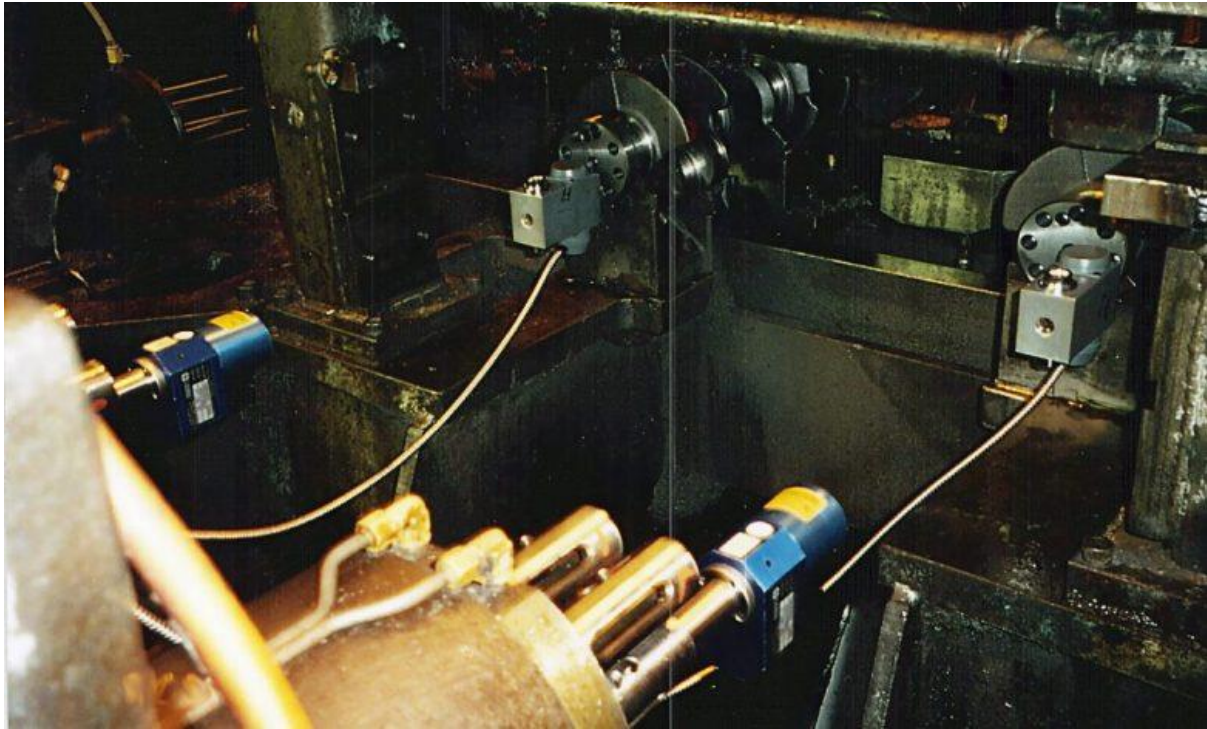


Improve Geometric and Rotational Errors of Machine Tools with the XK10 Alignment Laser System



If your company provides precision machining services, it's imperative to avoid errors. Two of the most common are geometric and rotational. When either occurs, the machine no longer produces accurate measurements. Thankfully, Renishaw manufactures amazing [laser alignment systems](#).

Causes of Geometric and Rotational Machine Tool Errors

Geometric machine tool errors occur in one of two ways. The first is the fixture error and the second, the tool error. Regardless, precision laser alignment machine tools, such as the Renishaw XK10 system, rectify the problem.

- Error on the Fixture – In this case, an error occurs when the workpiece isn't correctly positioned to both the tool and machine. It's also caused by flatness errors and an improper alignment of the machine's axis. Fortunately, the right precision laser alignment machine tools prevent this from occurring.
- Error on the Tool –Over time, [machine tools](#) wear down. As a result, they don't cut the workpiece in the right size or shape. When machining with a tool of a fixed size, the error directly impacts machining accuracy.

Then, there's the rotational or positioning error. When using a tool to machine a workpiece, select several geometric elements as part of the machining's positioning reference. The combined fixture and workpiece positioning form what's called a "pair."



If the pair isn't positioned correctly, this error occurs. It's also caused by a gap that forms whenever there's a maximum variation in the workpiece position. This only happens when using the adjustment method, as opposed to the trial process of cutting the workpiece.

How Do Renishaw Laser Alignment Systems Help?

Renishaw manufactures many different laser alignment systems. For the sake of example, this focuses on the XK10. You can use this particular system to correct errors in one of two ways.

First, you can purchase this equipment from a reputable supplier of precision laser alignment machine tools. Second, you can rely on professional laser shaft alignment services from a trusted source. Either way, the XK10 is a remarkable choice.

Introduced in 2020, the XK10 now ranks among the best laser alignment systems on the market. The versatility of this system is one of its many advantages. For example, it's ideal for linear rails, keeping them flat, square, level, straight, or parallel.

This system of professional laser shaft alignment services provides access to coaxially and the spindle direction of rotary machines. Renishaw can measure and align these factors during the manufacturing phase if wanted.

Here are some more reasons to consider the XK10:

- The XK10 can align and measure both rotational and geometric machine components with a maximum of 30m axis length.
- This tool works great for standard machine maintenance.
- It boasts powerful diagnostic capability.
- This system eliminates the need for test bars and granite squares that cost a lot of money to transport and calibrate.
- Compared to other precision laser alignment machine tools, the XK10 is fast and easy to setup. Part of that has to do with the simple mounting process.
- For parallelism and other more complex measurements, the XK10 simplifies them. It accomplishes that by using a two-stage process. Ultimately, this system gets rid of distance limitations between the rails.
- Whether using your system or utilizing laser shaft alignment services, the XK10's advanced software reduces the need for qualified operators. Rather than rely on manpower, this system digitally records and exports measurements. Not only that, but the accurate measurements are also traceable to international standards. You can review the data via a printout or download, or if preferred, look at it on the system's display.

Eliminate Geometric and Rotational Errors

As one of the most innovative precision laser alignment machine tools available, you never have to deal with these machine tool errors again. For more information or to benefit from our laser shaft alignment services, call [Maintenance Diagnostic Systems, Inc.](https://www.mds-laser.com/) today.

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