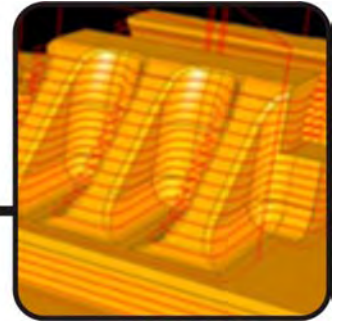


HOW TO CHOOSE A CAD-CAM SYSTEM



In today's competitive economy, manufacturers cannot afford to have CNC machines that are not operating at peak performance and need to become more diverse in their ability to offer CNC part making services. A CNC machine without an offline CAD/CAM system to automate everything is like having to rub sticks together to build a fire. Time is just too valuable and this is what brings us to writing an article that will give you the knowledge to help bring your shop to peak performance, increase your productivity and bring your part making capabilities up to par with the competition while saving you money along the way.

WHERE DO I START?



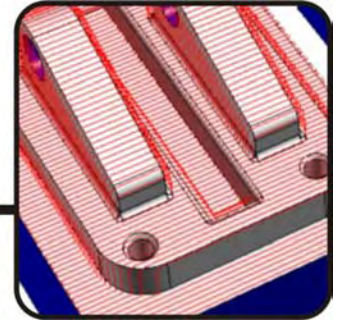
Whether you have purchased a CAD/CAM system in the past or you are looking to acquire one for the first time, you will find many CAD/CAM websites listed on the Internet. Simply type in CAD/CAM or CAM in your Internet search engine and the search will give you up to hundreds of sites that provide CAD and/or CAM. Many of the manufacturing publications that are available will also provide you with names and numbers of companies that can be a good source of information.

As a tip, some of the more expensive systems may not provide pricing and will ask that you call them first before providing a price list of systems and options. Personally, I like to gather my information that includes prices, features and options before having to speak with a salesperson. However, even these sites will provide you with information regarding software functionality.

- **CAD/CAM Websites**
- **Educational websites that are related to manufacturing**
- **Industry Magazines and related publications**
- **Referrals**

These are good places to start. Some sites also rate CAD/CAM systems for performance and offer feature lists and direct phone numbers to CAD/CAM providers.

CAD-CAM SOFTWARE BASICS

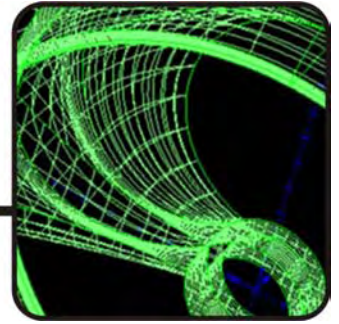


There are basic things to look at and to ask about when you are shopping for a CAD/CAM system for your shop floor.

- **Software Interoperability?** *How can the CAD-CAM system allow you to connect more with your customers in terms of the type of CAD files they use and will need to provide you. You should know what the most common CAD files are as well as look at the most flexibility in reading in file types. For instance, SolidWorks is very popular. You may want to make sure that the CAD-CAM system you purchase can read in these file types as well as others such as DWG, IGES, STEP, Parasolids, STL and others. This is important when working with customers. You don't want to get stuck with customer files you can't work with.*
- **Easy to learn?** *How easy is it to learn the software? If you are a beginner, you will want to know this. Ask what the typical learning curve is for someone new to operating CAD/CAM systems. Ask what the training manuals are like. What other forms of training are available. Training videos are popular in current times. However, not many companies offer them.*
- **Is the software a true Windows based product?** *Is the software a DOS/Windows hybrid? What operating systems does the software work on? Make sure that the CAD/CAM system is workable with the Windows operating system that you have or that it will work on the network that you have at your shop. Check hardware requirements that includes what graphics card will work best and other details to make sure that you have what you need or at least know what to buy.*
- **Maintenance Fees & Support?** *Find out what the software provider calls, "maintenance fees." You may have to pay a yearly fee just to receive bug fixes. You should be able to receive updates and bug fixes at NO cost to you. Some providers charge maintenance fees to receive updates to plug in products or to gain access to training events. Don't find yourself locked into having to pay a fee to continue using the software each year. It is not unreasonable to have to pay something for support? This actually shows that the provider works hard to make sure that you receive good service. Free support may sound good, however, this may mean that you will have to wait or that you may not get the quality of service that you want. "Free Support" may indicate that the company hasn't been around very long or that their customer base is small. Just remember that as that customer base grows, so does the support traffic.*
- **Posting?** *Does the software support your machine controls? This is very important to verify right up front. In addition, does the provider charge you additional money for post processors. Can you configure them yourself and is it relatively easy?*

These are just a few basics to think about when seeking out the right CAD-CAM system to meet your requirements.

