

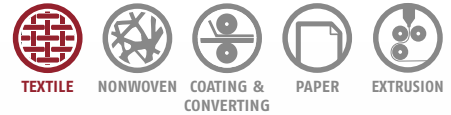
# PROCESS CONTROL THAT PAYS FOR ITSELF!

Saving costs – conserving resources!



PROCESS CONTROL





# THE MOST VALUABLE ENERGY IS THE ONE THAT IS NOT USED.

If you want to lower costs by optimising profitability and adding value, there is a simple way to reach this objective: by saving energy. Mahlo® supports you with optimised process control.

The experience of statistics agencies and other institutions shows that energy saving and thereby cost reduction potentials are frequently untapped. This tendency is prevalent in all sectors of the industry. The textile industry is no different and is even especially affected. Many measures revealing the potentials or even already allowing their implementation require only minor investments in relationship to the savings achieved and require rather little effort.

The energy efficiency of the production plants can be drastically increased through suitable measuring and control technology. This means, at the same time, increased productivity with usually improved reproducible quality, optimised raw materials usage and work effort accompanied by clearly improved plant utilisation.

Quite some capital can meanwhile be generated by saving energy – Mahlo® is ready to help you achieve this goal!



Optimised  
energy efficiency  
+ consistent and  
reproducible quality  
+ optimisation of the  
production processes

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**= COST  
REDUCTION!**

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## PROCESS CONTROL

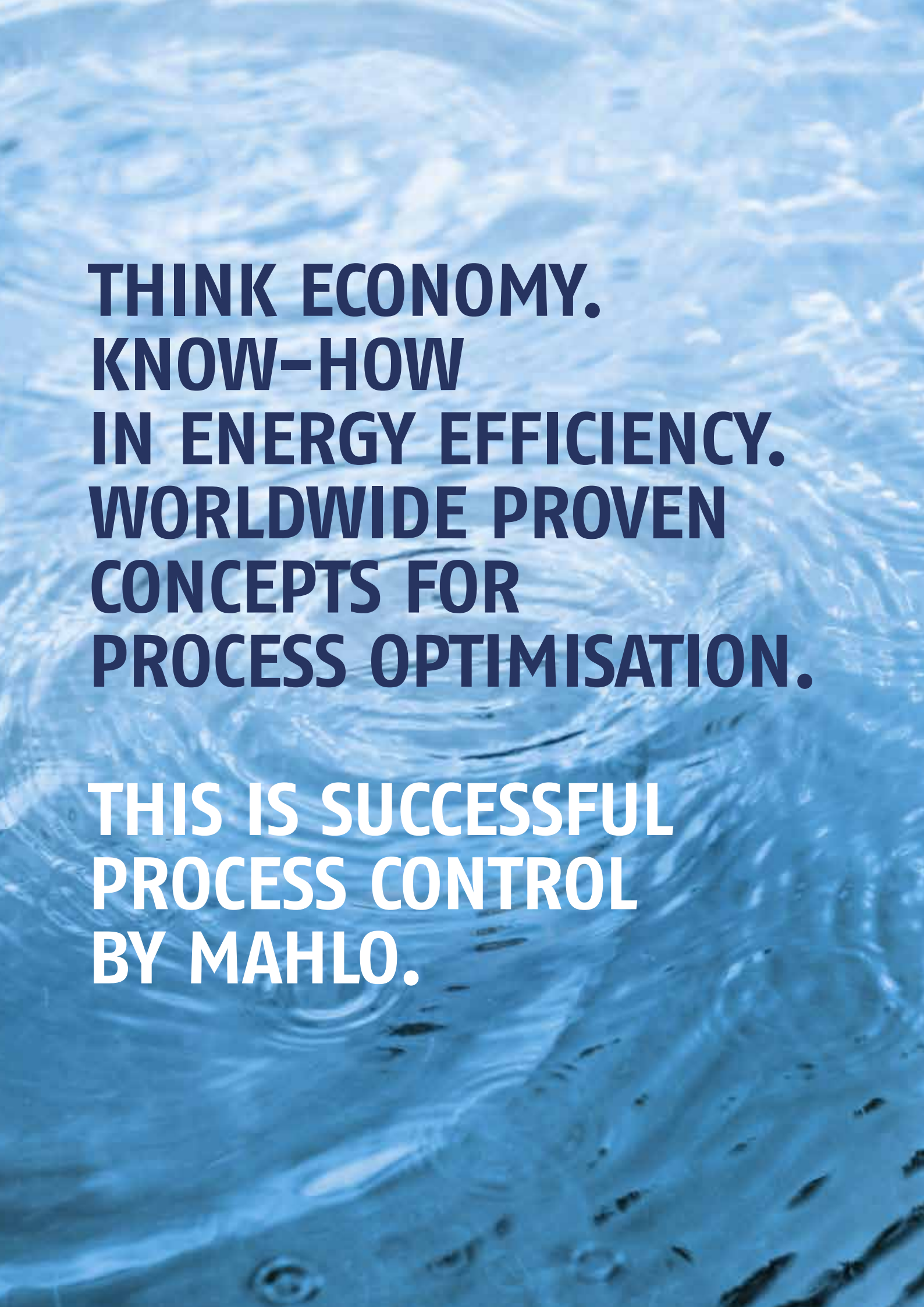
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### MAHLO PROCESS CONTROL PRODUCES:

