PRÜFTECHNIK

Laser Alignment Systems for Shafts, Turbines, and Machines


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Why you have to align shafts, turbines, and machines precisely!

- Improved efficiency
- Longer service life of all machine components
- Improved quiet running with reduced vibrations
- Decreasing energy consumption
- Reduced temperatures at bearing, coupling, and lubrication
- Reduced wear
- Lower spare parts storage costs
- Avoid flow problems in turbines

PRUFTECHNIK single-laser technology helps you achieve more!

- ROTALIGN® touch
- ROTALIGN® touch EX
- OPTALIGN® touch
- tab@lign®
- PULLALIGN®
- CENTRALIGN® Ultra RS5
- GEO CENTER

Alignment and measurement of:

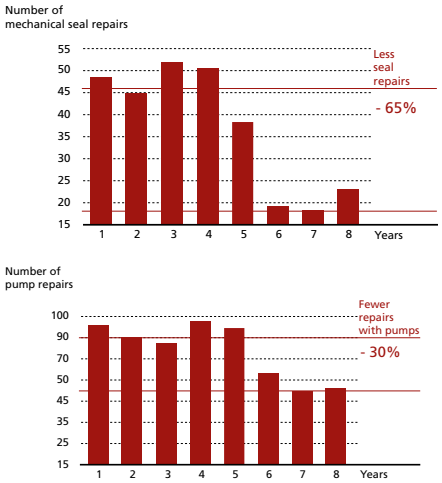
- Shafts
- Vertical machines
- Flanges
- Couplings
- Bores
- Turbines
- Joints
- Belt pulleys
- Machine foundations
- Cardan shafts

The advantages of machine alignment by the numbers

1. Fewer repairs

Repair work (e.g., on seals) can be reduced by up to 65 percent if the system is correctly aligned.

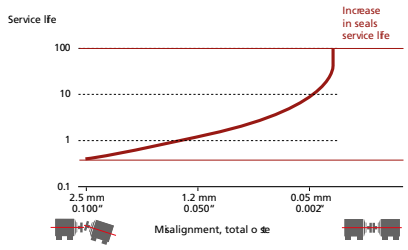
Repair work, (e.g., on pumps), can be reduced by up to 30 percent. If laser alignment is an integral part of the maintenance measures, all maintenance costs are reduced to a minimum because the acquisition costs for spare parts and their storage costs are reduced.



Source: ©HOECHST AG Gendorf/Germany

2. Longer machine running time

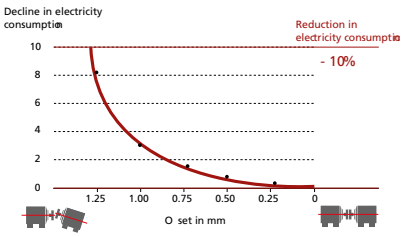
Precise laser alignment sustainably reduces mechanical wear on all rotating components.
If a machine is misaligned, this has a negative effect on the mechanical wear of bearings and couplings.
Due to the laser alignment and the reduced wear, the machine running time and efficiency are increased considerably.



Source: ©DURAMETALLIC Inc

3. Reduced energy consumption

Precise laser alignment saves energy that would otherwise be lost due to increased friction. Unnatural stresses in the machine are reduced. Energy consumption can thus be reduced by up to ten percent.



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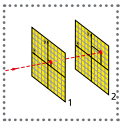
Alignment with PRUFTECHNIK...

At the beginning of the 1980s, PRUFTECHNIK laid the foundation for the worldwide evolution of machine alignment with a laser process for aligning machines. High-precision lasers and sensors have replaced the ruler and dial gauge and have since contributed to unprecedented alignment precision. Fast, simple, and intuitive application is always a top priority for PRUFTECHNIK. The numerous features of the laser sensor unit support the user in performing every single measurement safely, repeatably, and precisely!

Unibeam- Single Laser Technology

Unibeam technology uses only a single laser beam. All PRUFTECHNIK laser alignment systems are, therefore, quick and easy to install and guarantee maximum precision, even in the event of extreme angular misalignments.



sensALIGN®

The patented sensALIGN® sensor technology features a built-in inclinometer. This is based on the use of a microelectromechanical system (MEMS) that measures over a total of seven axes. The XXL HD PSD sensor forms the basis for this. With this superior sensALIGN® technology, our intelligent intelliSWEEP®, Simultaneous Live Move, and Quality Factor measuring modes, we achieve repeatable and precise measurement results in every area of misalignment.

intelliSWEEP®

With the intelligent intelliSWEEP® HD measuring mode, interference factors such as coupling play, angular misalignment, or external vibration sources can be easily found by the user and eliminated from the system in order to avoid poor data quality. As soon as the shaft rotates, a large amount of data is automatically and continuously recorded. The repeatability and the measuring precision are thus many times higher than with conventional measuring methods based on a three-point measurement.

intelliPASS®

With the intelligent intelliPASS® measuring mode, based on intelliSWEEP®, decoupled shafts can be measured and aligned to each other. For this purpose, the two measuring heads – sensor and laser – are rotated past each other in different angular positions. The measurements are taken automatically as soon as the laser beam hits the center of the sensor.

Quality Factor

The Quality Factor determines the data quality in real time and takes into account disturbing factors such as clutch and/or gear play and rotation speed. The inclusion of ambient vibrations in the calculation is unique and only available from PRUFTECHNIK. Measurement results with poor data quality are automatically deleted or can be manually removed by the user.

... fast, easy and precise!

Simultaneous Live Move

Simultaneous Live Move is a special feature that saves a lot of time during the alignment process. Horizontal and vertical corrections are monitored and displayed in real time. The Live Move can be started at any sensor position.

Move Simulator

The Move Simulator makes it possible to see how the machine will behave during alignment and whether the actual alignment will ultimately lead to the desired result even before the actual alignment with the prepared shims. This is a very helpful tool, especially when space is limited.

vertiSWEEP®

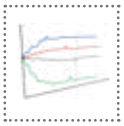
The intelligent vertiSWEEP® measuring mode, based on intelliSWEEP®, allows for the measurement of vertically mounted input shafts. This makes aligning vertical shafts just as easy as aligning horizontal shafts. Measurement occurs automatically through continuous rotation.

Cardan shaft alignment

The unique and patented measuring method enables cardan shaft alignment on site, without dismantling the shaft.

Live Trend

Live Trend is a function for monitoring and analyzing thermal or process control changes in the position of the machine during the start-up and shutdown phases. At the same time, Live Trend records the machine vibrations. The resulting set points or alignment presets can be used during shaft alignment in cold conditions to ensure optimum alignment of the machine in warm conditions.



Vibration Check

The sensALIGN® sensor measures the vibration velocity (ref) via the vibration test probe. The vibration measurement after alignment confirms the perfect alignment condition and ensures optimum operation.

Sets new standards!

ROTALIGN® touch

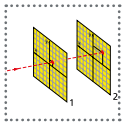
High-performance in perfection

Thanks to its unmatched sensALIGN® 7 laser sensor technology, ROTALIGN® touch is the measure of all things when it comes to aligning machines. This intelligent alignment system gets the job done, no matter where: on test benches with high rotational speeds, drives with long intermediate shafts, cardan shafts, and high-temperature systems. Troubleshoot:

- Alignment of coupled and uncoupled shafts
- Alignment of rotating axes, flanges, couplings, intermediate shafts, and cardan shafts (coupled/uncoupled)
- Measurement of thermal growth and machine movements during operation with Live Trend
- Alignment of vertical machines
- Move-simulator
- Alignment of up to six sequential couplings simultaneously
- WiFi, RFID, cloud transfer

The new dimension of laser alignment






OPTALIGN® touch

The game changer in laser alignment

The OPTALIGN® touch is the perfect device for everyday alignment and measuring tasks in the industry – an alignment system that no workshop or machinery should be without! Thanks to its unmatched sensALIGN® 5 laser sensor technology, all measurement results are extremely precise, are extremely precise, and can be repeated at any time.

- Industrial design: waterproof and dustproof (IP65), oil proof, dirt resistant, scratch-resistant, and impact-resistant
- Touchscreen display suitable for gloves
- Continuous recording of measured values during laser/sensor rotation (SWEEP MODE)
- Real-time display of the alignment process (Live Move)
- Wireless data communication (Bluetooth & WiFi)
- Fast, intuitive installation

2018 Plant Engineering PRODUCT of the YEAR Grand Award

ROTALIGN® touch EX

No. 1 in potentially explosive areas

ROTALIGN® touch EX reaches machines and systems in potentially explosive areas which are not accessible with normal devices and is ATEX /IECEx zone 1 certified!

- Industrial design: waterproof and dustproof (IP68), oil proof, dirt resistant, scratch-resistant, and impact-resistant
- Touchscreen display suitable for gloves
- Alignment of up to six consecutive shafts
- Alignment of vertical machines (vertiSWEEP)
- Alignment of uncoupled shafts and cardan shafts
- RFID detection and integrated camera
- Wireless data communication (Bluetooth & WiFi)

tab@lign®

Shaft alignment via Android app

tab@lign® is the perfect solution to quickly and easily check alignment conditions. The measurement data is recorded by the laser sensor unit via Bluetooth using a mobile app for tablet or smartphone.

- sensALIGN® 3 laser sensor technology for professional measurement results
- Live Move function – display of position changes in real time
- Available for Android and iOS

PULLALIGN® / PULLALIGN® Lite 2

Belt pulley alignment with laser precision

The easy-to-use PULLALIGN® laser alignment device allows belt pulleys to be aligned quickly and efficiently.

- Available with red or green laser
- High holding magnet force
- Easy to use
- Laser reflector for high precision
- Height-adjustable targets for quick application

This is how shafts, machines, ...

... and turbines are aligned correctly

PRÜFTECHNIK

tab@lign®

Laser shaft alignment goes mobile

- Mobility – Shaft alignment for tablets and smart phones
- Connectivity – Email measurement reports on the spot
- Convenience – Compact case, fully wireless

Made for iPod iPhone iPad

Lifting the boundaries for infinite freedom

tab@lign® – mobile, connected, convenient

Shaft alignment at your fingertips

tab@lign® is a unique laser shaft alignment solution for tablets and smart phones. Supporting both Apple and Android mobile devices, tab@lign® offers unprecedented mobility, connectivity and convenience.

Perfect for performing standard shaft alignment including quick alignment checks on machines such as a motor-pump combination, tab@lign® offers the same intuitive operation as with other PRUFTECHNIK alignment systems.

tab@lign® comprises the app, the measurement components and a Bluetooth® module for wireless communication. The app runs on everyday mobile devices. A rugged industrial tablet with glove-enabled touchscreen is available as an additional option.

As with all products from PRUFTECHNIK, tab@lign® inherits the high accuracy and quality that have always been our standard. Simply download the app and go!

Key benefits of tab@lign®

tab@lign® boosts the efficiency of shaft alignment through:

- Fully mobile and wireless laser alignment system
- App-based user interface with touch operation
- Automatic tolerances
- Instant sharing of clear single-page graphical report via email

Mobility

Built on the latest mobile communication technologies, this solution makes laser shaft alignment available to on-site maintenance and service teams exactly where and when they need it.

Connectivity

Enjoy shaft alignment in a mobile dimension: display and update work orders, check emails, take snapshots, measure and display correction results, send out reports, and much more. Combined with all the information, tools and applications required for the maintenance job on one single multi-functional platform, shaft alignment has never been so integrated.

Convenience

Shaft alignment on mobile devices means greater flexibility and availability.
But there is even more to tab@lign®.
With a compact carrying case and an app-based user interface with touch operation, tab@lign® is perfect for service technicians on the go.

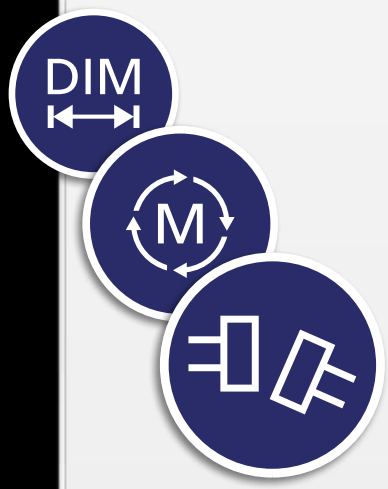
Available on the App Store

ANDROID APP ON Google play

tab@lign® features at a glance

3 steps to alignment

- Enter dimensions
- Rotate shafts
- Display measurement result



Equipped with the PRUFTECHNIK OS3 single-laser technology, tab@lign® delivers accurate and repeatable measurement results.

Bluetooth® communication
The wireless module enables convenient data transmission for a fully cable-free system operation.

Active Clock measurement
During shaft rotation, measurements are automatically taken at 3 sensor positions. The activated electronic MEMS inclinometer eliminates possible user error.

Soft foot
Measure, correct and save soft foot results.

Automatic tolerances
Smileys show the alignment condition based on the tolerances.

Results and Live Move
Horizontal, vertical coupling and feet results are graphically displayed. Arrows show the necessary feet corrections. During Live Move, tab@lign® monitors the horizontal changes live on the screen.

Reporting
A PDF report showing the alignment condition as found and as left can be sent immediately. Additional asset data and an application photo may be included.

Upgrade
Seamless upgrade to SHAFTALIGN® OS3.

tab@lign® technical data

Transducer	
	Measurement principle: Coaxial, reflected laser beam
	Environmental protection: IP 67 (submersible, dustproof)
	Ambient light protection: Optical and active electronic digital compensation
	Storage temperature: -20°C to 80°C [-4°F to 176°F]
	Operating temperature: -10°C to 55°C [14°F to 131°F]
	Dimensions: approx. 107 x 70 x 49 mm [4 1/4" x 2 3/4" x 2"]
	Weight: approx. 177 g [6 1/2 oz.]
Laser	Type: Semiconductor laser diode
	Wavelength (typical) 675 nm (red, visible)
	Safety class: Class 2, IEC 60825-1:2007
	Beam power: < 1 mW
	Safety precautions: Do not look into laser beam
Detector	Resolution: 1 µm; Accuracy (avg): > 98%
Inclinometer	Measurement range: 0° to 360°; Resolution: < 0,1°
CE conformity	EC guidelines for electric devices (73/23/EEC) and those relating to electromagnetic compatibility (2004/108/EC) are fulfilled
Reflector	
	Type: 90° roof prism; Accuracy (avg): > 99%
	Environmental protection: IP 67
	Storage temperature: -20°C to 80°C [-4°F to 176°F]
	Operating temperature: -20°C to 60°C [-4°F to 140°F]
	Dimensions: approx. 100 x 41 x 35 mm [4" x 1 5/8" x 1 3/8"]
	Weight: approx. 65 g [2 1/2 oz.]

