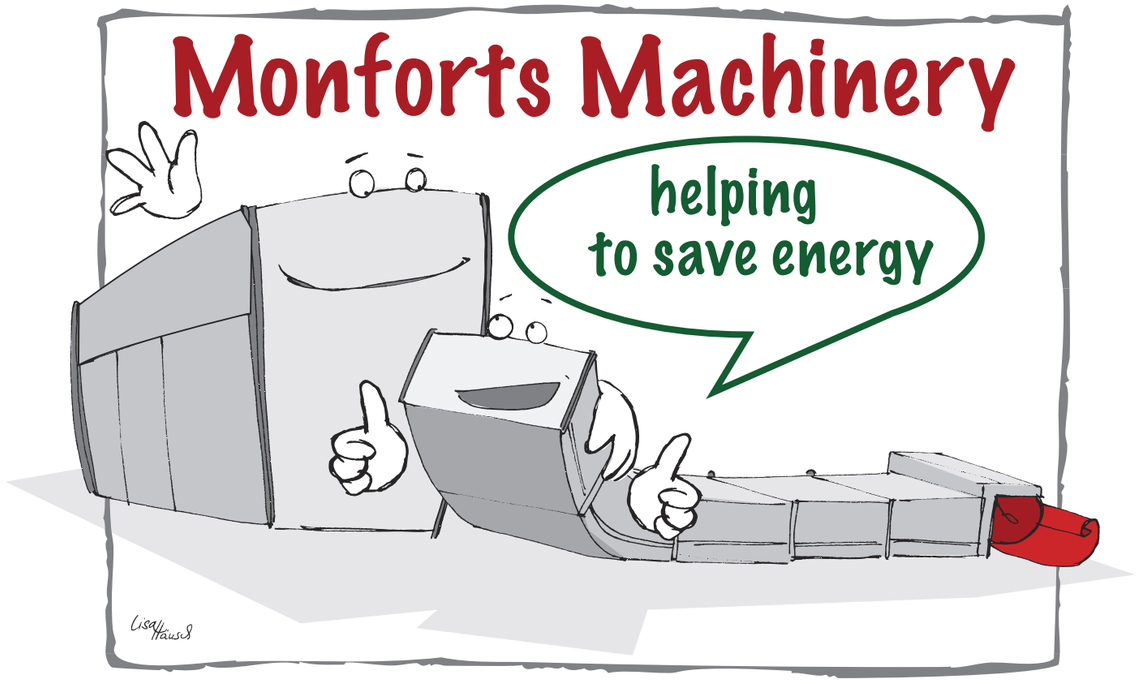

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We will be glad to help you.
If you have questions concerning the equipment or energy-saving settings of your system, we will be glad to help you.

Support Hotline: +49 2161 401606
Monday-Friday 7:00 – 19:00 CET
Saturday 8:00 – 16:00 CET

