SHAFTALIGN touch
Laser shaft alignment system

FLUKE Reliability

Frequently asked questions

General

Q: Why is precision alignment so crucial?

A: Precision shaft alignment elongates equipment life. There are several big benefits:

- Decreased power consumption
- Longer machine lifecycle
- Less vibration leading to less wear (other faults)
- Lower temperatures on bearing, coupling, and lubrication
- Reduced costs for storing spare parts

Q: How does ShaftAlign Touch differ from other alignment tools?

A: When compared to gauges and dials, or even double-laser technology, ShaftAlign Touch sets the benchmark for solving common alignment problems, enabling maintenance organizations to affordably upgrade.

Specifically, ShaftAlign Touch brings the power and intuitive advances of Adaptive Alignment to a market sector that, until now, did not have access. ShaftAlign Touch incorporates single-laser technology and Active Situational Intelligence, key features enabling maintenance technicians to complete jobs faster with more accurate results.

Q: Can we justify the cost of an alignment tool for just a few critical machines?

A: By utilizing Adaptive Alignment technology, the ShaftAlign Touch offers an unbeatable price-performance ratio. Technicians can conduct quick and easy precision alignment that get to the root cause of issues of most rotating equipment

See the savings from alignment in elongated component life, such as bearings and seals. By aligning every machine that is overhauled or repaired, you can see exponential savings from production loss and energy waste.

Q: Can we afford the ShaftAlign Touch?

A: Can you afford the costs you're already incurring? Most organizations experience production losses, high-power consumption, and mechanical failures from poorly performing assets.

Despite routine maintenance that repeatedly replaces bearings, seals, and couplings, the root cause is typically misalignment—over 50% of the time in most operations.

With ShaftAlign Touch, precision alignment is no longer a long, drawn out procedure that takes hours or requires highly skilled experts. Simple and easy-to-use, the tool is designed specifically for alignment of the hundreds of standard machines that have been ignored for years.

Q: Why bother to precision align the machine when it is fitted with flexible couplings that are designed to withstand various working operation states?

A: It is true that couplings are designed to withstand various states and loads. However, forces from misalignment or looseness greatly reduce the life of a flexible coupling. These forces are also transferred to the bearings and seals, causing them to wear faster as well. Precision alignment saves components and avoids equipment failure.

Q: I already use a straight edge and feeler gauge. Why would I want to switch?

A: Straight edge and feeler gauge alignment rely on eyesight to ensure the proper corrections are made. This is not an accurate way to align machines.

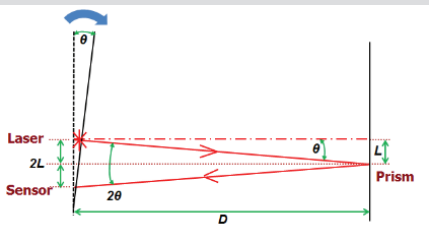
Using the ShaftAlign Touch tool, a laser is projected onto the reflector mounted on the opposite shaft, giving pinpoint accuracy to the measurement. Precision shaft alignment saves energy and makes your machines run smoother for longer.

Q: I already use dial indicators on my most critical machines. Are these not accurate enough?

A: No. Dial indicators are prone to several different errors and complex math calculations that require repeated checks to ensure that corrections are made properly.

Technical

Q: What is the difference between single- and dual-laser technology?

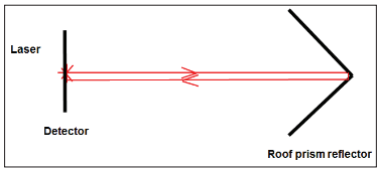


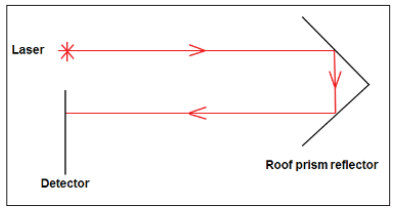
A: Single-laser measurement has the following benefits over dual lasers:

- One laser / sensor and a prism are easier to mount and set up
- Single-laser shaft alignment reduces cost for service and calibration
- One adjustment instead of two – move prism, not laser)
- Twice the distance (laser to prism and back to sensor) increases sensitivity
- Increased displacement (2L) increases sensitivity and minimizes coupling play
- Co-linear laser (vice large sensors) is less susceptible to backlash errors

Q: What other ways can a single-laser beam help to minimize the errors from backlash?

A: Co-linear laser optics system (single-laser) is less susceptible to backlash, and less error means more accurate and more repeatable. In a two-laser system or a single reflected laser system with a large sensor (see image on right), the path of the laser to the sensor has an increased offset which can be more affected by coupling backlash.





In a co-linear single laser system (see image on left), the path of the laser to sensor is on a co-linear path, which is much less susceptible to backlash.

Q: Why are professionally manufactured shims and machine puller needed?

A: Unfortunately, many companies do not think about precision alignments when they install machines. Precision alignment means using precision tools and materials.

Many technicians use whatever is available: sheet metal, scrap metal, aluminum cans, anything they can find as shims. Unfortunately, this does not lead to the best alignment results.

