

Understanding the 70/30 Rule of CMM Software Selection

CMM SOFTWARE: THE 70/30 RULE

Coordinate measuring machines, or CMMs, are vital measurement systems for many quality departments. Of the many active components of these systems, the software used to control and record the measurement of parts is vital to ensuring that you get the most complete performance out of your machine. Therefore, it is important to be diligent when exploring CMM software to find the package that will best fit your needs. How can you ensure that when selecting a CMM software you have chosen the best option?

The key to this choice is to understand the 70/30 rule of CMM software selection. This principal indicates that in general all CMM software will meet similar functions for 70% of what you need. Most CMM software should provide for basic tasks such as measurement routines, probe calibration, basic plane-line-point alignments and data reporting, among other features.

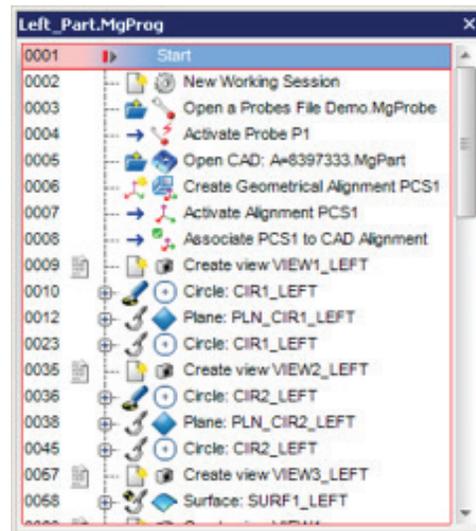
The trick is to find the CMM software that goes beyond the 70% in basic performance to deliver the 30% of extra functionality that provides the best added value for your system.

DETERMINING THE 30% DIFFERENCE

If we consider this 70/30 rule of selecting CMM software, we now have a question: How do you determine what can account for the 30% difference in added value? Here we take a look at factors to consider when determining the added value that will make certain software packages stand out in comparison to others.

Programming: Programming CMM software all comes back to ease of repeatability; you write programs to record your measurement routines and save time and energy upon repetition. When looking at available programming options there are a couple of important factors. One such factor is **diversity of programming**

languages. For experienced users, support for the dimensional measuring interface standard (DMIS) allows for powerful programming using the same standardized language they have been using for decades. For less experienced users (who may not yet have the same DMIS prowess), support for a native programming engine that is ergonomic and intuitive, more visual and feature-oriented will help ensure that these **users do not fight the code when programming a part.** Additionally, look for powerful tools that can boost efficiency in the writing of your programs and drastically **reduce the number of mouse clicks and data entry required.** Such tools might include the ability to work with a CAD model that has **embedded GD&T, serial feature builders for rapid pattern creation** and measurement, and generic feature builders to allow you to rapidly define and measure a series of features regardless of the type. CMM software that includes such features allows the code to practically write itself. Options such as this provide added value for the operator by decreasing the time and effort necessary to measure parts.

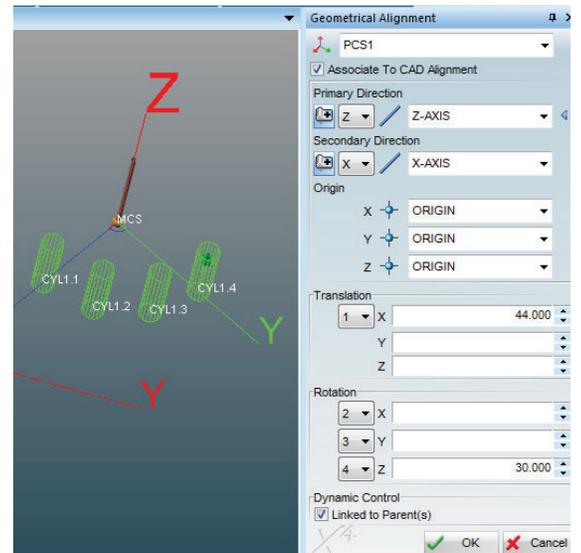


Metrologic Group offer software packages that can meet these criteria. In Metrolog X4, feature-based programming practically writes the code for you!

