

EXPRESS ALIGNMENT BY FIXTURLASER



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"We have gone over to laser-based alignment systems for alignment of all rotating shafts in pumps and motors. This is primarily due to the fact that laser-based systems are easier to use, most noticeably when it comes to documentation and storage of measurement data. This makes it easier for me to check that the company's machines are correctly aligned. Previously, we had to replace seals every three months, now it's only every second year, so going over to laser-based alignment has paid for itself several times over." GEORGE A. CAIN, MAINTENANCE ENGINEER, SOLVAY ADVANCED POLYMERS, USA



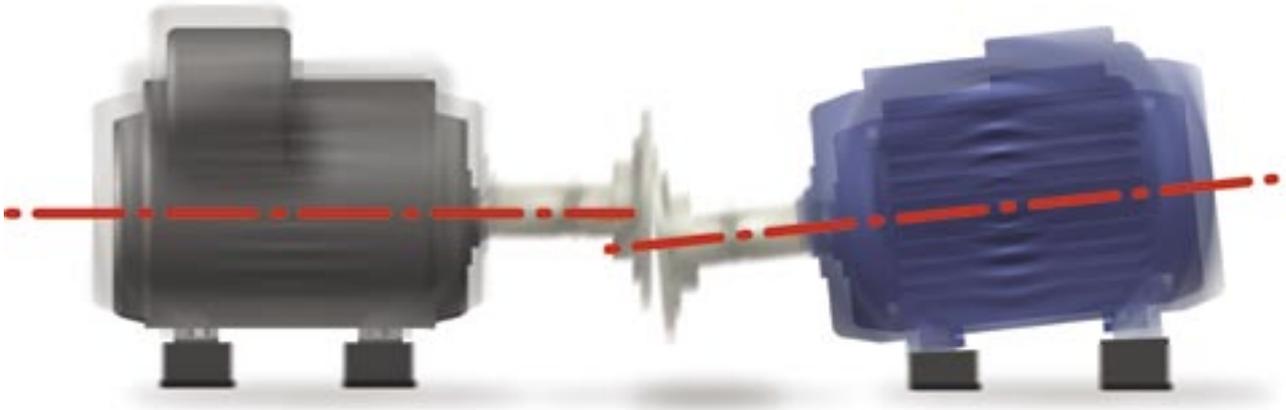
Shorter downtime makes you a winner

The clock is ticking... Time is your worst enemy, irrespective of whether it is a pit stop or machine downtime. With the right tools and right people in the right place, a pit stop takes the shortest time possible, and the car is ready to take to the track again and leave its competitors in the dust.

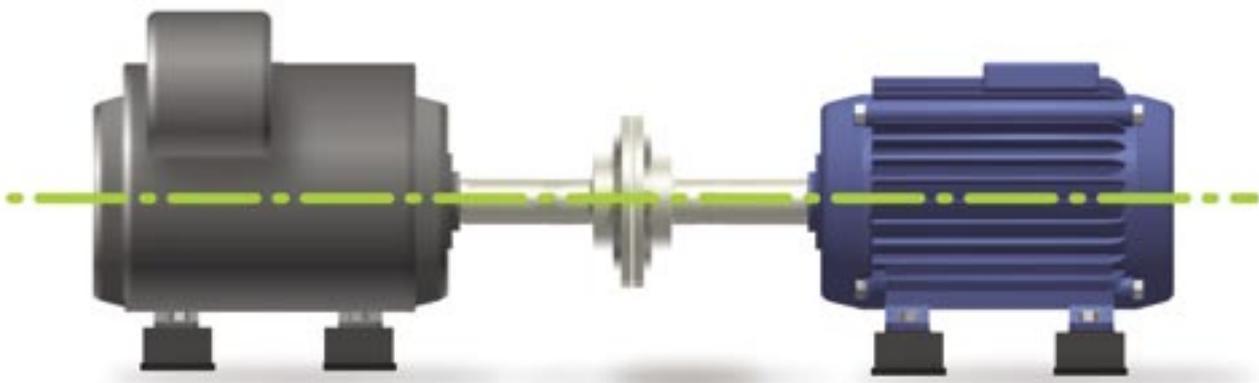
The same applies to downtime, where money is lost for every minute that production is stopped. A very critical situation!

With the Fixturlaser XA in your hand, you have a user-friendly tool that minimizes the number of operations involved in the alignment process. In addition, you can tell in just minutes if the machine needs aligning at all. This will save you lots of time, not to mention the cost savings!



