

# SHAFTALIGN®

Redefining the standard for laser shaft alignment



## Present in all industries

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## Expertise in precision laser alignment

For over two decades, PRÜFTECHNIK Alignment Systems has continued to develop undisputed precision laser alignment products. The maintenance departments in the top industrial organisations worldwide employ these highly-developed and user-friendly systems to measure and align machinery used in the power, chemical, water treatment, production and processing industries.

From the numerous PRÜFTECHNIK patents, a good number have been incorporated in the current SHAFTALIGN®. Its straightforward

and intuitive operation, combined with a modular upgrade concept transforms SHAFTALIGN® into a dynamic precision laser alignment measurement instrument without overstressing your budget.

With SHAFTALIGN®, the alignment of rotating machinery has never been simpler and convenient.

## Extend machine availability and efficiency

### Precision alignment pays back

Rotating machinery is susceptible to misalignment. Machines that are well aligned at the commissioning stage and thereafter regularly maintained, will in the long term reduce both plant operating and maintenance costs.

Laser precision alignment extends machine availability as the Mean Time Between Failure (MTBF) increases.

It protects assets and increases product quality, as vibration is reduced to very low level.

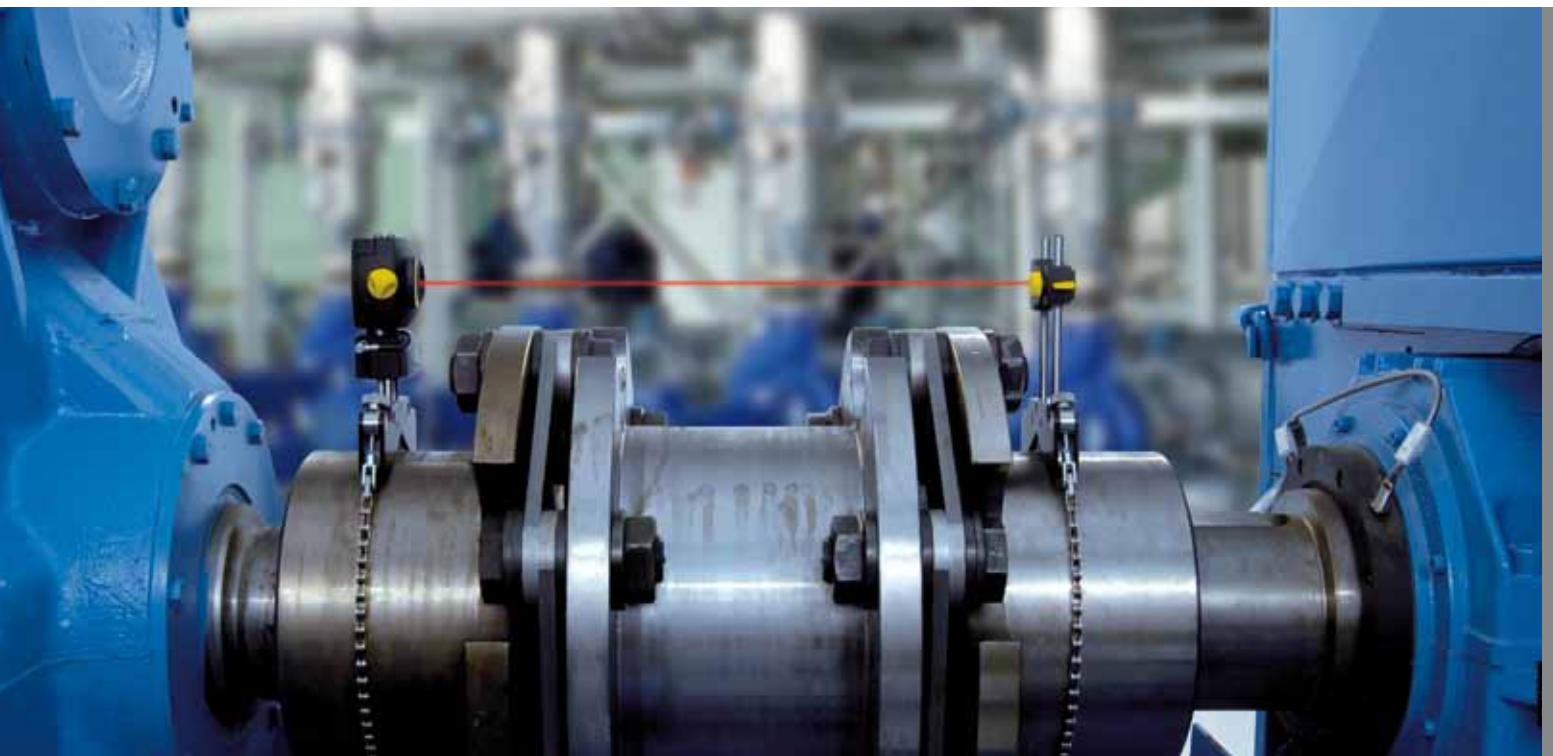
When misaligned, the loading of the shafts dramatically increases due to the reaction forces created within the coupling.

