

ConditionMonitor

Monitor and Visualize Process Parameters Online



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BASIC INFORMATION

Short Definition of Online Process Monitoring

If a production facility has sensors or a connection to the control system, the systems data can be used in various ways.

The most important area as a rule is the monitoring of certain process or equipment parameters. If malfunctions are avoided in advance or at least detected and rectified more quickly, downtime is minimized and the production process is optimized.

In addition, the recorded production data is analyzed in detail over the course of time, so that causes of malfunction are often very easy to identify and counter measures can be taken.

On the basis of these analyzes, optimal scheduling of preventive maintenance actions can be objectively determined, thereby increasing production reliability.

Using the archived process data, the traceability throughout the operation sequences is guaranteed.

Cosmino® ConditionMonitor Areas of Application

Cosmino® ConditionMonitor visualizes and monitors recorded online-process-data of the production facilities as an add-on module to Cosmino® MachineConnector.

The measured process parameters are represented as clear diagrams (floor plan or process plan), so that each person concerned can at a glance see the current status and history of the production equipment – whether it be employees on the machines, maintenance technicians or managers.

An overview of important functions:

- ◆ Automatic transfer of target values of parameters from the order data (e.g. process temperature, formulas)
- ◆ Display of historical process parameters to facilitate setting machines when starting an order
- ◆ Linking of target values with relative tolerances, action and warning limits defined within a Control Plan (optional selection of targets from previous orders)
- ◆ Automatic monitoring of measured values against these limits
- ◆ Automatic visualization of exceeded tolerances
- ◆ Recording of limit violations over a course of time
- ◆ Alarm function for limit violations (e-mail, SMS)
- ◆ Linking process data with order data and SFDC* data long-term
- ◆ Archiving of process data in SAP MII (import interface)
- ◆ Data export function (MS Excel®, qsSTAT®, Minitab®)

* SFDC: Shopfloor Data Collection

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BASIC INFORMATION

Ready-to-use Philosophy

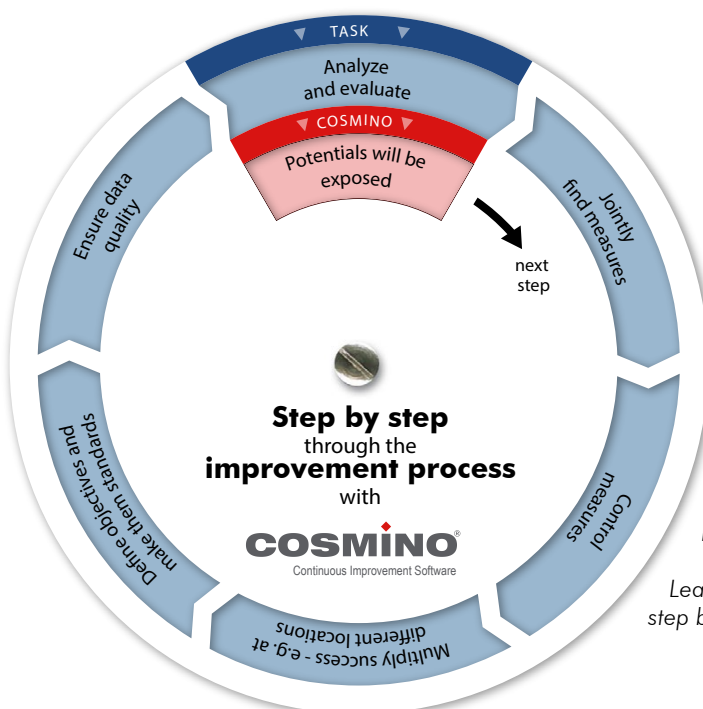
Cosmino® ConditionMonitor as in all other modules of the Cosmino® MES^{plus}, follows the philosophy of a lean solution that can be integrated into any IT environment.

In every detail of the solution lies the know-how from over 25 years of experience in development, which proves time-saving each day – for example, with clear visualization of the parameters (i.e. history) or with the automated warning system.