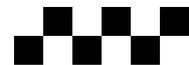


- Increased lifespan for seals, bearings and couplings
- Increased production quality
- Increased production time between maintenance stops
- Reduced vibration levels
- Reduced energy costs
- Reduced risk of unforeseen production stops
- Reduced maintenance costs



Typical symptoms of misaligned machines:

- Premature bearing, seal and coupling breakdown
- High axial and radial vibration levels
- High temperatures in bearing housings and couplings, and/or in their proximity, as well as high oil temperatures
- Leakage from bearing seals and/or glands
- Loose or damaged adjustment screws or coupling bolts
- Cracks in the machine bed
- Similar equipment has lower vibration levels and longer average production time between machine breakdowns



Take charge

of your machines and their condition

How many machine breakdowns can you afford? The more control you have over your machines and their condition, the fewer breakdowns you will have. Preventive maintenance corresponds to a tire change at the pit stop. If you rely on repairing your machines once they have already broken down, it is like trying to change tires out on the track during the race.

The right tools in everybody's hands

Preventive maintenance assumes that you have the right tools in your hands, such as a laser-based alignment system. With regular measurement of alignment, vibration and temperature, you can predict potential problems long before they have any effect on your production.

With correctly aligned machines, you leave competitors in your dust

At least 50% of machine failures are due to poor alignment, a fact that costs industrial manufacturers large sums every year. An investment in a laser-based alignment system will therefore repay itself rapidly. Correctly aligned machines reduce the number of breakdowns, resulting in an increased degree of availability and higher production quality. The lifespan of seals, bearings and couplings increases, which in turn leads to reduced maintenance costs. The company's energy consumption is also reduced.

The greatest saving from correctly aligned machines, however, is from the reduced risk of unscheduled production stops. No more tire changes on the track!

The alignment system of the future – Fixturlaser XA

The traditional methods used today, such as dial indicators, steel rules, etc. can never achieve the accuracy available with a laser-based alignment system. In addition, the time taken for mounting, reading and processing the results of dial indicators is time consuming, and the method often requires the skill of experts.

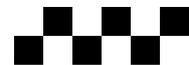
The Fixturlaser XA system is probably the most user-friendly system on the market. The units are mounted quickly and the animated display gives a step-by-step guide of what to do and by how much the machine needs to be adjusted.

Our laser-based alignment instrument allows you to save your results in the display unit and then transfer them via the USB ports to a PC, or other storage media, for documentation.

These technical features make the Fixturlaser XA your tool for the future!



The Fixtur Laser XA's software uses icons. The icons are universal and simple to understand for all users, independent of nationality.



Fixturlaser XA

the faster alignment system

The Fixturlaser XA is filled with new technical features, e.g. CCD-technology* for better measurement results, animated displays that show you exactly what to do, and wireless connections as an option. These features combined make the system unique in the market. Other features, such as pre-mounted units and snap-on fixtures for quick adjustment, also contribute to making the Fixturlaser XA very user friendly and fast!

3D color animation for fast results

The whole working process is shown on the screen using simple and distinct color animation. Figures and arrows show the measurement results and any requirement for realignment. Color coded symbols simplify interpretation of the results.

Automatic registration of measurement points – Express Mode

For faster measuring, the system automatically registers the three measurement points when you rotate the shaft. We call this Express Mode.

Express alignment check

In order to rapidly determine if there is any alignment problem at all, the system is equipped with an express alignment check function. Only one measurement distance needs to be entered into the system.

Wireless data transfer

In order to avoid the need for cables between the measurement units and the display, the equipment can be complemented with wireless data transfer.

Touchscreen with icons means no confusing terminology

The measurement results are shown on a 6.4 inch back-lit LCD touchscreen. Our new software, which is completely based on distinctive symbols and graphics, makes it easier to learn how to use the system. Since the software does not include any text or difficult terminology, the risk of misunderstandings or misuse is minimized.

Small, thin measurement units with large measurement areas

The measurement units are equipped with 30 mm CCD-detectors with low sensitivity to strong ambient light. Despite this, the units are small and thin, which simplifies mounting in small spaces.

Quick and simple mounting

The fixtures are pre-mounted in the case. Any height adjustments are done quickly by using the snap-on fixtures.

Robust and practical design

The display unit is designed and manufactured to fulfill the high demands that industrial use requires of the equipment. It is made of aluminum and rubber and powered by rechargeable Lithium-Ion batteries. The display unit is also classified for protection class IP 65. By using the built-in support, the display unit can be placed or mounted in different positions, depending on the most practical solution at the time.

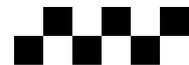
Connectability for rapid data transfer and documentation

The display unit is fitted with two USB ports, one master and one slave, for quick and simple transfer to a PC and documentation of your measurement results.

