



# HDENV

A NEW ERA IN VIBRATION ANALYSIS







## A new era in vibration monitoring

A transition in vibration monitoring technology, the patented HD ENV® method is a new high definition vibration enveloping technology for detection of early stage gear and bearing faults.

### Vibration goes High Definition

With HD ENV, high definition monitoring technologies enter the world of vibration measurement and analysis. This new achievement in vibration monitoring technology is an ideal complement to traditional vibration analysis. The method is capable of detecting at a very early stage such machine problems which are generally difficult to identify early with conventional vibration monitoring techniques, such as gear and bearing damages.

### Ultra long forewarning times and minimum complexity

Providing earlier forewarning than any other vibration monitoring technology, HD ENV takes the guesswork out of ensuring trouble free operation of critical assets. With the capability to use any standard, good quality accelerometer, the method is perfect for monitoring gear and bearing condition over long periods of time. In plants experienced with vibration monitoring the transducers and cabling may already be in place, making HD ENV particularly easy to implement.

The unique preciseness and clarity of spectrums and time signals pinpoint the location, nature and extent of emerging damage with great accuracy and superior forewarning times. HD ENV is supported in our present Leonova data loggers and Intellinova online systems.



## Early warning — the key to profitable maintenance

Having sufficient time to plan replacements or repairs can make or break maintenance budgets. HD ENV provides unparalleled forewarning of deteriorating machine condition and failing components.

### Extend planning horizons from weeks to months


Early warning is a key element of a successful condition based maintenance strategy and crucial to reduce the risks for machine breakdowns. Implementing the right monitoring technology can be the difference between getting several months or just a couple of weeks to plan replacements or overhauls.

A major improvement in vibration monitoring technology, HD ENV enables the detection of gear and bearing faults very early on in the damage process, making it possible to closely monitor the development throughout the failure stages. Significantly extending the planning horizon for predictive maintenance, the method is a boost to maintenance efficiency:

- extremely long forewarning times
- maximized planning horizon
- extended component lifetime
- reduced repair costs
- minimized unplanned downtime








HD ENV enables longer  
planning horizons than  
ever before.

In the marine and offshore industry, cooperating with an Approved Service Supplier can significantly reduce inspection requirements enforced by classification societies. SPM Instrument is a DNV GL, Lloyd's Register and ABS approved condition monitoring services provider.