If you would like to expand the functions of Cosmino® ConditionMonitor, there are currently 16 further Cosmino® Modules available (see page 7).

Your Cosmino® ConditionMonitor Advantages

- ◆ Avoid costly downtime by detecting problems early on
- ◆ Easy remote diagnosis for your maintenance department
- ◆ Provide higher precision for workers to adjust their equipment
- ◆ Time saving through simple, intuitive operation (integration in Cosmino® WorkerPoint)
- ◆ Qualification of employees directly at the machine, as important process parameters are displayed in real time (on the systems monitor as well as on the control chart)
- ◆ No additional expense for archiving data for process reliability investigations
- ◆ Meet customer requirements by a simple and inexpensive monitoring of defined conditions (temperature, pressure, ...) in order-related formula specifications
- ◆ Objective evaluation of improvement options based on detailed measuring data
- ◆ Easy installation based on the Cosmino® MachineConnector Module
- ◆ Minimal installation effort, as all Cosmino® modules are operated via a standard Internet browser



The Cosmino® user is guided step by step through all work steps of the improvement process.

As the workflow is defined, training and familiarization effort is minimal, and operating errors are largely excluded.

Learn, how Cosmino® supports you step by step: www.cosmino.com



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PROCESS DATA ENTRY

In order to evaluate the quality of the manufactured products and production processes more objectively, more and more production facilities and their customers value the acquisition of process and system parameters.

Cosmino® ConditionMonitor automates the collection of all measurable process data – from the temperature over pressure and formulas on through to the speed.

Choose between three types of flexible data entry processes:

1. Process Data from the Machine Control

Allows recorded process data to be automatically taken over (e.g. via OPC).

2. Online Data Entry of Process Data

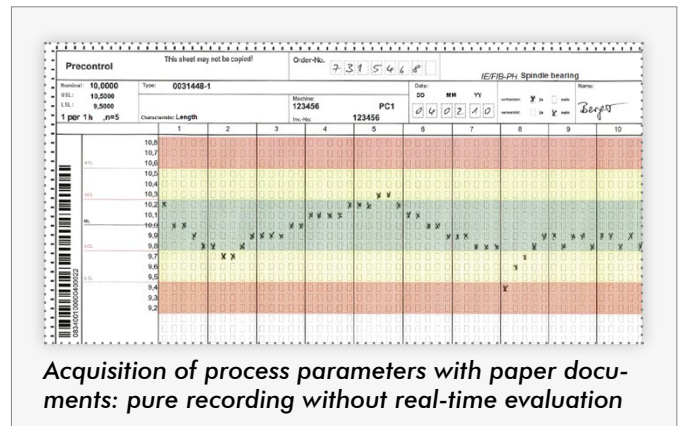
Personnel can enter the process data over a browser based online data entry dialog (via touch screen or PC). Alternatively, data entry is also possible with paper documents.

3. Process Data Import

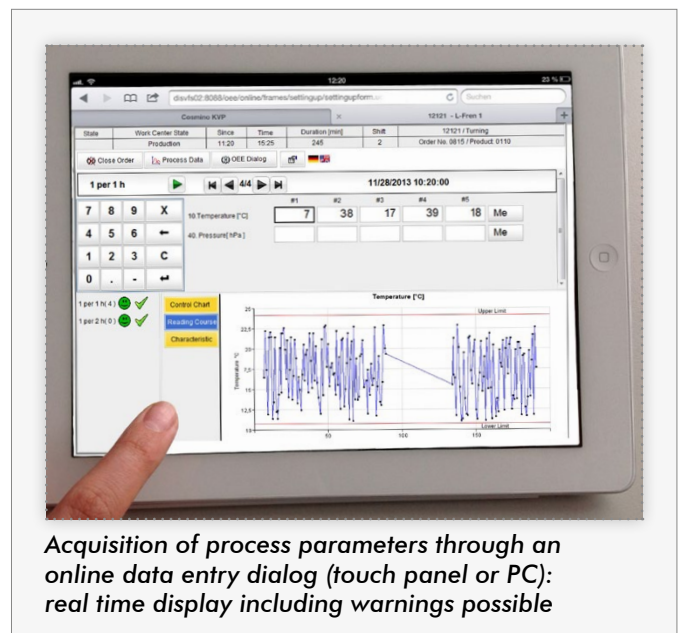
Import data from other IT systems (DFQ or proprietary interface).