- ➔ Energy efficiency: optimise hidden potentials
- ➔ Sustainability: improve your ecological balance

**mahlo**  
trendsetting technology. worldwide.



**THINK ECONOMY.  
KNOW-HOW  
IN ENERGY EFFICIENCY.  
WORLDWIDE PROVEN  
CONCEPTS FOR  
PROCESS OPTIMISATION.**

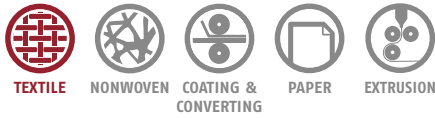
**THIS IS SUCCESSFUL  
PROCESS CONTROL  
BY MAHLO.**



**mahlo**  
trendsetting technology. worldwide.



## OPTIMISING PROCESSES



# OPTIPAC® VMC-12

SAVING ENERGY – LOWERING COSTS!



Maximum economy of production and high, continuous product quality can be achieved only through optimal control and regulation of the processes. Only this enables effective and economic working. With life-cycles of up to 20 years, energy savings through economy plays a decisive role.

Optipac is a modular process control system for a variety of key parameters in textile finishing, such as dwell time, thread thickness, residual moisture, grammage, exhaust air moisture, etc. It takes advantage of the savings potential resulting from alternative and / or parallel use of common components.

A basic unit serves as a communication and control centre. Different intelligent sensors can be connected to it. A smart combination of different measuring and control parameters allows for increasing productivity and product quality while reducing resources and energy consumption to a high degree.

### Product-highlights

- ✓ Modular system architecture
- ✓ Easy to retrofit
- ✓ Operator-friendly
- ✓ Informative process visualisation
- ✓ Online monitoring and regulation of all the relevant parameters

Translated to the service life of a stenter, the energy costs amount to roughly 10 million euro.

If up to 30 % of this sum can be saved, the investment for the necessary control equipment is only a secondary matter.

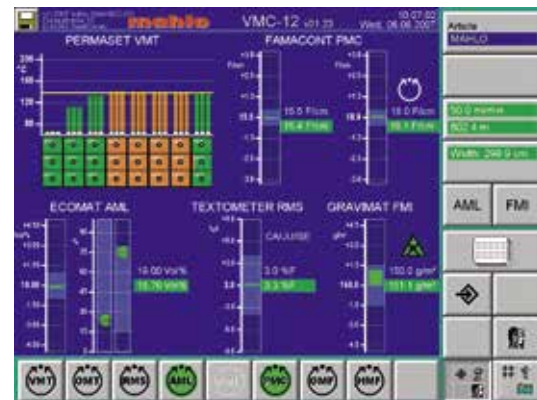
Adjust the right screws!



### MAHLO PROCESS CONTROL

For you – and for the environment!

- ✓ Saves energy
- ✓ Saves raw materials
- ✓ Saves resources
- ✓ Saves money – your money



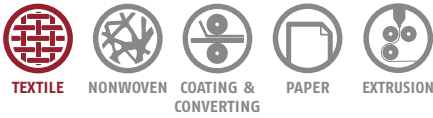
Display of the values from various process control sensors

### Customer benefits

- ✓ Increased productivity
- ✓ Optimised production reliability
- ✓ Optimised process repeatability
- ✓ Documentation and comparability of quality
- ✓ Considerable energy savings
- ✓ Short amortisation times

25%  
ENERGY  
SAVINGS

## EXHAUST AIR MOISTURE CONTROL



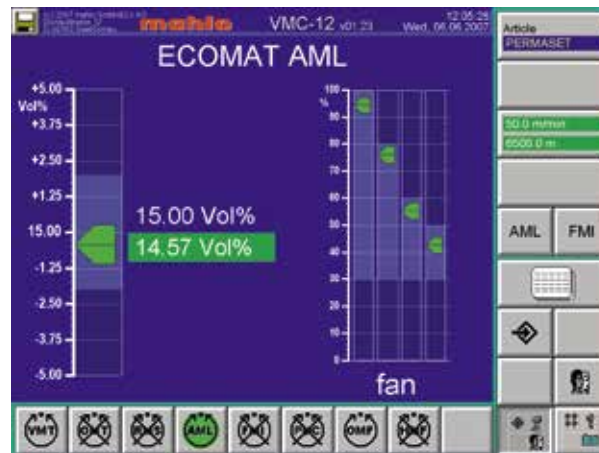
# ECOMAT AML

EXHAUST AIR MOISTURE UP – ENERGY DOWN!