Bluetooth® module	
Class 1 connectivity, transmitting power	100 mW
Transmission distance	Up to 30 m [98 ft.] direct line of sight
Compliance	FCC rules part 15.247
LED indicators	1 LED for wireless communication, 3 LEDs for battery status
Power supply	Batteries 2 x 1.5 V IEC LR6 ("AA")
Operating time	17 hours typical use (based upon an operating cycle of 50% measurement, 50% standby)
Operating temperature	-10°C to 50°C [14°F to 122°F]
Environmental protection	IP 65 (dustproof and water spray resistant), shockproof
Dimensions	Approx. 81 x 41 x 34 mm [3 1/8" x 1 11/16" x 1 5/16"]
Weight	Approx. 133 g [4.7 oz.] including batteries and cable
Device	
Apple	Compatible with iPhone 4, iPhone 4s, iPhone 5, iPhone 5c, iPhone 5s, iPhone 6, iPhone 6 Plus, iPod touch (5th generation), iPad 2, iPad (3rd & 4th generation), iPad Air, iPad Air 2, iPad mini (1st generation), iPad mini 2, iPad mini 3
Android	Requires version 4.0 or higher; Optimised for certain devices. For further details view www.pruftechnik.com
Carrying case	
Case dimensions:	approx. 390 x 300 x 110 mm [15 23/64" 11 13/16" x 4 21/64 "]
Weight, including all standard parts:	approx. 2,7 kg [6 lb]

PRUFTECHNIK provides solutions in the following areas:


Alignment Systems


Condition Monitoring

Nondestructive Testing

Service & Support

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85737 Ismaning, Germany
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PRÜFTECHNIK

SHAFTALIGN® OS3

The efficiency of laser shaft alignment

Thirty years' laser shaft alignment

Precision shaft alignment pays back

Precision shaft alignment extends machine uptime. It contributes in more than one way towards great savings and a cleaner environment:

- Reduced energy consumption
- Reduction in bearing, seal, shaft and coupling failure
- Reduced bearing and coupling temperatures
- Reduced vibration
- No cracking or breaking of shafts
- Secure foundation bolts

Maintenance departments across industries worldwide use PRÜFTECHNIK's state-of-the-art and user-friendly systems to measure and align rotating machines.

Without overstretching your budget, SHAFTALIGN® OS3 ideally combines intuitive operation and accuracy for precision shaft alignment of machinery such as pumps, motors, gearboxes and compressors.

Expertise across all industries...






Shaft alignment fast and efficient with OS3

High technology made easy to use

OS3 technology
3-axis HD PSD
Precision built-in inclinometer using MEMS
Longer operating time
Ergonomic design
Sensor battery status warning
Bluetooth® communication
Integrated ambient light compensation
High-speed CPU/extended memory

The efficiency of laser shaft alignment

Intuitive, innovative and precise

Only three steps to the perfect alignment

SHAFTALIGN® OS3 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.

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

SHAFTALIGN® OS3 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.

The computer with rechargeable battery is included in the standard package. The USB interface enables easy connection to a PC and other peripheral devices such as a printer.

The system offers a variety of options to generate and archive alignment measurement reports, or to save reports directly as PDF to a memory stick.

Bluetooth® Communication

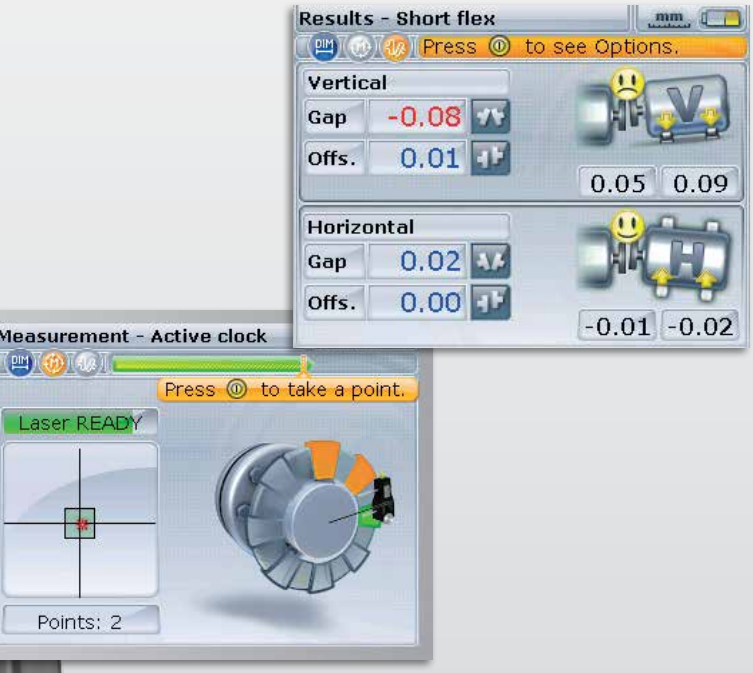
The SHAFTALIGN® OS3 computer is wireless enabled. The Bluetooth® module ensures a convenient data transmission between the measurement sensor and the SHAFTALIGN® OS3 computer or the tab@lign® alignment app.

The system's intuitive auto-flow capability guides the user step-by-step to enter machine dimensions.

Only 3 or 4 readings over a rotation angle of less than 70° are required to determine the precise alignment condition.

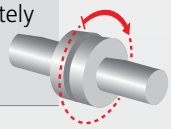
All relevant alignment results are displayed in one screen including the alignment status evaluation via "Smiley" and LED.

Powerful SHAFTALIGN® OS3 features



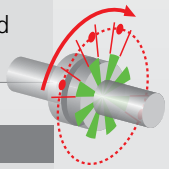
SWEEP measurement mode (optional)

SHAFTALIGN® OS3 takes numerous readings to accurately determine the alignment condition with a shaft rotation of as little as 60°.



Active clock measurement mode

Intelligent and precise alignment due to the activated MEMS inclinometer used in this measurement mode. Measurement can be taken at any 3 (or 4) positions and the sensor angular position is automatically considered.



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.

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® OS3 continuously measures the corrections. The monitored changes are displayed live on the screen.

- **Single laser technology (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.
- **Bluetooth® communication enabled**
  Measurement data is transmitted wirelessly to the computer.
- **Dynamic tolerance (TolChek®)**
  Automatic evaluation of alignment condition and user-defined tolerances.
- **InfiniRange®**
  Extends detector measurement range to handle gross misalignment.
- **Live move**
  Monitoring of horizontal or vertical machine corrections.
- **Flip machines**
  Just press a key to swap the position of the machines, e.g. motor and pump.
- **Soft foot check**
  Measure, correct and save results.
- **File management**
  Save measurement files in the device and generate reports as a PDF to a USB memory stick.
- **Data protection**
  Auto save and resume capability.

SHAFTALIGN® OS3 at a glance

Standard features
OS3 sensor with HD XL detector and high precision MEMS inclinometer
Computer with integrated rechargeable battery *
Automatic measurement data transmission via wireless Bluetooth® module *
Alignment of horizontal, vertical and flange-mounted machines
Alignment of coupled, uncoupled and nonrotatable shafts
Automatic measurement with Active clock
Soft foot check – measure, correct and save results
Fixed feet selection – resolves base-bound and bolt-bound problems
Automatic evaluation of alignment condition with TolChek®
InfiniRange® extends detector measurement range to handle gross misalignment
Flip machines functionality to swap the position of the machines e.g. motor and pump
Static measurement mode – requires any 3 of the 8 available 45° measurement positions
Live monitoring of horizontal and vertical machine corrections
Save measurement reports as PDF to a USB memory stick
Data protection – auto save and resume capability
Save up to 200 measurement files in the device

Powerful options
Continuous SWEEP measurement mode in combination with results table and pipe strain
Ability to enter targets and thermal growth values
Multipoint mode – measurement at any 3 or more positions over 60° rotation or more
Alignment of cardan and spacer shafts
User-defined tolerances
ALIGNMENT CENTER software to manage measurement files and create reports

*) Version ALI 21.003-BR

SHAFTALIGN® OS3 technical data

Computer	
CPU	Intel XScale PXA270 running at 520 MHz
Memory	64 MB RAM, 64 MB Flash
Display	Type: TFT, transmissive (sunlight-readable), 65 535 colours, backlit LED
	Integrated light sensor for automated adjustment of the brightness to the display according to the lighting conditions hence extending battery life
	Resolution: 320 x 240 Pixel; Dimensions: 89 mm [3,5"] diagonal
	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
	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)
	Integrated Lithium-ion rechargeable battery: 7.4 V / 2.6 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 & USB slave
	Integrated wireless communication, Class 1, transmitting power 100mW
	RS232 (serial) for transducer
	AC adapter/charger socket
Environmental protection	IP 65 (dustproof and water spray resistant), shockproof
	Relative humidity 10% to 90%
Temperature range	Operation: -10°C to 50°C [14°F to 122°F]
	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

Services and customer support

- High-tech alignment lab
- Customized product training
- Machinery service – worldwide
- Calibration and repair

Transducer	
	Measurement principle: Coaxial, reflected laser beam
	Environmental protection: IP 67 (submersible, dustproof)
	Ambient light protection: Optical and active electronic digital compensation
	Storage temperature: -20°C to 80°C [-4°F to 176°F]
	Operating temperature: -10°C to 55°C [14°F to 131°F]
	Dimensions: approx. 107 x 70 x 49 mm [4 1/4" x 2 3/4" x 2"]
	Weight: approx. 177 g (6 1/2 oz.]
Laser	Type: Semiconductor laser diode
	Wave length: 670 nm (red, visible)
	Safety class: Class 2 according to IEC 60825-1:2007
	Beam power: < 1 mW
	Beam divergence: < 0.3mrad
	Safety precautions: Do not look into laser beam
Detector	Measurement area: unlimited, dynamically extendible (U.S. Patent 6,040,903)
	Resolution: 1µm (0.04 mil), Accuracy (avg): > 98 %
Inclinometer	Measurement range: 0° to 360°
	Resolution: 0,1°
	Inclinometer error: ± 0,30% full scale

Reflector	
	Type: 90° roof prism; Accuracy (avg): > 99%
	Environmental protection: IP 67
	Storage temperature: -20°C to 80°C [-4°F to 176°F]
	Operating temperature: -20°C to 60°C [-4°F to 140°F]
	Dimensions: approx. 100 x 41 x 35 mm [4" x 1 5/8" x 1 3/8"]
	Weight: approx. 65 g [2 1/2 oz.]

Bluetooth® module	
Class 1 connectivity, transmitting power	100 mW
Transmission distance	Up to 30 m [98 ft.] direct line of sight
Complies with	FCC rules part 15
LED indicators	1 LED for wireless communication, 3 LEDs for battery status
Power supply	Batteries 2 x 1.5 V IEC LR6 ("AA")
Operating time	17 hours typical use (based upon an operating cycle of 50% measurement, 50% standby)
Operating temperature	-10°C to 50°C [14°F to 122°F]
Environmental protection	IP 65 (dustproof and water spray resistant), shockproof
Dimensions	Approx. 81 x 41 x 34 mm [3 1/8" x 1 11/16" x 1 5/16"]
Weight	Approx. 133 g [4.7 oz.] including batteries and cable

Carrying case	
	Standard: ABS, drop tested 2 m [6 1/2 ft])
	Case dimensions: approx. 470 x 400 x 195 mm [18 1/2" x 15 3/4" x 7 3/4"]
	Weight, including all standard parts: approx. 5.8 kg [12.8 lb]

ALIGNMENT CENTER Software

Manage your alignment data the most convenient way

ALIGNMENT CENTER is a Windows® based common PC software platform for all current PRÜFTECHNIK alignment systems and applications. In a nutshell, you can use ALIGNMENT CENTER to manage your measurement files in a central database. Map your plants and share files across users. Use the two-way communication to transfer files from your PC to the device and back.

ALIGNMENT CENTER

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

Set-up

- Create user specific templates to suit the measurement job
- Set up file information to include file and user names, company, plant and area
- Prepare file in advance on a PC and transfer to the device
- Transfer measurement results from the device back to the PC

Archiving

- Backup measurement files and restore
- Organize files in a tree structure with unlimited hierarchy
- Store any type of document in the tree structure
- Comprehensive database search
- Import and export data
- Manage measurement files and other file types

Analysis and reporting

- Display results in 2D or 3D depending on the application
- Evaluate results using the measurement table
- Customize measurement reports with company information e.g. logo
- Simulate measurement results by entering manual values
- Enter user-defined tolerances
- Convert dial gauge readings

LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
IEC 60825-1:2007
P< 1mW, pulse < 400µs, λ=630-680nm
Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

PRÜFTECHNIK
PROVEN QUALITY
- Made in Germany
- Global Presence
- Qualified Support
- Quality Service

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DOC 21.401.07.15.en

PRÜFTECHNIK

OPTALIGN® smart RS

The Real Sense in machinery alignment

PRÜFTECHNIK 40 Years 1972 2012

Many decades of experience

in precision shaft alignment

PRÜFTECHNIK Alignment Systems, the inventor of laser alignment, has many decades experience developing, manufacturing and applying laser-based alignment systems.

Our measurement systems are used in various alignment applications for rotating machinery within all industries.

Expertise present in all industries ...








Benefit of precision shaft alignment

Machines that are well aligned at the commissioning stage and thereafter regularly maintained, will quickly reduce both plant operating and maintenance costs.

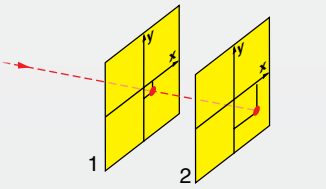
Laser precision alignment extends machine availability as the Mean Time Between Failure (MTBF) increases. It protects assets and increases product quality, as vibration is reduced to very low levels.

Extend machine availability and efficiency

with impressive OPTALIGN® smart RS technology

The measurement principle

OPTALIGN® smart RS uses a single laser and a 5-axis sensor. The sensor contains two fully-linearized biaxial position detectors and a precision inclinometer. It can precisely measure relative shaft movement in five degrees of freedom. This measurement principle is the only one which allows 'Live Move' with concurrent monitoring of the vertical and horizontal machine corrections and with the sensor at any angular position.



The sensor contains two position sensitive detectors and an electronic inclinometer, which measure the exact position of the laser beam, as the shafts are rotated.

The SWEEP measurement mode

In this exclusive and patented measurement mode, data is automatically and continuously collected as the shafts are rotated. A shaft rotation captures a large number of measurement points to accurately determine the alignment condition. Measurement can start at any position and in any direction.

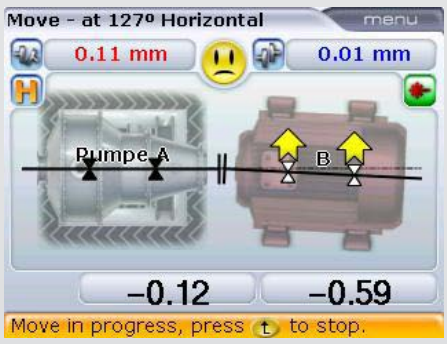
SWEEP™

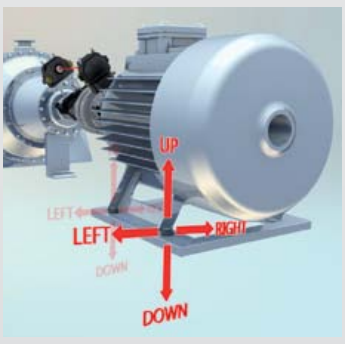
Wireless Communication

OPTALIGN® smart RS integrates an RF-module for convenient and flexible wireless data transmission.

