M7 Aerospace - Texas



### Aggregates

Aggregates are available for most automatic toolchange spindles over 7hp and are available in both ISO and HSK format. Aggregates add extra functionality to the spindle giving you more than just the ability to just mill in a plunging approach, options such as side boring, floating trimmers, Saw blades and programmable rotary milling give you much added functionality to production environments.

When looking to choose aggregates there are 3 different duty cycle versions available. The first is for basic drilling and machining operations with these aggregates operating at a 30% duty cycle, the second version is for application with up to a 60% duty cycle, and the third which is an oil bath style capable of 100% duty cycles, for very demanding applications under heavy load. All colleted options are available with an ER25 Collet system.

- P/N: 81-09-2050 Motorized Flange for Spindles ISO-30 4kw/8kw  
- programmable C axis  
- requires FlexiCAM Advanced Control System (ACS)
- P/N: 81-09-2060 Motorized Flange for Spindles ISO-30 13.5kw
- P/N: 81-09-2070 Motorized Flange for Spindles HSK-63F
- P/N: 81-09-2000 Flange (90 deg pitch) for Spindles ISO-30 4kw/8kw  
-required for use of the ISO-30 aggregates with the HSD spindle
- P/N: 81-09-2010 Flange (90 deg pitch) for Spindles ISO-30 13.5kw
- P/N: 81-09-2020 Flange (90 deg pitch) for Spindles HSK-63F



- P/N: 81-09-2200 Single sided right angle head - Mono ISO-30  
P/N: 81-09-2205 Single sided right angle head - Mono HSK-63F  
Maximum RPM 12,000  
Maximum torque 12 Nm (4000 rpm)  
Gear ratio 1 : 1.5  
Weight approx. 6 lbs  
Tool outlet - ER 25 collet system  
- ER 25 collet system  
- Sawblade (4 bolt)



- P/N: 81-09-2210 Double sided right angle head Duo ISO-30  
P/N: 81-09-2215 Double sided right angle head Duo HSK-63F  
Maximum RPM 12,000  
Maximum torque 12 Nm (4000 rpm)  
Gear ratio 1 : 1.37  
Weight approx. 6 lbs  
Tool outlet Combination of:  
- ER 25 collet system  
- ER 25 collet system  
- Sawblade (4 bolt)



- P/N: 81-09-3120 Four sided right angle head Quattro ISO-30  
P/N: 81-09-3125 Four sided right angle head Quattro HSK-63F  
Maximum RPM 12,000  
Maximum torque 12 Nm (4000 rpm)  
Gear ratio 1 : 1.37  
Weight approx. 6 lbs  
Tool outlet - ER 25 collet system



- P/N: 81-09-2220 Adjustable angle head Flex ISO-30  
P/N: 81-09-2225 Adjustable angle head Flex HSK-63F  
Maximum RPM 12,000  
Maximum torque 12 Nm (4000 rpm)  
Gear ratio 1 : 1  
Weight approx. 12 lbs  
Tool outlet -Optional  
- Sawblade (4 bolt) with Sidelock 10 mm  
- Kombi ER 25 with sawblade



## Aggregates

P/N: 81-09-3200 Single sided right angle head - Mono ISO-30  
P/N: 81-09-3205 Single sided right angle head - Mono HSK-63F  
Maximum RPM 15,000  
Maximum torque 18 Nm (4000 rpm)  
Gear ratio 1 : 1.5  
Weight approx. 8 lbs  
Tool outlet - ER 25 collet system  
- ER 32 collet system  
- Sawblade (4 bolt)



P/N: 81-09-3220 Double sided right angle head Duo ISO-30  
P/N: 81-09-3225 Double sided right angle head Duo HSK-63F  
Maximum RPM 15,000  
Maximum torque 18 Nm (4000 rpm)  
Gear ratio 1 : 1.5  
Weight approx. 8.5 lbs  
Tool outlet Combination of:  
- ER 25 collet system  
- ER 32 collet system  
- Sawblade (4 bolt)



P/N: 81-09-3020 Four sided right angle head Quattro ISO-30  
P/N: 81-09-3025 Four sided right angle head Quattro HSK-63F  
Maximum RPM 15,000  
Maximum torque 18 Nm (4000 rpm)  
Gear ratio 1 : 1.5  
Weight approx. 9.5 lbs  
Tool outlet - ER 16 collet system  
- Sidelock 10 mm



P/N: 81-09-3240 Adjustable angle head Flex ISO-30  
P/N: 81-09-3245 Adjustable angle head Flex HSK-63F  
Maximum RPM 15,000  
Maximum torque 18 Nm (4000 rpm)  
Gear ratio 1 : 1  
Weight approx. 13 lbs  
Tool outlet - ER 25 collet system  
- Sawblade (4 bolt) with Sidelock 10 mm  
- Kombi ER 25 with sawblade



P/N: 81-09-3140 Lock recess trimming head Forte ISO-30  
P/N: 81-09-3145 Lock recess trimming head Forte HSK-63F  
Maximum RPM 15,000  
Maximum torque 17 Nm (4000 rpm)  
Gear ratio 1 : 1  
Weight approx. 15 lbs  
Tool outlet - ER 16 collet system  
- ER 25 collet system  
- ER 32 collet system  
- Sawblade with Sidelock 10 mm  
- Special sawblade (corner notching)



P/N: 81-09-3150 Undersurface trimming unit ISO-30  
P/N: 81-09-3155 Undersurface trimming unit HSK-63F  
Maximum RPM 12,000  
Maximum torque 15 Nm (4000 rpm)  
Gear ratio 1 : 1  
Weight approx. 17 lbs  
Tool outlet - ER 25 collet system  
- Weldon 12 mm



P/N: 81-09-2400 Pneumatic Feed Drill - available in several sizes and speeds

P/N: 81-09-2500 Electric/Pneumatic Feed Drill - available in several sizes and speeds





## Aggregates

P/N: 81-09-2260 Vertical trimming unit w/ tracing pad - Floating ISO-30  
 P/N: 81-09-2265 Vertical trimming unit w/ tracing pad - Floating HSK-63F  
 Maximum RPM 18,000  
 Maximum torque 15 Nm (4000 rpm)  
 Gear ratio 1 : 1  
 Weight approx. 12 - 18 lbs  
 Tool outlet - Ortlieb 25 collet system



P/N: 81-09-2280 Vertical drill unit multi-spindle ( 3,5 and 7 spindle) ISO-30  
 P/N: 81-09-2285 Vertical drill unit multi-spindle ( 3,5 and 7 spindle) HSK-63F  
 Pitch 25 mm, 30 mm or 32 mm  
 Maximum RPM 10,000  
 Maximum torque 5 Nm  
 Gear Ratio 1 : 1  
 Weight 10 to 16 lbs.  
 Tool outlet - Sidelock 10 mm



P/N: 81-09-2300 Single sided right angle head Mono ISO-30  
 P/N: 81-09-2305 Single sided right angle head Mono HSK-63F  
 OIL BATH LUBRICATION 100% Duty Cycle  
 Maximum torque 20 Nm (4000 rpm)  
 Gear ratio 1 : 1.5 or 1 : 0.686 (saw)  
 Weight approx. 8.5 lbs  
 Tool outlet - ER 25 collet system  
 - ER 32 collet system  
 - Sawblade (4 bolt or SD type)  
 - Sawblade arbor  
 Available in 3 (three) body lengths: Short, Medium and Long



P/N: 81-09-2310 Double sided right angle head Duo ISO-30  
 P/N: 81-09-2315 Double sided right angle head Duo HSK-63F  
 OIL BATH LUBRICATION 100% Duty Cycle  
 Maximum torque 20 Nm (4000 rpm)  
 Gear ratio 1 : 1.5 or 1 : 0.686 (saw)  
 Weight approx. 8.5 lbs  
 Tool outlet - ER 25 collet system  
 - ER 32 collet system  
 - Sawblade (4 bolt or SD system)  
 - Sawblade arbor  
 Available in 3 (three) body lengths: Short, Medium and Long



P/N: 81-09-2320 Adjustable angle head Flex ISO-30  
 P/N: 81-09-2325 Adjustable angle head Flex HSK-63F  
 OIL BATH LUBRICATION 100% Duty Cycle  
 Maximum RPM 15,000  
 Maximum torque 18 Nm (4000 rpm)  
 Gear ratio 1 : 1  
 Weight approx. 13 lbs  
 Tool outlet - ER 25 collet system  
 - - Sawblade (4 bolt) with Sidelock 10 mm  
 - - Kombi ER 25 with sawblade



## *In their own words...*

As we are always anxious to improve our product and our service, we are learning on every production the advantages of operating with a CNC Router. Thank you! FlexiCAM Team members, for always being there for us, when we need answers -guidance for learning curves, you have never disappointed us once. AlumaFloor Inc. Developed / Manufactured / Installed the world's largest aluminum flooring installation for Illinois Institute of Technology, Chicago, Illinois USA "

- Frank Pozdol



Frank Pozdol AlumaFloor Inc. - Illinois





## Specialty Cutting Groups

Boring Groups are for applications where you have a high duty cycle on the boring attachment. The most common Boring Group is the 9 position vertical boring block that is used in nested based manufacturing. It is configured for 32mm hole spacing. All Options are available on the Stealth and XL.