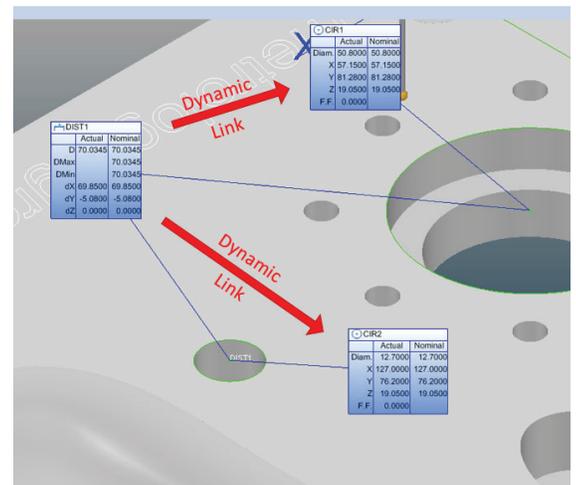
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Alignment Variety: Part alignments are a necessary component of any modern measurement software and are of special importance if you plan on using CNC movements to measure your part. While most CMM software can handle simple alignments, not all part geometries are easily accommodated. Look for CMM software that allows for a **wider variety of user-friendly alignment methods** when working to align even the most complex part geometries. One thing to consider is if the software has a capable surface engine to allow for **alignments based upon surface features of the CAD model**. This allows for many more alignment strategies than strictly DMIS-based software limited by the requirements of the standard. If you choose CMM software with a variety of alignment options, you can quickly and easily **align even the most complex parts in just a few clicks**. Aligning your part is the most important task that must be done before automatic measurement occurs, so it will be in your interest to choose the software that provides the best variety of alignment choices.

Dynamicity: How much time is spent on each part re-computing features and alignments as changes are made? Often times a change to a single feature can require that the change propagate through several other calculations. When selecting CMM software it is a good idea to look for a choice that allows for **dynamic links between features**. Software that can do this will allow for **real-time feature updates as the parent feature that they are linked to is updated**. These real-time updates can provide instant **data without requiring that the operator re-run program lines to re-create or re-calculate features and alignments**. Consequently, selecting CMM software that allows for feature dynamicity can save hours of machine time. By eliminating the need for costly and time-consuming re-calculations, dynamicity can contribute to the 30% in added value of your CMM software choice.



Not all alignments are the same. Metrolog X4 utilizes more alignment options than DMIS-based software and can help you do away with time-consuming iterative alignments. More alignment variety means you are aligned more quickly and measuring faster!

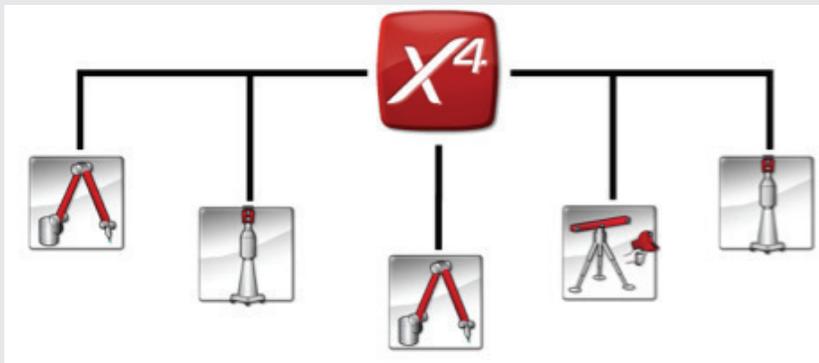


Re-computation of calculated features can be costly and time consuming. In Metrolog X4, the "Link to Parent" feature allows for automatic re-computation and enables dynamic calculations and faster results.

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Device Compatibility: While today CMMs remain the backbone of many quality departments, advancements in technology have made devices such as portable optical devices, articulating arms, laser trackers, laser radars and robots increasingly prevalent. Choosing CMM software that provides full compatibility with a wide array of metrology devices can have a number of benefits for your company. First, if you currently have one of these other devices or have potential to purchase one in the future, this can prepare you to **better work across devices**. Instead of having to deal with a different software for each device used, you can utilize a **single software with standardized behavior**. This can also shorten the learning curve for the operator when operating a new device, or when switching between devices. As a result,

you will **cut down on training costs, simplify utilization of human resources and allow more time for what matters – inspection**. Additionally, when considering compatibility, it is advisable to look for software that will support a variety of optional CMM devices such as probe heads of all makes, probe changers, stylus changers and rotary tables. Software that can **interface to any device, any technology, and any application** can make interfacing between devices seamless for any user – regardless of experience level. It also means that you are not tied to a specific hardware OEM for your future purchases. Making this choice can mean your CMM software will not be a limiting factor when choosing to work with a device now or in the future, allowing you greater freedom to choose the best device for your needs



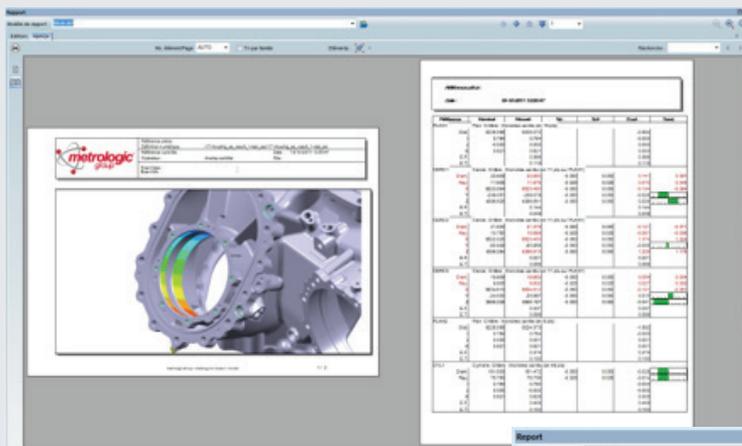
Does your software only work with CMMs? Metrolog X4 supports arms, laser trackers and portable optical device systems for all brands. This allows for smooth transitions and full compatibility across devices.