Contact e-mail Service: service@monforts.de
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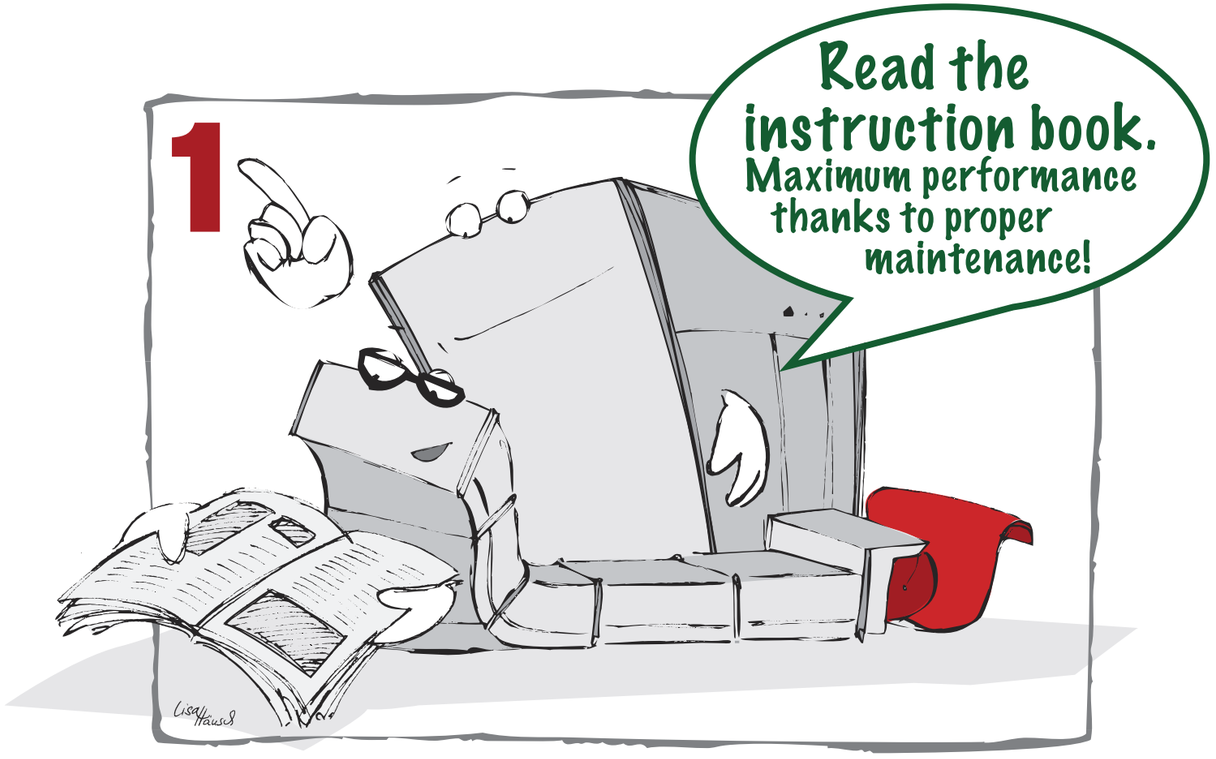
GERMAN Technology

VDMA



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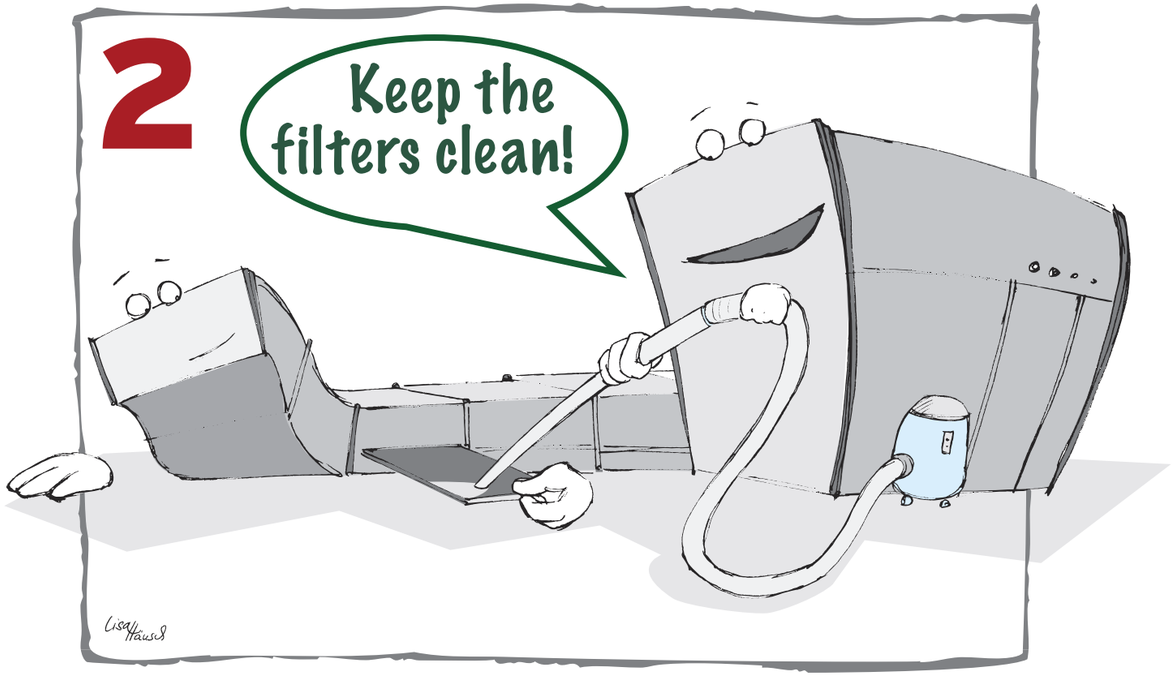
Over a period of ten years, the costs of energy (electricity, steam, gas) amount to more than 60% of the initial investment in a system. Careful operation and maintenance of a Monforts system can save energy costs to a substantial degree.
This booklet contains some useful tips and suggestions of how a good machine operator can help save energy while maintaining the high quality of fabric treatment.