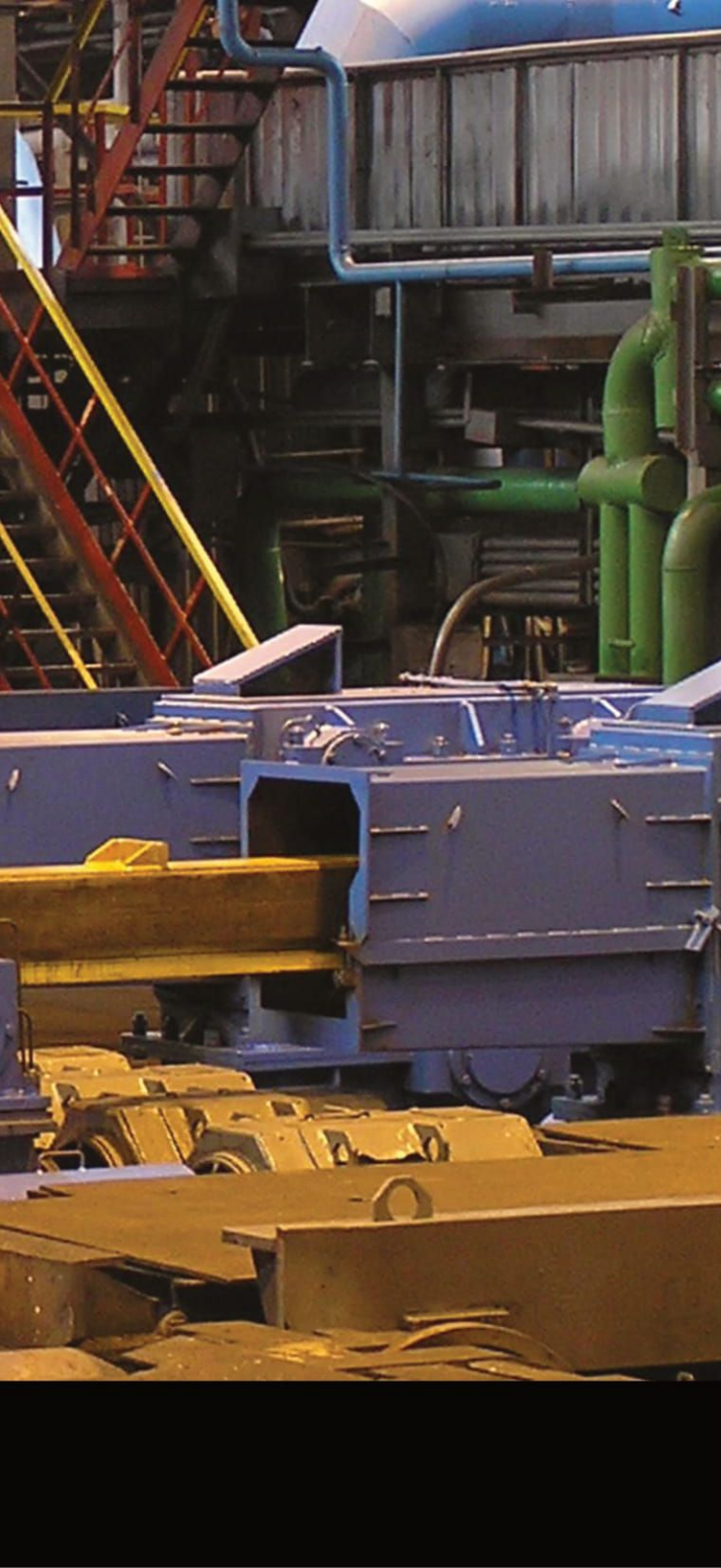




HD ENV is an enhancement in the way vibration data is processed and presented to the user.

*Perfect technology for monitoring of – Wire presses • Yankee cylinders • Gearboxes  
Roller presses • Crushers • Conveyors • Cranes • Reclaimers • Rotary kilns • Ball mills • Agitators  
Mixers • Digesters • Continuous casters • Planetary gears and more.*





## Superior gear and bearing monitoring

Building on over four decades of experience and innovation, HD ENV is the next technological advance in vibration monitoring, providing outstanding performance with the latest state-of-the-art technologies.

### Ease of use and understanding

With HD ENV, distorted measurement data, blurry spectrums and uncertain conclusions on mechanical condition are a thing of the past. The four stages commonly seen in the failure process of rolling element bearings can be clearly observed and closely monitored throughout each stage of development. A set of predefined filters are available for easy selection; each designed to detect damages or anomalies in the different failure stages. After completed measurement, machine condition is evaluated against set alarm limits and presented in an intuitive green – yellow – red color scheme.

### Cost efficient, high-performance solution

HD ENV takes vibration enveloping to a whole new level and is an ideal complement to conventional vibration techniques. In spectrums and time signals with an outstanding level of detail, impact-related events such as gear and bearing damage are easily identified. The technology can be applied to standard IEPE transducers, hence taking advantage of investments already made in infrastructure and vibration analysis training. HD ENV can be used to monitor applications in a very wide RPM range.



## The difference is in the data

HD is the future of digital condition monitoring technologies. The ability to present disturbance-free vibration data in high definition quality sets HD ENV apart from other technologies.

### Extreme sensitivity, unrivaled clarity

HD ENV offers the most advanced visualization technology available in vibration monitoring. Cleverly engineered and patented digital signal processing algorithms extract and enhance the signals of interest from noisy, overall machinery vibration signals. Spectrums and time signals are marvels of clarity, providing a snapshot of machine condition to give the maintenance department a heads-up on potential problems.

