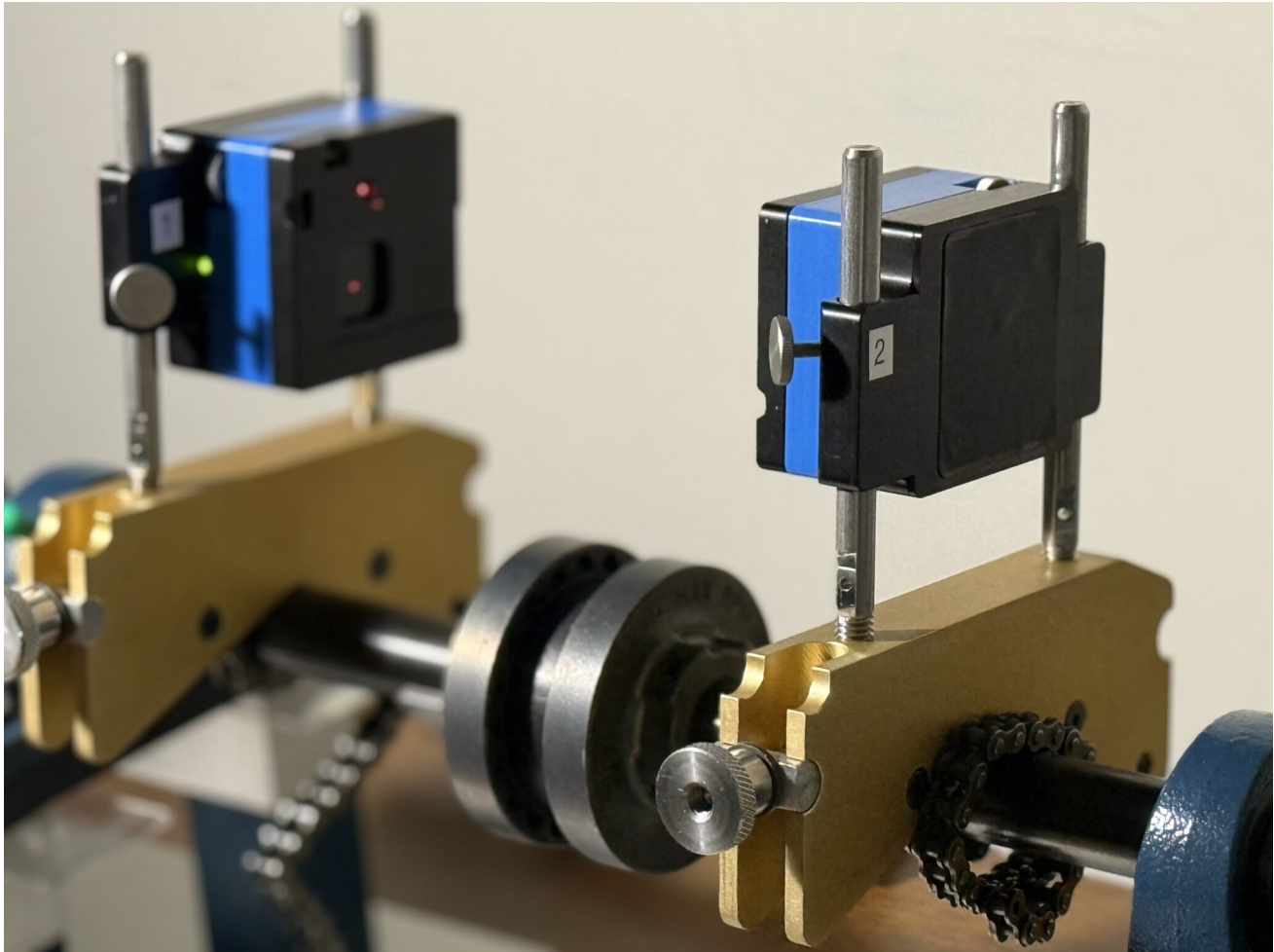


AlignmentQuest (AQ)



***Next generation alignment system with
unique features and benefits***



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Patent Pending

AlignmentQuest (AQ)

AlignmentQuest (AQ) is a fully featured shaft alignment tool with the capability for both laser and dial indicator-based alignment. The accompanying software is designed with ease of use in mind for the technician, with uncompromising standards of quality and performance for the hardware and sensors. Key differentiating features include:

