

8 Criteria for Selecting a Professional 3D Scanner

Are you thinking about buying a 3D scanner? Wondering which one to purchase? With a growing number of manufacturers and models, what are the key factors to consider in making this important decision?

We believe the most important criteria to consider are provided below (not in any particular order). Click on any item to jump to that topic or simply continue reading.

1. [Application](#)
2. [Accuracy & Resolution](#)
3. [Part Size](#)
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A more detailed discussion for each is provided below.

1. [Application](#)

How do you plan to use the 3D scanner? What is the end result? The list could include:

- A 3D model for any number of purposes (e.g. medical, forensics, industrial design)
- Reverse Engineering
- An editable CAD (Computer Aided Design) file
- Engineering drawings
- Tooling and Fixtures
- Inspection and Quality Control
- And perhaps others

2. [Accuracy and Resolution](#)

What level of accuracy and resolution are required to generate scans to meet your business need? In general, higher levels of performance require more expensive 3D scanners and may impact the scan time.

3. Part Size

What size parts do you expect to scan? In general, larger parts require more expensive scanners assuming all other parameters are similar.

A good rule of thumb to consider is to purchase a 3D scanner that is capable of scanning 95% of the parts you think you will scan. Then, outsource the rest. In doing so, you will limit your investment to a more reasonable level and avoid the costs associated with owning capacity that is unused 95% of the time.

4. Monochrome or Color

This may be an easy criterion for most buyers. Color scans are almost always more interesting, but they are simply not required for many situations. If your application needs color scans, you will want to take a close look at the available choices. As one would expect, color scanners are generally more expensive than monochrome scanners.

5. Software Features

Depending on how you plan to use a 3D scanner, the robustness of the software that is provided or purchased with the 3D scanner may be an important criterion. The features provided by the supplier's software could be as simple as a user interface for setting the scanner's parameters, handling the scanned data files, and exporting the scanned data in one or more formats for use by other software apps. At the other end of the spectrum, you will find some suppliers with a feature-rich suite of software applications that could include: interfacing with third party 3D scanners, exporting files for 3D printing, and transferring data to CAD software applications, to name a few. In some cases, there may even be a plug-in available that enables the scanner to be controlled by the very CAD software application you already have in place. If a plugin for your CAD software is selected, the ramp-up for your users should be much shorter and easier.

6. Environment

There are two broad parameters regarding environmental considerations:

- a. Indoor vs. Outdoor – The key issue is whether scanning will be performed in sunlight and if so, to what extent the scanner will perform in that condition. If your planning to scan objects in the sunlight, you should consider having a benchmark scan performed by the supplier in the sunlight to ensure that the scanner of interest will meet your needs.
- b. Ambient Conditions – This includes temperature, humidity, and vibration. Some manufacturing areas are simply not well-suited for some 3D scanners. Again, use the benchmark scanning step as a way to verify performance in the environment in which you plan to use the scanner.

7. Price

The initial price is an obvious criterion, and it is included here for completeness. Of course, the quoted price is key, and to the extent that the following items are relevant to your situation, you will want to be sure the terms are clear regarding: handling and shipping charges, sales tax, installation, training, technical support, warranty, and extended warranty. Some 3D scanners may have requirements that are not included in the price but may represent an additional investment on your part. For example, is a dedicated computer required to operate the 3D scanner, and if so, what are the minimum requirements for that computer?

8. Calibration Requirements and Cost

Some 3D scanners require periodic calibration and some do not. If that is required, you will want to understand the frequency of those calibrations, who is responsible for performing it, how much time is required, and how much it will cost.

Additional Thoughts on Benchmark Scans

As alluded to above, providing a benchmark scan is a common practice by suppliers in this industry. For this step, you will want to provide a part that reflects the kind of parts you expect to scan. If you are also wanting to assess the scanner's performance in daylight or in specific environmental conditions, you should consider asking the supplier to perform the scan on-site or in appropriate/similar conditions. Generally, 3D scanner suppliers will perform this work at no cost to you if you are a serious, prospective customer who has been qualified by the supplier.

We hope you find this information helpful. If you have questions or suggestions, please feel free to contact us. We welcome the opportunity to be of further assistance and to learn from your experience.