Use precision shims to perform the job right the first time and quickly get the machine back online. See optional shim kit.

Often, technicians will use crude methods to move the machine. This may cause damage to the machine. Machine pullers allow technicians to properly manage the movement of the machine without damage.

Q: In this application, what do the terms "resolution" and "accuracy" represent?

A: **Resolution** is the smallest amount of displacement that the system can detect/measure. Resolution: 1 µm

Accuracy is the precision of the displacement/measurement. Accuracy (avg): > 98 %

Q: Should the bracket assemblies be mounted on the shafts or the coupling?

A: The chain type bracket may be mounted either directly on the shaft or on the coupling.

Q: Is there a minimum / maximum distance required between the sensor/ laser and the reflector (prism)?

A: **Minimum**: The components must never touch one another during rotation of the shafts.

Maximum: The recommended maximum distance is ca. 5 m (197 in). About 15 feet.

Q: How exact must the inputted dimensions be?

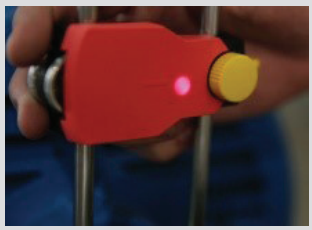
A: Readings within +/- 2 mm (+/- 1/16 in.) taken with the standard tape measure are sufficient.

Q: How should motor foot dimensions be entered when measuring large non-symmetric machines?

A: The dimensions should be taken from the center of the motor foot bolts.

Q: What could cause the laser beam not to be seen on the prism dust cap?

A: Lighting condition of the surroundings is extremely bright.



Q: What is the cloud transfer feature?

A: The ShaftAlign Touch is the only entry-level laser system with cloud connectivity. Users can send and receive measurement data from the ARC 4.0 alignment software directly onto the handheld device, sharing with consultants and colleagues via the cloud.

Storage and installation

Q: How is the tool and mounting hardware stored and transported?

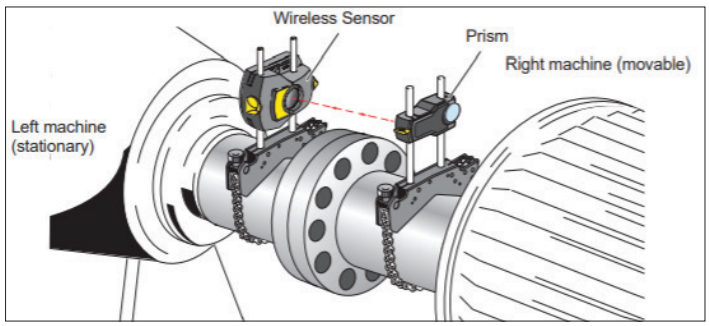
A: The device, hardware, brackets, etc., are all stored in a carrying case ready for transport and quick installation.

Q: How are the units mounted on the shafts?

A: Remove the laser/sensor bracket assembly from the left side of the case and mount it on the shaft to the left side of the coupling.

Remove the prism assembly from the right side of the case and mount it on the shaft to the right side of the coupling.

Mount the laser as low as possible but high enough to clear the coupling



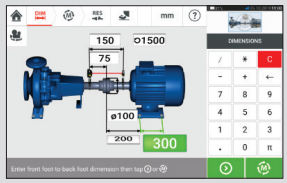
Correcting shaft misalignment

Q: How do I quickly and precisely align a machine?

A: 3 simple steps:

1. Dimension:

Machine dimensions (and relevant alignment specifications) are entered for later computation.

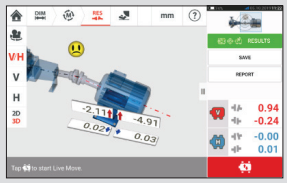


2. Measure:

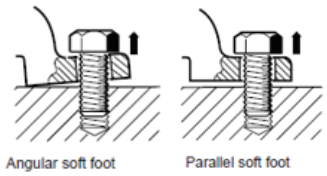
The “Active Clock” measurement mode takes readings from up to five sectors for precise results.

3. Corrections:

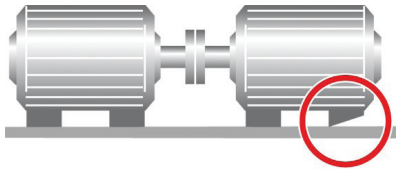
The coupling results, with tolerance evaluation as well as the feet corrections, are digitally and graphically displayed on the screen.



Q: What are the steps to check for soft foot?



A: If poor results are found after the alignment, check for soft foot. Follow the steps in the Pocket Guide:
Soft foot tolerance = 0.06 mm (0.002 inch)



Documenting results, before and after

Q: How do I document the results?

A: After alignment corrections, save the file, and then print a PDF report to document your work.

Hint: Print a PDF report at the beginning (“before” or “as found”) and print another PDF report at the end (“after” or “as left”). This will document the correction that was made during the alignment.

Finally
Switch the device off, remove components from shafts, and store them in case.

For more detailed information, see the Online Help (User Manual).

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