Your Cosmino® ConditionMonitor Advantages:

- ◆ High accuracy and timeliness of data
- ◆ Early detection through real-time view of system parameters (except with handwritten document entry)
- ◆ Support to the system planner through transparency in the production processes based on reliable recording and documentation of the parameters
- ◆ Solid basic information for process optimization



Acquisition of process parameters with paper documents: pure recording without real-time evaluation



Acquisition of process parameters through an online data entry dialog (touch panel or PC): real time display including warnings possible

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VISUALIZATION OF PROCESS DATA

Real-time Progress with Warnings

Cosmino® ConditionMonitor shows you on the terminal or Internet browser the real-time progress of your process data from the last 24 hours. Any violation of warning limits is clearly displayed as well as recorded. A particularly practical feature is the live overview of the machine parameters.

Utilization of Archived Process Values

ConditionMonitor helps you to archive well proven settings for your machine and to utilize them again. The order statistics show you automatically when creating an order the process values, quality and performance data of completed orders and facilitates setting up the system for subsequent orders for the same product.

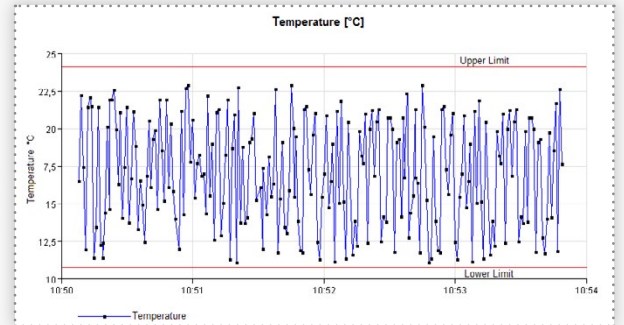
Process Data for Machine Maintenance

The maintenance and preventive maintenance are greatly simplified since unplanned behavior and problems are quickly and at a distance visible. Based on the process data history, error sources can be detected more quickly and the maintenance therefore supported.

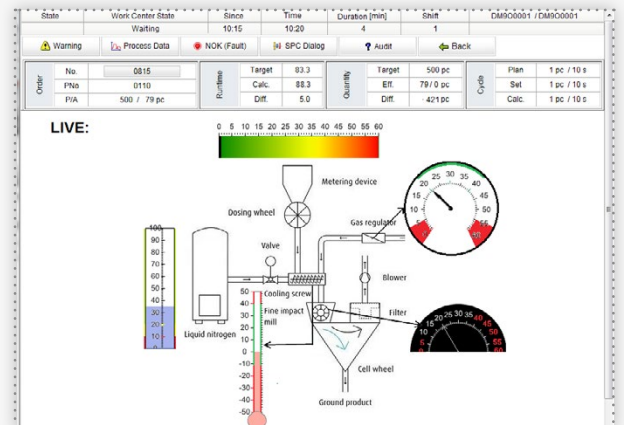
Your Cosmino® ConditionMonitor Advantages:

- ◆ Avoid distances as system parameters can be accessed from any location
- ◆ Reduced downtime through fast and precise response as process sequences are known (histories, records)
- ◆ Reduction of nok amounts through early detection of errors in the process and a faster response
- ◆ Reduced maintenance costs as preventive maintenance actions can be scheduled more efficiently based on the process data records