Know the **maintenance plan** of your system.
Only a system which is maintained regularly can provide full output with most economic input of energy.



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The **lint filters** of your system should be inspected **at least once every shift** to ensure that they are **clean** and they should be cleaned with a brush or vacuumed if necessary. The **heat recovery modules** also require cleaning at the prescribed intervals. Soiled screens and heat exchangers reduce the output of the system substantially and increase its energy consumption.

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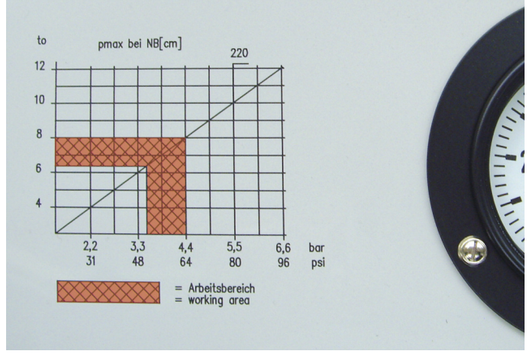
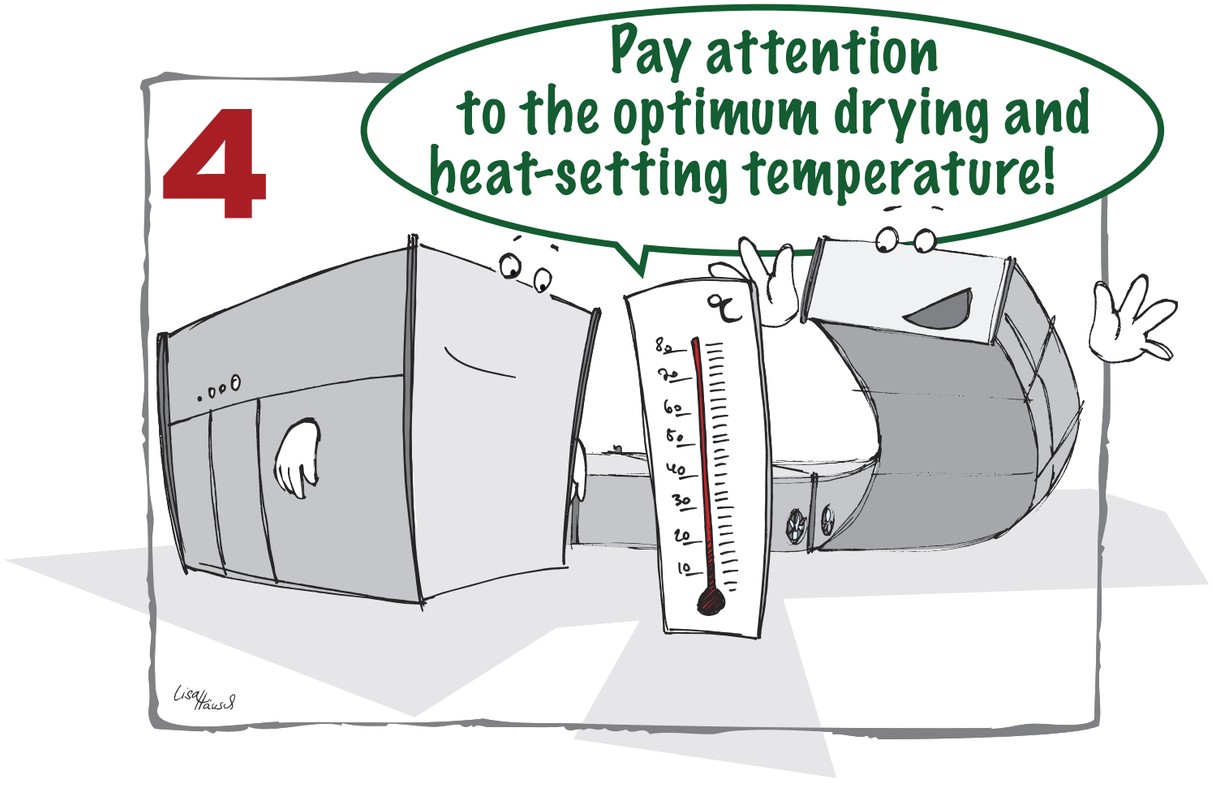