* CCD-technology, i.e. Charge Coupled Device, has better linearity and provides correct measurement values, even at long distances. It allows better signal processing than PSD, which is used in other laser-based alignment systems.



"At Holmen Paper in Braviken, we have used Fixturlaser's equipment when aligning shafts for motors, gearboxes and pumps, with very good results. It is an easily used, easily understood instrument with very high precision. I have a very positive opinion of their service and support and the company's training is among the best in Sweden." **ELVING JONSSON, FOREMAN, HOLMEN PAPER BRAVIKEN, SWEDEN**



Express alignment

a smarter way to work

The fastest and safest way of aligning a rotating machine is by using a laser-based alignment system. Efficient service technicians use the Fixturlaser XA in three simple stages to perform their work as quickly as possible.

1



Express mounting

The fixtures are pre-mounted in the case and the measuring units are quickly adjusted using the snap-on fixtures. You can choose wireless data transfer as an option if you wish to avoid cables.



Express adjustment

Extra large CCD-detectors eliminate the need to adjust the lasers.



Express rough alignment

The extra large detectors minimize the need for rough alignment. Not even large angular errors or long measurement distances are a problem due to CCD-technology.

2



Express measurement

The Fixturlaser XA registers the measurement points automatically. Animation in the form of red and green fields on the color screen show exactly how much you need to rotate the shaft before the next measurement is automatically registered.



Express results

All measurement results are shown directly on the color screen with large distinct figures. Information about the exact position of the machine and the applicable correction values are complemented with color codes to highlight any required corrections.



Express alignment

You will quickly hit the large detector surface, even with large angular errors. Arrows on the display show the direction and by how much the machine must be realigned.

3



Express documentation

You can create and download fast, flexible documentation by using the system's USB ports and a USB memory.



Express removal

The pre-mounted fixtures make removal and packing of the Fixturlaser XA quick, which also eliminates the risk of losing parts.



Express service technician

With the Fixturlaser XA, the job is done quickly and the service technician is ready for the next assignment.

On-screen guidance for faster and safer results

With Fixturlaser XA and its icon-based software, you perform alignments in a completely new way. The system is equipped with a large back-lit color touch screen. High resolution 3D animations show where you are in the process, and how to proceed. During the actual adjustment, arrows on the 3D illustrations show how much and in which direction, the machine needs to be adjusted.

Express alignment check



With the Fixturlaser XA, you can perform a quick check that tells you if the machine is misaligned and if so, in which way and by how much. If there is no misalignment, you're finished, unless you choose to save the results in the system. If the machine needs realignment, you will be guided, step by step, through a precision alignment.

User-specified tolerance table values

Range	mm / 100	mm
0 - 1000	0.10	0.13
1000 - 2500	0.08	0.10
2500 - 3000	0.07	0.07
3000 - 4000	0.06	0.05
4000 - 8000	0.05	0.03
Special	0.05	0.10

We advise that you align in accordance with the machine manufacturer's tolerances. If these are not available, there is a standard tolerance table in the system. If required, you can even enter your own tolerance values.

Express Mode - Automatic registration of measurement points



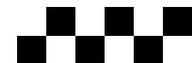
Express Mode is the Fixturlaser XA's way of rapidly registering measurement points. You simply rotate the shafts to three different positions, with at least 30° between measurement points, and each measurement will be registered automatically - Express Mode. The green field shows when you are within the permitted measurement area. If you wish to use one of the traditional measurement methods, i.e. the Tripoint or the Clock method, they are also available.



The Tripoint method works in the same way as Express Mode, with the exception that the measurement points are registered manually by touching the screen for each measurement point registration.



The Clock method calculates the machine's position by registering three measurement points with 180° rotation. The method can be used when comparing results with traditional methods, such as reversed dial indicators.



The alignment result, which is summarized both horizontally and vertically on the same display screen, is color coded to highlight any actions required. Once finished, you can document your results in the

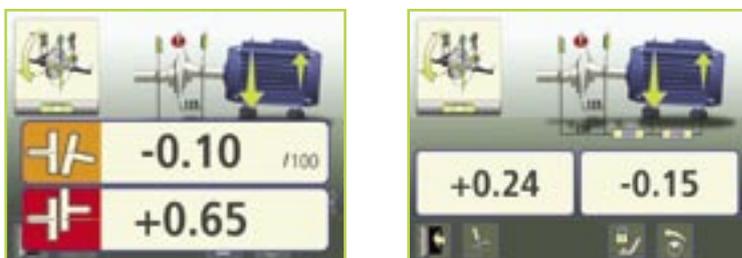
system and transfer them via the USB ports. With the Fixturlaser XA and its new software, you save time and can be assured that your results are correct, even if you do not align machines on a daily basis.