Further information can be found in our Cosmino® WorkerPoint brochure



Visualization of progression of parameters with display of limit values



Equipment overview: Live-view of the acquired facility parameters

	Work Center State	Since	Time	Duration [min]	Shift	12111 / L Turning 1	
New Order	Production	06:13	14:17	14889	1		
* Order Parameter							
Product:	120372729	OEE:	70 %				
Run Time:	600 min	Availability:	79 %				
Order/Pos:	#013076140/1	Efficiency:	95 %				
Work Center:	121113 Turning	Quality:	92 %				
Output:	1200 piece	Tech. Availability:	85 %				
		Calculated Cycle:	1 pc / 5 min				
		Team:	1				
Characteristic No.	Nominal	LSL	USL	max. Value	min. Value	Average	Variation
Pressure (1001)	32.00 MPa	30.00 MPa	55.00 MPa	43.73 MPa	25.20 MPa	35.29 MPa	4.92 MPa
Filling Level (1002)	70.00 %	10.00 %	90.00 %	74.87 %	25.08 %	50.46 %	14.36 %
Temperature (1004)	20.00 °C	5.00 °C	30.00 °C	31.88 °C	2.75 °C	20.30 °C	5.60 °C

Order statistics: display of historical process parameters for production orders for the same product

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MONITORING & EVALUATION

Limit Values and Monitoring

Link parameters with any absolute or relative tolerances and warning limits. Target values are automatically taken over from the order data. If limit values or tolerances are violated, a corresponding visualization on the machine is possible as well as a warning text message or e-mail.

Process	Work Center State	Since	Time	Duration (min)	Shift	Value
11:23	Production	11:22	11:24	10081	00 / 1st 00	
von 09:46 to 09:47	Production	09:46	09:47	09:47	09:47	56.2 W/min
09:46	Production	09:46	09:47	09:47	09:47	33.04°C
09:46	Production	09:46	09:47	09:47	09:47	25.5 hPa

Warning notification when limit values are exceeded

Evaluation of Dependencies

Cosmino® ConditionMonitor enables multiple process data curves be shown together to quickly identify dependencies of parameters and on the basis of the recorded machine status, assess the incident.

Status	Machine state	Since	Time	Duration (min)	Shift	Value
Production	Production	10:00	10:00	0	2	MP123456 / D Machine
Order	Setup	10:00	10:00	0	2	MP123456 / D Machine
ToolChange	Message	10:00	10:00	0	2	MP123456 / D Machine
No	Target	75.0	75.0	900	900	20 pc / 10 m
Phi	Calc.	81.0	81.0	900	900	20 pc / 10 m
PIA	Diff.	0.0	0.0	900	900	0.0 pc / 10 m

Flashing warning icon (message) when limit values are exceeded in WorkerPoint online-dialog

Data Export

Export the process data for further analysis, for example in Excel, qs-STAT® or Minitab.

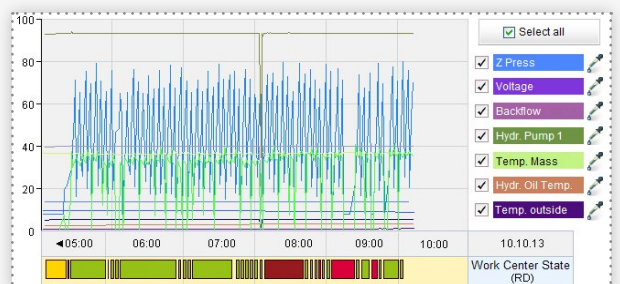
Improvement Management

ConditionMonitor evaluations are an important basis for the improvement process, which can be comprehensively controlled and assessed with the Cosmino® Suite.