Accurate shaft alignment contributes in more than one way towards great savings and a cleaner environment.

### SHAFTALIGN® sets new standards within the shaft alignment entry level segment

This robust system is equipped with powerful features for productive maintenance:

- ▶ **UniBeam**  
Patented single laser/detector technology for easy set-up
- ▶ **Intuitive auto-flow capability**  
The system guides the user progressively to determine the machinery alignment condition and its tolerance evaluation
- ▶ **Active clock measurement mode**  
Intelligent and precise alignment due to the activated electronic inclinometer.  
Measurements are taken at any 3 or 4 positions with a shaft rotation of as little as 70°
- ▶ **Live move**  
Monitoring of horizontal or vertical machine corrections
- ▶ **Soft foot check**  
Measure, correct and save results
- ▶ **File management**  
Save up to 50 measurement files in the device and save measurement reports as a PDF to a memory stick
- ▶ **Data protection**  
Auto save and resume capability
- ▶ **PC freeware**  
ALIGNMENT REPORTER Windows® software is used to backup measurement files and print reports



## Intuitive, innovative and precise

SHAFTALIGN® combines simplicity of operation with precise measurement and state-of-the-art technology. The computer's backlit TFT colour display and built-in ambient light sensor optimize image quality and the device power management.

The system's intuitive auto-flow capability guides the user progressively to determine the machinery alignment condition.

The innovative "Active Clock" measurement mode collects automatically the laser coordinates for the corresponding shaft position. Only 3 to 4 readings over a rotation angle of less than 70° are required to achieve a precision alignment. All relevant alignment results are presented in one screen including the alignment status evaluation via "Smiley" and LED.

SHAFTALIGN® is a high precision user-friendly alignment system incorporating functions to eliminate human error and optimize productivity.

SHAFTALIGN® is expandable to more powerful features as alignment requirements demand. The system offers a variety of options to generate and archive alignment measurement reports, using the freeware ALIGNMENT REPORTER PC software or saving reports directly as PDF to a memory stick.

# SHAFTALIGN®

The alphanumeric keyboard and the navigation keys ensure comfortable operation of the measurement system.

The alignment condition is monitored through 'Smiley' and the computer LED. SHAFTALIGN® high resolution TFT colour display is backlit.

An integrated light sensor automatically adjusts display brightness allowing easy reading of measurement values in low light environments, and extends run time.

Computer with integrated rechargeable battery is optionally available.

The connection to a PC and other peripheral devices such as a printer is via a USB interface.

### Active clock measurement mode

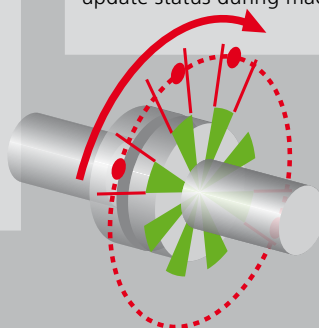
Intelligent and precise alignment due to the activated electronic inclinometer used in this measurement mode. Measurement can be taken within any green sector at any 3 or 4 positions.

Sensor angular position is automatically considered in the calculations during shaft positioning, eliminating possible user error.

Measurement can start at any position and in any direction, with a shaft rotation of as little as 70°.

### Automatic evaluation of alignment

TolChek® – Dynamic tolerances evaluate the alignment condition based upon the machine RPM. The Smiley and the LED provide visual indication of the alignment condition and a live update status during machine correction.