**P/N 81-04-0200** Horizontal Double Drill with Saw  
3hp (2.2Kw)  
saw dia. 150mm, rotation speed 4,850rpm  
pneumatic 90 degree rotation  
requires Advanced Control system (ACS)



**P/N 81-04-0210** Horizontal Double Router with Saw  
3hp (2.2Kw) max tool dia. 3/4" ER32 (20mm),  
saw dia. 120-180mm, rotation speed 8,400rpm  
pneumatic 90 degree rotation, incl. suction hood  
requires ACS



**P/N: 81-04-0100** Boring Head - 9 Vertical Spindles  
2hp(1.5Kw), rotation speed 3,200 rpm stroke 70mm  
Has 5 drills in X axis, and 5 in the Y axis, comes standard  
with all NBM systems



**P/N: 81-04-0110** Boring Head, 7 Vertical Spindles, 4 Horizontal Spindles  
3hp(2.2Kw), rotation speed 3,200 rpm, spindle stroke 70mm  
Horizontal spindles are designed to perform edge boring with pods



**P/N 81-04-0120** Boring Head, 10 Vertical Spindles, 6 Horizontal Spindles, Saw  
2.3hp(1.6Kw), rotation speed 4,000 rpm, spindle stroke 60mm  
Circular saw max. Diameter 120mm rotation speed 5,000rpm



**P/N 81-04-0250** Stud Welder  
several sizes and material feeders available

**P/N 81-04-0300** Blind Rivet Aggregate - Heavy  
auto feed, for use with blind rivets up to 32mm length

## In their own words...

We finally broke down and bought our first CNC router. It is a FlexiCAM 2040 Stealth. After the initial excitement of watching this machine effortlessly make complicated cuts and routs with no apparent guidance, I can finally pass judgment on its performance. Since purchasing the machine, we have done a large amount of work that is very well suited to this technology and, therefore, much more profitable than doing it by hand.

- Jon Lancto

*Jon Lancto is president of Solid Surface Products in Cornelius, N.C., and has extensive experience in solid surface fabrication. He is a founding member of ISSFA, and served for four years as the fabricator association's first president.*



Solid Surface Products North Carolina



### Accessories

Add accessories to your cutting solution

#### Phase Converters



P/N 83-05-0810

As many commercial and residential area's only can supply single phase power to customers, FlexiCAM offers the option of Phase Converters. What this does is convert your single phase power into 3 phase power so that you are able to operate larger spindles and vacuum pumps without a problem. Most option that are 7Hp or less can be configured to run single phase, but larger HP system do require 3 phase either 220v, 380v or 480v. It is best to discuss with an electrician first the power that you have available in the building that you are looking to put your FlexiCAM into so that you can be sure that you have enough power to run the equipment correctly. Our Customer Service Centers can help you organize an evaluation of your facility.

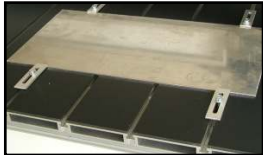
#### Dust Collectors



P/N 81-05-0300

Different dust collector attachments perform better in certain situations, depending on if you are doing 2D or 3D type work. Our standard dust collector attachment comes in a manual and automatic configuration with a 4"/100mm connection on it to ensure that you are getting good airflow and chip extraction from the bit. The automatic model is designed larger to accommodate the nose of the spindle, as well as operating on pneumatic cylinders for moving it out of the way during tool changes. Contact a member of the sales team to see which would work best for you.

#### Clamps



P/N 83-05-0010

8 Aluminum clamps ( 4 short, 4 long) 8 t-slot keys, bolts, washers

#### Free Standing Jib Crane Lift



This system is designed for handling large sheets of material, reducing the amount of labor required for operating your FlexiCAM system. By using one of these your operator can load, run, and unload the machine by himself, reducing your labor costs rapidly. Crane length can be selected according to your shop layout, allowing you to load up to 4 routers from 1 Crane.

P/N 81-05-0700: Crane and Lift with maximum lifting weight 185lbs/84KG

P/N 81-05-0800: Crane and Lift with maximum lifting weight 250lbs / 113KG

P/N 81-05-0900: Crane and Lift with maximum lifting weight 500lbs / 227KG

#### Light Barrier



P/N 83-05-0100

P/N 83-05-0100 Light Barrier  
- sender and receiver (2 of each)  
- vertical mounting height 200 / 700 mm  
- incl. mode select switch and CE approved safety circuit

P/N 83-05-0110 Standalone Mount for Light Barrier

P/N 83-05-0120 Wallmount for Light Barrier

## *In their own words...*

Complex wooden pieces that made me tired just thinking about how to make them, are now everyday projects with my FlexiCAM.

As far as the tool is concerned there is no difference between cutting a straight line or a compound curve and that opens up a lot of possibilities.

-David Morris



David Morris Morris Mfg. - Colorado



## Misc. Options

Customize your FlexiCAM system with the following accessory options to expand your application abilities.

### Part Number

- P/N 80-07-9000** Pneumatic Part Locator Pins (3 Pcs)  
Used for quick setup and positioning of sheet stock
- P/N 81-03-0330** Cold Air Gun  
Eliminate mist coolants & accelerate dry machining speeds of metals, plastics, wood & ceramics upto 36%.
- P/N 83-99-4000** Air Condition for Electrical Enclosure  
Recommended for very hot or dusty environment
- P/N 83-99-6000** Bellows  
Price and availability vary for each series of machine and the number of covered axis
- P/N 81-09-1000** Control Box up to 12hp(9Kw)  
includes contactor, circuit breaker, foot switch  
Used to turn the vacuum pump on using a foot pedal located close to the home position
- P/N 83-01-0010** Misting/ Lubricating system, Dual hose, manual on/off  
High pressure air is required  
Single hose also available **P/N 83-01-0000**
- P/N 83-04-0000** Vinyl Knife Attachment  
Main application is cutting coated (paint mask or sand blast rubber) plates for airbrush or sandblasting Cutting or plotting head holds standard plotter pens and swivel knife. Comes furnished with swivel knife assembly which takes Roland compatible blades Tension adjustment is by screw on the top of the assembly. Knife holder has adjustable blade protrusion



## *In their own words...*

When I was looking for a machine and software I knew I wanted a system that would cut the 2D aluminum parts up to 2 1/2" thick but also cut the 3D shapes in wood and plastic for out hatches, molding, cabinets and solid surface counter tops for our boats. What I did not think of was a list of priorities I needed for my purchase:

- 1.) Will it do what I need it to right now.
- 2.) Will it do what I want in the future. I wanted a machine and software that would not limit me as I went from 2D design and cutting into 3D design and cutting.
- 3.) How much training do I need.
- 4.) Cost
- 5.) Do I like the people I am getting support from
- 6.) Is it top ranked
- 7.) Do I trust the dealer.
- 8.) Cost of the updates
- 9.) Are there regular service updates
- 10.) How hard will it be to train a people to use the software or machine.

In retrospect, we can definitely say that we made the right decision.

- John Taylor



John Taylor

Solid Cutting - Vancouver

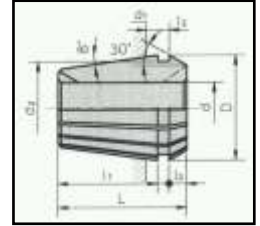


## Sets

Customize your FlexiCAM system with the following accessory options to expand your application abilities. It is recommended that you order these options with your initial order, but you can order most of these options at a later date after you have received your FlexiCAM system.