1. Machine Train mapping with base-bound and bolt-bound constraints
2. Included ANSI/ASA standardized "Alignment Quality" graph
3. Allows for alignment with laser sweeping, or multiple dial indicator configurations

Shaft Alignment

Virtually all of modern society relies in some way on rotating machines: this includes generators, electric motors, pumps, fans, compressors, gearboxes, engines, and more. All coupled shafts on rotating equipment should be aligned. A poorly aligned machine can cost a typical factory up to 30% in machine downtime, replacement parts, inventory, and energy consumption. That means that approximately 30% of unplanned maintenance money spent by factories will have misalignment as its root cause.

SpectraQuest's AlignmentQuest system is designed to be used in alignment of rotating shafts to avoid unplanned downtime due to misalignment and ensure smooth operation of equipment.

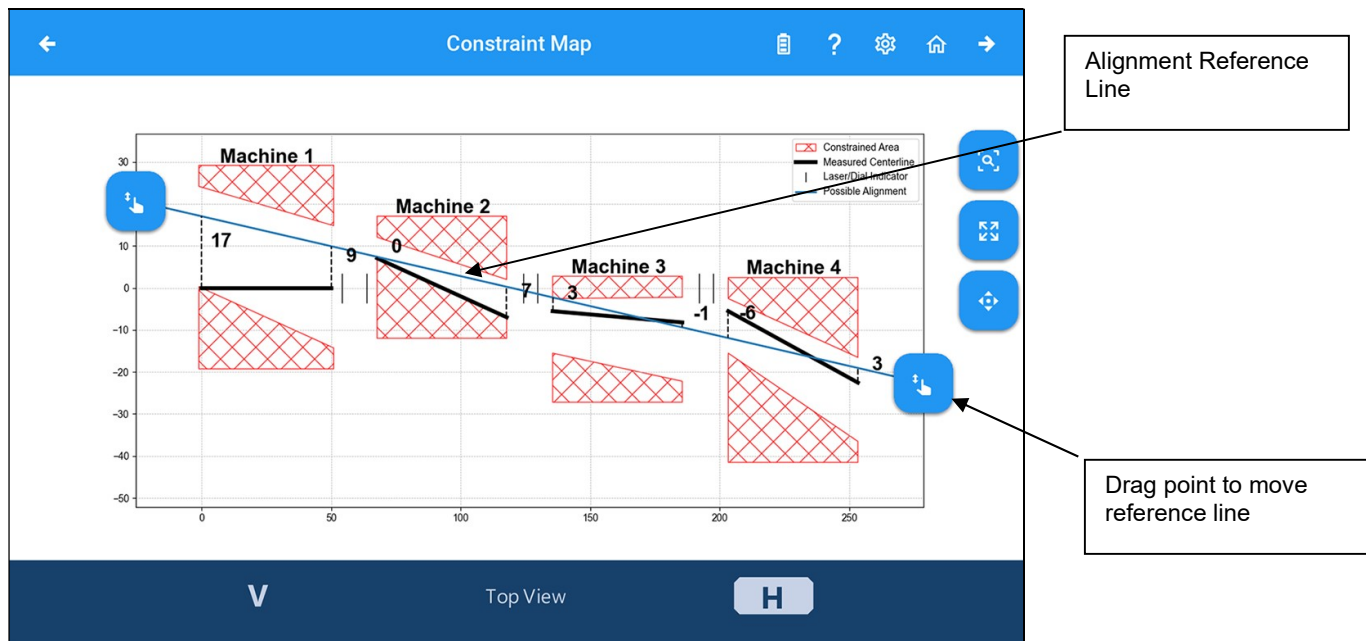
Features and Benefits

- ❖ Live machine movement constraint mapping saves substantial time and eliminates need for multiple alignment iterations
- ❖ Multiple "machine train" capability
- ❖ ANSI/ASA standard tolerances graphed within application, along with angularity and offset
- ❖ In-house designed algorithms for maximum sensor accuracy
- ❖ Wireless laser heads with rechargeable batteries: completely cable-free design
- ❖ Included rugged tablet
- ❖ Built-in dial indicator system allows input of measurements taken with dials instead of lasers if desired
- ❖ Multiple alignment techniques (see below for full list)
- ❖ Adaptable to difficult configurations by plotting constrained areas, input of OL2R corrections, and choosing laser measurement style: sweep or multi-point
- ❖ For single coupling alignments, easily switch movable and stationary machines with one tap
- ❖ Multi-point measurements can be done at any angle using 5 total measurements
- ❖ Sweep data can be filtered using a proprietary algorithm to remove noise
- ❖ Creates custom reports
- ❖ Intuitive, easy-to-use, step-by-step procedure

