CENTRALIGN® Ultra

Using laser alignment to reduce steam and gas turbine outage

PRÜFTECHNIK
Alignment Systems

Number 1 in laser precision alignment

Turbine alignment with higher accuracy in less time

CENTRALIGN® Ultra
The new generation laser alignment system CENTRALIGN® Ultra has been specifically developed for alignment of steam and gas turbines. The system is used for precise alignment of internal elements of rotating machines such as bearing pedestals, turbine casings, bearing shells, diaphragms and inner shells.

CENTRALIGN® Ultra offers a more accurate laser optical measurement alternative to sagging piano wire, micrometers and cumbersome theodolite telescopes. It has a higher precision, and measurement takes less than half the time of conventional methods. Electronic communication between measuring sensors and the ROTALIGN® Ultra computer eliminates human reading errors which occur with traditional measurement systems. Stable wireless data transmission via Bluetooth® ensures reliable and convenient transfer of complete measurement information, including the position of the elements. The combination of a precise and stable laser, and a control sensor help improve accuracy.

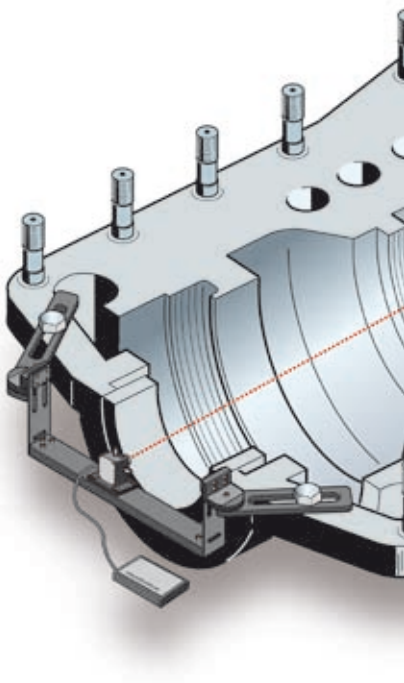
Centerline alignment, such as that of turbines, has until now posed an immense measurement challenge in terms of time and effort.

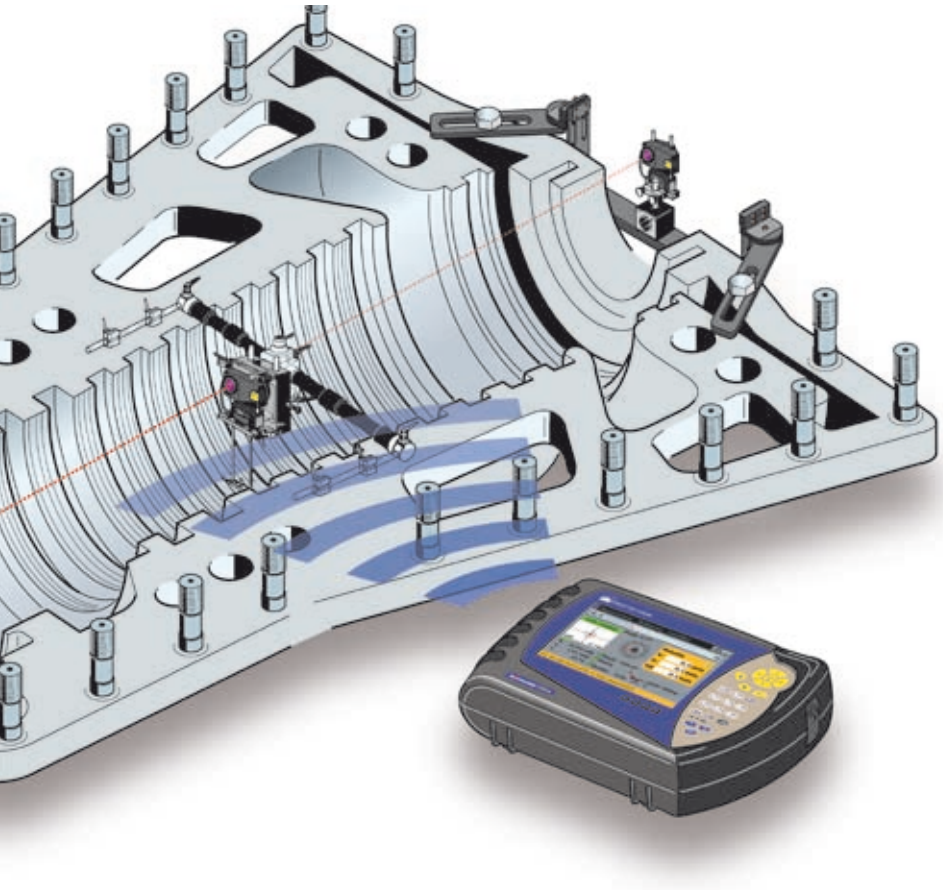
CENTRALIGN Ultra saves the extensive amounts of time and effort needed in traditional methods to position the piano wire or measurement shaft into place and to reposition it each time an adjustment is made. The system measures offsets between the individual arc-shaped diaphragm segments and allows adjustment of the desired centerline on-screen to make corrections as convenient as possible.