Concurrent Live Move

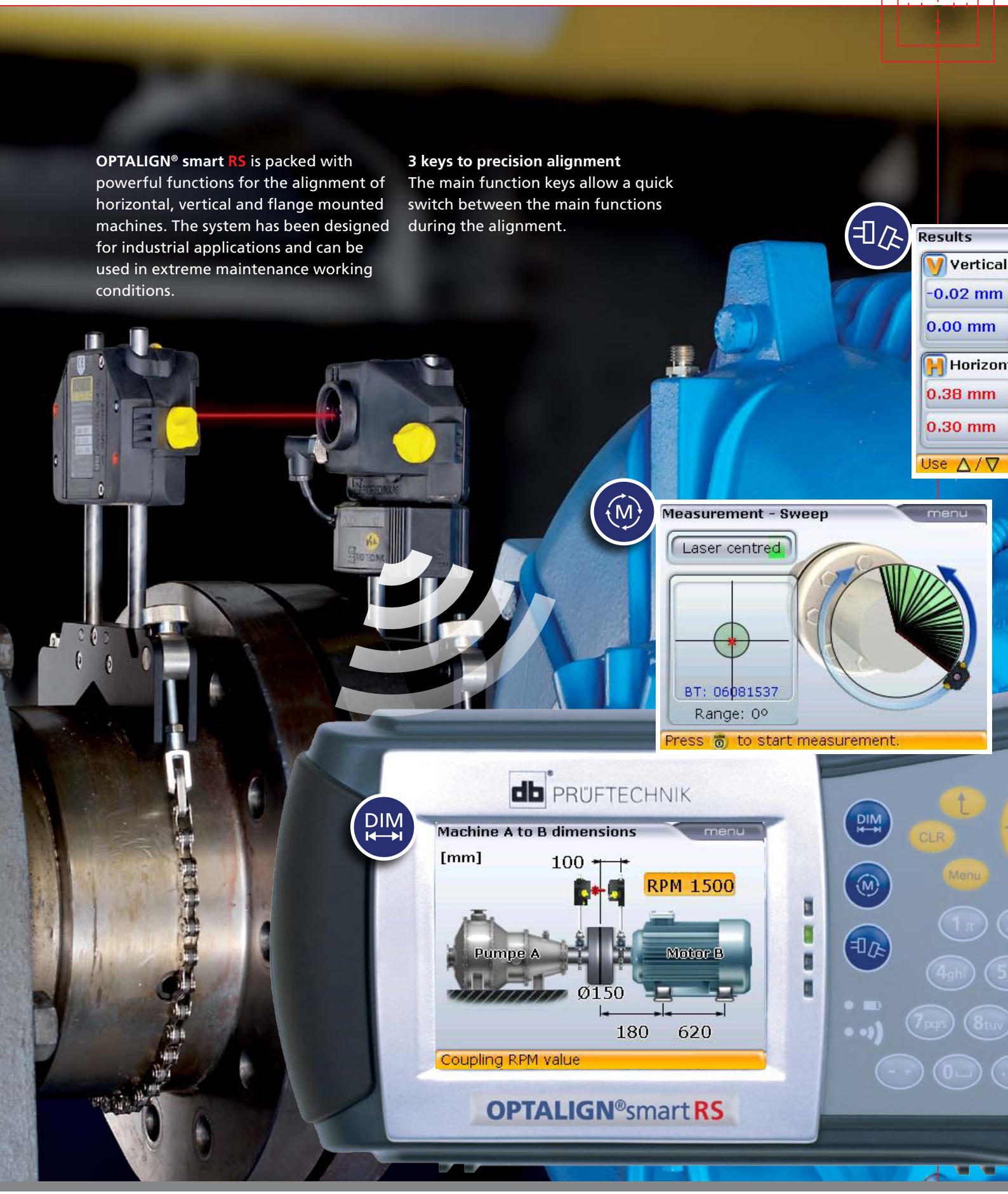
Monitor the machine corrections concurrently in both horizontal and vertical directions with laser and sensor mounted at any angular position on the shaft.





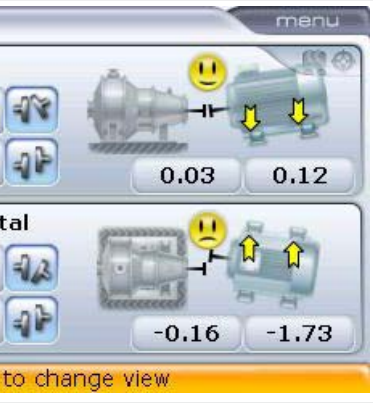
OPTALIGN® smart RS is packed with powerful functions for the alignment of horizontal, vertical and flange mounted machines. The system has been designed for industrial applications and can be used in extreme maintenance working conditions.

3 keys to precision alignment
The main function keys allow a quick switch between the main functions during the alignment.



Precision laser alignment with a twist

Only three steps to the perfect alignment



Laser / Sensor
The OPTALIGN® smart RS measurement principle is based on the patented single laser beam technology which uses one laser and a sensor including two biaxial position detectors and an electronic inclinometer.

Computer
The OPTALIGN® smart RS computer features a high resolution TFT colour display for clear information readability even in unfavourable light conditions. The computer is operated by disposable or Li-Ion rechargeable batteries. The connection to a PC and other peripheral devices such as a printer is via a USB interface.

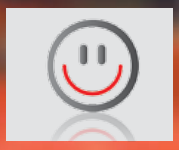
Operation and user interface
The alphanumeric keyboard and the navigations keys ensure comfortable operation of the measurement system. With the context menu the user can easily access all required options. The status line text provide valuable guidance for the beginners. The alignment results are clearly displayed in graphic and digital formats.

- **Wireless communication**
  Convenient and flexible wireless data transmission.
- **SWEEP measurement mode**
  Automatic collection of alignment data during shaft rotation.
- **Concurrent Live Move**
  Monitor the machine corrections concurrently in both horizontal and vertical directions with laser and sensor mounted at any angular position on the shaft.
- **Single laser technology**
  Patented single laser/sensor technology for easy set-up.
- **InfiniRange®**
  This function extends the detector surface, making it possible to measure machines with severe angular misalignment or distant from each other. Rough alignment is not necessary, and the initial alignment condition is recorded and documented.
- **Intuitive user guidance**
  The system guides the user progressively to determine the machinery alignment condition and its tolerance evaluation.
- **Alignment tolerances**
  Dynamic tolerances based upon the machine RPM (TolChek®) or user defined values.
- **Automatic evaluation of alignment**
  The Smiley and an LED provide visual indication of the alignment condition and a live update status during machine correction.
- **Soft foot check**
  Measure, correct and save results.
- **File management**
  Save measurement files in the device and generate reports as PDF to a USB memory stick.
- **Data protection**
  Auto save and resume capability.

OPTALIGN® smart RS powerful features

Standard features
RF module for wireless data transmission
Live Move: concurrently monitors horizontal and vertical corrections
Alignment of horizontal, vertical and flange mounted machines
Alignment of coupled, uncoupled and non rotatable shafts
Soft foot check – measure, correct and save results
Continuous SWEEP measurement mode: automatically activated as shaft is rotated – start and stop rotation at any position
Automatic evaluation of alignment condition with TolChek® and user-defined tolerances
InfiniRange® extends detector measurement range to handle gross misalignment and large coupling separation distances
QuickCheck – uses a single dimension to display both horizontal and vertical coupling values
Checking the effects of pipe strain on machine
Static measurement mode – requires any 3 of the 8 available 45 degrees measurement positions for vertical or inclined mounted machines
Result table to verify measurement repeatability
Save up to 500 measurement files in the device
Save measurement reports as PDF to a USB memory stick
Data protection - auto save and resume capability

Powerful options
3-machine train alignment
Enter alignment targets and thermal growth values including input of dial indicator readings
Fixed feet selection – resolves base-bound and bolt-bound problems
Multipoint mode – measurement at any 3 or more positions. This measurement mode is suitable for all bearing types
Alignment of cardan and spacer shafts
Heavy-duty rechargeable Li-Ion battery
PC software ALIGNMENT CENTER is used for preparing, analysing, archiving measurement files and printing professional reports



Technical data

Computer	
CPU	Intel XScale PXA270 running at 520 MHz
Memory	64 MB RAM, 64 MB Flash
Display	Type: TFT, transflective (sunlight-readable), 65 535 colours, backlit LED
	Resolution: 320 x 240 Pixel; Dimensions: 3.5 inch diagonal
	Keyboard elements: Navigation cursor cross with up, clear and menu keys; Alphanumeric keyboard with dimensions, measure and results hard keys
LED indicators	4 LEDs for laser status and alignment condition
	2 LEDs for wireless communication and battery status
Power supply	Operating time: 18 hours typical use (based upon an operating cycle of 25% measurement, 25% computation and 50% 'sleep' mode)
	Disposable batteries: 6 x 1.5 V IEC LR6 ("AA")
	Lithium-Ion rechargeable battery: 7.2 V / 2.4 Ah (optional)
External interface	USB host
	USB slave
	RS232 (serial) for transducer
	Integrated wireless communication, class 1, transmitting power 100 mW
	AC adapter/charger socket
Environmental protection	IP 65 (dustproof and water spray resistant), shockproof
	Relative humidity 10% to 90%
Temperature range	Operation: -10°C to 50°C [14°F to 122°F]
	Storage: -20°C to 60°C [-4°F to 140°F]
Dimensions	Approx. 214 x 116 x 64 mm [8 7/16" x 4 7/16" x 2 1/2"]
Weight	865 g [1.9 lb]
CE conformity	EC guidelines for electric devices (2004/108 EWG) are fulfilled
Sensor	
5-axis sensor	2 planes (4 displacement axes and angle)
Environmental protection	IP 67 (submersible, dustproof)
Ambient light protection	Yes
Storage temperature	-20°C to 80°C [-4°F to 176°F]
Operating temperature	0°C to 60°C [32°F to 140°F]
Dimensions	Approx. 105 x 67 x 47 mm [4 5/32" x 2 5/8" x 1 55/64"]
Weight	Approx. 190 g [6 7/10 oz.]
Measurement area	Unlimited, dynamically extendible (U.S. Patent 6,040,903)
Resolution	1 µm (0.04 mil) and angular 10 µRad
Accuracy (avg)	> 98%

Laser	
Type	GaAlAs semiconductor laser
Beam divergence	0.3 mrad
Environmental protection	IP 67 (submersible, dustproof)
Beam power	< 1 mW
Wavelength	675 nm (typical) (red, visible)
Safety class	Class 2, FDA 21 CFR 1000 and 1040
Safety precautions	Do not look into laser beam
Power supply	9V block battery (IEC 6LR61, alkali or lithium)
Storage temperature	-20°C to 80°C [-4°F to 176°F]
Operating temperature	-20°C to 60°C [-4°F to 140°F]
Dimensions	Approx. 105 x 67 x 47 mm [4 5/32" x 2 5/8" x 1 55/64"]
Weight	Approx. 165 g [5 13/16 oz.]
RF module for wireless communication with sensor	
Class 1 connectivity, transmitting power	100 mW
Transmission distance	10 m [33 ft.]
Complies with	FCC rules part 15.247
LED indicators	1 LED for wireless communication, 3 LEDs for battery status
Power supply	Batteries 2 x 1.5 V IEC LR6 ("AA")
Operating time	14 hours typical use (based upon an operating cycle of 50% measurement, 50% standby)
Operating temperature	-10°C to 50°C [14°F to 122°F]
Environmental protection	IP 65 (dustproof and water spray resistant), shockproof
Dimensions	Approx. 81 x 41 x 34 mm [3 1/8" x 1 11/16" x 1 5/16"]
Weight	Approx. 133 g [4.7 oz.] including batteries and cable
Carrying case	
Standard	ABS, drop tested 2 m [6 1/2 ft])
Dimensions	Approx. 470 x 400 x 195 mm [18 1/2" x 15 3/4" x 7 3/4"]

Services and customer support

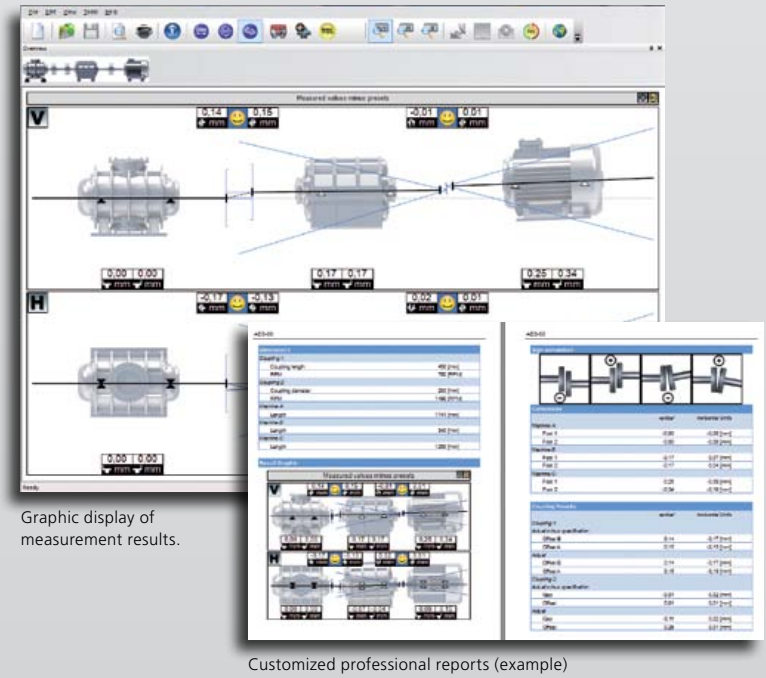
- Alignment high-tech lab
- Customized product training
- Machinery service – worldwide

ALIGNMENT CENTER PC software

Document your job the most convenient way

ALIGNMENT CENTER

The PC software platform is used for all PRÜFTECHNIK Alignment instruments and applications. It is the perfect solution for preparing, analysing, organising and archiving measurement files. All alignment and measurement specifications including thermal growth compensation, alignment presets and tolerances are saved for future use. The files can be transferred from the PC to the instrument and vice versa. The software is also used for professional reporting capabilities.



Graphic display of measurement results.

Customized professional reports (example)

Set-up

- Create user-specific templates to suit the measurement job
- Set up file information to include file and user names, company, plant, area and machine train
- Prepare file in advance on a PC and transfer to the instrument via the two-way communication

Analysis and Reporting

- Customize measurement reports to include company information and logo
- Realistic machine graphics and customised digital images for machines and coupling
- Evaluate results using the measurement table
- Move simulator for machine feet corrections
- Simulate measurement results by entering manual coupling values
- Optimise alignment by redefining fixed feet
- Conversion of dial gauge reading

Archiving

- Create a backup of measurement files
- Restore files saved in the backup
- Organize files in a tree structure with an unlimited hierarchy
- Any type of document can be stored in the tree structure
- Comprehensive database search
- Ability to import and export data
- Management of measurement files and any other file type

PRÜFTECHNIK
PROVEN QUALITY
- Made in Germany
- Global Presence
- Qualified Support
- Quality Service

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A member of the PRÜFTECHNIK group

DOC 12.402.10.12.en

PRÜFTECHNIK

OPTALIGN® touch

The game changer in laser-optical alignment

OPTALIGN® touch – the alignment system for basically any maintenance workshop

- Touchscreen display
- WiFi compatible
- Bluetooth communication between sensor head and computer
- Water- and dustproof according to IP 65
- shock-proof, oil, dirt and scratch resistant
- sensALIGN 5 laser/sensor heads
- continuous SWEEP measurement mode
- simultaneous real-time machine corrections in both horizontal and vertical directions (Live Move)
- automatic evaluation of the alignment condition
- soft foot detection
- InfiniRange
- flip machines functionality
- high-resolution camera
- Upgrade laser/sensor heads to the state-of-the-art sensALIGN 7 heads and the whole world of PRUFTECHNIK's intelligent alignment features becomes available

THE MAKERS OF OPTALIGN® AND ROTALIGN®

www.optalign-touch.com

LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
IEC 60825-1:2007
P< 1mW, pulse < 400µs, λ=630-680nm
Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

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A member of the PRUFTECHNIK Goup

PRÜFTECHNIK

ROTALIGN® smart RS5 EX

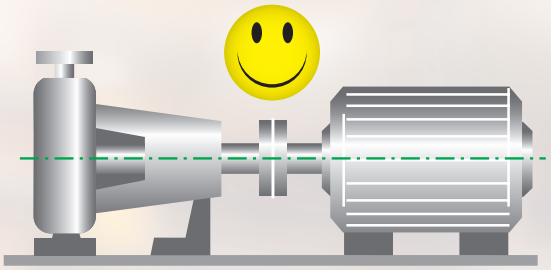
The ultimate intrinsically safe shaft alignment system

Always one step ahead

with precision shaft alignment

Benefits of laser shaft alignment

- Reduced energy consumption
- Reduction in bearing, seal, shaft and coupling failure
- Reduced bearing and coupling temperatures
- Reduced vibration
- No cracking or breaking of shafts
- Secure foundation bolts



RS5 technology

- 5-axis XL HD PSD
- Precision built-in MEMS inclinometer
- Ambient light compensation
- Faster data transmission
- Laser and sensor battery status warning
- Longer laser and sensor runtime

Bluetooth® communication

The optional ATEX/Ex/IECEx certified Bluetooth® module allows convenient and flexible wireless data transmission between sensor and computer.