Example

Systems without Qualitex:

The padder: The setting of the contact pressure should be within the **working area** of the diagram at the operator console (hatched area) to ensure that the **squeeze effect is uniform** over the full width.
If more moisture is removed, less energy is needed for the following drying process.



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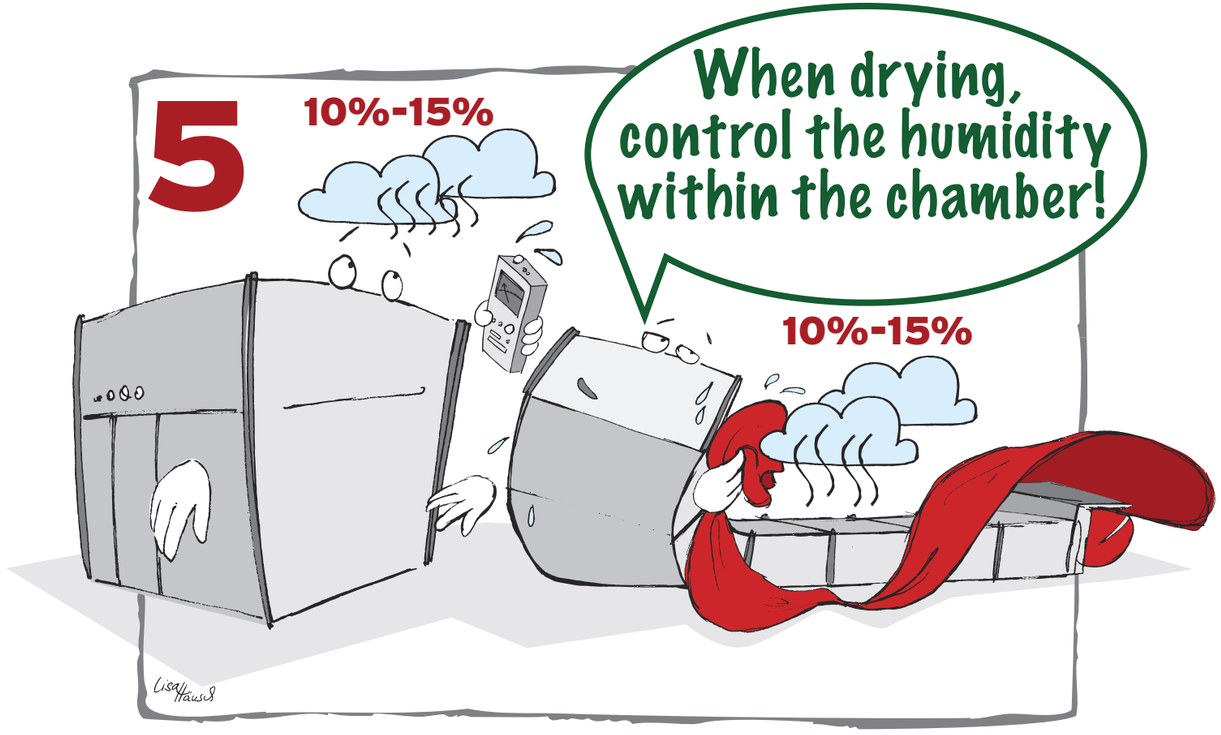
The **drying temperature** ranges from 105° to 150°C (depending on the fabric). Material, finishing agents and methods determine the drying temperature. The recommendations of the dyestuff and/or chemicals producers should be observed. High drying temperatures not only consume too much energy, they often also damage the fabrics.