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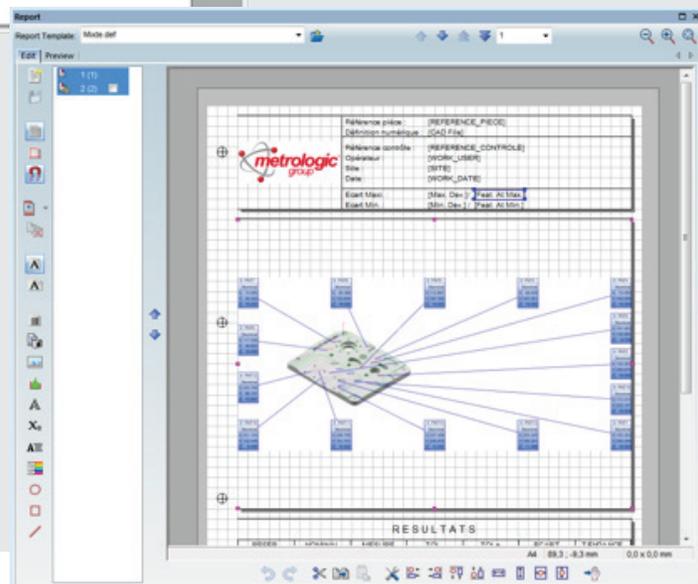
Software Compatibility: Software that is **open to other formats** can also allow you to transition from a low-performing or old system to a newer platform seamlessly, efficiently and without the risk and associated headaches of losing your legacy programs.

Reporting: The end goal of any part inspection is to generate a clean, clear report of the results to accurately present any data gathered. How long should it take to generate this report? Look for software that enables any user to **easily create inspection reports in a manner of minutes**. If a software selection does not do that, and takes as much time to create a report as it does to inspect a part, then valuable production time is wasted. For that matter, how complete and customizable are your reports? While many may be fine

with simple tables of results or spreadsheets of exported data, some customers may require more specific details and appearance in an inspection report. For those needs, choose CMM software that allows for **fully customized report to be natively generated**. Such features can include: the ability to create a complete template from scratch; the ability to include any saved views with sticker callouts of measured features; the ability to fully customize results tables to include any relevant data value; the ability to add pictures to freely add in a company logo; and, the ability to use template variables to automate common data fields. The ability to generate complete report templates from scratch with minimal time or effort can provide the added value that sets your choice in CMM software apart from the crowd.



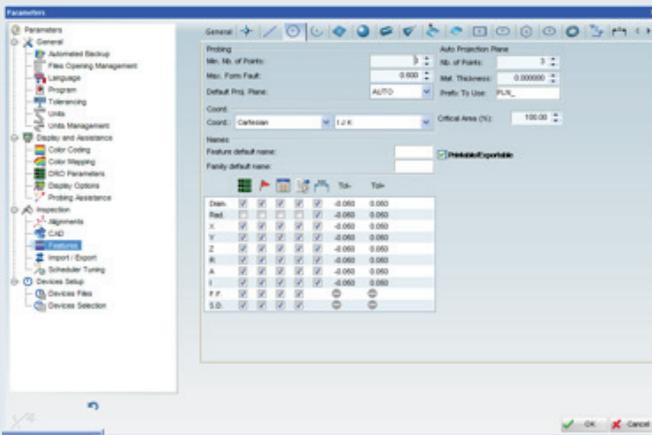
Creating a clear report should not take as much time as inspecting the part! Easy sticker creation and a full template editor make creating clean, custom reports in Metrolog X4 a breeze!



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Customizability: When choosing CMM software, how important is it to be customizable? It may seem like a mostly superficial aspect of any software but it can be the secret to providing added value for you. It is important to remember that software customizability is not just a matter of having a flashy interface. Rather, it is a function of enabling you to **tailor the software to your own personal needs**, and not just the needs of the software designer. Every user will use the software in a slightly different manner and therefore it is important that your software choice be customizable to your individual needs. In this respect look for software that allows you to **easily customize both the appearance and function of what is on screen**. This can be simple, such as the ability to

customize window placement for personalized user comfort. Or it can be more complex, such as customizing various inspection aspects. For CMM software this can mean the ability to set custom tolerance and measurement defaults to save time instead of having to constantly change these values from the software default. Additional features such as custom toolbars, custom hotkey assignments and the ability to customize any parameter can allow for a fully personalized experience. With CMM software, the goal should be a selection that enables you to more easily inspect parts and not be intrusive of that inspection. Such **intuitive ease of use** can mean that your software will provide the optimal interface for each user regardless of experience level.