This is a unique capability of PRUFTECHNIK alignment systems for hazardous areas.

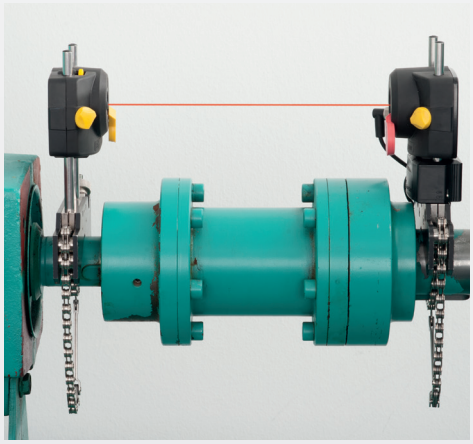
Faster and smarter shaft alignment

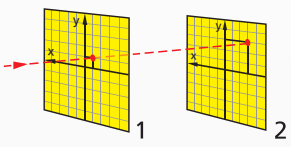
with ROTALIGN® smart RS5 EX technology

The measurement principle

ROTALIGN® smart RS5 EX uses a single laser and a 5-axis sensor. The ROTALIGN® RS5 EX sensor contains two fully-linearized XL HD position sensitive detectors and a MEMS inclinometer to precisely measure the exact position of the laser beam as the shafts are rotated.

This is a unique measurement principle, which allows simultaneous 'Live Move' monitoring of the vertical and horizontal machine corrections with the sensor at any angular position.





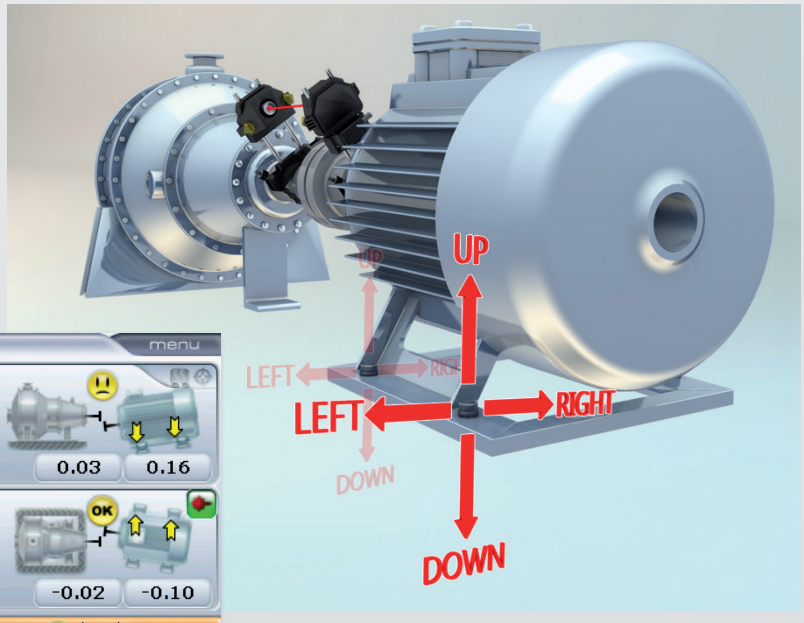
With two position-sensitive detectors and an electronic inclinometer the sensor measures the exact position of the laser beam as the shafts are rotated.

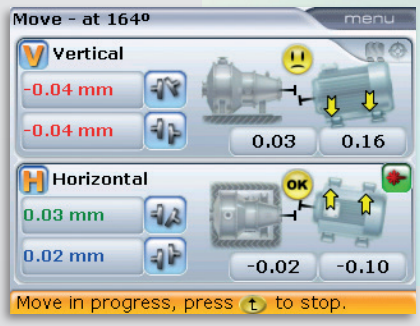
The SWEEP measurement mode

With this exclusive and patented measurement mode, data is automatically and continuously collected as the shafts are rotated. During shaft rotation, a large number of measurement points are captured to accurately determine the alignment condition. Measurement can start at any position and in any direction.

Simultaneous Live Move

The machine corrections are monitored simultaneously in both horizontal and vertical directions with laser and sensor mounted at any angular position on the shafts.





ROTALIGN® smart RS5 EX is a high-end laser shaft alignment system designed for the use in hazardous areas. It is ATEX/IECEx certified for zone 1.

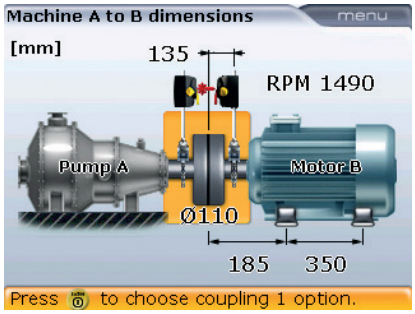
The system is packed with powerful functions for the alignment of horizontal, vertical and flange-mounted machines and features the unique benefits of the 5-axis ROTALIGN® measurement technology.

3 keys to precision alignment

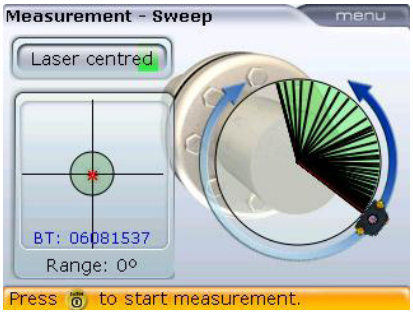
Machine shaft alignment with a SWEEP

Only three steps to the perfect alignment

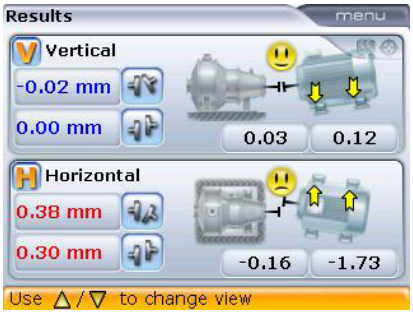
Dimensions



Measurement



Results



The main function keys allow a quick switch between the main functions during the alignment.

Laser/Sensor

The RS5 EX measurement principle is based on the patented single laser beam technology, which uses one laser and a sensor including two biaxial position detectors and a MEMS inclinometer.

Computer

The ROTALIGN® computer features a high resolution TFT colour display for clear information readability even in unfavourable light conditions. The USB interface enables easy connection to a PC and other peripheral devices such as a printer.

Operation and user interface

The alphanumeric keyboard and the navigation keys ensure comfortable operation of the measurement system. With the context menu the user can easily access all required options. The status line text provides valuable guidance for beginners. The alignment results are clearly displayed in graphic and digital formats.

- **SWEEP measurement mode**
  Automatic collection of alignment data during shaft rotation.
- **Simultaneous Live Move**
  Monitor the machine corrections in both horizontal and vertical directions with laser and sensor at any angular position on the shaft.
- **Single laser technology**
  Patented single laser/sensor technology for easy set-up.
- **InfiniRange®**
  This function extends the detector surface, making it possible to measure machines with severe angular misalignment or distant from each other. Rough alignment is not necessary, and the initial alignment condition is recorded and documented.
- **Intuitive user guidance**
  The system guides the user step-by-step to determine the machinery alignment condition and its tolerance evaluation.
- **Flip machines**
  Swap the position of the machines e.g. motor and pump, together with machine dimensions.
- **Automatic evaluation of alignment**
  Smiley and LED provide visual indication of the alignment condition and a live status update during machine correction.
- **Soft foot check**
  Measure, correct and save results.
- **File management**
  Save measurement files in the device or transfer reports as PDF to a USB memory stick.
- **Data protection**
  Auto save and resume capability.

ROTALIGN® smart RS5 EX

A flexible modular system

Standard features

- Continuous SWEEP measurement mode: Automatic collection of alignment data during shaft rotation
- Static measurement mode – requires any 3 of the 8 available 45° measurement positions
- Soft foot check – measure, correct and save results
- Flip machines to swap the position of the machines e.g. motor and pump
- Tolerances: Automatic evaluation of alignment condition with ‚Smiley' and LEDs
- User defined tolerances
- InfiniRange® extends detector measurement range to handle gross misalignment
- Static feet selection to resolve base-bound and bolt-bound problems
- Results table (3 rows view) to verify measurement repeatability
- Live move: Live monitoring of horizontal and vertical machine corrections
- Multiple feet correction (6 and more feet machines)
- Vertical machine alignment
- High memory capacity
- Data protection - auto save and resume capability
- Save measurement reports as PDF to a USB memory stick
- Averaging number of readings
- X/Y-View: Shows laser coordinates and rotational angle
- Pipe strain - checks the effects of pipe strain on machine

Powerful options

- Multipoint mode – measurement at any 3 or more positions over 60° rotation or more
- Alignment targets and thermal growth values including input of dial indicator readings and thermal growth calculator
- Alignment of cardan and spacer shafts (cardan requires a special bracket)
- 3-machine-train alignment

Advanced options

- Pass mode: Convenient measurement mode for uncoupled machines
- Live simultaneous Move in both horizontal and vertical directions, in one Screen
- Enhanced result table: Listing of up to 15 coupling results
- Tolerance envelopes for better machine correction evaluation
- Selection of type of machine: Realistic machine graphics
- Machine train alignment up to 6 machines

PC Software

- PC alignment software to manage measurement files and create reports

ROTALIGN® smart RS5 EX technical data

RS5 EX sensor	
Type	5-axis receiver: 2 planes (4 displacement axes and angle) Measurement area: unlimited, dynamically extendible (U.S. Patent 6,040,903) Resolution: 1 µm (0.04 mil) and angular 10 µRad Accuracy (avg): > 98% Measurement rate: approx. 20 Hz
Environmental protection	IP 65 (dustproof and water jets resistant)
Ambient light protection	Yes
Temperature range	Operation: -10°C to 50°C [14°F to 122°F] Storage: -20°C to 60°C [-4°F to 140°F]
Dimensions	Approx. 105 x 74 x 53 mm [4 9/64" x 2 29/32" x 2 3/32"]
Weight	Approx. 220 g [7.7 oz.]
EU declaration of conformity	Refer to the CE compliance certificate in www.pruftechnik.com
Intrinsic safety	II 2G Ex ib IIC T4 Gb, Zone 1 Certificate numbers: EPS 15 ATEX 1074X; IECExEPS 15.0067X

RS5 EX Laser	
Type	Semiconductor laser diode
Environmental protection	IP 65 (dustproof and water jets resistant), shockproof Relative humidity 10% to 90%
Beam power	< 1 mW
Wavelength	630 – 680 nm (red, visible)
Beam divergence	0.3 mrad
Safety class	Class 2 according to IEC 60825-1 2014 The laser complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.
Safety precautions	Do not look into laser beam
Power supply	2 x 1.5 V IEC LR6 ("AA") Batteries Only use MN1500 from Duracell or Energizer E91 Operating time: 120 hours
Temperature range	Operation: -10°C to 50°C [14°F to 122°F] Storage: -20°C to 60°C [-4°F to 140°F]
Dimensions	Approx. 105 x 74 x 47 mm [4 5/32"x 2 15/16" x 1 55/64"]
Weight	Approx. 225 g [8 oz.]
EU declaration of conformity	Refer to the CE compliance certificate in www.pruftechnik.com
Intrinsic safety	II 2G Ex ib op is IIC T4 Gb, Zone 1 Certificate number: EPS 15 ATEX 1 075; IECEx EPS 15.0068

RF module for wireless communication with sensor (optional)	
Type	2.4 GHz, Class 1 connectivity, transmitting power 100 mW, Contains FCC-ID POOWML-C40
Transmission distance	Up to 10 m [33 ft.] direct line of sight
LED indicators	1 LED for wireless communication 3 LEDs for battery status
Power supply	2 x 1.5 V IEC LR6 ("AA") Batteries Only use MN1500 from Duracell Operating time: 14 hours typical use (based upon an operating cycle of 50% measurement, 50% standby)
Temperature range	Operation -10°C to 40°C [14°F to 104°F]
Environmental protection	IP 65 (dustproof and water jets resistant), shockproof
Dimensions	Approx. 81 x 41 x 34 mm [3 1/8"x 1 11/16"x 1 5/16"]
Weight	Approx. 133 g [4.7 oz.] including batteries and cable
EU declaration of conformity	Refer to the EU declaration of conformity in www.pruftechnik.com
Intrinsic safety	II 2G Ex ib IIC T4 Gb, Zone 1 Certificate number: IECEx ZLM 11.0009

Computer	
CPU	Marvell PXA270 running at 312 MHz
Memory	64 MB RAM, 64 MB Flash
Display	Type: TFT, transflective (sunlight-readable), 65 535 colours, backlit LED Resolution: 320 x 240 Pixel Dimensions: 3.5 inch diagonal Keyboard elements: Navigation cursor cross with up, clear and menu keys; Alphanumeric keyboard with dimensions, measure and results hard keys
LED indicators	4 LEDs for laser status and alignment condition 2 LEDs for wireless communication and battery status
Power supply	Operating time: 18 hours typical use (based upon an operating cycle of 25% measurement, 25% computation and 50% 'sleep' mode) Only use 6 x 1.5 V IEC LR6 ("AA") MN1500 from Duracell
External interface	USB host USB slave RS232 (serial) for sensor 2.4 GHz, integrated wireless communication, Class 1, transmitting power 100 mW AC adapter/charger socket Adapter box external interface: USB host, USB client, power socket, USB host for USB memory stick
Environmental protection	IP 65 (dustproof and water jets resistant), shockproof Relative humidity 10% to 90%
Intrinsic safety	II 2G Ex ib [ib] IIC T4, Zone 1 Certificate numbers: TÜV 08 ATEX 554162, IECEx TUN 08.0006
Temperature range	Operation: -10°C to 50°C [14°F to 122°F] Storage: -20°C to 60°C [-4°F to 140°F]
Dimensions	Approx. 214 x 116 x 64 mm [8 7/16" x 2 1/2"]
Weight	865 g [1.9 lb]
EU declaration of conformity	Refer to the EU declaration of conformity in www.pruftechnik.com

Carrying case	
Particulars	Dimensions: approx. 550 x 400 x 168 mm [21 21/32" x 15 3/4" x 6 39/64"] Weight, excluding all standard parts: approx. 3.6 kg [7.9 lb.] Weight, including all standard parts: approx. 8.3 kg [18.3 lb.] .