3D animations prompt you through the alignment



When you are ready to align, you get real-time results displayed with both horizontal and vertical views. The display shows how you should adjust the machine to arrive within the selected tolerances. As you adjust the machine, all movements are shown on the screen in real-time. Adjust until the icons show green, which means the alignment is within the tolerances. The arrows at the feet of the machine guide you continuously, by showing the direction and degree of machine adjustment.

Extra distinct with enlarged result figures



The result figures can be shown in an extra large and distinct format for better visibility during the alignment process. This applies to both coupling error and foot values.

Flexible documentation



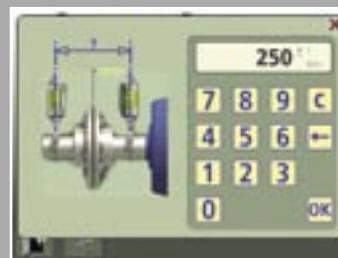
When you are finished, you can name your alignment and save it to a file in the display unit. The documentation can be transferred to another computer or storage media via the USB ports. With precision alignment, the measurement results, dimensions, any comments, target values, file names, date and time are saved, along with any comments. It is even possible to open a saved file and resume a measurement.

Green light means go



The green light indicates that the laser beam has hit the detector and that you can start your measurements. Clear step-by-step prompts show what you should do to complete the measurement process.

Pop-up windows for data entry



Only the information you need is shown on the screen. For example, when you need to enter a distance, a pop-up keyboard appears.

Color coded results



The results from the entire measurement are shown directly on the display. The color codes indicate if there is a need for alignment. Green indicates within tolerance, orange near tolerance and red indicates that the machine is outside tolerance. In addition, the motor illustrations show the machine position on the screen.





Fixturlaser XA

new technology for laser alignment

The Fixturlaser XA uses CCD-technology for maximum speed and highest quality of measurement results. The new technology always provides an exact measurement result, independent of where the laser beam strikes the detector.

FIXTURLASER XA - COMPLETE SYSTEM*

Weight (incl. all standard parts):	7,9 kg (17,42 lbs)
Storage Temperature:	-20 to 70°C (-4 to 158°F)

CASE

Material:	High Impact ABS Plastic
Sealing:	Dust, water (5m/16 feet), and air tight with air pressure compensation valve
Drop Test:	3 m (10 feet) onto concrete floor
Dimensions:	460 mm x 365 mm x 185 mm (18,1 in x 14,4 in x 7,3 in)

DISPLAY UNIT

Housing Material:	Anodized aluminum and high impact PC/ABS plastic over molded with TPE rubber
Operating Temp:	0 to 40°C (32 to 104°F)
Relative Humidity:	10 – 90%
Weight:	1,5 kg (3,31 lbs) with batteries
Dimensions:	244 mm x 188 mm x 55 mm (9,6 in x 7,4 in x 2,1 in)
Environmental Protection:	IP 65
Processor:	Intel X-Scale, 400 MHz
RAM:	64Mb
Flash Storage Memory:	128Mb
Display:	Color TFT-LCD backlit with wide angle viewing technology
Display Size:	6,4" diagonal (131 x 98 mm)
Display Resolution:	Full VGA 640x480 pixels
Color Depth:	262 000 colors
Interface:	6,4" polyester laminated touch screen with enhanced transmission
External Interface:	2 RS-485
	1 USB host port, 1.5 / 12 Mbps, OHCI v1.0 compliant
	1 USB slave port, 12 Mbps
	1 Ethernet 10/100BaseT RJ45
	Optional Class II Bluetooth transmitter with multi-drop capability
Power Supply:	Dual high performance rechargeable Li-Ion batteries and external power supply
Operating Time:	20 hours typical use
LED Indicators:	Unit status and battery status indicators

MEASURING UNITS

Housing Material:	Anodized aluminum and high impact PC/ABS plastic over molded with TPE rubber
Operating Temp:	0 to 50°C (32 to 122°F)
Relative Humidity:	10 – 90%
Weight:	186 g (6,6 oz)
Dimensions:	79 mm x 77 mm x 33 mm (3,1 in x 3,0 in x 1,3 in)
Environmental Protection:	IP 65
Laser:	650 nm class II diode laser
Laser Line Fan Angle:	6°
Laser Power:	< 1 mW
Measurement Distance:	Up to 10 m (33 feet)
Detector:	CCD
Detector Length:	30 mm (1,2 in)
Detector Resolution:	1 µm (0,04 mils)
Measurement Accuracy:	0,3% ± 7 µm (0,3% ± 0,27 mils)
Ambient Light Protection:	Optical filtering and sunlight signal suppression
Inclinometer Resolution:	0,1°
Inclinometer Accuracy:	±0,5°
LED Indicators:	Laser transmission and status indicators
Laser Safety:	See yellow label below