Advantages at a glance

- True bore center measurement – the eccentricity error is determined
- Pointer bracket and large bore brackets for bore diameters ranging from 45 mm (1-13/16“) to 4000 mm (157-1/2“)
- Include element grouping, line presets values and rotor sag compensation values.
- Ease of handling, lightweight components and laser technology make equipment set-up simple
- Precise user independent measurement and results
- View the minimum corrections required
- Bluetooth® for stable and wireless data transmission
- Measurement results are documented and generated reports can be printed

CENTRALIGN Ultra uses a control sensor to compensate for laser drift and warns the user should the drift exceed the set limits.





Our guarantees

Perfect alignment using CENTRALIGN® Ultra supported by our expertise and experience, offers:

- Improvement in efficiency of turbine units
- Reduction in duration of overhauls
- No necessity to install the rotors for measurements
- Corrections for each element are displayed instantly
- Resolution of 1µm (1/1000 mm) / 0.04 mils
- Detection of deformations and ovalisation of elements
- Optimal choice of centerline for the entire assembly with minimal correction values for each element
- Improved laser measurements due to control sensor monitoring and correcting any laser drift
- Live move function to monitor in real time the element correction
- Powerful built-in splice function improves measurement time and flexibility

Precision alignment in three steps

Quick and straightforward

Bore set-up

- Configure machine using the set-up wizard
- Choice of different bore types including diaphragm, bearings and oil deflectors, distance and bore diameter.
- Input of compensation values for thermal growth or rotor sag
- Add and group new or existing bores to the configuration

Measurement

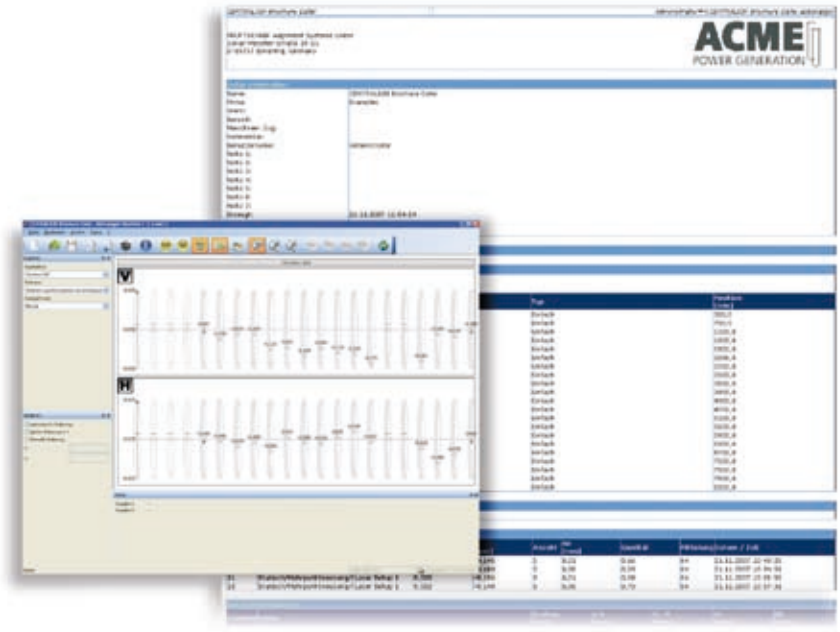
- On-screen guidance for laser set-up – no need to center laser before starting measurement
- Graphics lead you through the measurement procedure
- Measurement table to review measurement repeatability
- Measurement table and standard deviation values confirm accuracy of measurement and shape of bore.

Results

- Results traceable to national standards
- Set the centerline relative to any fixed bores, or optimized
- Results displayed in color provide a clearer understanding

Complete solutions for laser turbine alignment

ALIGNMENT CENTER



One software for all PRÜFTECHNIK products and applications

ALIGNMENT CENTER is a Windows™ based software platform for all shaft and geometrical alignment applications. It is compatible with current PRÜFTECHNIK products!
Take advantage of exclusive features like measurement job preparation, advanced result analysis and professional customizable color reports.

Patented brackets

CENTRALIGN® Ultra system brackets are specifically designed for ease of use and extremely high accuracy. They can be inserted in bores from as small as 45 mm (1.77") in diameter to 4000 mm (157.5"). An integrated magnetic base keeps the bracket frame in place within the bore. These brackets can be used in measuring both magnetic and nonmagnetic bores.

A rotating sensor holder enables the sensor to be quickly centered and rotated within the bore. Measurement readings may also be transmitted to the ROTALIGN® Ultra computer via the optional RF Bluetooth® module – increasing measurement flexibility. Brackets come with all listed components in their own carrying case. (U.S. Patent 5,717,491)

Further modular ROTALIGN® Ultra applications

Shaft alignment

The ultimate shaft alignment system

Straightness measurement

Measurement of vertical and horizontal straightness

Flatness measurement

Measurement of surface flatness and levelness

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