

# Pre-Owned CMMs Buyer's Guide

*Get a High Quality Measuring Machine  
that Measures up to Your Needs*

Innovative Metrology & Styling Solutions

Phone 248.295.4300



3D Metrology



Gear Metrology



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Optical High Speed  
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# Buying a Used Machine

The first step in getting a Pre-Owned or Used (CMM) Coordinate Measuring Machine is to figure out what is most important to your business.

What is driving your purchase of a CMM? Why do you need it? This may seem obvious, but you'd be surprised how many people we talk to that aren't sure exactly why they need a Coordinate Measuring Machine, but were told by a customer or colleague they need one. Once you have figured out the WHY, it makes the next steps easier. If you have problems answering this question or any of the others in the checklist, you can always call us or go to our website and submit a question. We're always there and our purpose at Wenzel America is to help you increase profitability by precision measurement before, during and after the manufacturing process.

You can use this guide to help determine your needs and as a "checklist" to evaluate any seller you talk to. A reputable and reliable seller should be able to help you answer or figure out each and every one of these questions. If they can't or they hedge on helping you, as the Blue Collar comedian says, "There's Your Sign!"

Now onto the guide.

Ask a Question

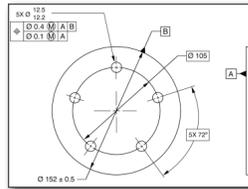
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## 6 Point **CMM** Pre-Buying Checklist

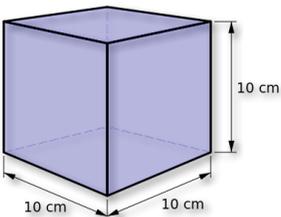
Not listed in order of importance but here are the items to be considered:



**1.**  
**The Part**



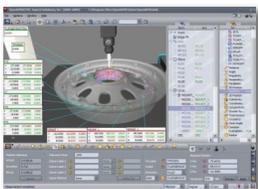
**2.**  
**Tolerance**



**3.**  
**Size of Part**



**4.**  
**Throughput**



**5.**  
**Reporting**



**6.**  
**Cost**

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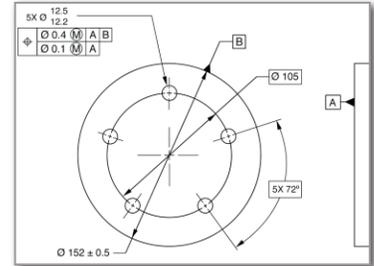
# I. The Part



Some of the things to consider about your part:

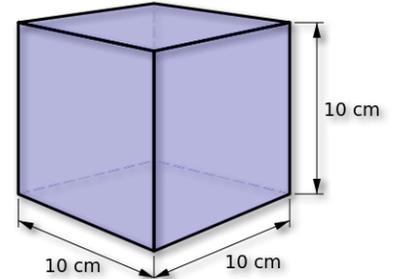
- Is it a complex constructed part? Will you need an [articulating probe system](#)?
- Is it simple part? Will a straight down probe or star stylus suffice?
- What material is the part made out of? The part material and its physical characteristics can determine which type of sensor you need to consider.
- Is it plastic, glass or metal?
- Shiny or dull?
- Is it small and can't be touched? Will you need to [consider an optical sensor](#)?

## 2. Tolerance



- The tolerances within which you are manufacturing the part are important.
- What is your tolerance to uncertainty ratio? A general rule of thumb is the 10:1 relationship between the tolerance and the uncertainty. Whether your tolerance is 001" (25 microns) or .0001" (2.5 microns), you will need to measure it to within that tolerance by more than the measuring uncertainty. Knowing these tolerances and uncertainties will improve your certainty in getting the right CMM for your job.

## 3. Size of the Part



- Are you measuring a car body? Door Panels? Dashboard? Then you will be best served by a [Horizontal Arm CMM](#). This is because of the large size and wider tolerances.
- Are you measuring engine blocks? Turbine Blades? Etc? Then a [Bridge CMM](#) with a [scanning probe head](#) will best serve your needs.
- Measuring small medical or plastic parts? You'll need a [multi-sensory measuring machine](#).



## 4. Throughput



- How many parts you are checking or how many do you hope to check? This will give you an idea of the throughput your CMM will need to have.
- Will this be a lab machine checking every 100th part?
- Will the parts be nested in a fixture to check many at one time? These requirements will help determine the probe head and size of the machine.



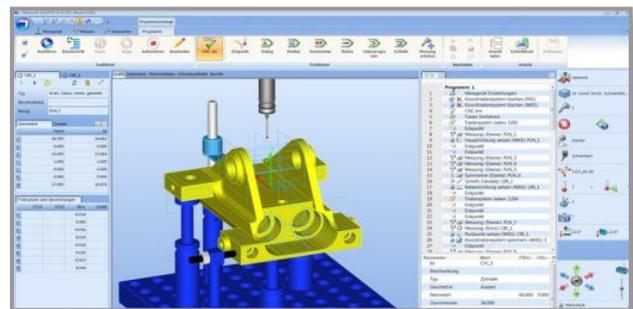
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## 5. Reporting



- Are you duplicating a supplier's or customer reports?
- Are you using the machine for incoming quality inspection of supplier parts? In that case, you will want to find a CMM with software that makes it very easy to provide the results you want displayed for the incoming parts.
- Are you supplying reports to your customers? If you are, you'll want those reports to mimic the style and format they already use. This means the ability to use the same software your customer uses, or using software that can duplicate the desired format for them easily, this will be vital in your CMM purchase decision.



## 6. Cost



Last but not least is the cost. It doesn't matter what features you want in a CMM or whether you can find those features in a used machine or have to buy a new one. If you don't have the budget you can't get it. This is where the rubber meets the road when looking for a trustworthy used machine supplier.