ROTALIGN® smart RS5 EX system is delivered in a robust light-aluminum case. The case and its foams are suitable for hazardous areas.

PRÜFTECHNIK

ROTALIGN® touch

Precision Meets Connectivity

A new way to align

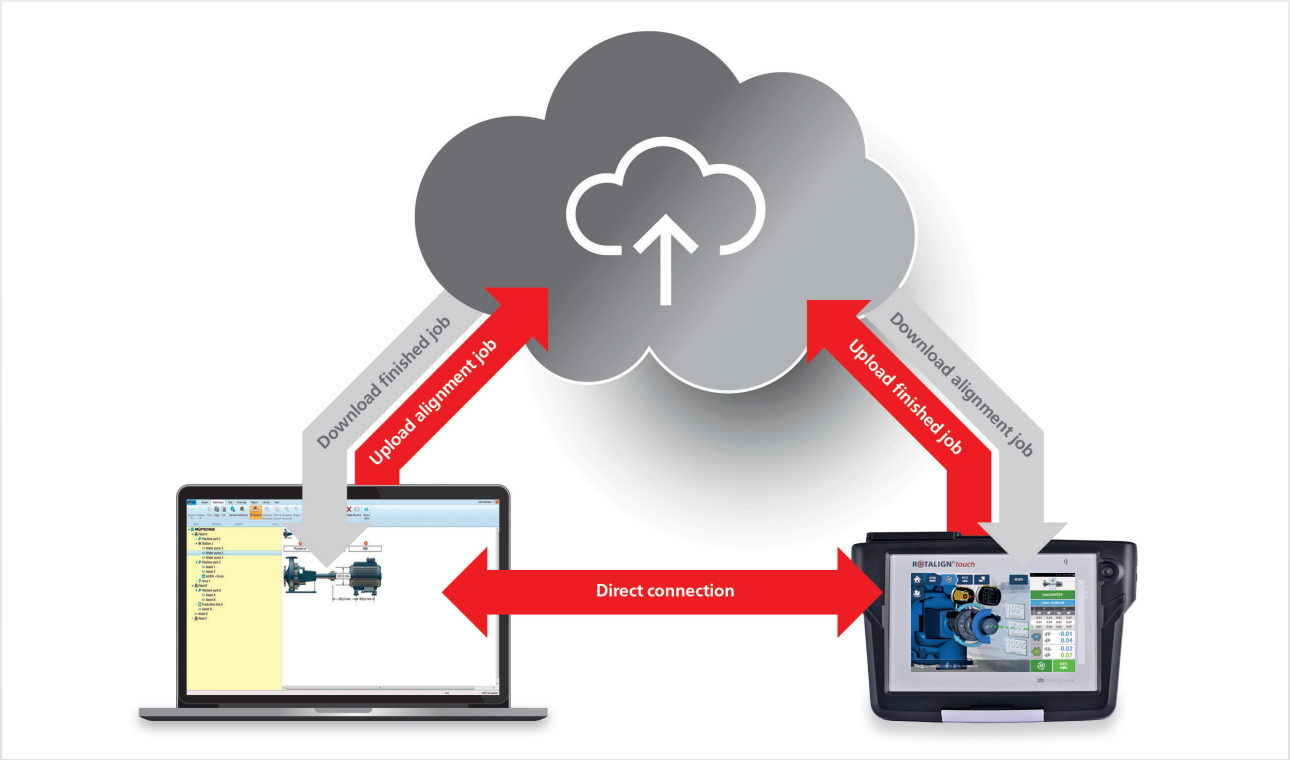
Laser alignment tool for the smart factory

ROTALIGN® touch is the first cloud-enabled touchscreen laser shaft alignment system with integrated mobile connectivity.
With ROTALIGN® touch, alignment trend is fully integrated into your asset management and condition-based maintenance programs.
Maintenance and Reliability managers can remotely prepare alignment jobs in the alignment software and connect to the Cloud to transfer them to a ROTALIGN® touch device, anywhere in the world. Alignment technicians receive alignment jobs directly on their ROTALIGN® touch device. Once completed, the jobs can be uploaded wirelessly back to the Cloud.

A direct connection from the ROTALIGN® touch to the alignment software is also possible.
Built-in RFID machine identification and asset-specific jobs make it possible to track the alignment condition of individual assets over time. The alignment trend provides meaningful information and can be used as a condition monitoring parameter to diagnose machine condition even more accurately.

With the onboard camera alignment reports can easily be supplemented with pictures for easier knowledge transfer.

Real-time communication



Overview of the ROTALIGN® touch packages

Four different packages are available with various hardware configurations depending on your needs. All packages offer the same application level.

Intelligent features for shaft alignment

100 % Precision – 0% Error

sensALIGN® on-board intelligence

The unique intelliSWEEP® sensor technology enables continuous measurements and real-time quality for precise, accurate and repeatable results. The intelliSWEEP® HD measurement mode automatically detects and eliminates sources of measurement errors such as coupling play, rotational angle or environmental vibration.

As shaft rotates, hundreds of real measurement points are taken automatically. The results are far more accurate than those based on 3 measurement positions.

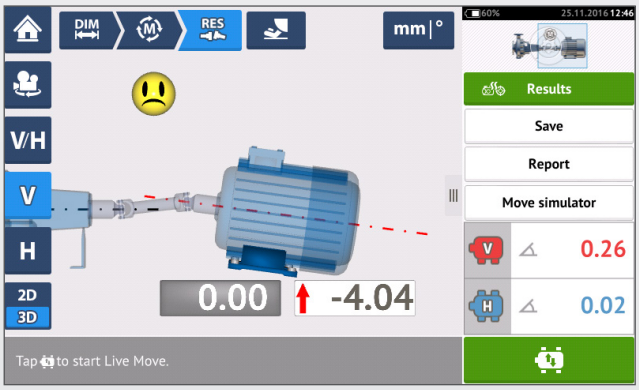
As shafts are rotated, measurement quality is cleary displayed – a green or blue sector indicates good measurement data.

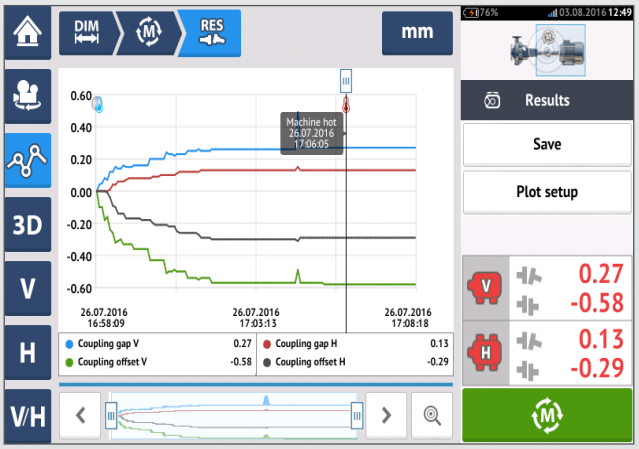
Key shaft features at a glance:

- Multi-coupling Shaft measurement & Multi-coupling live-move
- Intelligent measurement modes including uncoupled intelliPASS and intelliPOINT
- Cardan shaft alignment with cardan in place
- Vertical machine alignment with vertiSWEEP continuous measurement mode
- Softfoot diagnostics
- Mulit-coupling Live Trend
- Horizontal and Vertical move simulator
- Measurement table including different alignment jobs
- Machine train with real 3D machines
- Real time Intelligent measurement quality
- Customized tolerances (even asymetrical)

The latest package of ROTALIGN touch now features Multi-Coupling measurement (including Multi-Coupling live-move) and Multi-Coupling Live Trend. According to user specific aggregate requirements up to six coupling shafts can be simultaneously aligned in real-time. This can reduce the alignment-time up to 50 percent and more!

Use the Live Trend monitoring function to analyze thermal or process-related machine positional changes during run-up and coast-down phases, while recording machine vibration at the same time.





Tablet-like usability

Unparalleled user experience

Capacitive touchscreen
Glove-enabled capacitive touchscreen for longer life and a tablet-like user experience.

Interactive 3D machine view
Interactive 3D machine graphics throughout the alignment procedure for optimum visual guidance.

Speech recognition
Voice control frees up both your hands when the alignment job gets hands-on. The functionality may even be operated with Bluetooth® headsets in noisy machine halls.

RFID on board
Save, retrieve and track the alignment condition of individual assets over time, and easily identify the asset to be measured, without risk of error.

One-Key alignment
Perform standard alignment from start to finish by pressing only one key.

Durability
Tough industrial housing (IP65) and shockproof glass screen (above industry standard).


Onboard camera
on the back side
Bluetooth® Smart
(3rd party sensor
communication)
Sensor for display
brightness adjustment
Wi-Fi connection to cloud and
alignment software for easy
data exchange
N® touch
RES
mm
65%
07.12.2016 08:30
IntelliSWEEP
Laser centered
14.4°
14.9°
-0.01
0.01
-0.00
e stopped
PRÜFTECHNIK
Results table to check
measurement repeatability
without navigating away
from your measurements
Large screen with animated
3D view of machinery
Alignment wizard


ROTALIGN touch

Technical data

ROTALIGN® touch computer

CPU	Processor: 1.0 GHz quad core ARM®Cortex-A9 Memory: 2 GB RAM, 1 GB Internal Flash, 32 GB SD-Card Memory
Display	Technology: Projective capacitive multi-touch screen Type: Transmissive (sunlight-readable) backlit TFT color graphic display Optically bonded, protective industrial display, integrated light sensor for automated adjustment of the brightness to the display Resolution: 800 x 480 Pixel Dimensions: 178 mm (7") diagonal
LED indicators	3 LEDs for battery status, 1 LED for WiFi communication
Power supply	Operating time: 12 hours typical use (based upon an operating cycle of 25% measurement, 25% computation, 50% 'sleep' mode) Battery: Lithium-ion rechargeable battery 3.6 V / 80 Wh AC adapter/charger: 12 V / 36 W; standard barrel connector (5.5 x 2.1 x 11 mm)
External interface	USB host for memory stick USB slave for PC communication, charging (5 V DC / 1.5 A) RS-232 (serial) for sensor, RS-485 (serial) for sensor I-Data for sensor Integrated Bluetooth® wireless communication (covers direct line of sight distances of up to 30 m / 100 ft depending on the prevailing envir-onmental conditions) Integrated Wireless LAN IEEE 802.11 b/g/n up to 72.2 Mbps (depending on configuration) Integrated RFID with read and write capabilities (depending on con-figuration)
Environmental protection	IP 65 (dustproof and water jets resistant) – as defined in regulation DIN EN 60529 (VDE 0470-1), shockproof Relative humidity: 10% to 90%
Drop test	1 m (3 1/4 ft)
Temperature range	Operation: 0°C to 40°C (32°F to 104°F) Charging: 0°C to 40°C (32°F to 104°F) Storage: -10°C to 50°C (14°F to 122°F)
Dimensions	Approx. 273 x 181 x 56 mm (10 3/4" x 7 1/8" x 2 3/16")
Weight	Approx. 1.88 kg (4.1 lbs)
Camera	5 MP built-in (depending on configuration) LEDs: Risk Group 1 according to IEC 62471:2006
CE conformity	Refer to the CE compliance certificate in www.pruftechnik.com
Carrying case	Standard: ABS, drop tested (2 m / 6 1/2 ft.) Dimensions: Approx. 470 x 388 x 195 mm (18 1/2" x 15 9/32" x 7 11/16") Weight: Including all standard parts – Approx. 8.5 kg [18.7 lb]
FCC compliance	Requirements fulfilled (refer to the provided document 'Safety and gen-eral information')

sensALIGN® sensor

CPU	Type: ARM Cortex™ M3 Memory: 2 GB Flash Memory
LED indicators	4 LEDs for laser adjustment 1 LED for Bluetooth® communication 1 LED for battery status
Power supply	Operating time: 12 hours continuous use Battery: Lithium Polymer rechargeable battery 3.7 V / 1.6 Ah 6 Wh
Environmental protection	IP 65 (dustproof and water jets resistant) – as defined in regulation DIN EN 60529 (VDE 0470-1), shockproof Relative humidity: 10% to 90%
Ambient light protection	Optical and active electronic digital compensation
Temperature range	Operation: -10°C to 50°C (14°F to 122°F) Charging: 0°C to 40°C (32°F to 104°F) Storage: -20°C to 60°C (-4°F to 140°F)
Dimensions	Approx. 103 x 84 x 60 mm (4 1/16" x 3 5/16" x 2 3/8")
Weight	Approx. 310 g (10.9 oz)
Measurement range	Unlimited, dynamically extendible (US. Patent 6,040,903)
Measurement resolution	1 µm
Measurement error	< 1.0%
Inclinometer resolution	0.1°
Inclinometer error	± 0.25% full scale
Vibration measurement	mm/s, RMS, 10Hz to 1kHz, 0 mm/s – 5000/f • mm/s² (f in Hertz [1/s])
External interface	Integrated Bluetooth®Class 1 wireless communication, RS232, RS485, I-Data
CE conformity	Refer to the CE compliance certificate in www.pruftechnik.com

sensALIGN® laser

Type	Semiconductor laser
LED indicators	1 LED for laser transmission 1 LED for battery status
Power supply	Operating time: 70 hours continuous use (Li-polymer battery) Battery: Lithium Polymer rechargeable battery 3.7 V / 1.6 Ah 6 Wh AC adapter/charger: 5 V / 3 A
Environmental protection	IP 65 (dustproof and water jets resistant) – as defined in regulation DIN EN 60529 (VDE 0470-1), shockproof Relative humidity: 10% to 90%
Temperature range	Operation: -10°C to 50°C (14°F to 122°F) Charging: 0°C to 40°C (32°F to 104°F) Storage: -20°C to 60°C (-4°F to 140°F)
Dimensions	Approx. 103 x 84 x 60 mm (4 1/16" x 3 5/16" x 2 3/8")
Weight	Approx. 330 g [11.6 oz]
Beam power	< 1mW
Beam divergence	0.3 mrad
Inclinometer resolution	0.1°
Inclinometer error	± 0.25% full scale
CE conformity	Refer to the CE compliance certificate in www.pruftechnik.com

PRÜFTECHNIK

ROTALIGN® Ultra iS

The Alignment intelligent System

ROTALIGN® Ultra iS –

the ideal solution for all requirements

Achieve your objective with intelliSWEEP® in three simple steps

1. Enter dimensions

2. Rotate shafts

3. Display alignment status

Live Trend

The monitoring function is used to analyze thermal or process-related machine positional changes during run-up and coast down phases, at the same time recording machine vibration.

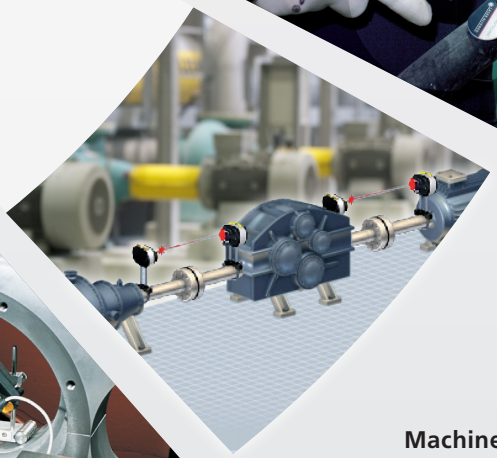
Vibration Acceptance Check

The vibration check following the alignment ensures that the machine can be operated without restrictions. No additional accessories are required with ROTALIGN® Ultra iS.