### Part Number

	ER16 Collet Set
P/N 81-09-1000	- 2-3mm, 3-4mm, 4-5mm, 5-6mm, 7-8mm
P/N 81-09-1010	- 3/32", 1/8", 3/16", 7/32", 5/16", 7/16"
	ER20 Collet Set
P/N 81-09-1020	- 2-3mm, 3-4mm, 4-5mm, 5-6mm, 7-8mm, 11-12mm
P/N 81-09-1030	- 3/32", 1/8", 3/16", 7/32", 5/16", 7/16"
	ER25 Collet Set
P/N 81-09-1040	- 2-3mm, 3-4mm, 4-5mm, 5-6mm, 7-8mm, 11-12mm, 15-16mm
P/N 81-09-1050	- 3/32", 1/8", 3/16", 7/32", 5/16", 7/16", 5/8"
	ER32 Collet Set
P/N 81-09-1060	- 2-3mm, 3-4mm, 4-5mm, 5-6mm, 7-8mm, 11-12mm, 15-16mm
P/N 81-09-1070	- 3/32", 1/8", 3/16", 7/32", 5/16", 7/16", 5/8"
	ER40 Collet Set
P/N 81-09-1080	- 2-3mm, 3-4mm, 4-5mm, 5-6mm, 7-8mm, 11-12mm, 15-16mm
P/N 81-09-1090	- 3/32", 1/8", 3/16", 7/32", 5/16", 7/16", 5/8"



Collet Reference chart

TYPE	SIZE RANGE	D	d1	d2	L	I1	I2	I3
ER16	0.5-10	17.0	16	13.8	27.5	20.8	6.26	4.0
ER20	1.0-13.0	21.0	20	17.4	31.5	23.9	6.36	4.8
ER25	1.0-16.0	26.0	25	22.0	34	25.9	6.66	5.0
ER32	2.0-20.0	33.0	32	29.2	40	30.9	7.16	5.5
ER40	3.0-26.0	41.0	40	36.2	46	34.9	7.66	7.0
ER50	5.0-34.0	52.0	50	46.0	60	46.0	13.40	8.5

## ATC Spindle Accessories



## Toolholders



P/N 83-05-0010

Extra tool holders are available for all spindles that we carry. We carry almost every size of ISO cone as well as the HSK 63F and HSK 25-E line of holders. If you purchase a machine with ISO30 tapers, remember that you can purchase tool holders that will accept up to an ER40 collet, as well as the standard ones that ship with the spindle, which are capable of holding up to a ER32 Collet.

## Tool Forks



P/N 83-05-0010

If you are looking to work with aggregate tooling we have re-enforce tool forks with spring steel inserts inside of them to make every tool change the same as the first. Tool forks are available for most industry standard specifications.

## Wrenches



P/N 83-05-0010

It doesn't matter if you have a manual tool change spindle or an automatic tool changer, we stock replacement parts so that your machines stay running. FlexiCAM stocks a large range of wrenches for all type of spindle as well as hook wrenches for manual tool change systems. If you have a spindle that you don't see in the catalogue, or have purchased your machine from another company, don't worry we probably still have wrenches available that will work for you.



## ER20 Collets

Part Number	Standard Collet	Part Number	Metric Collet
P/N 81-09-9001	1/8"	P/N 81-09-9011	3-4mm
P/N 81-09-9002	3/16"	P/N 81-09-9012	5-6mm
P/N 81-09-9003	1/4"	P/N 81-09-9013	7-8mm
P/N 81-09-9004	5/16"	P/N 81-09-9014	9-10mm
P/N 81-09-9005	3/8"	P/N 81-09-9015	11-12mm
P/N 81-09-9006	1/2"	P/N 81-09-9016	13-14mm
P/N 81-09-9007	5/8"	P/N 81-09-9017	15-16mm
P/N 81-09-9008	3/4"	P/N 81-09-9018	17-18mm
P/N 81-09-9009	1"	P/N 81-09-9019	19-20mm

## ER25 Collets

Part Number	Standard Collet	Part Number	Metric Collet
P/N 81-09-9021	1/8"	P/N 81-09-9031	3-4mm
P/N 81-09-9022	3/16"	P/N 81-09-9032	5-6mm
P/N 81-09-9023	1/4"	P/N 81-09-9033	7-8mm
P/N 81-09-9024	5/16"	P/N 81-09-9034	9-10mm
P/N 81-09-9025	3/8"	P/N 81-09-9035	11-12mm
P/N 81-09-9026	1/2"	P/N 81-09-9036	13-14mm
P/N 81-09-9027	5/8"	P/N 81-09-9037	15-16mm
P/N 81-09-9028	3/4"	P/N 81-09-9038	17-18mm
P/N 81-09-9029	1"	P/N 81-09-9039	19-20mm

## ER32 Collets

Part Number	Standard Collet	Part Number	Metric Collet
P/N 81-09-9041	1/8"	P/N 81-09-9051	3-4mm
P/N 81-09-9042	3/16"	P/N 81-09-9052	
P/N 81-09-9043	1/4"	P/N 81-09-9053	7-8mm
P/N 81-09-9044	5/16"	P/N 81-09-9054	9-10mm
P/N 81-09-9045	3/8"	P/N 81-09-9055	11-12mm
P/N 81-09-9046	1/2"	P/N 81-09-9056	13-14mm
P/N 81-09-9047	5/8"	P/N 81-09-9057	15-16mm
P/N 81-09-9048	3/4"	P/N 81-09-9058	17-18mm
P/N 81-09-9049	1"	P/N 81-09-9059	19-20mm

## ER40 Collets

Part Number	Standard Collet	Part Number	Metric Collet
P/N 81-09-9061	1/8"	P/N 81-09-9071	3-4mm
P/N 81-09-9062	3/16"	P/N 81-09-9072	5-6mm
P/N 81-09-9063	1/4"	P/N 81-09-9073	7-8mm
P/N 81-09-9064	5/16"	P/N 81-09-9074	9-10mm
P/N 81-09-9065	3/8"	P/N 81-09-9075	11-12mm
P/N 81-09-9066	1/2"	P/N 81-09-9076	13-14mm
P/N 81-09-9067	5/8"	P/N 81-09-9077	15-16mm
P/N 81-09-9068	3/4"	P/N 81-09-9078	17-18mm
P/N 81-09-9069	1"	P/N 81-09-9079	19-20mm

## *In their own words...*

If you are about to purchase a router you may wish to read this very carefully. Buying a FlexiCAM router is your first positive step to be in business unlike my first machine which I paid a lot of money for, to not go into business. The lowest price unfortunately got me involved with the lowest people.

The first router was using stepper motors and was aluminum. Good vibrations should be left to the Beach Boys not an industrial router. It was too light, the motor too small and the service was not there, even from the managing director.

The FlexiCAM experience was very different. The machine is only what you would expect from the Germans... Solid, reliable and well designed for easy maintenance. The machine is quiet, smooth on curves and is simple to operate so that training can easily be done in half a day even if you had no experience.

People make the difference and this is certainly the case with this company. At no time have I ever had to wait for more than a few hours for advice if I had a question about a job. With the machine hooked to the internet it can be accessed from any place in the world and "tweaked" for your own ways of machining.

The table is solid and the router with the toolchanger is a dream to operate. Cabinet doors cut out of MDF are a breeze to cut and the machine handles them with ease. I have never regretted choosing this router, my only regret was not buying it first.

- Brian Millar



Brian Millar Cabris Design Inc. - Alberta





## CAD/CAM Software

Images Courtesy of Gallery Interior Decor

As we are the manufacturers of CNC Products we understand the amount of effort that is involved in developing a product to an industry leading level, and keeping it at that level. Because of this we have the philosophy of letting people do what they are best at, let hardware manufacturers build the hardware and the software developers design the CAD/CAM software. By focusing on what we do best, we can give you an unbiased view into what software would work best for your solution. As we work closely with many software manufacturers you can be assured that you are receiving the most up to date information about what is available on the market.

CAD/CAM software is not included in the price. Most users already have their own software that can be used with the machine (esp. signmakers, engravers). Special drivers that support the output of the cutting depth, speeds etc. are available for most signmaking and CAM software products on the market. It is recommended that you continue to work with your current software in order to get a quick start. If your current software is not sufficient you can replace it later on with a more powerful software package that truly fits your needs. It is necessary that you know your primary application in order to select the software package that's best for you. Only CAD users (e.g. AutoCAD) or users of closed signmaking systems need to use additional software as a postprocessor. In this case we recommend EnRoute from ScanVec. It allows you to transfer the data from CAD or signmaking programs and prepare it for the machine (e.g. generate tool path). However, keep in mind, design is not possible with EnRoute.

There are 2 parts to your software solution required for your router, the CAD and the CAM section. CAD stands for Computer Aided Design and the CAM for Computer Aided Manufacturing. The CAD can range from a graphics layout package such as Coreldraw to a 3D design application such as AutoCAD. Each different industry needs its own specific design functions so there isn't one universal design program that will work for everyone, take some time with one of our sales staff to discuss what options would work for you. The CAM portion is typically a toolpathing program, where the drawing from the CAD is brought into the CAM package and toolpathed. Toolpathing consists of defining how each section of the drawing is to be cut by the router, encompassing things such as tool diameter, speed of cut and depth of cut, among others.