AlignmentQuest (AQ)

Machine Train Mapping, with Constraints

During shaft alignment, technicians will encounter situations that require creative decision-making. The chosen movable machine may be “base-bound” – i.e. unable to be moved further downward due to lack of shims to remove, or “bolt-bound” – i.e. unable to be moved horizontally due to insufficient size of bolt holes. These problems can be solved by machining, drilling, etc. but this difficult fabrication can sometimes be avoided altogether by either moving a different machine or careful planning of machine movements. This is especially true for “machine trains”, where more than one coupling is involved.



Using our Constraint Map system, technicians can map out a scaled model of all machines/couplings and choose for themselves the best solution. This constraint map is automatically generated using dimensions/data that technicians would already have collected during alignment. Think of it as a bird's-eye representation of the real-world situation. It has a simple, draggable interface that allows the technician to choose which line to align machines to (see image).

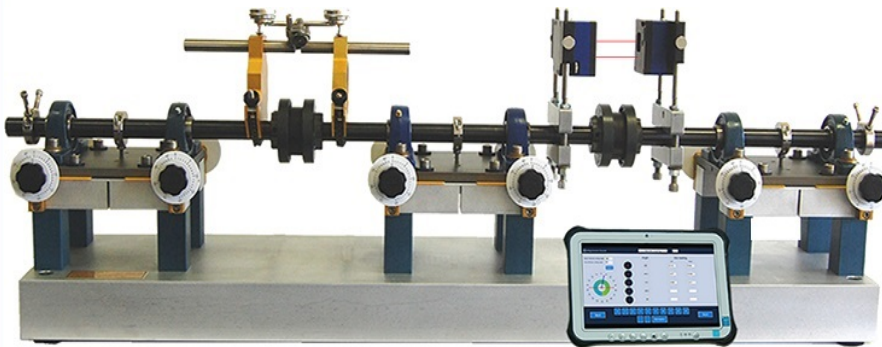
The numbers next to the blue alignment reference line represent the amount of shims to be added/removed to bring the machine feet to the line. In the example above assume that Machine 2's left foot has some problem and therefore cannot be moved. By dragging the blue line so that point reads zero, the rest of the machine foot numbers then show the amount to move up or down to bring the machines into alignment relative to that point. If all feet coincide with the blue line, the entire system is aligned.

The red hatch-marked areas represent optional user-specified forbidden regions beyond which the machine feet cannot be moved, and allow for further planning of desired machinery movements. For single coupling alignments, the movable and stationary machines can be swapped with a single tap, and the foot movement solution will be flipped automatically.

AlignmentQuest (AQ)