ROTALIGN® Ultra iS – iS stands for 'intelligent System' – is a modular platform for a wide range of applications. ROTALIGN® Ultra iS is a combination of ROTALIGN® Ultra and the intelligent sensALIGN® sensor and laser.

RFID machine identification

A RFID reader and tag uniquely identify the machine; basic data is read out and written back after the alignment job. Data can be accessed with NFC-enabled smartphones.



Machine train and multiple coupling

Up to five couplings can be measured and aligned simultaneously.

Bore alignment

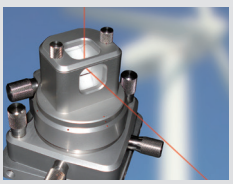
Ideal for repair and reconditioning of internal combustion engines, piston compressors and pumps and also for alignment of stern tubes.
Specially suited for alignment of steam and gas turbines and precision measurement of the internal components of turbines, such as bearing rings, diaphragms, inner shells and casings.

Live Move

Simultaneous live monitoring of machine corrections in vertical and horizontal directions. 'Live Move' can be started with the sensor at any angular position.

Geometric applications

Accurate measurement of straightness, surface flatness, levelness, parallelism and perpendicularity.



ROTALIGN® Ultra iS – the Alignment intelligent System

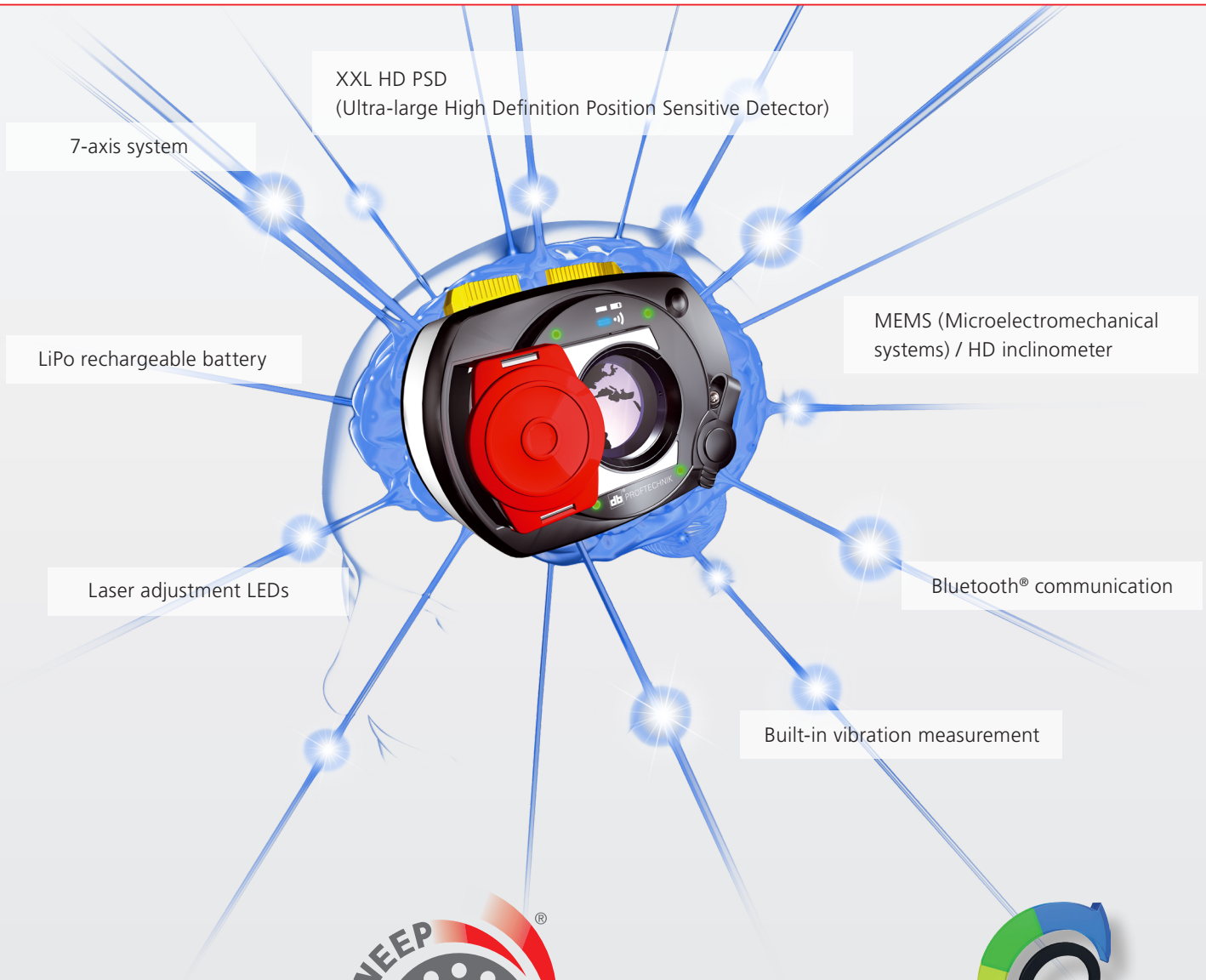
Real time measurement quality

As shafts are rotated, the attained measurement quality is clearly displayed on the screen – a green or blue sector signifies good measurement data.

Quality factors are calculated from the innumerable values recorded while measuring. Users receive detailed information on the quality of the measurement data.

100% Precision – 0% Error

sensALIGN® on-board intelligence



intelliSWEEP®

The intelligent intelliSWEEP® HD measure mode actively supports the user by detecting error influences such as coupling play, rotational angle or vibration, and automatically eliminating them.
As shafts rotate, a large number of measurement data is automatically and continuously recorded. This is much more accurate when compared to measurement methods where measurement is taken at three positions only.

"intelliSWEEP®: the new and unique intelligent HD measurement mode that collects and processes hundreds of real measurement points"

Real time quality factor

The user is kept informed of the quality of the measurement and given hints on how to achieve improved measurement data.

- Quality factors
- Rotation angle
- Ellipse standard deviation
- Environment vibration
- Rotation evenness
- Angle rotation inertia
- Rotation direction
- Rotation speed
- Filter output

sensALIGN® on board-intelligence

Automatically compensates for negative influences

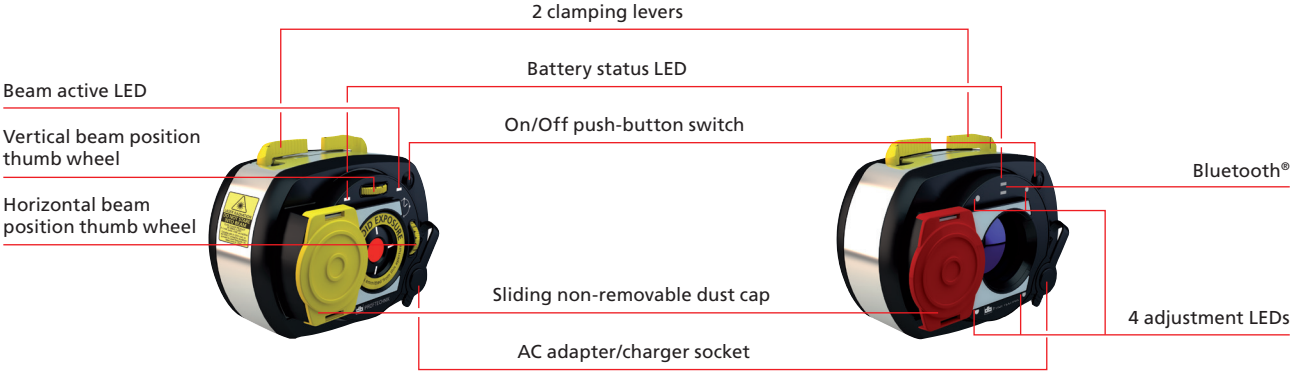
4 adjustment LEDs Initial laser adjustment becomes child´s play over any distance. Four green LEDs signal that the laser beam is hitting the centre of the detector.

At a glance

- **Real time quality by intelliSWEEP**
  Always precise, accurate and repeatable
- **7-axis measurement system with High Definition PSD, XXL detector**
  Any amount of misalignment can be easily
- **In-built vibration measurement**
  Measure machine vibration before, during and after alignment, no need for additional hardware
- **Environmental vibration monitoring**
  Accurate shaft alignment under vibrating condition
- **Precision in-built inclinometer through MEMS**
  Used for backlash detection
- **Communication to the sensor through the laser beam**
  sensALIGN® laser information readily available
- **Integrated class 1 Bluetooth®**
  Wireless communication without additional accessories
- **Rechargeable battery with latest LiPo technology and intelligent power management**
  Long runtime without memory effect

sensALIGN® laser

sensALIGN® sensor

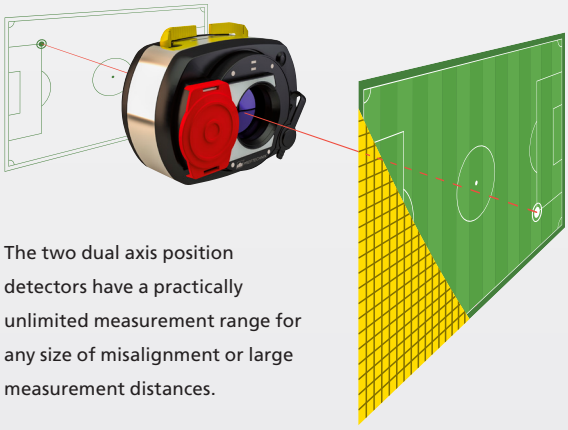


ROTALIGN® Ultra iS – impressive features

Don´t miss out on these highlights

7-axis-measurement system with XXL HD PSD

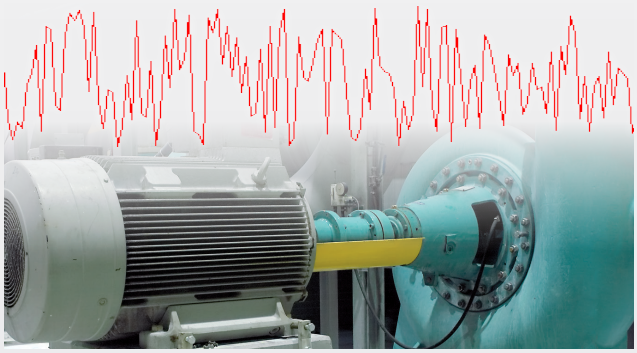
7-axis HD PSD (Ultra-large High Definition Position Sensitive Detector) measurement system provides repeatable precision for any misalignment.



The two dual axis position detectors have a practically unlimited measurement range for any size of misalignment or large measurement distances.

Built-in vibration measurement

- Check the running machine vibration before and after alignment
- Environmental vibration monitoring
- Recording vibration during 'Live trend' measurement



Inclinometer using MEMS

Precision built-in inclinometer using MEMS in both laser and sensor for detection of coupling backlash.

Power management

- Intelligent power management for laser and sensor
- Rechargeable battery with latest LiPo technology
- Long runtime and no memory effect
- Battery interchangeable between sensor and laser
- Laser and sensor can be powered through the computer

Communication/data transmission

Communication to the sensor through the laser beam: intelligent laser data streaming e.g. angle and battery status.

Integrated class 1 Bluetooth® wireless communication without additional accessories.

Any information available at any time

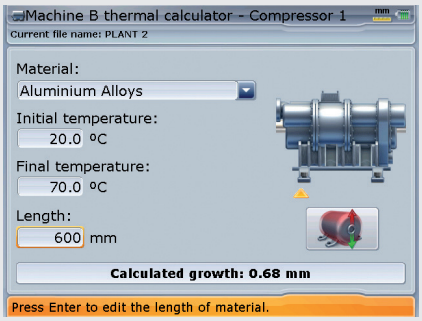
ROTALIGN® Ultra iS analysis tools

Tools to enhance machine alignment condition

Soft foot wizard

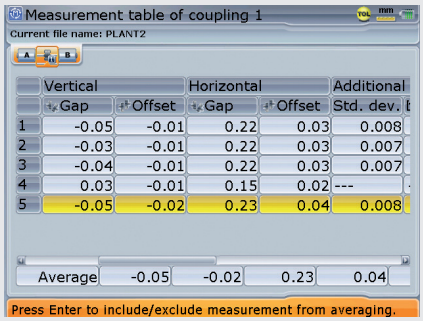
Soft foot analysis is simplified with a diagnostic tool.

Thermal growth calculator



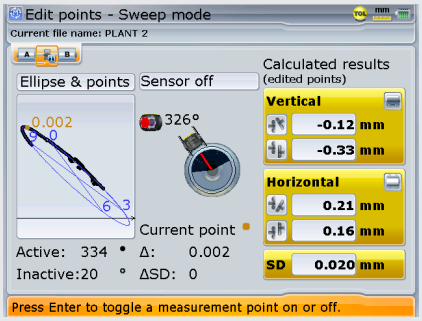
Used to determine the machine expansion parameters mathematically.

Measurement table, standard deviation



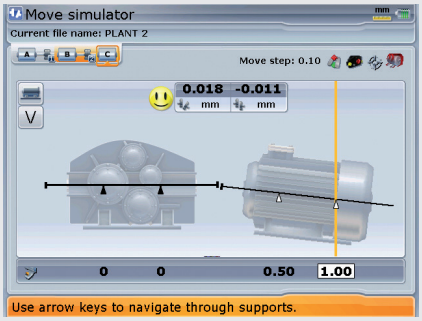
It allows the quality and repeatability of measurements to be determined precisely.

Editable ellipse



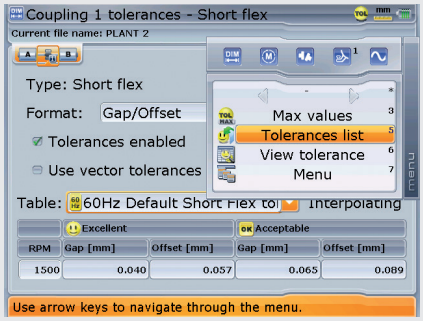
Allows editing of raw measurement data and the analysis of the alignment conditions.

Move Simulator



Simulates shim values and horizontal movement corrections.

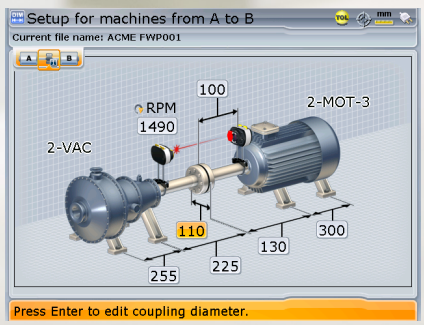
Customized tolerances



The user can set customized tolerances for improved evaluation of the alignment conditions.

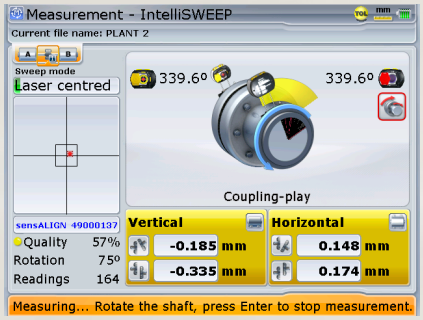
Templates (examples)

Open the appropriate assembly from a list with a wide range of different machines ...



... or save a machine assembly that is commonly used in your organization.