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An important aspect for good drying is to **measure** and **control** the **exhaust moisture**.
Depending on the fabric and the initial moisture, the optimum values are at 10-15% by vol. If the exhaust air fan is running with unnecessary power, more fresh air is heated and energy wasted. If the exhaust air contains too much moisture, drying is poor; it takes more time and energy is wasted.

Exhaust moisture: This is the humidity in the **exhaust air** of the drier.

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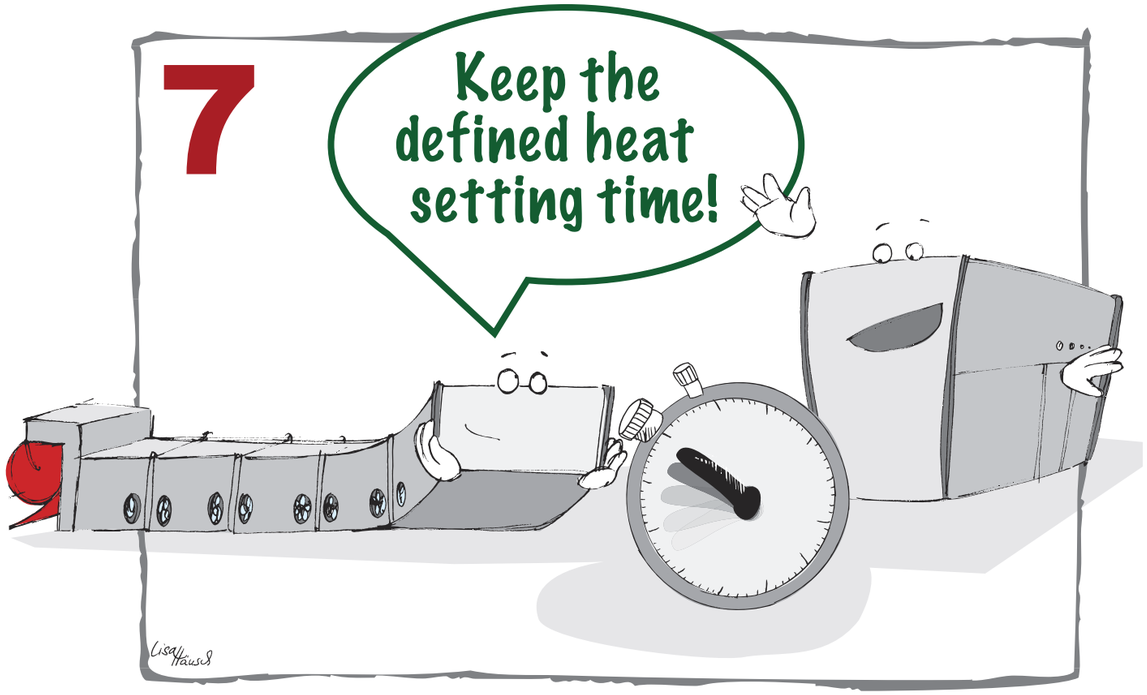
When drying is the only purpose, monitoring the **residual moisture** is important.
The optimum residual moisture is measured with a **moisture meter** at the outlet of the drier then controlled as needed.

Some examples of optimum residual moisture:
Co 6-8%
CV 8-10%
Wo 10-12%
PES 1-2 %
PES/Co 2-4 %

If the fabric is very dry, too much energy is wasted and drying is too expensive. At the same time, production is slowed down unnecessarily.
Too little residual moisture also causes **loss of quality**.

