

Panthera Dental Scanning Protocol Guidelines

You are about to scan your model using a very precise and accurate piece of equipment. In the dental industry, the micron (μ) is used as the unit of measurement. As seen on Figure 1, the micron is an infinitesimally small unit of measurement; that is why every tiny detail can make a difference when wanting to achieve the most accurate scan result.

In this guide, we will suggest some guidelines intended to minimize errors as much as possible and obtain the best results and performance from your equipment.



No. 1 Position of your scanner

The first point presented in this guide is probably the one that will make the biggest difference. Your scanner may be affected by vibrations during the scanning process. For this reason, you want to position your scanner on a solid table. It is even recommended to have a base made of marble or of a similar material to absorb vibrations that could reach your scanner (FIGURE 2).

It is very important to avoid installing your scanner on the same table/counter as your milling machine if you own one, since this could compromise the final result (FIGURE 3).



No. 2 Location of your scanner

Your scanner should be in a room away from dust and sunlight, and protected from variations in temperature (FIGURE 4). Direct sunlight will affect the accuracy of your scanner. Obviously, a scanner uses LEDs/projector and a camera, so any particle of dust can interfere with the mechanism of your scanner. A good scanner can only handle a change in temperature of 0.5 degrees Celsius per hour. If your scanner is placed in a room where the variations in temperature are greater than this, the risk of improper scanning is higher.





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No. 3 Preparation of your model

To scan your work, you will need to use scanbodies. These little pieces will go over your implant replicas since the scanner is able to detect them and perform the scanning. It is very important to pay special attention to implant replicas. If you use replicas that are worn out, they might have a bad seating surface, hence your scanbodies will be too high in comparison with how high it should be in reality, as shown on (FIGURE 5). Always use new or almost new implant replicas.



Since your implant replicas are made of titanium, your scanner is not able to detect them. The light reflects on them and the camera is therefore not able to scan them, that is why we need to use scanbodies. These parts are manufactured according to precise procedures to ensure high quality results. You should always use them with great care in order not to alter their shape. It is recommended to use a tool to handle them or gloves to avoid the deposit of any human sebum on the surface (since sebum can be between 0.5μ to 4μ thick). When screwing a scanbody on your model, never over torque it. Your scanbodies will wear out over time and should be replaced after heavy usage.

Again, your scanner is a very precise piece of equipment, so you should always maintain it with great care. Keep it clean from dust, make sure it does not produce uncommon sounds when it is used and that it functions normally. Also, it is very important to keep your scanner updated with the latest software available from the manufacturer. Indeed, the software of the scanner is a crucial part of processing the information from the machine and it creates a 3D file that can be used afterward.

Conclusion:

Remember that each detail is taken into account in microns so every micron is important. This will make the difference between a passive, a very passive, and a non-passive piece.