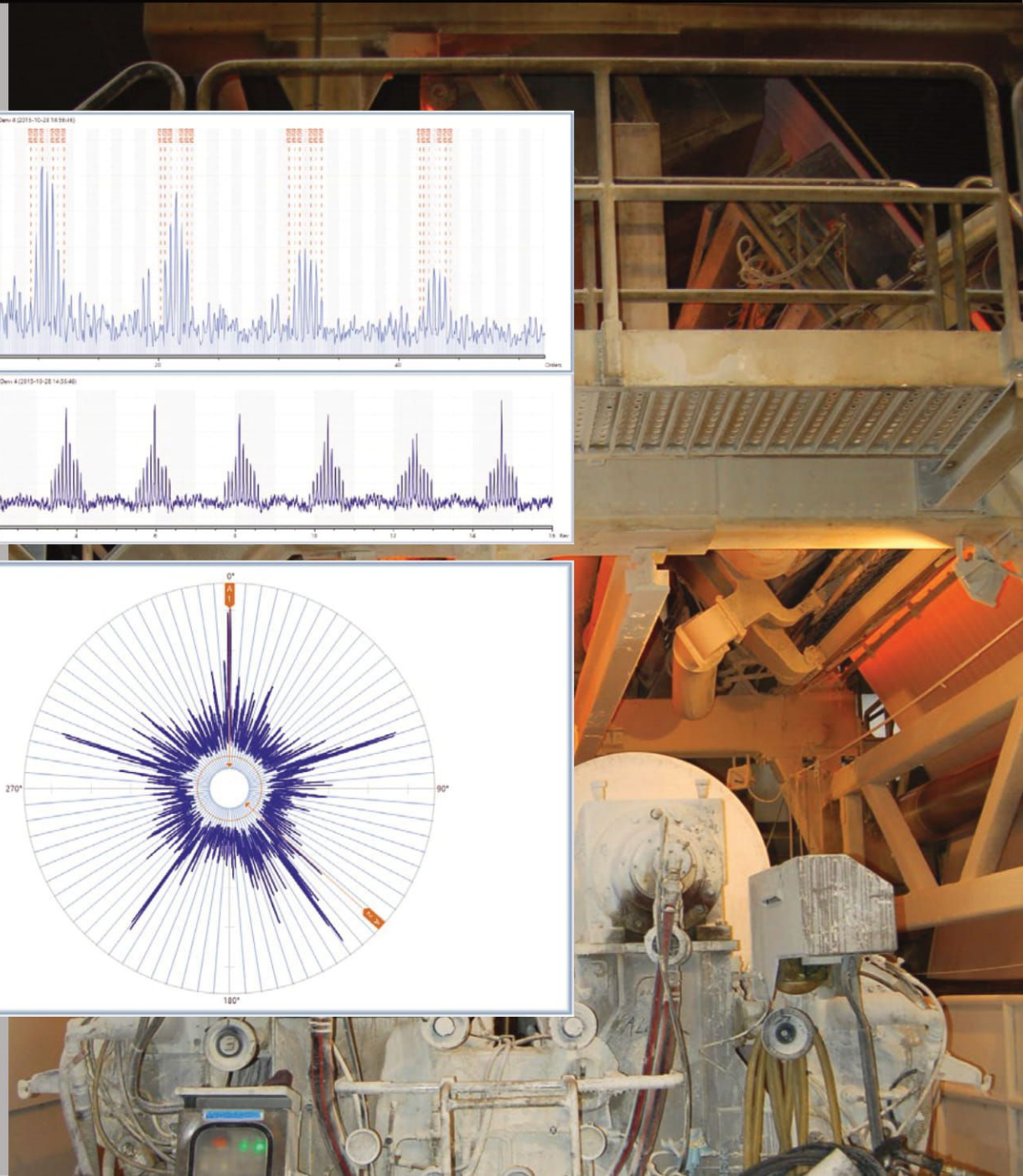
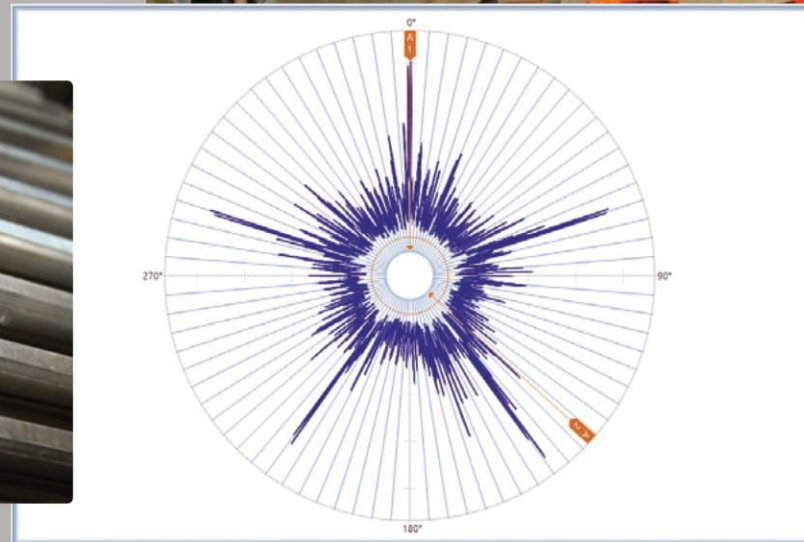
The method delivers a scalar value, HD Real Peak, which represents the envelope signal's true amplitude level. This value is used to determine the severity of a given damage and to trigger alarms. With HD Order Tracking, the number of samples per revolution remains constant regardless of RPM variations, thus ensuring crystal clear spectrums with no smearing issues, where the source of the signal is easily identified.



The clarity of the measurements is attributed to the digital signal processing of the new HD ENV technology, enabling the detection of faults in an early stage and facilitating correct fault analysis. ▶



The circular plot view takes the analysis of time signals into a new dimension. In gearbox analysis, the circular plot helps users visualize the condition of a gear wheel. ▶







## Technical solutions for every challenge

The patented HD ENV technology is integrated in our present Leonova data loggers and in the Intellinova family of high-end online systems, ensuring the earliest possible detection of developing machine damage.

### Condition monitoring expertise

SPM Instrument exclusively develops and markets all the technology to measure, analyze and present condition data from complex machinery. We are a total solutions provider, offering a complete line of measuring techniques and high performance products for condition monitoring of industrial machinery. Bearing measurement and lubrication analysis or advanced vibration analysis - we got it all covered.

### Total solutions provider

In addition to advanced measuring technologies, the extensive SPM product line covers everything from transducers, transmitters and cabling to portable instruments and online monitoring systems controlled by our own power-packed software platform, Condmaster®. Our training facility SPM Academy offers standardized courses and customized training for all levels of staff involved in condition monitoring, enabling them to be fully proficient and continuously update their knowledge of our products and technologies. Through our partnership with Mobius Institute, SPM Academy provides accredited Vibration Analyst CAT I, II, III courses according to ISO (18436-2/3).