There are some very important things to look out for:

- Can he help you meet your needs and fit your budget?
- Does he offer solutions that deliver quality and value?
- If your wants are unrealistic to your budget constraints does he tell you?
- Always find out what the cost of procuring spare parts is?
- Does he service the machines and does he have enough stock to keep your "new" Used CMM running into the future?
- What are these costs factored into the expected life cycle of the CMM you're buying?

After you consider these six items yourself you will have a pretty good idea of your needs in terms of the size and type of coordinate measuring machine and sensor system will work for you. Hopefully, you understand the impact a new or used CMM system will have on your manufacturing process and you've also figured out what you'd like in terms of the software and programming.

Once you have that down, the next step is the search for the right supplier. We highly recommend you arm yourself with this whole checklist. Use the 6 steps to figure out your needs and articulate your questions so you are a wiser CMM buyer and find the best used CMM for your exact needs.

If you still have questions you can submit any question about CMMs or Metrology directly to us and our experts will respond within 24 hours.

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# Finding a **Reputable and Reliable CMM Supplier**

Buying a used CMM is similar in some respects to buying a used car - and we all know finding a reputable used car salesman can be a challenge. Similarly, there are some very important points that can help you find a reliable CMM Seller.

- **Does the seller make CMMs?**

Why is this important? Well, if the seller also manufactures new CMMs they will have superior technical knowledge from the mechanical and software integration of their own CMMs. Because of this they can transfer that know-how over to other makes and models. The same methodology they use on their own manufactured machines is just as applicable to the third party refurbished machines they sell.

- **Does the seller have the know-how to maintain or repair the machine you purchase?**

If they also manufacture new metrology machines the probability that they have expert engineers and factory-trained service technicians that can work on Pre-Owned machines they sell is much greater. Although no seller will have factory-trained technicians on every make and model, the fact that some sellers do have factory-trained technicians that work on third party coordinate measuring machines raises the servicing standards on all machines that their technicians service.

- **Do they have their own “Certified Pre-Owned” checklist or quality assurance standards?**

Just as you have seen the multi-point checks that used car dealerships and new car dealerships use, Used CMM Sellers should provide the exact same procedure.

## **Two Questions you should ask any Pre-Owned CMM Seller:**

1. Do they record the actual used machine condition when they receive it?
2. Do they document what items they inspect and replace? When the seller has this process in place it assures that your Pre-Owned Machine has had a methodical assessment and Re-Commissioning.

## What Happens After You Buy? Servicing Your Pre-owned CMM

- Will the seller be the company supplying the service and repairs?
- What accreditations do you need to provide to your customers?

If your customers require an ISO 10360 calibration, it makes no sense to buy a machine from a seller that cannot provide this. Again, knowing all the prerequisites that you have to meet with your used machine will help determine what and where to buy.

- What about spare parts?

Spare parts are an important area to consider. They directly impact your life cycle costs for the measuring instrument you are purchasing. If this Pre-Owned CMM will be your first CMM, then perhaps expecting another 10-15 years out of the purchase is not feasible. Then again, if it is a popular model, from a seasoned manufacturer with four decades of Metrology equipment building, and ample spare parts supply, this becomes a non-issue. If you're buying the machine to provide support for one specific job and the necessity of that machine will cease at the end of that job, then spare parts are not as important.



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## What about **Upgrades?** Can you get the latest sensors and software?

Finally, if you buy a “newer” used machine you will want to be able to upgrade it to the latest sensors and sensor technologies. Coupling the latest sensors with a robust, stable workhorse machine can add years to its life cycle. You should not have to buy the granite twice to get the software or sensor you want in the future.

- **Do I have a choice in software? Do I have to go with line code?**

What is the software you are going to live with? One reason people buy Used CMMs is it lets them change the software they have to something they prefer. It can even allow them to try out new software at a lower entry cost. Choice of software is important. It determines the skill level needed of CMM operators, and also whether you’ll have a dependency upon the programmers. If the software is a traditional line-based programming language then you will have some advantages that there may be some cross compatibilities in the DMIS code that allows your existing programmers or new programmer hires to quickly or easily use that software. As a manager or an owner this type of software makes you dependent upon the programmer because the software programmer is literally writing code to make the machine perform its functions.

- **What about modern Object Oriented Software?**

Object orientated software abstracts this process, so that the language covers most of the machine moves and the programmer focuses mainly on the GD&T callouts on the print and focuses on measuring strategies for the features and dimensions vs. writing code to move the machine around the volume.

- **Is the software you are choosing native to the CMM hardware you are trying to use?**

If the software is married to hardware it cannot utilize fully, you will not realize the full benefit of your CMM. Having software that can utilize all of the features your hardware is capable of, is essential to realizing the potential of the system you have purchased.

## The Answer

**We believe Wenzel America is the answer.** We have the used machine you need or we will find it. We have the best service in the Metrology world and we stake our family name on every product we sell, whether we built it or re-built it.

We can also trade in an old machine, just like a car. With us you can trade in and trade up. If you need to upgrade your CMM we will take a trade-in toward a purchase of an upgraded measuring machine.

We're always happy to answer your questions. Just visit our [Ask a Question page](#) and we will have one of our metrology experts get back with you within 24 hours.

Of course, if you need a new CMM, going with our full Impala Granite machines equipped with the latest sensors and technology means you understand that metrological innovation and quality is at the core of the Wenzel Family name and the Wenzel family of measuring machines.

No matter what you decide, we hope this guide helps you get the right CMM at the right value to solve your precise measuring problems.



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3D Imaging



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