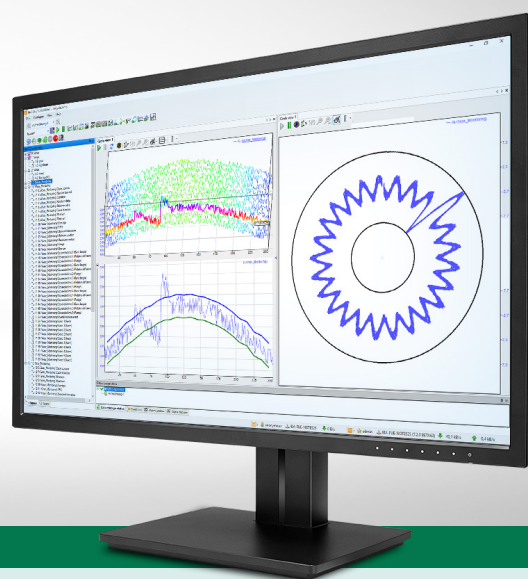




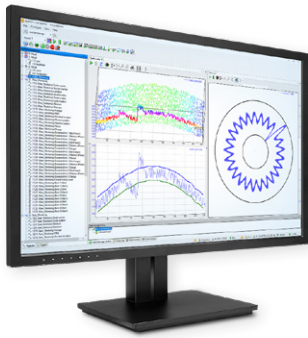
Online monitoring of cyclical processes for quality assurance and machine diagnosis



ibalnCycle

Monitor and analyze cyclical
processes online

Monitoring and analysis of cyclical processes with ibalCycle



ibalCycle monitors cyclically recurring and rotating processes online. A precise forecast of quality features is therefore possible already during production. Implementing measures promptly can prevent damage and malfunctions of machines or plants, thereby ensuring the product quality.

Identifying early-stage process changes and anomalies

ibalCycle is an add-on to ibaPDA and monitors all types of cyclically repeating processes, such as recurring processes, but also rotating machine parts, i.e. rollers, gears, etc.

ibalCycle makes it possible to detect anomalies in the process at an early stage, in particular wear on machines and resulting deviations in product quality. This means you are able to take measures promptly to avoid damage and ensure quality.

Thanks to the comprehensive detection and analysis of the processes, impacts on product quality and the machine condition can be reliably predicted. This means that production downtimes can be avoided, plant availability can be increased, quality can be ensured and, last but not least, maintenance costs can be reduced.

At a glance

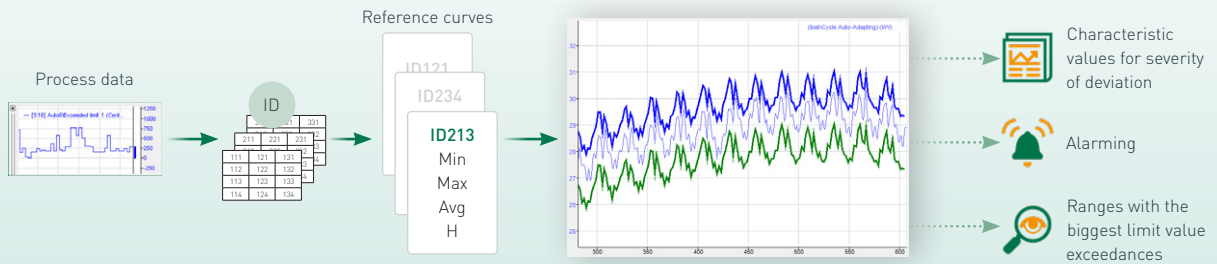
- › Online monitoring and analysis of cyclical processes (recurring process steps, rotating mechanics)
- › Identifying process anomalies
- › Automatic alarming in real time
- › Saving raw data for detailed analysis in measurement files
- › Outputting characteristic values for the long term analysis in higher-level systems
- › Online visualization of measured data and characteristic values
- › Self-learning module for different process conditions (auto-adapting)
- › Reference curves for various process conditions
- › Individual definition of warning and alarm limits
- › Comprehensive configuration options

Application examples

ibalCycle is ideal for a number of applications, such as:

- › Monitoring saw blade wear
- › Monitoring sequential processes in plants and on machines
- › Monitoring step responses and roll stand characteristics
- › Motor and gear monitoring
- › Robot/handling systems, especially for monitoring traverse movements (load and/or reference runs)
- › Monitoring recurring production steps, such as
 - presses (force, displacement and pressure curves)
 - injection molding
 - crane monitoring ...

Monitoring with the Auto-Adapting module



After the "good" curves have been learned for different process conditions, deviations are immediately displayed during the process.

Automatically learn process sequence

The Auto-Adapting module is capable of learning the ideal process sequence from a number of curves. In the learning phase, a reference curve is learned for this purpose, which also takes different process conditions into consideration, such as different material properties, geometries, temperatures, speeds, etc.

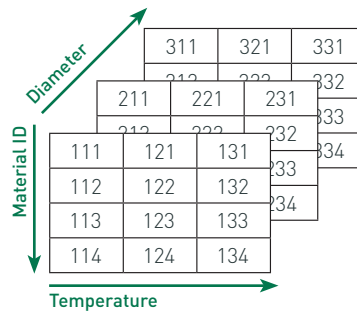
The Auto-Adapting module therefore distinguishes between measurements for any number of defined process conditions. The process conditions are defined with an unambiguous process ID.

The adjacent graphic shows the example of a matrix for differ-

ent process conditions, which take different materials, temperatures and diameters of the product into consideration.

Automatic monitoring and alarming

In the monitoring phase, the Auto-Adapting module compares the reference curve with the measured



curve. In the process, permitted deviations can be individually defined using warning and alarm limits. The quantification of deviations already makes it possible to estimate the extent to which possible damage has advanced.

The user is therefore always informed of the machine or plant status and the quality of production and can respond at any time depending on the quality.

Licensing

An ibaPDA-V7 basic license is required to use ibaInCycle. 4 InCycle modules can be used per ibaInCycle license.

Order no.	Name	Description
30.681215	ibaInCycle	Analysis of cyclical processes, 4 modules
30.770064	ibaPDA-V7-64	Basic package server/client bundle for 64 signals
30.770128	ibaPDA-V7-128	Basic package server/client bundle for 128 signals
30.770256	ibaPDA-V7-256	Basic package server/client bundle for 256 signals
30.770512	ibaPDA-V7-512	Basic package server/client bundle for 512 signals
30.771024	ibaPDA-V7-1024	Basic package server/client bundle for 1024 signals

Additional licenses with a higher number of signals are available for ibaPDA

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