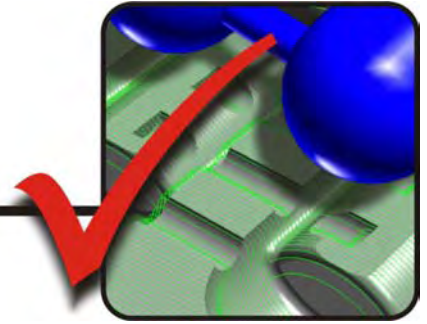
GENERAL QUESTIONS



Even though we have covered some of the really important topics, there are still more:

- **Is the software complete?** *Does the software include CAD, CAM, RS 232 Communications, DNC and Verification functionality so that you can simulate and verify that your programs are correct? If so, what form of verification will you have?*
- **Expensive Add-On modules:** *Beware of having to spend hundreds or thousands of dollars to add on Lathe functions, engraving functions and other things that should already be included in the price of the software.*
- **Development:** *Does the software provider develop their own software or do they pay a high dollar amount to 3rd parties for development, which increases your base price? What happens in some cases is that the price of the software includes a hidden royalty fee that can be as high as \$2000 or even more in some cases. Why should you have to pay the 3rd party product costs or royalty fees?*
- **Future Upgrades:** *Will the CAD/CAM provider offer future upgrades to more powerful and easier to use CAD/CAM systems? If so, do you have to pay thousands of dollars for upgrade features? Find out what the average cost of an upgrade has been in the past and with what they offer now.*
- **Longevity:** *How long has the company been in business? How many customers use their software on their shop floors. Is the provider willing to provide user references?*
- **Customer Service & Sales:** *When you call the software company, are you referred to a dealer or can you order the software direct? Who handles the customer service issues that you may have? Sometimes it is good to be able to deal directly with the actual company and sometimes it is good to deal with a local agent. This will depend on what you prefer.*
- **Site Licensing:** *Many CAD/CAM systems come with a key locking device or they are pass code protected in some way for only one location. Extra site locations are available for a fee. You shouldn't have to pay thousands of dollars to work from a second location. Extra site locations for the system will allow you to work more freely from different locations and will allow for networking. In most cases, a USB or hardware locking device is provided for security. This can be moved around without having to pay additional money. However, find out the costs for replacement devices in the case that one is lost or broken. This way you will not have any surprises.*
- **The Future:** *Will the software allow you to grow with it. Does the software provide you with levels like 2D to start and 3D to add-on later when you need it? Do they upgrade their systems affordably for you each year?*

QUESTION CHECKLIST



- How easy is it to understand the main software interface?
- Are the toolboxes and toolbars customizable so that I can set the software up the way that I need it to be?
- How easy is the system to learn?
- What type of training is available for it?
- What type of CAD file translators come built-in?
- Can I import surfaces if needed?
- Can I verify the dimensions of my CAD files once I import them?
- Can I create and export DXF or IGES files from the software?
- Do I have to pay extra for file translators?
- Does the software include 2-axis lathe functions and tool library? Do I have to pay extra for this?
- Does the software include basic functionality for gears, hole patterns, pocketing and profiling? What are the limitations? What do I have to pay extra for?
- Can I draw in 3D as needed?
- What type of User Coordinate system does the software offer for flexibility when I am drawing?
- Can I edit my drawings easily?
- Can I create prints directly in the software and are there print templates I can use?
- Can I import a profile and directly machine it? How does the software handle the approach and departure of my tool?
- Does the software offer cutter compensation functionality?
- Does the software offer customizable drilling cycles?

- Does the software allow me to create surface toolpath from wireframe geometry easily?
- Does the software offer any visual basic scripting functions for creating my own functions?
- Can I edit toolpath that I create easily?
- Are there post processors available? Do I have to pay extra?
- Can I build my own post processors as needed?
- Does the software offer engraving functions?
- Can I project text on to surfaces?
- Does the software offer easy to use cutting options?
- Is there a special tool library in the CAM?
- Can I have multiple views when I am working with my files for creating toolpath and/or NC Code?
- Can I switch from one machine to another with an NC program?
- Does the software offer part verification so I can see what will happen before sending the code to the machine? How easy is this to use?
- Is there built-in RS 232 Communications with customizable send and receive features?
- How many customers currently use your software?
- Do you offer advanced training for the software?
- What type of software protection do you use? What is the cost for extra site locations?
- Do you provide any kind of training video for the software?
- Do you use 3rd party software development?
- How often do you upgrade your software?
- What is the average cost of an upgrade?
- What are the system requirements for the software?
- Do I have to buy the software through a dealer or can I buy the system directly from you?
- How do you handle support?

- Is there a maintenance agreement that you offer? What is the cost and if so, what do I get in return?
- What is the return policy if the software doesn't work with my machines?

Basically, this section below deals with your own observation and is important to take note of.

- Does the salesperson answer your questions?
- Is the salesperson knowledgeable of their own software?
- Can the salesperson demonstrate the software to you?
- Does the salesperson sound like their reading a script or feature list when you talk to them?
- Does the salesperson try to sell you the software solely on price rather than functionality based off of what your requirements are?
- Can you operate the software to your standards in a demo?
- Do you feel that the CAD/CAM system is over priced based off of the functionality?

We hope that this article and checklist are helpful to you in locating and acquiring the right CAD/CAM system for your shop floor. The right CAD/CAM system can effectively shave up to 30% of your time, helping you increase productivity and profitability for your shop.



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