PRÜFTECHNIK
Alignment Systems

PERMALIGN®

The laser monitoring system for machine positional change

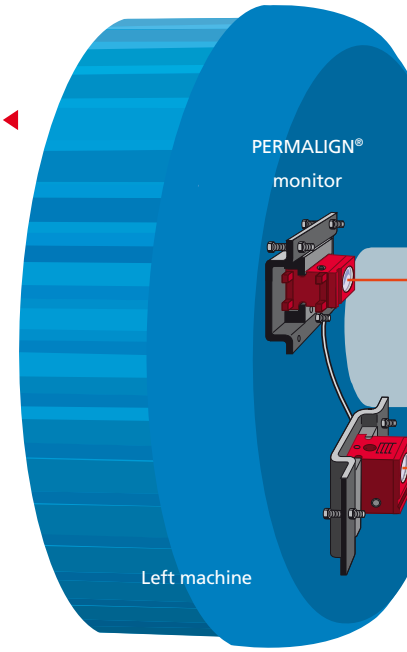
Number 1 in laser precision alignment

www.pruftechnik.com

PERMALIGN®

PERMALIGN® laser system measures and monitors continuously, and in real time, alignment changes of rotating machinery during operation. It can measure the absolute move of a machine or the relative move between coupled machines. It may be used for permanent monitoring or for just the necessary time to determine positional change from cold to hot or vice versa. It features a built-in LCD display for direct readout of position coordinates.

After startup, machines change their initial position, experiencing dynamic loads. This results in the shaft centrelines shifting from their original positions when stopped. A good initial cold shaft alignment may change under normal operating conditions and be out of tolerance. PERMALIGN® is the ideal system for permanent and temporary monitoring of machinery positional changes.



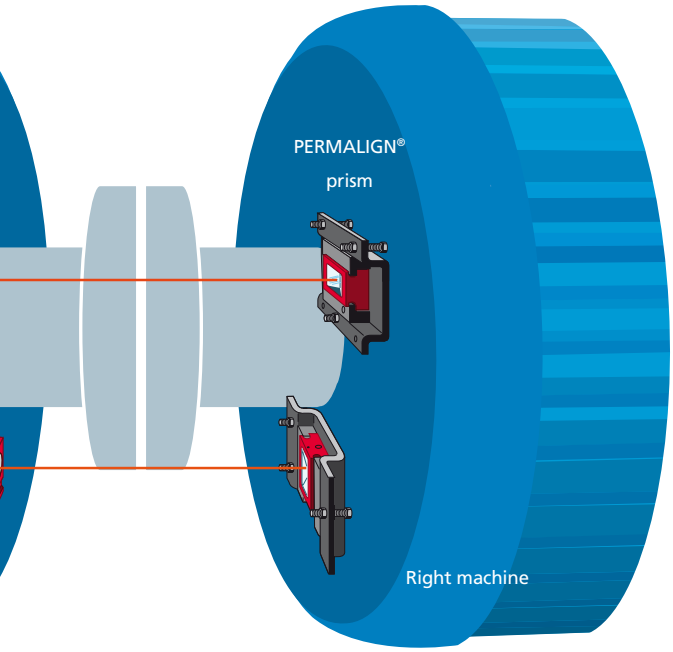
Accurate measurement

All four alignment parameters – vertical offset, horizontal offset, vertical angularity and horizontal angularity are monitored simultaneously using two installed PERMALIGN® monitors. No matter how many statistical calculations go into thermal growth estimation, the accurate way to get the thermal growth information is to measure it directly. OEM recommended cold alignment targets, cannot accurately predict the actual operating condition of a running machine. The dynamics of machines during operation force changes in the shaft alignment that cannot be measured during a 'hot alignment check'.

The user may obtain printout of numerical data, graphics and plot curves of positional changes over time of any monitored equipment. PRÜFTECHNIK WINPERMA® software enables continuous reading-in and storing of measurements over time for comprehensive monitoring analysis.

Machinery dynamic movements

A major factor often neglected when carrying out alignment is machinery dynamic movements. This has to be determined and taken into account during alignment to ensure correct simulation of normal operating conditions.
The cost of good alignment is typically minimal when compared to the vast production losses that can be incurred if a critical piece of equipment fails due to misalignment, which is one of the leading contributors to premature failure in rotating machinery.



Why monitor?

Monitoring establishes the trend of a change over time and the influences of given events. The objective is to find out if machines move between the stopped condition and the running condition, in order to establish precise alignment targets.

Highlights

- Laser-based positional change monitoring system for data trending over time
- The system components are specifically designed to withstand heat and vibration over time
- Temperature change and vibrations do not affect measurement precision
- Establish precisely which machine is moving, by how much and in which direction
- Monitors multi-element machine trains
- PERMALIGN® components can be air or water-cooled
- Sensor resolution of 1 micron
- Industrial protection IP 65
- Intrinsically safe option available
- Data collected and trended with WINPERMA® is used for the correction of any bracket movement
- Direct readout and print out of numerical data and graphics including export to Excel

PERMALIGN® measures total machine movement resulting from thermal growth, pipe strain, operating loads and foundation settling.

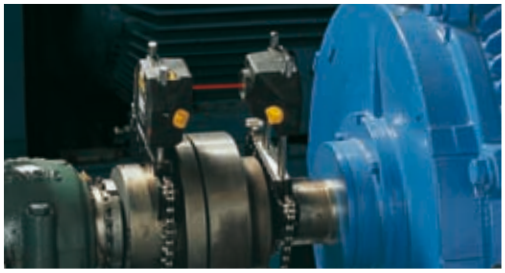
Permanent and continuous measurement

Using PRÜFTECHNIK laser measurement systems, an accurate shaft alignment can be achieved, for example, between a gearbox and a generator with the system at a standstill. However, it is not desirable to align flexibly mounted drive trains to ‘zero’. To simulate deliberate misalignment that results in good shaft alignment during normal operating conditions, cold alignment target values can be entered in all PRÜFTECHNIK alignment systems. These target values are determined using the PERMALIGN® monitoring system which measures displacements continuously in user-defined intervals.

....Dynamic movement and more

Shaft alignment

Accurate shaft alignment plays a key role in preventing premature damage in rotating machinery. It increases the operating lifespan of such machinery. Using PRÜFTECHNIK laser shaft alignment systems to carry out an accurate alignment, result in cost savings.



Accurate measurement of surface flatness

LEVALIGN® Ultra, a geometric alignment system, measures quickly and precisely the flatness or levelness of any foundation, consequently improving machine running time and productivity. Applying a rotating laser system, flatness and straightness measurements are carried out with convenience.

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