- 1 The system's intuitive auto-flow capability guides the user progressively to enter machine dimensions.
- 2 Only 3 or 4 readings over a rotation angle of less than 70° are required to determine the precise alignment condition.
- 3 All relevant alignment results are displayed in one screen including the alignment status evaluation via "Smiley" and LED.

SHAFTALIGN® has been constructed and manufactured for industrial applications, and can be used in extreme working conditions. The computer is dustproof and water spray resistant in accordance with IP 65; the transducer and reflector are both submersible and dustproof in accordance with IP 67.

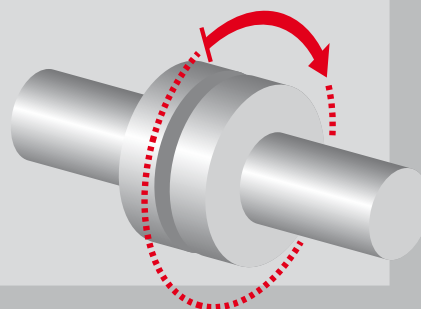
## Quick and straightforward precision laser alignment

### Live Move

Both horizontal and vertical coupling and foot results are automatically calculated. The machine graphics show the direction and the correction value of feet to be moved. During Live Move, SHAFTALIGN® continuously measures the corrections. The monitored changes are displayed live on the screen.

### Sweep measurement mode (optional)

SHAFTALIGN® takes numerous readings to accurately determine the alignment condition with a shaft rotation of as little as 60°.



## Standard features

Active clock measurement mode

High resolution colour backlit TFT screen and USB interface integrated

UniBeam® - patented single laser/detector technology

TolChek® – automatic evaluation of alignment condition

InfiniRange® extends detector measurement range to handle any amount of misalignment

Live monitoring of horizontal or vertical machine corrections

Alignment of nonrotatable and uncoupled shafts

Static measurement mode – requires any 3 of the 8 available 45° measurement positions

Save measurement report as a PDF to a memory stick

Save up to 50 measurement files in the device

Data protection - auto save and resume capability

Soft foot check – measure, correct and save results

Protected against dust, water and grease in compliance with classification IP 65 and IP 67

PC freeware ALIGNMENT REPORTER is used to backup measurement files and print reports

## Powerful options

Continuous Sweep measurement mode automatically activated as shaft is rotated

Ability to enter targets and thermal growth values

Free selection of reference static feet

Multipoint measurement mode – measurement at any 3 or more positions over 60° rotation

Alignment of vertical and flange-mounted machines

Alignment of spacer and cardan shafts

Customer-defined tolerance

Save up to 200 measurement files in the device

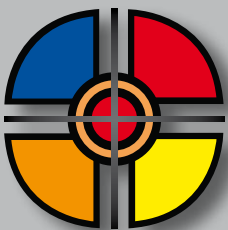
Alternative computer version with integrated rechargeable battery

Verify measurement repeatability and before/after alignment positions using the result table

Pipe Strain Wizard – to check for pipe strain acting on machines

The PC software ALIGNMENT CENTER is used for preparing, analyzing, archiving and printing professional reports

## ALIGNMENT CENTER – The PC partner for alignment professionals



ALIGNMENT CENTER is a PC software used for preparing, analyzing, organizing and archiving measurement files.

ALIGNMENT CENTER is a Windows® based common PC software platform for current PRÜFTECHNIK alignment instruments and applications.

Use ALIGNMENT CENTER to manage your measurement files and data, and use the two-way communication to transfer files from PC to instrument and vice versa.

ALIGNMENT CENTER simplifies job preparation as all alignment and measurement specifications including thermal growth compensation and tolerances are saved for future use.

Measurement related data is also saved and the measurement history can also be followed. The software generates professional colour reports that include photos, company information and logo. Improve your alignment efficiency and productivity by utilizing this indispensable tool in your everyday alignment tasks.

ALIGNMENT REPORTER is a PRÜFTECHNIK Alignment Systems freeware used for generating measurement reports and backup of measurement files on a PC. Use it to generate reports that can be printed on any available printer.