If you currently have a piece of software in mind that you would like to run our router with and if it doesn't already ship with support for our router system, and it is able to generate G-Code, it is normally a very small amount of work required to add support for our machine, normally being completed in one or two days.

Not all software is CAD or CAM, many of them integrate both. Normally packages that have CAD in their name, are only for designing and you will need to get a second package for doing the CAM, but if you are looking for a complete solution and don't already have an investment in software, then an integrated package that doesn't require to import data from another package is almost always best, as it minimizes the amount of headaches of moving from one program to another.

Following on the next page is a list of some of the more popular packages of software that our customers are currently using with FlexiCAM routers. Please contact one of our sales team to discuss which would work best for you.





## CAD/CAM Software

### General Manufacturing

Company	Product	Website
SA International	Enroute 3	<a href="http://www.enroute3.com">http://www.enroute3.com</a>
	CASmate	<a href="http://www.saintl.biz">http://www.saintl.biz</a>
Microvellum Corp.	Microvellum	<a href="http://www.microvellum.com">http://www.microvellum.com</a>
Licom	AlphaCAM	<a href="http://www.licom.com">http://www.licom.com</a>
Surfware	SurfCAM	<a href="http://www.surfcam.com">http://www.surfcam.com</a>
CNC Software	MasterCAM	<a href="http://www.mastercam.com">http://www.mastercam.com</a>
	MasterCAM Router	<a href="http://www.mastercam.com">http://www.mastercam.com</a>
Delcam	ArtCAM Pro	<a href="http://www.artcam.com">http://www.artcam.com</a>
	ArtCAM Insignia	<a href="http://www.artcam.com">http://www.artcam.com</a>
	PowerMill	<a href="http://www.delcam.com">http://www.delcam.com</a>
Mecsoft	VisualMill	<a href="http://www.mecsoft.com">http://www.mecsoft.com</a>
Vision Numeric	Type 3	<a href="http://www.type3.com">http://www.type3.com</a>
Delft Spline Systems	Deskproto	<a href="http://www.deskproto.com">http://www.deskproto.com</a>
Euro Systems	EuroCut	<a href="http://www.eurosystems.lu">http://www.eurosystems.lu</a>
Converter Solutions	EasyCut	<a href="http://www.converter-solutions.de">http://www.converter-solutions.de</a>
GrafiTech	Cimagraphi	<a href="http://www.graphitech.net">http://www.graphitech.net</a>
BobCAD-CAM Inc.	BobCAD	<a href="http://www.bobcad.com">http://www.bobcad.com</a>
RAMS Software	RAMS 3D	<a href="http://www.rams3d.com">http://www.rams3d.com</a>
Rhino	Rhino 3D	<a href="http://www.rhino3d.com">http://www.rhino3d.com</a>

### Woodworking Specific

Company	Product	Website
Cabinet Vision Inc.	Cabinet Vision	<a href="http://www.cabinetvision.com">http://www.cabinetvision.com</a>
Cabnetware Inc	Cabnetware	<a href="http://www.cabnetware.com">http://www.cabnetware.com</a>
KCDw Software	KCDW	<a href="http://www.kcdw.com">http://www.kcdw.com</a>
Quisine Software	Quisine	<a href="http://www.quisinesoftware.com">http://www.quisinesoftware.com</a>
20 20 Technologies	20 20 Design	<a href="http://www.2020technologies.com">http://www.2020technologies.com</a>
RouterCAD Software	RouterCAD	<a href="http://www.routercad.com">http://www.routercad.com</a>

### Sign Industry

Company	Product	Website
SA International	FlexiSign	<a href="http://www.saintl.biz">http://www.saintl.biz</a>
Cadlink	ProfileLab	<a href="http://www.cadlink.com">http://www.cadlink.com</a>
	EngraveLab	<a href="http://www.cadlink.com">http://www.cadlink.com</a>
	SignLab	<a href="http://www.cadlink.com">http://www.cadlink.com</a>
AH Soft	HCAM, ISign	<a href="http://www.ahsoftgravur.de">http://www.ahsoftgravur.de</a>
Vetric	Vcarve	<a href="http://www.vetric.com">http://www.vetric.com</a>

## EnRoute 3 gives you all this...

- Fast, reliable toolpath engine that can handle the most complicated files
- True-shape Nesting to save on material and cut time
- Scanvec Amiable vectorizing technology included with EnRoute 3
- User-friendly interface makes EnRoute 3 easy to learn and use
- Toolpaths automatically resized when contours are resized



The Professional Machining & Engraving Software Solution

...and much more...



### EnRoute

EnRoute has a fast, reliable toolpath engine that can handle the most complicated files. It is able to create and edit designs right in EnRoute. No need to design in another program. Frequently used toolpaths can be saved with all parameters and easily reused. The material libraries and tool libraries can be used to ensure proper speeds, with basic suggest speeds and federates. EnRoute 3 has a user-friendly interface which makes EnRoute 3 easy to learn and use. A very nice feature of this package is that toolpaths are automatically resized when contours are resized. Nesting is included in Plus and Pro to save on material and reduce cutting times.

EnRoute Basic enables you to produce amazing 2D routing and engraving tasks. It includes routing, milling tool offset, toolpath verification and drill functions.

EnRoute Plus empowers you to create 3D engraved paths from files imported from SCV, HPGL, DXF or EPS files. It includes 2-D routing 2 and 3D Engraving, toolpath verification, drill functions and 3D toolpath technology.

EnRoute Pro is professional production software solution enabling you to import or design custom displays for the purpose of creating tool paths for 2-D routing 2 and 3D Engraving, carved and 3D surfaces.