Residual moisture: This is the moisture contained in the **fabric**, when it leaves the system.



Optimizing the dwell time. Depending on the fiber, the heatsetting of textiles requires a certain **dwell time**. The dwell time must be observed to obtain the required fabric characteristics.

Usual dwell times:

PES = 10 sec. at 185- 200°C (depending on fiber supplier)

Elasthane = 30-45 sec. at 185-195°C (depending on fiber supplier)

All **stenter frame** chambers should have the required temperature for heatsetting.
To obtain **optimum production speed** at the required dwell time, **automatic control** (Monformatic) is a necessity.
Advantage: Optimum production speed with minimum energy consumption.

To note: As **heatsetting** is a process without exhaust moisture, the **exhaust fan motor** cannot be controlled by the exhaust air moisture meter. The setting should be done manually. The exhaust fan setting should maintain a slight vacuum in the stenter. Normally, this exists at 50-60% exhaust capacity. If the product tends to evaporate and the stenter emits smoke at the inlet and outlet openings, the speed of the exhaust fan motor should be increased until no smoke is emitted. **The lower the exhaust volume, the less energy is consumed.**

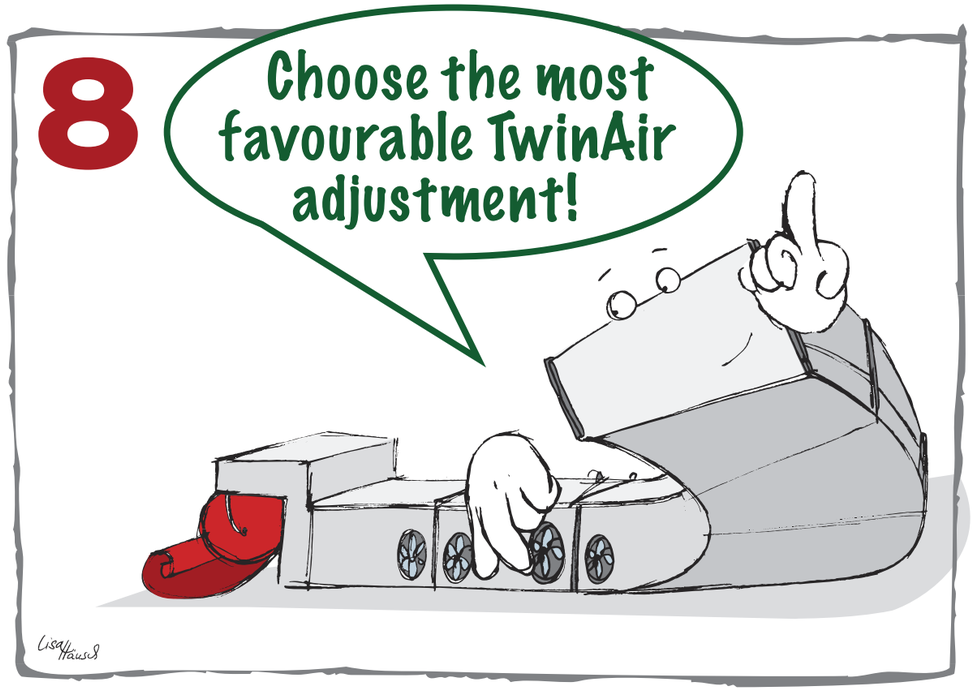
If Thermat is used: The Thermat should be set to 70°- 140°C depending on process and chamber temperature. This ensures automatic control of the exhaust fan.

Setting time: Is the heating time + dwell time

Heating time: Is the time to obtain the required dwell temperature

Dwell time: Is the time the fabric remains in the machine AFTER reaching the dwell temperature.

The speed of the air circulation fan motors should be adjusted as needed: Higher speeds for heating, lower speed during dwell time (Please also read the following pages).