SHAFT BRACKETS

Fixture:	V-fixture for chain, width 18 mm (0,71 in)
Material:	Anodized aluminum
Shaft Diameter:	Ø 20-450 mm (3/4 in -18 in)
Rods:	4 pcs 85 mm (3,4 in) and 4 pcs 160 mm (6,3 in) extendable to 245 mm (9,6 in)

CABLES

Length:	2 pcs 3 m (10 feet)
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WIRELESS PACKAGE - OPTIONAL EQUIPMENT

Housing Material:	PC/ABS plastic
Operating Temp:	0 to 50°C (32 to 122°F)
Weight:	60 g (2,1 oz) without batteries
Dimensions:	97 mm x 47 mm x 36 mm (3,8 in x 1,85 in x 1,4 in)
Wireless Communication:	Class II Bluetooth transmitter
Power Supply:	3 AA (LR6) batteries
Operating Time:	8 hours continuously
LED Indicators:	Transmitter and battery status indicators

* NOTE! Specifications may change without prior notice.

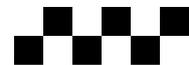


The case is made of extra durable ABS plastic, and is water and air tight. The lightweight case is easy to handle. Straps are available for either shoulder or back-pack carrying options. The fixtures and measuring units are pre-mounted in the case.

- Easy to use
- Space for pre-mounted fixtures
- Air and water tight
- Shoulder strap (option)
- Back-pack straps (option)



"Here at Statoil we have had extremely good use of Fixturlaser's system for machine alignment. This is reflected in the excellent maintenance economy and availability of our plant – an incredible 99% this year. We believe that Fixturlaser provides one of the best laser-based alignment systems, with good, reliable service which is important for us." **THOMAS MELBY, OPERATIONS TECHNICIAN, STATOIL TJELDBERGODDEN, NORWAY**



Express Alignment — Worldwide wherever you need it

Choosing Fixturlaser as supplier of laser-based systems for shaft alignment is a safe choice. We have more than 20 years experience of developing innovative systems for shaft alignment that simplifies your service work, reduces your maintenance costs and increases your company's profitability.

Fixturlaser has retailers and distributors all around the world, all with the knowledge and experience of how your company can become a winner by using a fast, laser-based system for shaft alignment in your maintenance.

We work closely with our customers and provide rapid service and support via our distributors around the world.

Discover the advantages

Regardless of whether you work in the process industry, power industry, or ship building industry, or in any other manufacturing industry for that matter, there are huge advantages to working with laser-based systems for machine alignment. If you have rotating machines in your workshop, you have a reason to contact one of our distributors for a demonstration of what laser-based alignment can do for you.

Rapid and effective service and support

You always have access to the latest software upgrades and the assistance of our distributors for your laser-based system from Fixturlaser.

Together with our distributors, we give our users the training required to quickly get started and work efficiently with our shaft alignment systems.

Quick pay-back

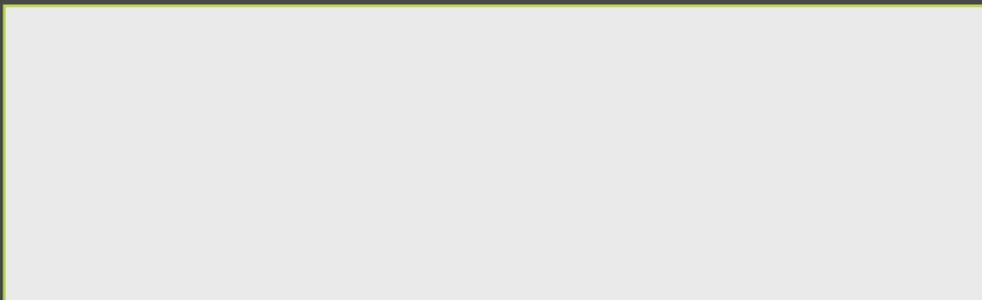
Investing in a Fixturlaser XA will help to reduce your maintenance costs considerably. The pay-back time can be as short as a few months.

Contact your local distributor and make a pay-back calculation for your own operations, and get the pay-back time for a Fixturlaser XA system directly.

ISO 9001 and 14001 certified

Fixturlaser AB is ISO 9001 and ISO 14001 certified. We work continuously with our routines for quality and the environment. Fixturlaser AB is also a certified supplier of EX-classified alignment systems.





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