No two users will use a software package in the same way. Metrolog X4 lets you customize the user interface as well as any inspection parameter to fit your individual needs.

Technical Support: One often-overlooked aspect when choosing CMM software is the level of technical support that is included. Here the 70/30 rule of CMM software selection can also apply: every software company will provide some level of technical support for any issues that may arise, but what accounts for the 30% difference in added value? Consider choosing CMM software that provides not only **considerable online resources and help, but also offers the personal touch**. When faced with the need to call for assistance, the difference between **being placed into an automated waiting queue or being directly connected**

to a qualified support engineer can make all the difference. Having a knowledgeable support engineer directly answer the phone ensures that the problem is not only solved quicker, but also that the user has a better understanding of the solution and the software as a whole. Additionally, **quicker connections to qualified engineering support leads to faster problem resolution and a subsequent reduction in machine down time**. In every instance, look for the software (and company) that enables you to utilize extensive and complete help files with direct human support to get help immediately.



No one likes waiting on hold, especially when that means machine down time! Consider the value and convenience offered by Metrologic Group that answers the phone for direct support.

Performance: Modern computing has come a long way in terms of processing and performance power, but does your software fully utilize these capabilities? Consider CMM software that allows for raw data storage through unlimited memory usage and multiprocessor platforms through **64-bit based architectures**. In choosing software with these capabilities, you will attain maximum performance when working with **large CAD files or point clouds**. This can be the deciding difference in allowing software to capably

handle more difficult calculations such as point projection, tolerance evaluations, and point cloud filtering and fitting. Pay attention to operating system compatibility as well. Software that works on today's OS might not be compatible with the OS that will surface five years down the road, and will restrain your ability to update your system at minimal costs. Software that lives up to these standards can provide the 30% difference in making sure that you get the best value and performance out of your selection.

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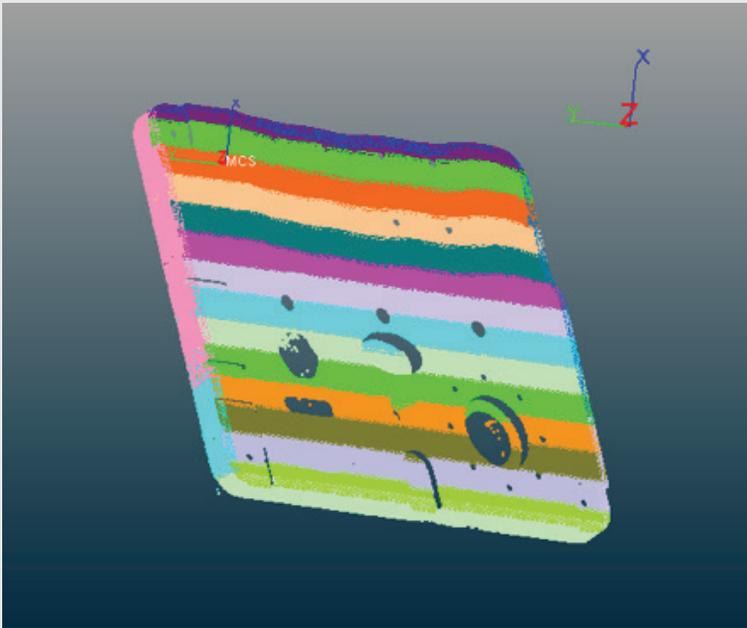
CHOOSING CMM SOFTWARE WITH THE 30% DIFFERENCE

The 70/30 rule of CMM software selection should be the key factor to making the choice that will bring the best value to your system. While generally 70% of all CMM software will be the same, it's the 30% difference that provides the real value in performance and use.

Once you understand the 70/30 rule, the only challenge is discovering the software that meets the 30% difference in added value. Consider the factors that would determine the 30% value for your needs before making your choice.

For CMM software that embodies the suggested qualities, choose a company like Metrologic Group with a powerful yet user-friendly software suite that can be optimally tailored to all your measurement needs.

With the critical role that CMMs play in the industry and the ever-increasing demand to boost production efficiency, having the right CMM software can be a vital factor in driving the success of your company today, tomorrow and for years to come.



Modern computing can make some aspects of inspection more powerful if appropriately utilized. Metrolog X4 is designed to use a 64-bit architecture for easy handling of large point clouds or CAD files.

Metrologic Group Services Inc.
28064 Center Oaks Court
Wixom, MI 48393

Phone: 248.504.6200

Email: metrologic@metrologicgroup.com

Website: metrologicgroup.com