Compatible with Both Laser and Dial Indicator Measurements

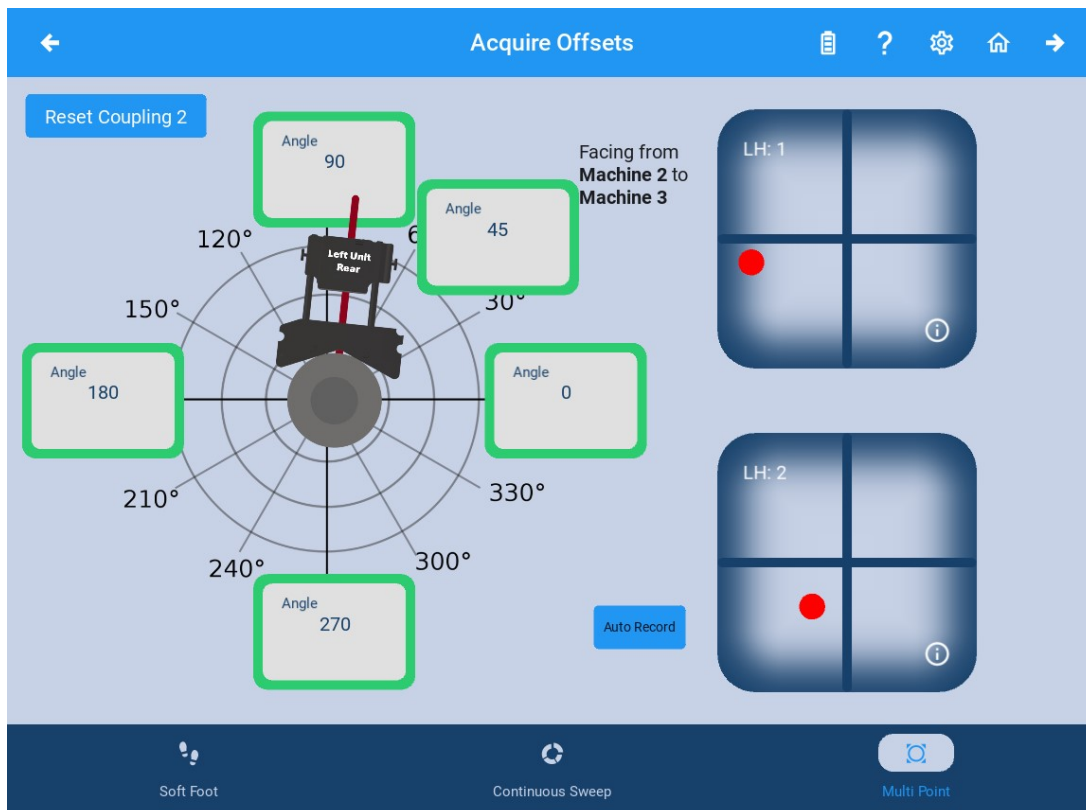
The majority of shaft alignments will involve horizontal alignment of a single coupling, and will be easiest to complete using the included wireless laser heads. However, there are technicians who desire to use dial indicators for alignment of certain special-case scenarios. SpectraQuest's AlignmentQuest is the only shaft alignment system capable of using both laser and multiple dial indicator measurement methods.



Alignment Techniques :

- ❖ Laser
- ❖ Reverse Indicator
- ❖ Rim and Face
- ❖ Double Radial
- ❖ Shaft to Coupling
- ❖ Spool
- ❖ Face to Face

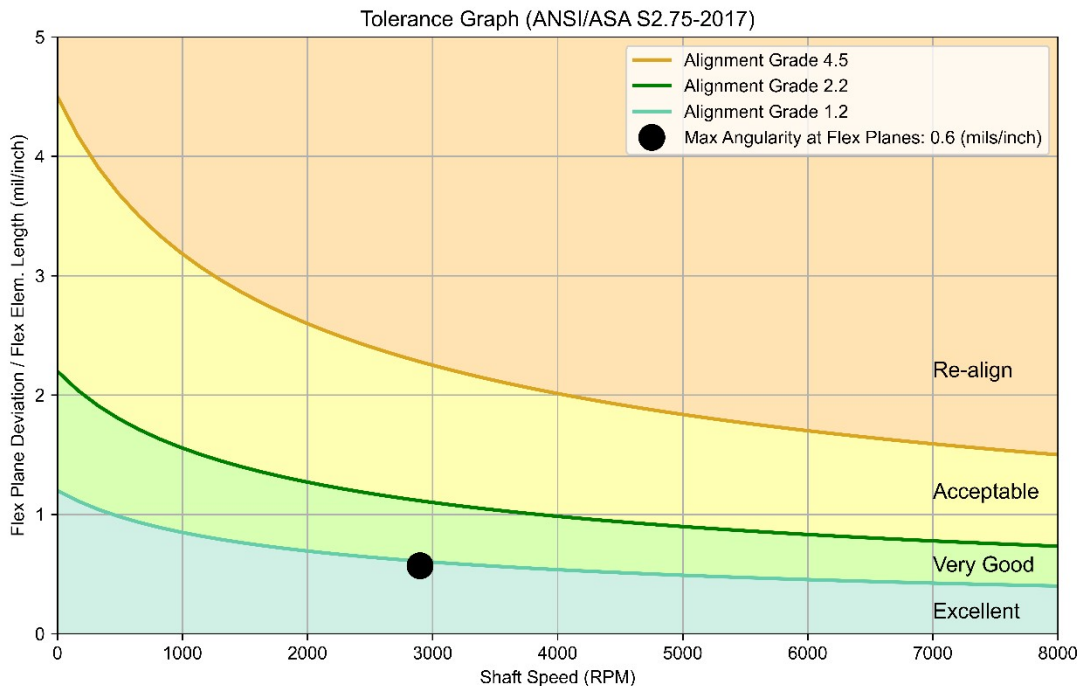
It is additionally possible to use either sweep (laser only) or single point measurements. Single point measurements can be done at any angle specified by the technician by simply typing the desired angle into the UI. (pictured below).