Much unused energy is wasted through the exhaust air during drying processes without appropriate control. The Ecomat AML adapts the heating energy to the actual demand by monitoring the vapour content of the exhaust air and then controls this factor through the fan speed or the exhaust air vent control.

- The energy demand is reduced by the controlled heating demand.
- The constant conditions produced by the control increase the reproducibility of the production process and the product quality.



Setpoint/actual display



### PAYBACK

- Energy
- Product quality
- Process reproducibility

### SAVINGS INDEX

Energy savings up to 25 %

### AMORTISATION TIME

< 12 weeks

### Maximising the exhaust air moisture from 8 to 15 vol. % results in

- reduction of energy consumption by 23 %
- reduction of production costs by 6 %
- maintaining a consistent production speed.

Prerequisite: Working time 240 days/at 3 shifts; product weight: 150 g/m<sup>2</sup>; product width: 1.6 m; initial moisture: 75 %; residual moisture: 4 %; product speed: 100 m/min; fresh air: 25 °C; exhaust air: 160 °C



DWELL TIME REGULATION

# PERMASET VMT

DWELL TIME DOWN – PRODUCTIVITY UP!

MIN.  
**10%**  
PRODUCTIVITY  
INCREASE



Without the control of fixing, ther-moisolating, condensing or gelling processes, the satisfactory results of these processes can only be ensured through large safety margins. This reduces the machine capacity considerably. In addition, more energy is used unnecessarily.

The temperature loss curve is determined through the exact measurement of the product's surface temperature throughout the whole process. This enables the precise calculation and control of the product's dwell time.



**PAYBACK**

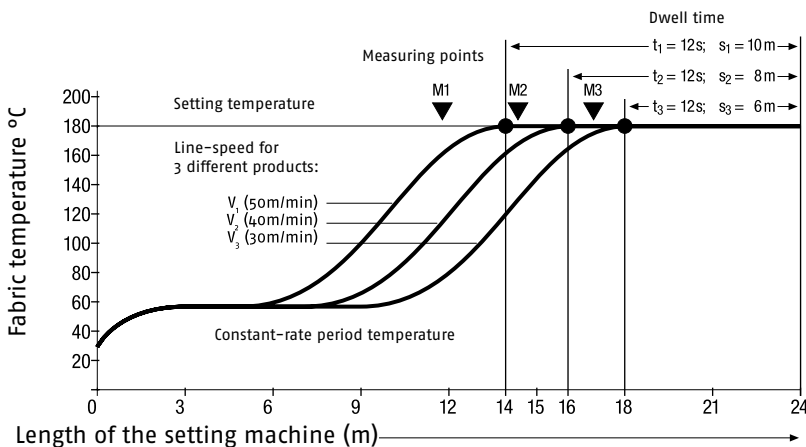
- Productivity
- Production costs
- Energy consumption
- Product quality
- Process reproducibility

**SAVINGS INDEX**

Productivity increase  
min. 10 %

**AMORTISATION TIME**

< 12 weeks



**Intelligent dwell time control avoids unnecessary safety margins and as a result**

- the production speed increases by up to 10 %
- the production costs per running metre drop by 11 %
- the energy consumption drops by 4 %.

Prerequisite: Working time 240 days/at 3 shifts; product weight: 150 g/m<sup>2</sup>; product width: 1.6 m; Initial moisture: 75 %

REDUCTION  
OF MATERIAL  
COSTS

## GRAMMAGE CONTROL



TEXTILE



NONWOVEN



COATING &  
CONVERTING



PAPER



EXTRUSION

# FAMACONT PMC GRAVIMAT DFI

## OPTIMAL GRAMMAGE – REDUCED MATERIAL COSTS!



Precise monitoring of the weight of meter goods or of weft thread and course density is employed in many process technologies in the textile industry and coating technology as a critical criterion in assessing quality. The key is to determine the grammage under the given industrial conditions online and with high repeatability.

In addition to ensuring product quality, an appropriate setpoint with narrow tolerances can provide considerable savings in material and energy consumption, achieve process reliability, and at the same time increase production.