EnRoute 3 Basic  
P/N 89-04-0200



EnRoute 3 Plus  
P/N 89-04-0210



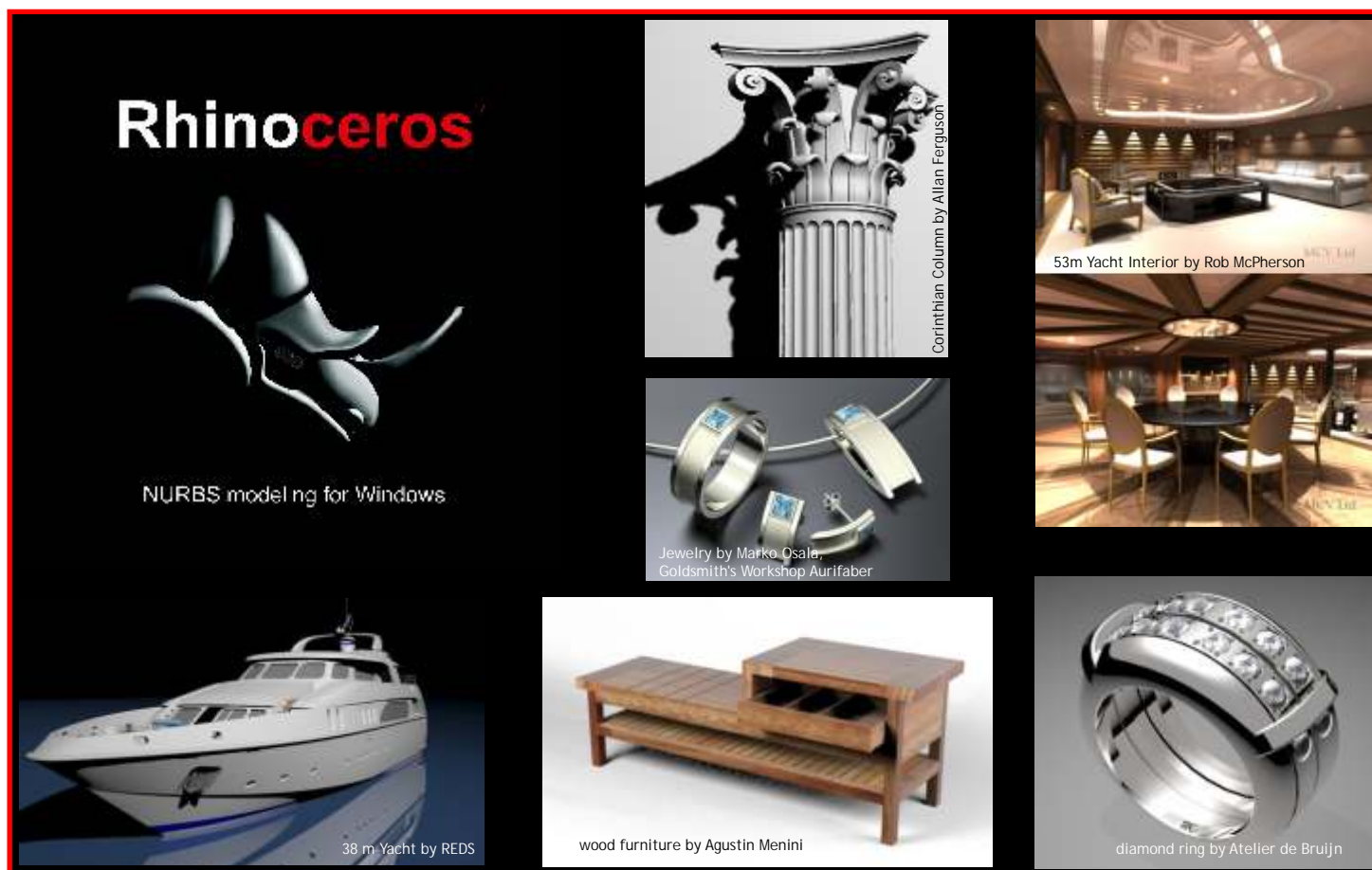
EnRoute 3 Pro  
P/N 89-04-0220



EnRoute 3 Wood  
P/N 89-04-0230



EnRoute 3 WoodPro  
P/N 89-04-0240



### RHINOCEROS 3D

Start with a sketch, drawing, physical model, or only an idea—Rhino provides the tools to accurately model your designs ready for rendering, animation, drafting, engineering, analysis, and manufacturing.

Rhino can create, edit, analyze, and translate NURBS curves, surfaces, and solids in Windows. There are no limits on complexity, degree, or size. Rhino also supports polygon meshes and point clouds.

Special features include:

Uninhibited free-form 3-D modeling tools like those found only in products costing 20 to 50 times more. Model any shape you can imagine.

Accuracy needed to design, prototype, engineer, analyze, and manufacture anything from an airplane to jewelry.

Compatibility with all your other design, drafting, CAM, engineering, analysis, rendering, animation, and illustration software.

Read and repair extremely challenging IGES files.

Accessible. So easy to learn and use that you can focus on design and visualization without being distracted by the software.

Fast, even on an ordinary laptop computer. No special hardware is needed.

Affordable. Ordinary hardware. Short learning curve. Priced like other Windows software. No maintenance fees.

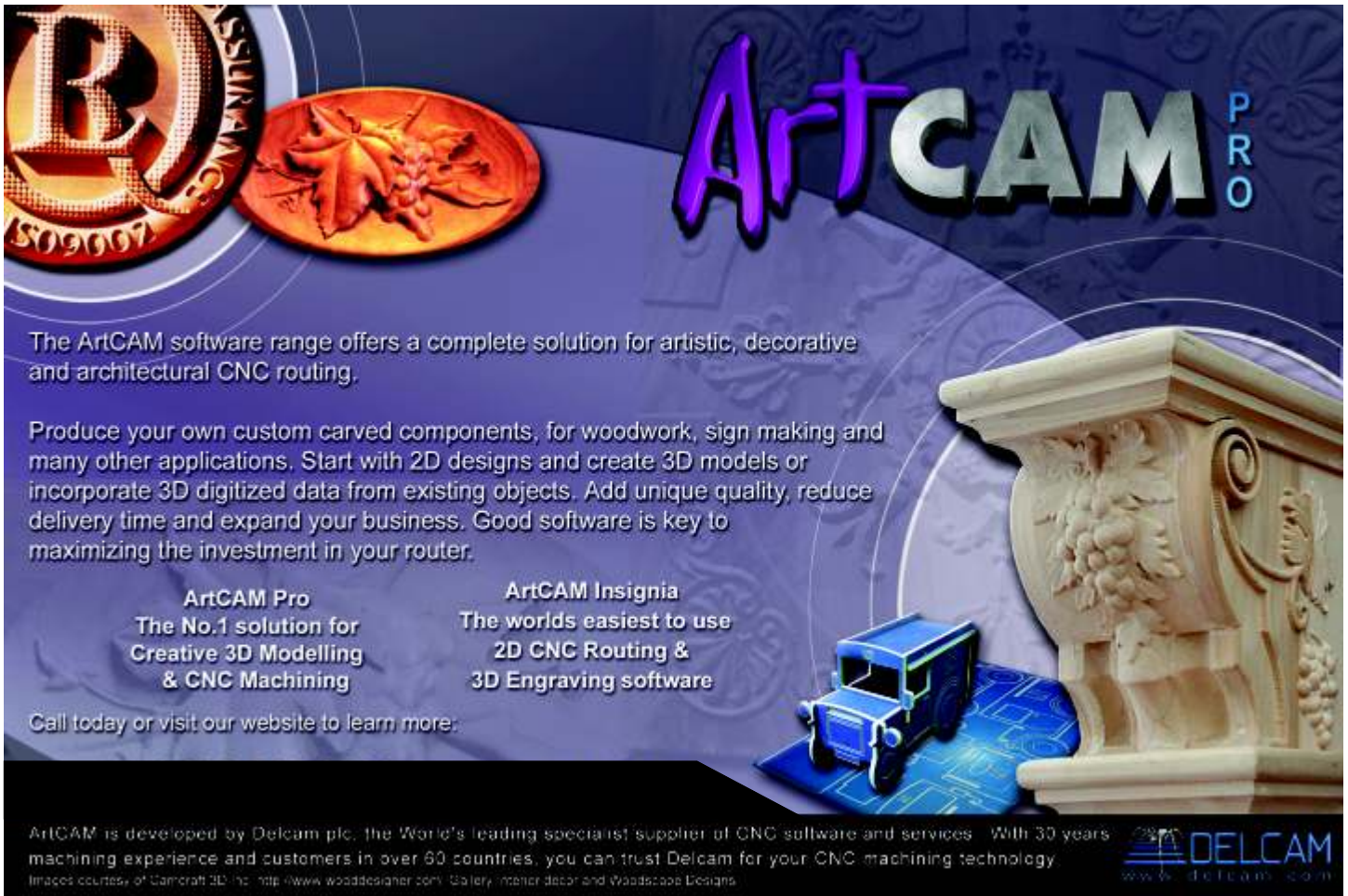


Rhino3D Commercial ver. 3.0  
P/N 89-06-0100



Rhino3D Educational ver. 3.0  
P/N 89-06-0200





**ArtCAM PRO**

The ArtCAM software range offers a complete solution for artistic, decorative and architectural CNC routing.


Produce your own custom carved components, for woodwork, sign making and many other applications. Start with 2D designs and create 3D models or incorporate 3D digitized data from existing objects. Add unique quality, reduce delivery time and expand your business. Good software is key to maximizing the investment in your router.

**ArtCAM Pro**  
The No.1 solution for  
Creative 3D Modelling  
& CNC Machining

**ArtCAM Insignia**  
The worlds easiest to use  
2D CNC Routing &  
3D Engraving software

Call today or visit our website to learn more:

ArtCAM is developed by Delcam plc, the World's leading specialist supplier of CNC software and services. With 30 years machining experience and customers in over 60 countries, you can trust Delcam for your CNC machining technology.  
Images courtesy of Camcraft 3D Inc. <http://www.wooddesigner.com> Gallery, Interior Decor and Woodscape Designs.

 **DEL CAM**  
[www.delcam.com](http://www.delcam.com)

## ArtCAM

ArtCAM Pro is used by 1000's of users, worldwide, across an enormous range of industries, successfully enhancing their product ranges and their profits

You can directly machine, or engrave your designs from 2D artwork, using ArtCAM's powerful vector based design tools and 2D machining strategies, or use ArtCAM's advanced 3D modelling and machining tools and to create and machine your 3D products.

ArtCAM Insignia is a powerful and easy to use 2.5D machining solution for professional CNC engravers and router users

2D Designs can be created using ArtCAM Insignia's comprehensive vector drawing tools or imported from other graphics packages as dwg, eps, dxf or ai, retaining all the layer information. Bitmap images and scans (bmp, tif, jpg and gif) can also be imported, vectorized and edited.

Once the design has been finished, the model can then be machined using ArtCAM Insignia's fast, accurate and easy to use machining strategies. Toolpaths can be created, saved and re-edited with ease. Insignia has a wide range of highly efficient toolpath strategies, to drive your CNC router and help minimize your production times.



ArtCAM Insignia  
P/N 89-02-0100



ArtCAM Pro  
P/N 89-02-0200



# KCDw Software

**Custom Cabinets**

**Custom Designs**

If ease of use, great technical support and custom cabinetry is important to you, then KCDw, the "Open Architecture Software" is for you...

KCDw Software  
The Real Solution.