## SHAFTALIGN® Technical data

|                          |  |
|--------------------------|--|
| <b>Computer</b>          |  |
| CPU                      | Intel XScale PXA270 running at 312 MHz   |
| Memory                   | 64 MB RAM, 32 MB Flash   |
| Display                  | Type: TFT, transmissive (sunlight-readable), 65 535 colours, backlit LED<br>Integrated light sensor for automated adjustment of the brightness to the display according to the lighting conditions hence extending battery life<br>Resolution: 320 x 240 Pixel; Dimensions: 89 mm [3,5"] diagonal<br>Keyboard elements: Navigation cursor cross with up, clear and menu keys; Alphanumeric keyboard with dimensions, measure and results, soft foot and move hard keys |
| LED indicators           | Multicolour LED for laser status and alignment condition<br>Multicolour LED for battery status   |
| Power supply             | Disposable batteries: 5 x 1.5 V IEC LR6 ("AA") with typical operating time of 9 hours (based upon an operating cycle of 33% measurement, 33% computation and 33% 'sleep' mode)<br>Integrated Lithium-ion polymer rechargeable battery: 7.4 V / 2.8 Ah (for optional computer) with typical operating time of 17 hours (based upon an operating cycle of 33% measurement, 33% computation and 33% 'sleep' mode)   |
| External interface       | USB host<br>USB slave<br>RS232 (serial) for transducer<br>AC adapter/charger socket  |
| Environmental protection | IP 65 (dustproof and water spray resistant), shockproof<br>Relative humidity 10% to 90%  |
| Temperature range        | Operation: -10°C to 50°C [14°F to 122°F]<br>Storage: -20°C to 60°C [-4°F to 140°F]   |
| Dimensions               | Approx. 220 x 165 x 45 mm [8.7" x 6.5 x 1.8"]  |
| Weight                   | 742 g [1.64 lb]  |
| CE conformity            | EC guidelines for electric devices (73/23/EEC) and those relating to electromagnetic compatibility (2004/108/EC) are fulfilled   |
| <b>Transducer</b>        |  |
|                          | Measurement principle: Coaxial, reflected laser beam<br>Environmental protection: IP 67 (submersible, dustproof)<br>Ambient light protection: yes<br>Storage temperature: -20°C to 80°C [-4°F to 176°F]<br>Operating temperature: 0°C to 55°C [32°F to 131°F]<br>Dimensions: approx. 107 x 70 x 49 mm [4 1/4" x 2 3/4" x 2"]<br>Weight: approx. 177 g [6 1/2 oz.]  |
| Laser                    | Type: Ga-Al-As semiconductor laser<br>Wavelength (typical) 675 nm (red, visible)<br>Safety class: Class 2, FDA 21 CFR 1000 and 1040<br>Beam power: < 1 mW<br>Safety precautions: Do not look into laser beam   |
| Detector                 | Measurement area: unlimited, dynamically extendible (U.S. Patent 6,040,903)<br>Resolution: 1 µm; Accuracy (avg): > 98%   |
| Inclinometer             | Measurement range: 0° to 360°; Resolution: <1°   |
| <b>Reflector</b>         |  |
|                          | Type: 90° roof prism; Accuracy (avg): > 99%<br>Environmental protection: IP 67 (submersible, dustproof)<br>Storage temperature: -20°C to 80°C [-4°F to 176°F]<br>Operating temperature: -20°C to 60°C [-4°F to 140°F]<br>Dimensions: approx. 100 x 41 x 35 mm [4" x 1 5/8" x 1 3/8"]<br>Weight: approx. 65 g [2 1/2 oz.]   |
| <b>Carrying case</b>     |  |
|                          | Standard: ABS, drop tested 2 m [6 1/2 ft])<br>Case dimensions: approx. 470 x 400 x 195 mm [18 1/2" x 15 3/4" x 7 3/4"]<br>Weight, including all standard parts: approx. 5.8 kg [12.8 lb]   |



Contents may vary depending upon package ordered

## SHAFTALIGN® and much more

### Customized product training

The training and seminars are held by professional trainers worldwide and are intended to support users apply the systems and the alignment applications confidently, saving time and expense.



### Turbine alignment service

Our specialized turbine teams possess extensive experience in the installation and overhaul of steam and gas turbines.



### Geometric alignment services

Using specially developed systems, our service teams carry out geometric measurements. These include: straightness, surface flatness and levelness, settlement in foundations and analysis of machine geometry.



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