Coupling play



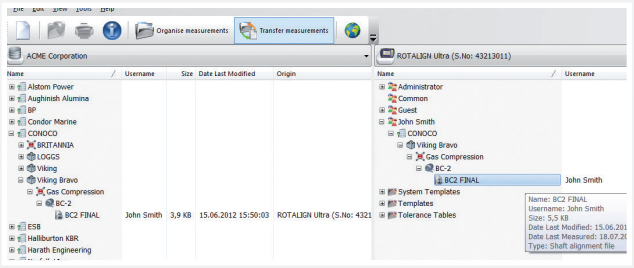
Detection and suppression of coupling play.

Alignment Center PC Software

Document your job the most convenient way

ALIGNMENT CENTER

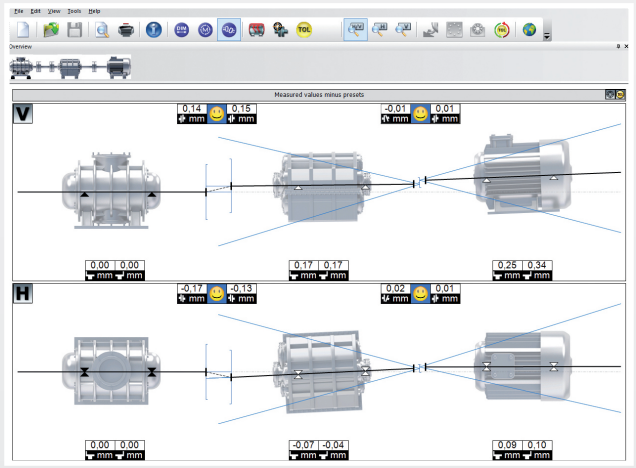
This PC software platform is used for all PRÜFTECHNIK Alignment instruments and applications. It is the perfect solution for preparing, analyzing, organizing and archiving measurement files. All alignment and measurement specifications including thermal growth compensation, alignment presets and tolerances are saved for future use. The files can be transfered from the PC to the instrument and vice versa. The software is also used for professional reporting capabilities.



Organize files in a tree structure with unlimited hierarchy.

Set-up

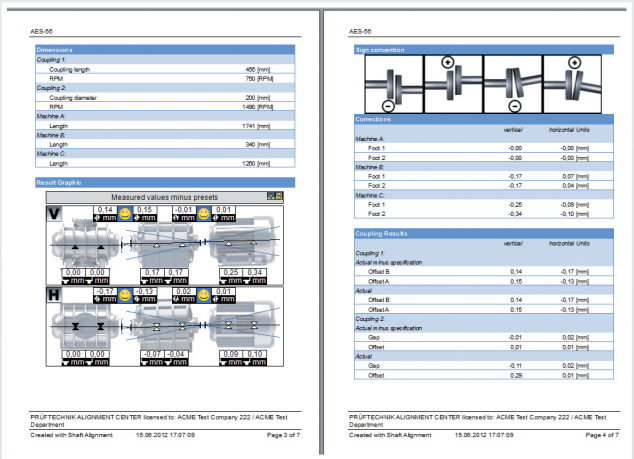
- Create user-specific templates to suit the measurement job
- Set up file information to include file and user names, company, plant, area and machine train
- Prepare file in advance on a PC and transfer to the instrument via the two-way communication



Graphic display of measurement results.

Archiving

- Create a backup of measurement files
- Restore files saved in the backup
- Organize files in a tree structure with an unlimited hierarchy
- Any type of document can be stored in the tree structure
- Comprehensive database search
- Ability to import and export data
- Management of measurement files and any other file type



Customized professional reports (example).

Analysis and Reporting

- Display results in either 2D or 3D graphics depending on the application
- Evaluate results using the measurement table
- Customise measurement reports to include company information and logo
- Simulate measurement results by entering manual values
- Optimize alignment by redefining fixed feet
- User-defined tolerances
- Conversion of dial gauge readings

ALIGNMENT CENTER

Quick steps to perfect machine alignment

PREPARATION

Identification of the machine

Use the RFID reader for clear identification of machine to be aligned – all at the press of a button.

Mounting

Sensor and laser mounted on the shafts using the compact chain type bracket or the magnetic bracket.

MEASUREMENT AND ALIGN

Measurement

Hundreds of measurement points are collected and transmitted wireless to the computer.

CONFIRMATION

Vibration measurement

The good alignment should be confirmed by reduced vibration values.

Save

Updated machine data and alignment status are recorded on the RFID tag.

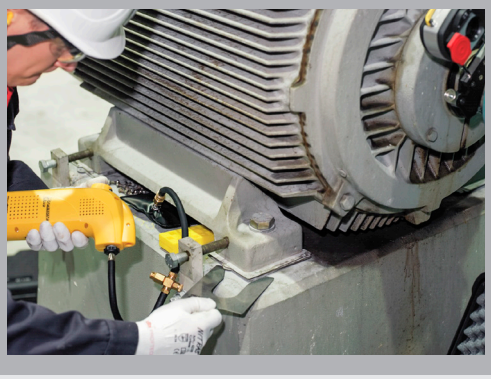
Adjustment of the laser beam

The four adjustment LEDs make centring the laser beam child's play.

Enter dimensions

The necessary sensor and machine foot dimensions are quickly inputted.

NMENT

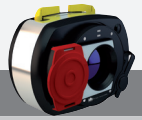


Vertical and horizontal alignment correction

Simultaneous live monitoring of machine corrections in vertical and horizontal directions.
PERMABLOC® shims in appropriate sizes simplify the process of raising or lowering the machine.

CONCLUSION – the machine runs smoothly again

Technical data



sensALIGN® sensor

CPU and memory	ARM Cortex™ M3 and 2GB Flash memory
Environmental protection	IP 65 (dustproof and water jet resistant), shockproof
Relative humidity	10% to 90%
Ambient light protection	Optical and active electronic digital compensation
Operating temperature	-10°C to 50°C
Measurement range	Unlimited, dynamically extendible (U.S. Pat. 6,040,903)
Measurement resolution	1 µm
Measurement error	< 1.0%
Vibration measurement	mm/s, RMS, 10 Hz to 1 kHz, 0 mm/s – 5000/f • mm/s² (f in Hertz [1/s])
Inclinometer resolution	0.1°
Inclinometer error	± 0.25% full scale
External interface	Integrated Bluetooth® Class 1 wireless communication, RS232, RS485, I-Data
LED indicators	4 x LED for laser adjustment, 2 LEDs for Bluetooth® communication and battery status
Operating time	12 hours continuous use
Power supply	Lithium Polymer rechargeable battery 3.7 V / 1.6 Ah / 6 Wh.
Dimensions	Approx. 103 x 84 x 60 mm
Weight	Approx. 310 g

sensALIGN® laser

Type	InGaAlP semiconductor laser
Beam divergence	0.3 mrad
Environmental protection	IP 65 (dustproof and water jet resistant), shockproof
Relative humidity	10% to 90%
Beam power	< 1mW
Wavelength (typical)	635 nm (red, highly visible)
Safety class and precautions	Class 2, IEC/EN 60825-1:2007 Do not stare into laser beam
Operating temperature	-10°C to 50°C
Inclinometer resolution	0.1°
Inclinometer error	± 0.25% full scale
LED indicator	2 LEDs for battery status and laser transmission
Operating time	70 hours continuous use
Power supply	Lithium Polymer rechargeable battery 3.7 V / 1.6 Ah / 6 Wh.
Dimensions	Approx. 103 x 84 x 60 mm
Weight	Approx. 330 g

ROTALIGN® Ultra iS technical data

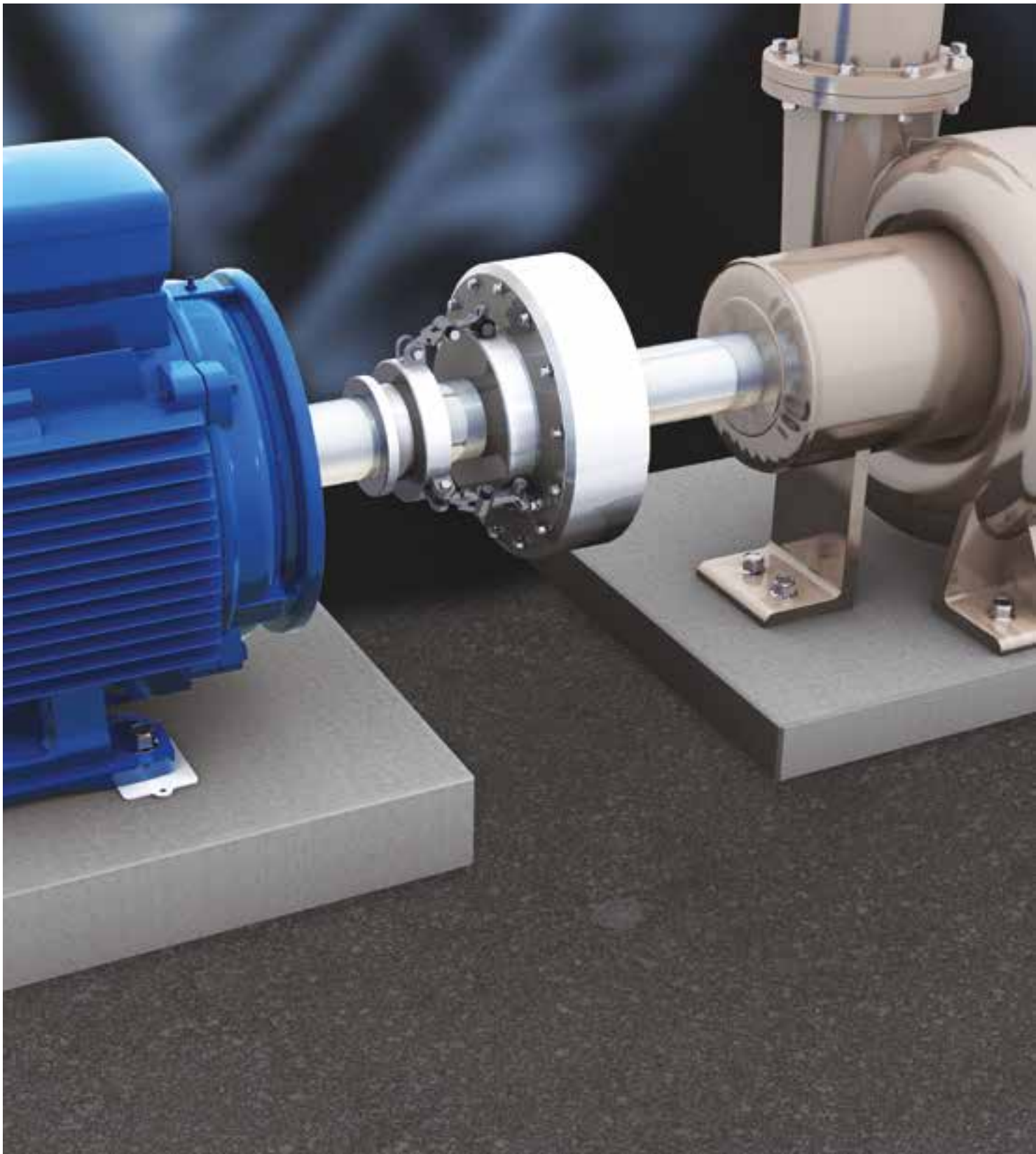
CPU	Mavell XScale Processor running at 520 MHz
Memory	64 MB RAM, 64 MB Internal Flash, 1024 MB Compact Flash Memory
Display	Type: Transmissive (sunlight-readable) backlit TFT color graphic display
	Resolution: Full VGA, 640 x 480 pixels; Dimensions: 145 mm/ 5.7 inch diagonal
	Keyboard elements: navigation cursor cross with up, clear and menu keys; Alphanumeric keyboard with dimensions, measure and results hard keys
LED indicators	4 LEDs for laser status and alignment condition
	2 LEDs for wireless communication and battery status
Power supply	Operating time: 25 hours (using Li-Ion rechargeable battery) 12 hours (using disposable batteries) typical use (based upon an operating cycle of 25% measurement, 25% computation and 50% 'sleep' mode)
	Lithium-Ion rechargeable battery: 7.2 V / 6.0 Ah
	Disposable batteries: 6 x 1.5 V IEC LR14 ("C") [optional]
External interface	2 x USB host for printer, keyboard or PC communication
	1 x USB slave for printer, keyboard or PC communication
	RS232 (serial) for receiver
	I-Data socket for receiver
	Integrated Bluetooth® wireless communication, Class 1, transmitting power 100mW
	AC adapter/charger socket
Environmental protection	IP 65 (dustproof and water spray resistant), shockproof
	Relative humidity 10% to 90%
Temperature range	Operation: 0°C to 45°C [32°F to 113°F]
	Storage: -20°C to 60°C [-4°F to 140°F]
Dimensions	Approx. 243 x 172 x 61 mm [9 9/16" x 6 3/4" x 2 3/8"]
Weight	1 kg (without battery)
CE conformity	EC guidelines for electric devices (2004/108 EEC) are fulfilled

ROTALIGN® Ultra iS case

Contents may vary depending upon package ordered

PRÜFTECHNIK

PRUFTECHNIK Alignment
Alignment and geometric measurement



PRÜFTECHNIK

PRUFTECHNIK Condition Monitoring
Machine and plant monitoring

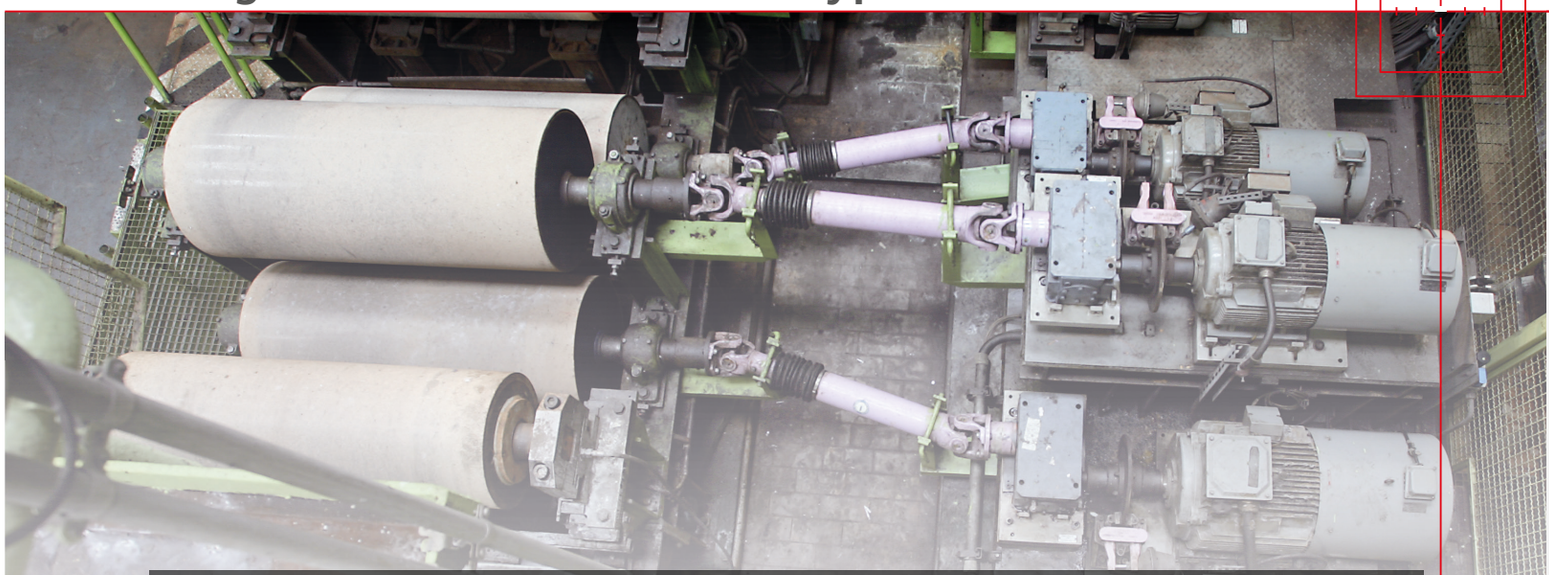
PRÜFTECHNIK

Cardan shaft alignment

Machine alignment without shaft removal

- Unique and patented solution powered by ROTALIGN® Ultra iS
- Intelligent and time-saving

Alignment solutions for all types of cardan shafts



Cardan shafts are common types of couplings in many industries such as pulp and paper, marine and shipping, steel, automotive, cement. They can be either fully rotatable, partially rotatable or non-rotatable, very large and heavy, and difficult to access. Usually, a combination of these configurations applies, making many cardan shaft alignment applications unique and challenging.