**Custom Pricing**

**Custom Cut Lists**



**Actual KCDw Print Out**

*Cabinets Closets CNC*

Door & Drawer Front Sizes List			
	Style	Rail	Panel & Mullion
Arch Raised Panel	1)	2 1/4 x 16 1/2	1) 16 1/4 x 28 1/4
Arch Raised Panel	1)	3 1/4 x 16 1/2	2) 15 x 28 1/4
Arch Raised Panel	2)	3 1/4 x 15 1/4	2) 12 7/16 x 12 1/4
Arch Raised Panel	1)	14 x 32	2) 11 11/16 x 12 1/4
Arch Raised Panel	1)	13 3/16 x 32	1) 16 x 23 1/2
Arch Raised Panel	2)	14 x 32	2) 8 15/16 x 23 1/2
Arch Raised Panel	2)	14 x 32	2) 7 x 23 1/2
Arch Raised Panel	2)	14 x 32	2) 15 x 17 1/4
Arch Raised Panel	2)	14 x 32	2) 11 7/16 x 17 1/4
Arch Raised Panel	2)	14 x 32	2) 11 5/16 x 17 1/4




## KCDw

KCDw will export batch dxf files to be used in combination with a CAM package, for an automated system to go from KCDw to your FlexiCAM.

Template Generator Utility, defines Perimeter Cuts, System Holes, Dado's, Doweling and tool information for your cabinet parts, drawers, doors, shelves etc.

Easily setup accurate construction methods.

Setup your own template files.

Select specific rooms or units for export.

See routing, grooves, dowel holes, hinge holes and shelf holes. Or add any holes, grooves or perimeter points to the piece.

Use Dado Construction, Dowel Construction or any other method you can think of.

KCDw does metric in millimeters or centimeters.



KCDw Software  
P/N 89-04-0500



# Things you need to know, before buying a CNC router



Base Frame Machining Process



Thermal Stress Relieving

## General Info

### How much maintenance is required?

All FlexiCAM machines are designed so that the user can do the maintenance by themselves. On-site service calls by FlexiCAM technicians are generally not required. During the installation and training on the machine, the user is also trained in the maintenance as well as the troubleshooting of the machine. The use of digital AC Servo motors makes it easy to replace components. Re-tuning the system is not required in the event an amplifier or motor needs to be replaced. In contrast to brushed DC motors, it is not necessary to change the brushes on a regular basis. The AC Servo motors used by FlexiCAM are maintenance-free over their whole lifetime. All machines come with complete electronic schematics. All the components are labeled. For easy diagnostics there are several LEDs available. Usually, most electricians are able to troubleshoot and replace defective components in the control system. Most parts are industry standard and available almost everywhere. In case of a defective part, you can always call our hotline and speak to our technical support for advice and recommendations.

### How long does it take until an employee is able to work with the machine / software?

After 3 or 4 hours of training, employees will have the basic understandings of the control and maintenance of the machine. The training for a CAM program such as ProfileLab or EnRoute requires a minimum of 4 to 5 hours. A few weeks of using the software will be required to get comfortable and familiar with the program. The use of other programs depends on the employee's knowledge of computers in general as well as graphic design software. Simple signmaking programs can be trained within 1-2 days. 2 to 4 weeks of practice is recommended after the training to get used to the new equipment and software before starting production. Complex CAM packages require a few weeks of training and several months of practice.

### How much does the installation / training cost?

In contrast to many of our competitors, we (or our distributors) usually quote the machines with shipping, installation and on-site training. There should be no additional (hidden) costs for the client. The client however, is required to provide an adequate fork-lift (long forks, sufficient capacity) for unloading the machine from the truck to the place of the final installation. In addition, our client must arrange beforehand, the power connection of the systems or the vacuum. If necessary, an electrician should be consulted. The training includes how to use the machine, how to maintain, as well as a troubleshooting section. After several weeks of usage, it may be a good idea to schedule one of our technicians to make an on-site service call to show you some advanced tips or to answer questions that came up while working with the machine. Please check our price list for details and pricing on additional training and on-site support calls.

### What are the main advantages of FlexiCAM machines?

The advantages include:

- Solid system design for vibration free work
- AC Servo Motors
- High precision planetary gear boxes or preloaded ball screws on X and Y axis
- Dual X axis drive system \*
- High speeds and accelerations
- Software compatibility with all major signmaking and CAM programs
- Network connection (Ethernet, TCP/IP)
- Remote Access via Internet
- High quality components
- Modular systems with a large selection of spindles, vacuum tables and other options
- Made in Germany

\* except the Viper





## 1. Proven Designs

When FlexiCAM first set out in designing a line of routers, we focused on designing something that would be expandable over time by adding options and accessories to the basic system. As we continue to add more industry leading technology to our systems, we are able to keep the same proven drive systems, and mechanical structures, so you are not purchasing a product that is new to the market and is still going through it's growing pains. Through our extensively field tried and tested designs you can be assured that you are purchasing a product that was designed and tested in the computer, and now has many years of proving itself in the field. All major components such as Servo drive mechanisms, drive assemblies, and mechanical assemblies have many years of service behind them. Before any new line of machines is released our products are extensively tested at the factory and at beta sites around the world, before the go ahead for production is given by the management in Germany.

## 2. Handheld Keypad

When working with larger machines it isn't always convenient to have your controls fixed at the home position of the machine, especially when your machine is more than 5' long. Our keypad allows you to walk around the machine with controls in hand, for setting origin positions, park positions, material height, and having an emergency stop switch always at hand, in case of that forgotten screwdriver sitting on the table. The keypad has a backlit LCD for ease of viewing, and is designed in a simple to use format starting. The operator goes through the functions on the left hand side of the controller and once he comes to the bottom key you are ready to start running a job. The keypad can display any language you choose, in case you have an operator that might be comfortable in a language other than English. Updates such as changing the language on the controller can be done remotely from our office without a visit by a technician.

## 3. Stand Alone Controller vs. Base Mounted Controller

While some manufacturers choose to bolt their controllers onto the base of the machine, we have chosen to configure our system so that you can position the controller where you like. We have chosen to do this to help improve the reliability of the machines. By making sure that our electronics and the connections going into them are not connected to the base we ensure that none of the vibration from cutting, chips from cut materials, or coolant is in a close proximity to your controller.

## 4. Standard Ethernet Connection

All systems that ship out of our factory use Ethernet as a standard way of transferring files. The accuracy of the data getting transferred from the computer to the controller is vital as you want to make sure that a 10"x10" square comes out as a 10"x10" square as the communication media doesn't have error checking AND error correction. Ethernet is also very resistant to EMF, electrical fields that can be created by things such as welders, which can cause serious problems to serial connections. Your machine is shipped with everything for you an Ethernet cable, as well as a patch cable, and a network card for your PC in the case where you don't currently have one. Our technicians will install and configure your Ethernet connection specifically for your shop. Ethernet can also be used up to 100m in distance and can be even further with relays. If you network has more than one computer, we do not limit you to getting files from only one computer. Our system easily allows you to choose which computer to collect files from to run. Data transfer is also done at much higher speeds with Ethernet which allows a large 3D job to be transferred in seconds rather than hours over a serial communications link.

## 5. Digitally spaced Multihead systems

On our Stealth or XL series of machines you are able to have 3 individually controlled heads. You can configure the spacing between the heads by entering the spacing at the controller. Each spindle can also use its own tool changer. When you don't want to use one head, you can tell the machine to move the unwanted heads to their park position, off of the active working area of the table, allowing the one remaining head to be able to cut the entire work surface.

## 6. Proximity Restart Function

This feature allows you to jog to any part of the job that is currently running, press a restore button on the keypad and continue to run the job from that point. This is priceless if you are running a large 3D job and are close to completion when you break a bit. Although many software packages allow you to output selected parts of a job file in 2D a lot don't allow you to output a portion of the surfacing information, requiring you to rerun the entire 3D surfacing tool path without the proximity restart.

## 7. Closed Loop Controller

A closed loop Servo controller adds the benefit of having complete co-ordination between all axes as all encoder signals, are read and the position corrected for at the controller. In a step direction controlled Servo system, each axis closes its own loop between the motor and amplifier. This means that all the axes aren't always coordinated together, meaning that you can't configure the Servos to their maximum performance. On Servo controlled systems, the controller realizes if something is jamming the system and creates a following error message stopping the machine and prompting you on how you would like to proceed. When a Stepper controller is used and the system stalls because of foreign object or broken bit or material inconsistencies, there is no feedback sent to a Stepper controller to tell it that something is not working correctly.