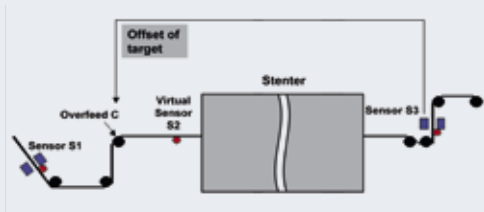


### PAYBACK

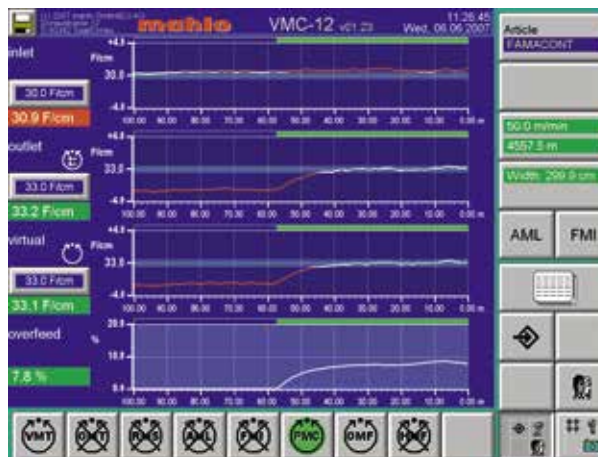
- Material costs
- Production costs
- Process reproducibility

### AMORTISATION TIME

< 12 weeks



Smart feed forward control



Trend display of thread density

The intelligent control of the over-feed at the stenter infeed results in

- reduced material use
- increased product quality
- ensuring consistent thread/course density and grammage.

RESIDUAL MOISTURE CONTROL

# TEXTOMETER RMS

RESIDUAL MOISTURE DOWN – PRODUCTIVITY UP!



One of the most important criteria in drying processes is the product moisture. The correct residual moisture is a key focus: It determines to a great extent the economical factor in each drying procedure as well as the quality of the product and / or later finishing.

Overdrying of the textile must be avoided since this usually has a negative effect on product appearance and feel. Overdrying below the hygroscopic moisture balance results in weight loss and lower profits. If the textile is overdried in the stenter, this also means an enormous narrowing of the dryer capacity, since the dryer speed remains far below what it is capable of.



**PAYBACK**

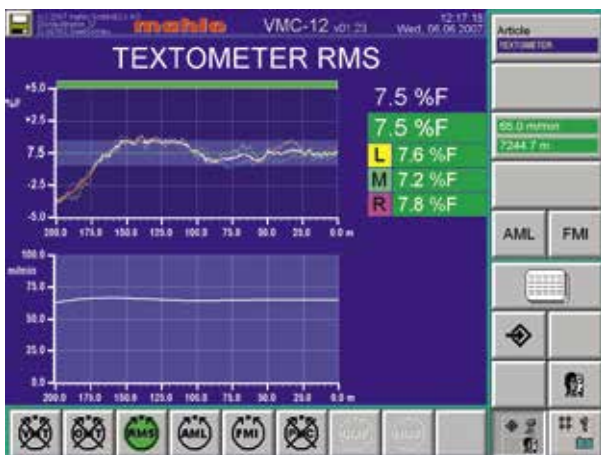
- Productivity
- Production costs
- Energy consumption
- Product quality
- Process reproducibility

**SAVINGS INDEX**

Productivity increase  
min. 10 %

**AMORTISATION TIME**

< 20 weeks



Residual moisture measurement trend display



The useful increase of the residual moisture of the product from 4 to 8 % prevents overdrying and results in

- increased productivity speed by 10 %
- drop of production costs per running metre by 11 %
- drop of energy consumption by 4 %.

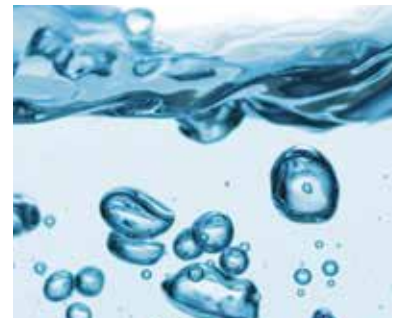
Prerequisite: Working time 240 days/at 3 shifts; product weight: 150 g/m<sup>2</sup>; product width: 1.6 m; Initial moisture: 75 %

Monitoring and control systems, automation:

# MAHLO® GUARANTEES QUALITY. WORLDWIDE, IN YOUR VICINITY.

Best-possible technical support and transfer of know-how are written in capital letters at Mahlo®. Thanks to an international network of agencies and service centres, customers have at their disposal competent support worldwide. We are there for you 365 days a year, 24 hours a day. Just get in touch with us!

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- ✓ Prompt service and supply of spare parts within 24 hours
- ✓ Remote diagnostic system
- ✓ Service-hotline: +49-180-5062456



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in Germany