AlignmentQuest (AQ)

Live Plot of ANSI/ASA Standard Alignment Graph

An additional differentiating feature of AlignmentQuest is the option to use ANSI/ASA standard S2.75-2017 conventions to plot the “Alignment Grade” using the data measured by the technician. Simply tap the “Alignment Graph” button on the results page to see the quality of the alignment.



The black dot on the graph above indicates the calculated alignment grade, with the blue region corresponding to an excellent alignment, green indicating very good, yellow for acceptable, and orange indicating that re-alignment is necessary. Note that this graph takes into account the length of the flexible element and the speed of rotation, with faster rotating machines or shorter flexible elements requiring tighter tolerances. This feature is optional – AQ will always report the more commonly used angularity and offset measures for alignment right in the results screen.

SpectraQuest: A Valuable Resource for Keeping Companies Productive

SpectraQuest offers a wide range of tools for productivity enhancement. We also continue to develop new applications and improvements for our machinery fault simulators and shaft laser alignment so that the investment you make in these important tools will continue to provide value for many years to come. Our flagship Machinery Fault Simulator (MFS) has been sold in over fifty countries. To learn more about our innovative products and how they can help you to keep your plant operating profitably, please call or e-mail us at info@spectraquest.com

AlignmentQuest (AQ)

Technical Specifications

Alignment Heads	
Dimensions	3 in. x 1.9 in. x 1.6 in. (7.6 cm x 4.8 cm x 4.1 cm), ear-to-ear is 4.25 in. (10.8 cm)
Housing Material	Aluminum and Acetyl
Weight (per device)	0.84 lb (0.38 kg)
Operating Temperatures	-10 to 40 C
Storage Temperatures	-10 to 40 C (short-term), 18 to 26 C (long-term)
Battery Type	Lithium-ion, 3.7 V
Battery Capacity	1300 mAh (4.8 Wh)
Operating Time (idle)	20 hours
Operating Time (lasers, wireless on)	12 hours
Laser Type and Wavelength	CW, 634 nm
Laser Power	<1 milliwatt
Laser Beam Divergence Angle	1.1 milliradian
Measurement Distance	6 feet
Position Detector Type	Semiconductor PSD
Position Detector Resolution	0.1 thousandths of an inch (2.5 micron)
Position Detector Accuracy	1%
Angle Sensor Resolution	0.1 degrees
Angle Sensor Accuracy	1%
Wireless Type	2.4 GHz
Wireless Communication Range	40 ft max
Charging Port	USB-C
Charging Time	4 hours from 0% to 100%
Tablet (Option 1 / Option 2)*	
Operating System	Windows 11 / Windows 11
Packaging	Rugged construction with handle and water resistance / *
Screen Size	10.1 inch / 11.6 inch
Processor	Alder Lake N100 / i5 1240U
Storage	512 GB SSD / 512 GB SSD
RAM	8 GB LPDDR5 / 32GB
Cameras	2x FHD (front and rear) / *
Charging Time	3 hours (wall outlet) / *
Included Charger	12V (charging port on right) / *
Brackets and Other Hardware	
Max / Min Shaft Diameter	14 in. / 0.5 in. (35.6 cm / 1.3 cm)
Max Height Above Shaft Centerline	Max 13 in. for 14 in. shaft, 6.25 in. for 0.5 in. shaft (33 cm, 15.9 cm)
Depth, axially along shaft	2 in. (5.1 cm)
Clamp chain size	No. 35 (length adjustable)

*Contact for further details on tablet options

Content of brochure is subject to change without notice