



Dual Precision at Every Turn with the New Acoem AT-400 Shaft Alignment Solution

Written by Florian Buder

The new Acoem AT-400 system comes complete with a robust storage/ transportation case, new M9/ S9 dual-axis sensors, the powerful AT-400 app, an enhanced display unit, accessories & power supply.

Acoem has long held the reputation of being a trusted reliability partner for condition monitoring and predictive maintenance. As one of the pioneers in laser shaft alignment technology for critical rotating machinery, Acoem has developed decades of expertise and combined it with the highest level of personalized customer service and global support. And now, it is proud to introduce its premium dual-axis shaft alignment solution to make precise laser alignment even more effortless.

Focusing on the most important benefits of an alignment tool

As with the previous AT models (the AT-100 and AT-200), Acoem considered its customers' feedback and evolving industry needs when developing the high-end AT-400 solution. Essential requirements that the AT-400 delivers are a state-of-the-art user-friendly interface; a wireless communication protocol between the sensors and display unit; repeatable and reliable measurement accuracy; a high IP rating (IP65); faster reporting functionality and job history retrieval; a robust frame that protects against water, dust, and accidents; and a variety of features for correcting soft-foot, horizontal, vertical and machine train alignment while considering thermal growth targets and being able to utilize the feet lock feature to overcome base or bolt bound situations.

Dual-axis technology combined with the Acoem integrated ecosystem equals a superior solution

Although dual-axis technology is not a novel concept in itself, this is the first time that Acoem has integrated the technology into its class-leading ecosystem of alignment solutions that feature full connectivity, cutting-edge sensors, app-based intuitive data management and reporting, WebPortal, and the service and support Acoem is known for worldwide.

Acoem recognized the significance of ensuring precise measurements for extensive machinery that involves considerable sensor-to-sensor distances (exceeding 15 meters). This was challenging to achieve using a line laser system. Furthermore, the company acknowledged that the dual-axis system enables



new measurement modes like Dual Sweep and Dual Multipoint and retains the capability to measure bases or skids using the flatness measurement program in combination with a rotating laser.

Tailored for individuals dealing with machines ranging from small to large and intricate, where accessibility might be a challenge or manual rotation is not feasible, the dual-axis system offers the capability of achieving precise measurements through the innovative Dual Sweep or Dual Multipoint measurement programs. In the Live Move Mode, adjustments can be carried out simultaneously in horizontal and vertical directions, regardless of the sensor's orientation.

While the AT-400 is well-suited for diagnosing alignment issues across all machinery types, its true potential shines in demanding scenarios such as energy generation turbines, compressors, cooling towers, maritime equipment, situations involving non-rotatable shafts, and complex machine train setups, often found in Heavy Industrial Environments such as Oil and Gas, Paper, Mining, etc.

Maximise alignment performance over a variety of applications

The AT-400, with its Dual Multipoint measurement system, can make shaft alignment of **turbines at power plants** (fig. 1) simpler and more accurate. Dual Multipoint is particularly beneficial for coupled shafts with sleeve bearings, uncoupled shafts, shafts exhibiting erratic rotation, journal bearings, or difficult-to-rotate/ non-rotatable shafts. High-speed compressors and turbines require precise measurements, and the Dual Multipoint capability of the dual-axis sensors allows measurements of rotating shafts at any position. Due to the oil film in journal bearings between the shaft and bearing, the shaft must settle before taking the readings.

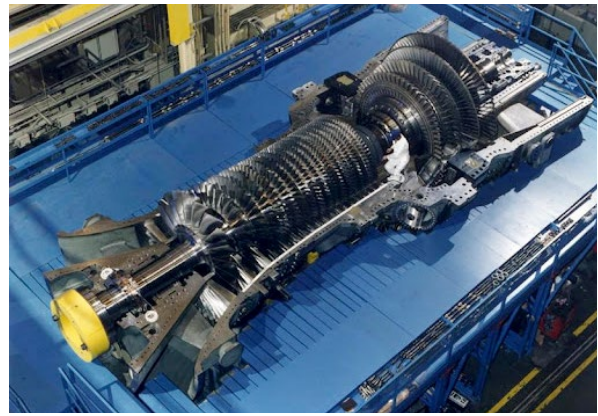


fig. 1

When it comes to aligning **spacer shafts in cooling towers**, (fig. 2) the extended laser range provided by the AT-400 presents a valuable advantage. This enhancement permits precise measurements across distances of up to 20 meters, even when dealing with intense sunlight and extremely high temperatures. Eliminating the necessity to align the shafts when the sensor is positioned at the 3 or 9 o'clock position reduces the time required for horizontal alignment corrections, leading to time and resource savings.



fig. 2

The **design and geometric arrangement of diesel locomotives** (fig. 3) have conventionally demanded specialized alignment techniques using dial indicators and feeler gauges. The introduction of the AT-400 setup brings forth fresh opportunities in the alignment process. The alignment tool is primarily employed to gauge and rectify the angular misalignment between the engine and alternator shafts while considering the air gap. Notably, in this instance, no parallel offset exists between the shafts due to the specific design of the coupling and the single-bearing configuration of the alternator.



fig. 3

When **dealing with non-rotatable shafts**, the accuracy of results obtained using a (fig. 4) sliding bracket might be compromised due to shaft surface distortion, especially when combined with laser systems restricted to three measurement locations. With the AT-400, additional readings spread around the shaft improve reliability. The axis of rotation can be simulated by sliding a special bracket on the shaft with increased width between four contact points, enhancing stability during the alignment process.

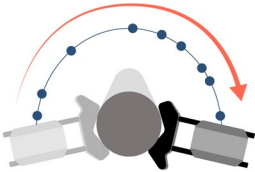


fig. 4



fig. 5

Base or Bolt-bound conditions (fig. 5) with insufficient space between bolts and bolt holes for required movements used to be a common problem in standard and Machine Train Alignments. But the AT-400 alleviates this challenge, providing a solution with the most minor possible move for the bolt-bound machine.

A display unit built with the customer in mind

While operators may have chosen to use their own iOS or Android-based tablet as their data interface in the past, the new AT-400 sensors still allow connectivity to any iOS or Android tablet. Still, the standard package has an Acoem-provided tablet (locked or unlocked).

The AT-400 touchscreen display unit (fig. 6) is a unique 8-inch tablet computer explicitly built to increase fieldwork efficiency. Work faster, with more focus and fewer interruptions. The ultra-rugged display unit has a stunning screen, user-friendly design, a range of built-in tools, and optional accessories. Access all your data reports and apps in one place, transfer data via a USB port or Wi-Fi, email results or administer assets in the Acoem WebPortal, quickly access help (manuals, quick guides, etc.), and add and remove PDF files as required.



fig. 6

Properly align your machines in less time with fewer resources

“The new Acoem AT-400 solution unlocks the potential for faster and more precise alignment decisions – ultimately saving your business time and resources,” commented Florian Buder, Vice President of Acoem Reliability Technical Sales and Engineering.

“And most importantly, with less machinery downtime, you will increase operational productivity and be able to focus on your key production/processing functions instead of maintenance,” he added.

For more information about the new Acoem dual-axis AT-400 shaft alignment solution, visit acoem.us/at-400 or [Contact Us](#).