PRUFTECHNIK offers intelligent solutions designed to deal with the alignment of various kinds of cardan shaft configurations.

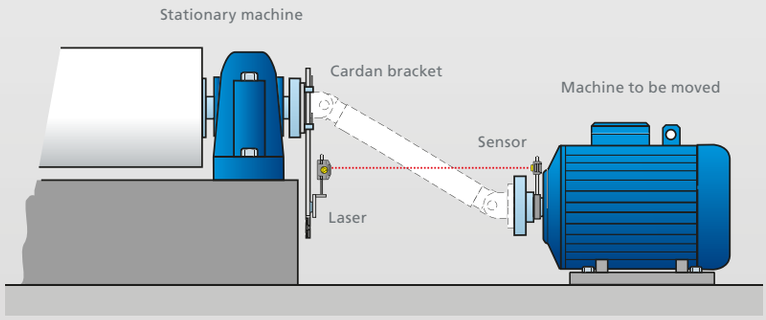
Our laser-based alignment systems guarantee unparalleled accuracy and repeatability in a fraction of the time required by conventional methods.

Cardan shafts are used to compensate for parallel misalignment (offset) between the driving and driven shaft. However, they cannot absorb angular misalignment between the shafts. Angular misalignment typically causes the driven shaft to rotate unevenly during operation, which results in increased vibration.

Precise alignment reduces the rotational forces of the cardan shaft to a minimum. If the cardan shaft is precisely aligned, the second joint converts "irregular" rotational movement of the spacer shaft into a regular movement of the driven shaft. As a result, the uneven bearing loading during cardan shaft rotation is minimized, the service life of the components is extended and machine failures reduced.

Common cardan shaft alignment with laser

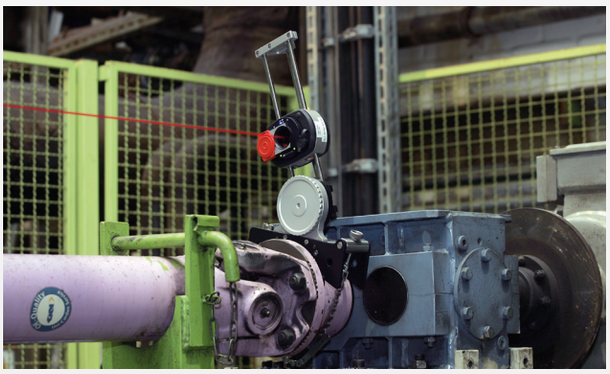
The cardan shaft is removed and a long-arm bracket is used to overcome the offset between the machine shaft centerlines. The laser is mounted on a rotating frame which simulates the centerline of the non-moveable machine. The sensor is attached to the shaft of the moveable machine by means of standard chain or magnetic brackets.
This method can also be used when the shafts cannot be rotated.



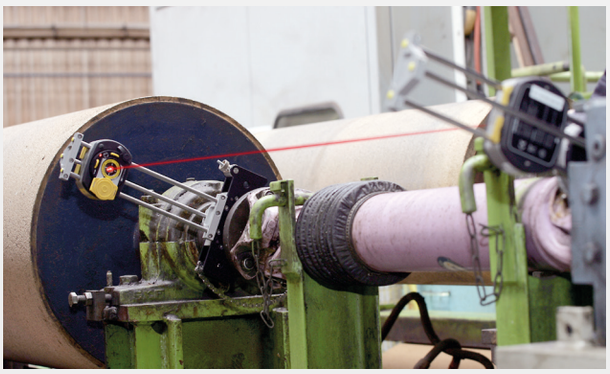
Cardan shaft alignment using a long-arm bracket assembly to overcome the offset.

Intelligent cardan shaft alignment

Unique patented solution eliminates the need for cardan shaft removal



Rotating arm bracket for restricted rotation areas.



Bracket set for 180° rotation requires only two readings.

With specially designed brackets and new measuring methods, the ROTALIGN® Ultra iS platform allows cardan shafts to be aligned without removing the shaft.

Depending on the shaft configuration, one of the two available methods can be used.
With the first method, the sensor is mounted on a bracket with a rotating arm. As shafts are turned to a new measurement position, the bracket's arm is rotated and the sensor moved up or down the posts to intersect the laser beam. This method is used when rotation areas are restricted.
The second method uses a bracket set designed for a 180° rotation and only requires two reading positions.

Benefits:

- No cardan shaft removal
- Quick measurement setup
- Save hours of work and manpower
- Avoid crane use or rental and tricky manoeuvers in constrained spaces
- High-quality measurement based on the actual rotation axis of the shaft
- Improve safety of operators and assets.

In the Result screen the cardan angle and foot position are displayed as well as the tolerance status through a 'Smiley'.
If adjustments are necessary, the moveable machine may be repositioned with the help of the MOVE function.

PRÜFTECHNIK

CENTRALIGN® Ultra

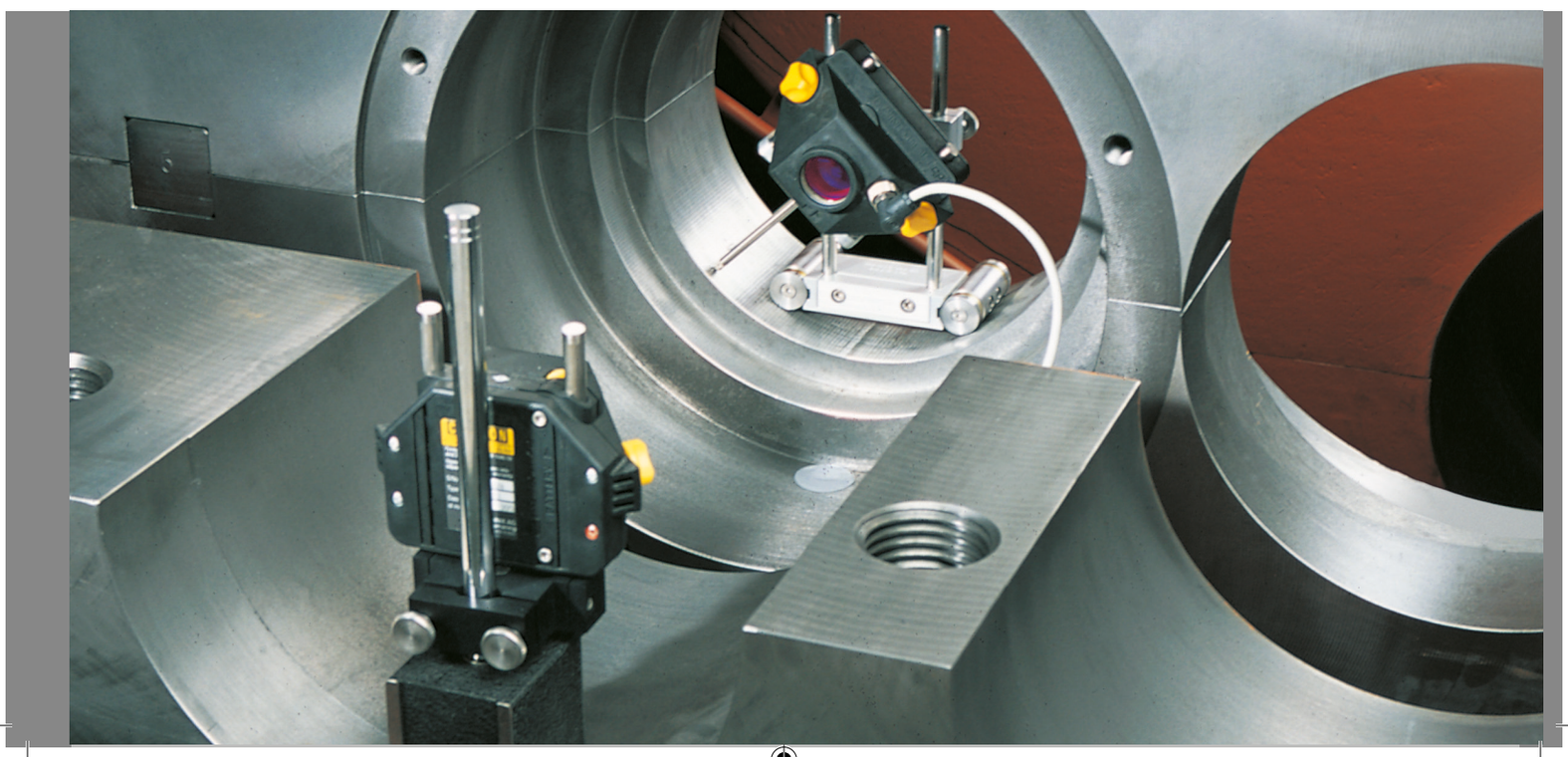
STANDARD – Bore alignment in combustion engines, compressors, pumps and gearboxes

Proficiency in bore alignment

CENTRALIGN® Ultra Standard

Proper repair and reconditioning of combustion engines, compressors and pumps requires exact measurement of the alignment of crankshaft and camshaft bores, cylinder bores and crosshead guides. This is usually accomplished by optical or wire-based methods.

CENTRALIGN® Ultra is a precision laser alignment system designed to replace those older and more time-consuming technologies. It is much faster, very precise, and provides a clear measurement protocol. Measurements are carried out using a laser beam and patented universal pointer brackets, and therefore eliminating mechanical and sag errors. In addition to the alignment of bores, bearing pedestals and other circular machine elements, CENTRALIGN® Ultra also includes a measurement procedure for the alignment of workpieces to boring heads. The system utilises the proven ROTALIGN® Ultra platform, and therefore extendable to shaft alignment, flatness and straightness applications.

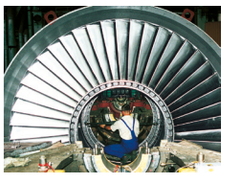


Precise, fast and intuitive bore alignment

For demanding industrial applications

Shipyards and marine services

- Stern tube alignment
- Rudderstock alignment
- Diesel engines



Energy sector

- Turbine alignment and overhauling
- Diesel engines

Oil and gas

- Compressors
- Engines
- Pumps
- Manufacturers and service companies

Advantages at a glance

- Relative bore centerline measurement, the eccentricity error is determined
- Universal pointer and customized brackets for bore diameters ranging from 45 mm to 4230 mm
- Measurement of both magnetic and nonmagnetic bores
- Ease of handling, lightweight components and laser technology make equipment set-up simple
- Precise user independent measurement and results
- View results through optimized or fixed point center lines and obtain minimum corrections required
- RF module for stable and wireless data transmission

Precision alignment in three steps

Quick and straightforward

Bore set-up

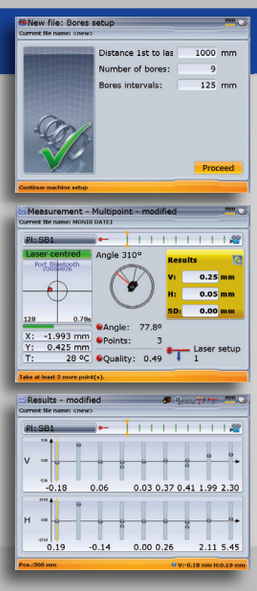
- Choice of different bore types including narrow, long and complex bores for evaluating bore position and angles
- Input of compensation values for thermal growth or shaft sag
- Add bores to new or existing set-ups

Measurement

- On-screen guidance with graphics for laser set-up and the measurement procedure
- Measurement table to review repeatability, and used with standard deviation to confirm accuracy and shape of bore
- Optional stable wireless data transmission

Results

- Results traceable to national standards
- Set the centerline relative to any fixed bores, or optimized
- Results displayed in colour graphics providing a clear understanding
- Monitor real time corrections

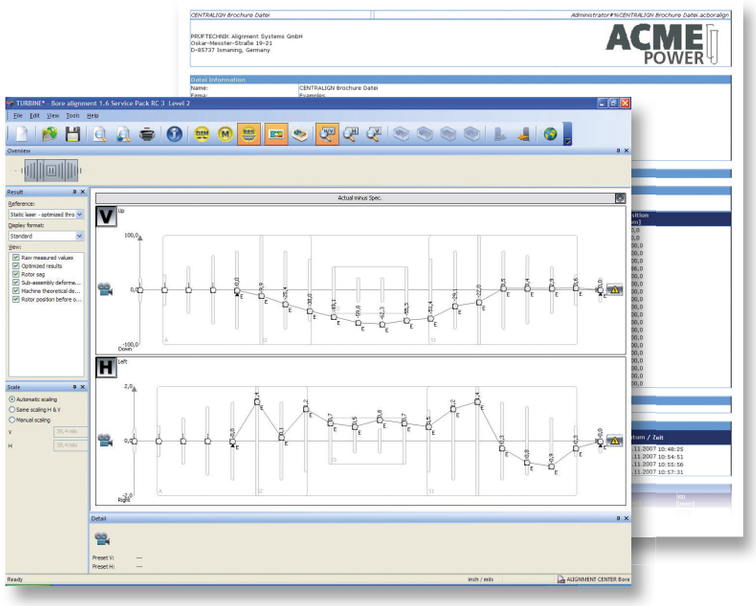


Complete solutions for bore laser alignment

ALIGNMENT CENTER

One software for all PRUFTECHNIK products and applications

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



Patented brackets (U.S. Patent 5,717,491)

CENTRALIGN® Ultra system brackets are specifically designed for ease of use, flexibility and extremely high accuracy. A fixed base keeps the bracket frame in place within the bore while a rotating sensor holder enables the sensor to be quickly centred and freely rotated within the bore. This unique feature combined with the system's ability to measure more than 3 points at any position offers incredible flexibility and reveals the potential bore out of roundness. Measurement readings may also be transmitted to the ROTALIGN® Ultra computer via the optional RF data transmission module.

These universal pointer brackets can be used in measuring both magnetic and nonmagnetic bores. They can be inserted in bores from as small as 45 mm (1.77") in diameter to 4230 mm (166.5").

Further modular ROTALIGN® Ultra applications

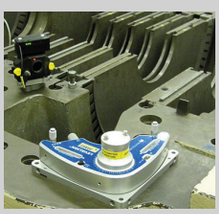
Shaft alignment

The ultimate shaft alignment system for any kind of machine or coupling

Straightness measurement

Measurement of vertical and horizontal straightness in response to industry demands

Flatness measurement



Measurement of surface flatness and levelness to improve productivity

LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
IEC 60825-1:2007
P< 1mW, pulse < 400µs, λ=630-680nm
Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

PRÜFTECHNIK
PROVEN QUALITY

- Made in Germany
- Global Presence
- Qualified Support
- Quality Service

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