Your Cosmino® ConditionMonitor Advantages

- ◆ Shortened response through early enough warning whereby scrap, errors, or downtimes are reduced
- ◆ Reduced maintenance costs by enlarging service intervals with the help of failure prediction (process data analysis)
- ◆ Objective assessment of improvement options based on detailed measurement data
- ◆ Time saving as maintenance orders and improvement measures can be managed in one central system

Further information can be found in our Cosmino® ImproveManager brochure



A chronological sequence of different parameters displayed as superimposed values (relative scaling), beneath the work center status (production, setup, downtime)

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INTEGRATION INTO THE COSMINO® MES^{plus}

COSMINO AG supports you in getting the full potential of your manufacturing and achieving the best results:

- ◆ More output
- ◆ Better quality
- ◆ Increased reliability
- ◆ Reduced costs
- ◆ Full transparency

Our software belongs to the field of Manufacturing Execution Systems (MES) and can therefore be your navigator on the path to Industry 4.0 (Integrated Industry).

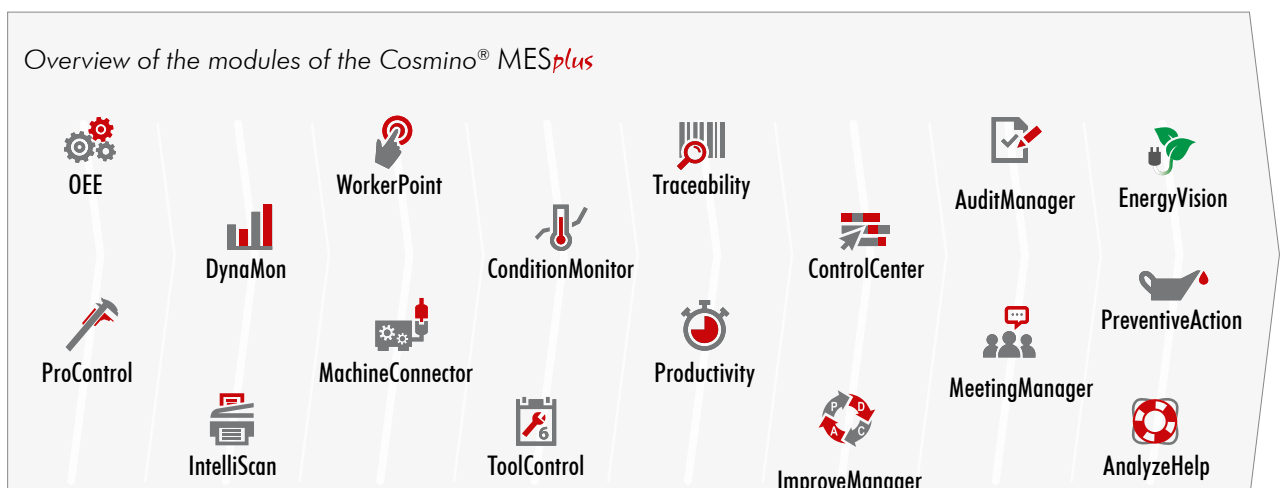
Thanks to more than 26 years of project experience, we can count global companies like BMW AG, Daimler AG and Continental AG among our clients today.

Thanks to its modular, standardized architecture, Cosmino® MES^{plus} offers particularly medium-sized companies from various industries important support in the optimization of their processes and products.

Your Cosmino® MES^{plus} Advantages

- ◆ Focus on people
(their knowledge will be developed and used)
- ◆ Causes instead of symptoms for downtimes
(by integrating the employee's knowledge)
- ◆ Reporting system oriented on measures
(award-winning, fully automated and easily understood)
- ◆ Integrated improvement management system
(measures are linked to metrics)
- ◆ Quick start (*express*) is possible
(automate data from paper forms; get digital data by scanning)
- ◆ Award-winning Online Data Acquisition Dialog
(acquires data and displays information)

Overview of the modules of the Cosmino® MES^{plus}



COSMINO AG has specialized
in consulting, software development and service
in the fields of Manufacturing Execution Systems (MES) and
continuous improvement processes since 1988.



COSMINO AG supports industrial companies of any size achieve full potential of their manufacturing systems and shows how the best possible result can be achieved using the existing resources. From data acquisition to improvement management, the potential of all employees will be brought to bear.

Have we awakened your interest?
Our sales team is looking forward
to making contact with you!

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