## 8. Fast 3D motion without extra charge

Standard with our Servo systems is an advanced tool pathing system that allows you to cut your jobs smoothly and quickly. With the use of the Servo drive on all axis and the benefit of having a true closed loop Servo system you are going to be able to produce the smoothest fastest cuts possible, which means short job times and no cleanup required of the finished part

## 9. Planetary Gearboxes

All of our larger format CNC routers come with planetary gear boxes. And our Viper series is directly coupled to the ball screw for a very stiff, highly accurate system. You need your drive system to be as stiff as possible to obtain the best edge quality on cuts and to have the best accuracy while cutting.

## 10. Very High Speeds and Very High Acceleration

This is one of the most important things to look for in a production type router. The Stealth and XL series of machines have feed rates as high as 2400ipm and rapids as high as 3500ipm. Our feed rates and rapid speeds are based on moves in a single axis rather than vector speed (moving from an X/Y position to another X/Y position). High cutting speeds in 3D are based on the high accelerations, as 3D cutting usually requires lots of acceleration and decelerations, because of the rapid changes in Z height. On jobs where multiple parts are cut out traverse time can account for a significant portion of job time.

## 11. 10,000 Encoder Counts per turn

Through testing we have found a direct translation into the edge quality of cuts in relation to the amount of encoder resolution per turn. Stepper drive systems are driven in 1/10 micro step mode to create the smoothest cut possible from the step motors with 2000 micro steps per revolution. Both of these numbers (10000,2000) are before gearing, which is very important to note, as one full revolution of the pinion is then multiplied by the gearing. With this amount of resolution we are also able to run smooth motion at low speeds as the distance between each step or count is very very small.

## 12. Brushless AC Servo Motors

Brushless AC Servo Motors vs. DC brushed, vs. Micro Steppers

Most new motion controlled applications today are choosing AC brushless motors, which is an AC synchronous motor. It is more reliable (no brushes), smaller, more efficient, and has better resolution/accuracy. It is more costly, but the differential between AC and DC is worthwhile when you are looking to have high accelerations and decelerations, creating shorter overall job time. Our AC Servos use digital amplifiers for ease of programming, display of the load on the motors in realtime, and smooth motion. We use only the highest quality name brand manufactured motors and amplifiers in our systems

## 13. Dual X axis drive

Driving the gantry on both sides allows for very fast accelerations as compared to single side drive or center drive, as you have double the motor torque available. With the gantry having dual side drive, you can be assured that while the machine is running that the gantry is square to the table as it automatically calibrates each time the machine is turned on.

## 14. Large pitch rack and pinion

Large pitch of the racks and pinion means that you are going to have longer life in the racks as there is going to be less wear from the larger teeth, plus the teeth are more resistant against dirt and chips.



### 15. Short Chip to Chip time when changing tools

Our systems have a very short tool change time due to a few key features that we have added. When the machine needs to change tools we need the spindle to decelerate very quickly so that we can remove the tool as quickly as possible, we achieve this by adding a brake resistor to the system. The brake resistor allows a place for all the energy that gets generated during deceleration to be removed too. The spindle is also accelerating and decelerating while moving to the position to start cutting or to the tool changer. Our very high speeds and acceleration negates any advantage of having a turret tool changer over a bar style tool changer.

### 16. Remote administration through Network, Modem or Internet

With our Advances Remote Support program you can get the industry's best remote support possible with wireless video and 2 way voice communications done through the internet.

### 17. 36 Month warranty

All systems ship out of our factory with a warranty on all parts of the machine for one year. We are so confident in the reliability and quality of our products that on the Stealth and XL series of machines you will receive a 36 month extended warranty if you decide to purchase a maintenance contract from FlexiCAM. With this contract you are ensured of an up to date controller, as during our yearly visit to your site, we upgrade the controller so that you are running the same control system that we are shipping from the factory. All parts are stocked in our regional offices to insure that you can have any part needed the next day.

### 18. Heavy Single Piece Frame

By not using a bolt together base frame we ensure that you have the most rigid system possible. Larger machine tools go one step further by creating their bases out of cast steel but for a moving gantry system, this is a bit of overkill. The next best thing is a welded steel frame, constructed from thick tubing to dampen vibration from the machine moving and from cutting. By reducing the vibration you will increase tool life, increase edge quality and allow the machine to be run faster.

### 19. Inductive and thermally stress relieved

Our welded base structure as well as our gantry and side supports are all thermally as well as inductively stressed relieved. Thermally stress relieving the machine ensures that your machine is accurate all year round and doesn't change after machining has taken place. Inductively stress relieving the welds will ensure that all welds are done accurately. For you to ensure the most accurate system possible, you want to have a machine that has both type of stress relief done to it.

### 20. Individually mounted rails and racks

Individual mounted rails and racks for easy replacement although this cost more for double the machining operations; we feel that this is worthwhile to ensure serviceability of our machines.

### 21. Z-Axis Ballscrew with Brake on Z-Axis

When choosing our Z-Axis drive system, we sized our gearing and motors to give us the best 3D performance possible without sacrificing safety. To do this we have added an electric brake to the Z-Axis. The electric brake has no moving parts and locks the Z-Drive in place magnetically when power is disabled to the motors or system. The system was also designed with a Ball Screw rather than a Lead Screw as lead screws wear quickly. A lead screw has a plastic nut that the screw runs in which wears over time, even when a Teflon coating is applied to the screw to reduce friction. Balls screws are about 98% efficient as compared to lead screws with a typical efficiency of 70%. As we have this extra torque and speed available ball screws can run faster as well as smoother.

### 22. Linear bearings with cover strip

To ensure that no contaminants get into the mounting holes for the rails, we use a cover strip on our linear rails. Without a cover strip or with plugs in the mounting holes, dirt and debris will build up under the caps and in the mounting holes around the bolts causing corrosion and a potential for damage to your bearing blocks. The cover strip coupled with our optimized vacuum pickup ensures long lasting rail and bearing systems.

### 23. Profiled linear bearings vs. linear bushings

Our machines are all constructed using linear guide ways for the bearing blocks to run on. This creates a very stiff system and large load capacity for the bearings used. Competitors using round linear bushings, with round rails suffer from not enough rigidity as the ball bearing usually only have 3% contact to the rail, and they are not held into any particular travel way which means that there is more vibration.

### 24. Wide range of proven AC driven spindle motors

As we are a European manufacturer of CNC equipment we are located in close proximity to all major Spindle motor manufacturers. If you have a preference to the spindle that you would like to use on your machine, we can accommodate your requests. We have supplied our machines with HSD, Elte, Colombo, FM Euro Spindle, Perske, Precise, Jaeger and many other spindles as requested by the customers. We can supply fan cooled, compressed air cooled, or water cooled depending on what duty load you want to apply to the spindle. We do not ship any of our CNC equipment with hand routers adapted to mount on CNC equipment.

### 25. Quiet Vacuum Pumps

Instead of using high displacement vacuums, our vacuums of choice are the maintenance free low pressure vacuum pumps, with a claw style or rotary vane style pumping mechanism. As well as operating quietly, these pumps create a large amount of vacuum pressure perfect for holding down smaller parts. By using pumps that are dry running (no oil reservoir) we eliminate the need for service on the pumps, increasing reliability.

### 26. Proven 10 position Automatic Tool Changer

We offer 2 styles of tool changers, one is a bar style with tool holders mounted across the back of the machine, the second is a carousel. As the bar style tool changer is so simple in design, and without having moving parts, this tool changer design is dependable and adaptable. The bar style tool changer is shipped standard with 10 position and can have up to 24 positions depending upon spindle purchased. With the bar style changer, there is plenty of room for aggregate tooling, such as longer side boring units and rotary saws.

### 27. Easy to program Servo drives and spindle inverters

All spindle invertors and Servo drives are stored inside the controller, and each has it's own digital interface to it, so that changes can be made to them if need be, without any special equipment or training. The digital display on the inverter also displays the amount of torque being applied to each axis, so you can see how close to the limit your machine is running.

### 28. Closed E-chain

Chosen specifically for CNC router applications, the type of E-Chain (cable carrier) used on FlexiCAM systems is resistant to cooling liquid and material chips. It is very hard to clean all of the chips out of an open cable carrier even when blowing compressed air into the housing, and chips that stay between cables quickly create damage and wear onto the cable jacket

### 29. High quality shielded E-chain cables and connectors

We use high quality cabling that is very immune to electromagnetic noise so that your machine can operate in any industrial environment. The cables are also specifically designed to be used in E-chains so that cable jackets do not start to crack or wires start to wear.

### 30. Gigabytes of Job Storage

If you want to run a large job multiple times or store your jobs locally so that you don't need a computer connected, this is a feature that you can't afford to be without. With at least 40 Gigabytes of storage you will have enough room to store years worth of files before having to delete any. The hard drive takes away the danger of your system crashing while transferring files from your computer to the router. There is nothing worse than your PC freezing up while you are half way through cutting a job and it hasn't been completely transferred.









## Router Bits

To get the best performance out of your machine you need the best routing bits possible. As we use router bits in our production for multiple parts of the FlexiCAM line of products, we have had the opportunity to try a huge range of vendors of tooling, and now supply the product lines that we have found that work best for us, to our customers. Our staff and Customer Service Centers are always updating their knowledge with continued training on the latest technology in router bits, so that we can share this knowledge with you, so that you are more profitable with our machines.

When a customer first purchases a table we supply enough router bits to get you started, and then will work with you during the sales process or during the installation in choosing bits that are going to work best for your specific application. Ask FlexiCAM for our newest Cutting Tool Catalogue so that you can see the latest in technology in router bits as well as find some excellent pricing for tooling and accessories such as cutting fluid and sacrificial material.

We supply router bits for the following applications & industries:

Wood	Micro Tools	Die Board
Plastic	Insert Cutters	Fibreglass
Non Ferrous Metal	MDF Raised Panel Doors	Spoilboard
Solid Surface	V Cutters	Aluminum Composite Material
3D Tools	Steel	Drills
Shaping and Profiling	Engraving	General Purpose

Tooling tips for the Sign Guy

### What types of cutting tools/router bits do I need?

There are specific tools for specific applications, here is a general guide to aid you in future tool selection.

Signmaking and the processing of plastics, acrylics, wood etc. you should use single flute spiral upcutters made from solid carbide. In some cases a dual flute tool can be of used (e.g. large tool diameters in aluminum). For some applications, coatings are recommended (e.g. cutting steel). High speed steel (HSS) tools with or without coating or tools with more than two flutes are not recommended at all. They are usually used for milling steel at low spindle speeds on conventional milling machines. With materials used in signmaking and the processing of plastics it is more important to remove the chips from the cutting slot. The best solution for this is a single flute spiral upcut. Regarding the length of the tool (cutting edge length) it is recommended to use tools as short as possible. For acrylic sheets with 10 mm thickness you should not use a 30 mm cutting edge length if there are also 20 mm or shorter tools available. The tool diameter should be selected as large as possible. If it is possible to do a cutting job with a 6 mm tool, you should use it instead of a 4 mm tool. Thicker or shorter tools cause less vibration and are more solid than thinner or longer tools.

# Router Bits Guide Selection



Company: \_\_\_\_\_

Date: \_\_\_\_\_

Contact : \_\_\_\_\_ Email: \_\_\_\_\_

Please have a sales representative contact me: ☐ Yes ☐ No

Address: \_\_\_\_\_

I would like to receive additional information: ☐ Yes ☐ No

City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Please remove me from your mailing list: ☐ Yes ☐ No

Type of Material: ☐ Hard Wood ☐ Hard Plastic ☐ Aluminum  
☐ Soft Wood ☐ Soft Plastic ☐ Other \_\_\_\_\_  
☐ Natural Wood ☐ Fibreglass  
☐ Composite Wood ☐ Foam

Bit Material: ☐ Solid Carbide ☐ Carbide Tip ☐ High Speed Steel ☐ Other \_\_\_\_\_

Material Thickness \_\_\_\_\_

Cutting Edge Diameter \_\_\_\_\_

Cutting Edge Length \_\_\_\_\_

Flute Style \_\_\_\_\_

Number of Edges \_\_\_\_\_

Coating \_\_\_\_\_

Spindle Speed \_\_\_\_\_

Shank Size \_\_\_\_\_

Application \_\_\_\_\_

Comments \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please Fax completed forms to 604-608-2904

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Vancouver, BC Canada V7X 1M9

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# ROUTING TIPS

If you want to reduce tooling costs, consider insert tooling. As well as having inserts for profiling, there are also insert tooling for plunging and for V groove cutting. There is no need to ever re-sharpen an insert cutter as you normally get 2 or 4 cutting sides on an insert, and the blades are an excellent value.

To get the best edge finish, make sure that you are using as short a bit as possible for cutting out parts, and that you are not operating the tool above the speed that it is balanced to.

If you want to get the best hold down while cutting Acrylic or any other sheet plastic that has a paper backing, set your maximum depth to the top of the paper. This will cause the machine to not cut the backing paper and to stay held down when you finish cutting out a part.

Bull end mills are effective for producing a corner radius between a wall and a floor on a given part feature. They also add to the strength of an end mill. When machining hard, tough to cut materials, the sharp corners on a standard end mill tend to chip and wear faster than an end mill with a corner radius. The radius on a bull end mill provides a more gradual shearing entry in to the work piece.

Although manufacturer references for tool speed and feed are provided for your convenience, they are intended for reference as a starting place to cut. In many situations the numbers given are under ideal conditions and will not always work. Experience will be valuable to tune the cutter to the conditions of the cut. Chatter and vibration may occur, to overcome these conditions alteration of the speeds and feeds will be required.

There are many variables that effect the running time of a 3D job, bit diameter, # of passes, overlap, and machine performance. Normally when creating 3D images with a Ball Nose Cutter, it is tricky to get the best performance without sacrificing on finish. To get your best performance you should try to use as large a bit as possible, which will give you an acceptable amount of detail in your job.



### Controller

- ☒ 1. Proven Design
- ☒ 2. Handheld Keypad
- ☒ 3. Standalone Controller vs. Base mounted Controller
- ☒ 4. Standard Ethernet Connection
- ☒ 5. Digitally Spaced Multihead Systems
- ☒ 6. Proximity Restart Function
- ☒ 7. Closed Loop Controller
- ☒ 8. Fast 3D Motion without extra charge

### Drive System

- ☒ 9. Planetary Gearbox's
- ☒ 10. Very High Speeds and Very High Acceleration
- ☒ 11. 10,000 Encoder Counts per turn
- ☒ 12. Brushless AC Servo Motors
- ☒ 13. Dual X Axis Drive
- ☒ 14. Large Pitch Rack and Pinion
- ☒ 15. Short Chip to Chip Time when changing tools

### Service

- ☒ 16. Remote Administration through Network, Modem or Internet
  - ☒ 17. 36 Month warranty \*
- \* With purchase of service contract

### Construction

- ☒ 18. Heavy Single Piece Frame
- ☒ 19. Inductive and Thermally Stress Relieved
- ☒ 20. Individually Mounted Rails and Racks
- ☒ 21. Z-Axis Ballscrew with Brake on Z-Axis
- ☒ 22. Linear Bearings with Cover Strip
- ☒ 23. Profiled Linear Bearings vs. Linear Bushings

### Components

- ☒ 24. Wide range of proven AC Driven Spindle Motors
- ☒ 25. Quiet Vacuum Pumps
- ☒ 26. Proven 10 Position ATC toolchanger
- ☒ 27. Easy to Program Servo Drives and Spindle Invertors
- ☒ 28. Closed Echain
- ☒ 29. High Quality Shielded Echain-Cables and Connectors
- ☒ 30. Hard Drive (>40GByte) to store jobs locally

Competitor #1 \_\_\_\_\_

### Notes:

- ☐ 1. \_\_\_\_\_
- ☐ 2. \_\_\_\_\_
- ☐ 3. \_\_\_\_\_
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City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Please remove me from your mailing list: ☐ Yes ☐ No

Step

1

Series and Model: \_\_\_\_\_

Step

2

Tabletop: \_\_\_\_\_

Holddown: \_\_\_\_\_

Step

3

Spindle: \_\_\_\_\_

Step

4

Control System: \_\_\_\_\_

Step

5

Options: \_\_\_\_\_

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# Schnell. Sehr Schnell

(Fast. Very Fast)



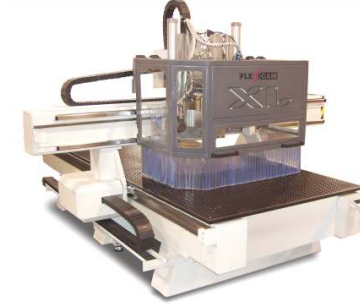
**S2**



**Stealth**



**PRO**  
NBM



**XL**  
SERIES



**Viper**



**COBRA**

**FLEXICAM**

CNC Routers

No matter how you say it, FlexiCAM CNC routers are well known for their high speed and high accuracy cutting. With speeds over 3500ipm, not many machines that can give you this much bang for your buck. Our routers are manufactured in Germany and supported by our Worldwide offices, along with our team of factory trained sales partners, providing localized support.

Members of:



[www.flexicam.com](http://www.flexicam.com)



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