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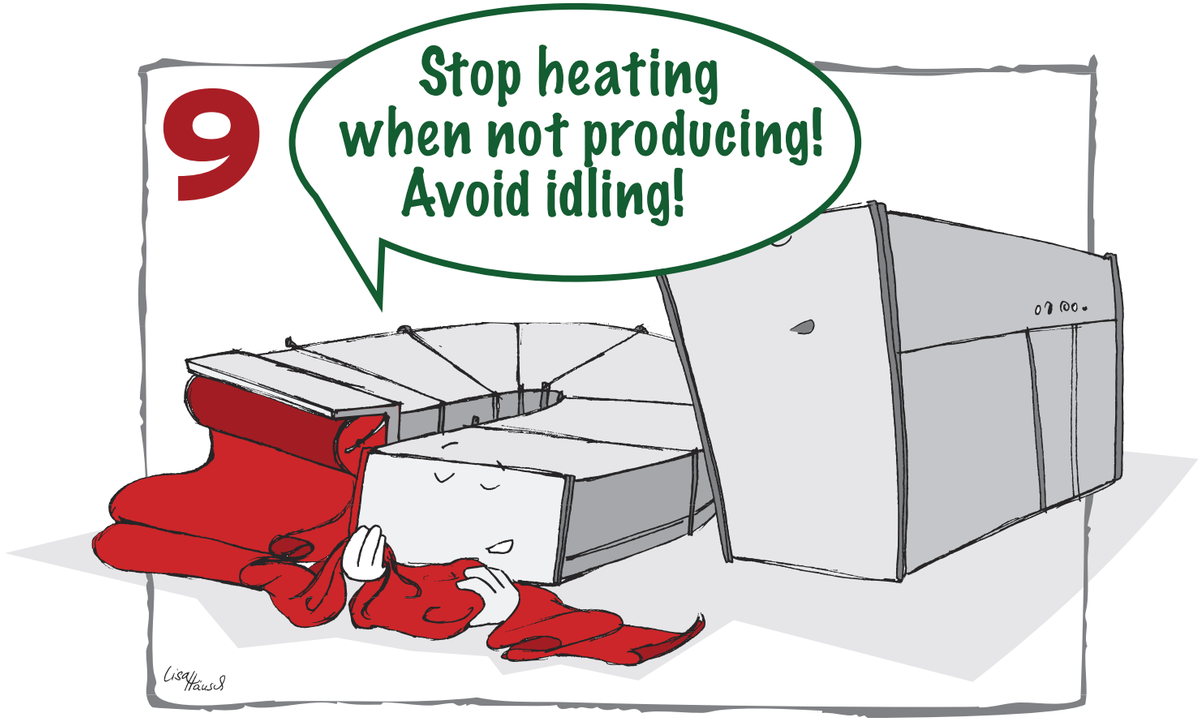
Setting the air circulation fans (with stenters): The Montex stenter is equipped with the TwinAir system. The flow rate for bottom and top air can be set separately.
Set the air circulation fans to ensure that the fabric „floats" in the drier without contacting it.
Here are some common fan settings for maximum process speeds:

Material	Process	Top air	Bottom air	Area
woven fabrics	drying	80-100 %	80-100 %	
woven fabrics elastic	drying	60-90 %	60-90 %	
woven fabrics	drying	80-100 %	80-100 %	drying and heating bays
stable surface	& setting	30-60 %	30-60 %	dwell bays
woven fabrics	drying	60-90 %	60-90 %	drying and heating bays
elastic	& setting	30-60 %	30-60 %	dwell bays
woven fabrics	setting	80-100 %	80-100 %	heating bays
stable surface		30-60 %	30-60 %	dwell bays
woven fabrics	setting	60-90 %	60-90 %	heating bays
elastic		30-60 %	30-60 %	dwell bays
knitted fabrics	drying	50-90 %	50-90 %	
knitted fabrics	drying	50-90 %	50-90 %	drying and heating bays
	& setting	30-60 %	30-60 %	dwell bays
knitted fabrics	setting	50-90 %	50-90 %	heating bays
		30-60 %	30-60 %	dwell bays



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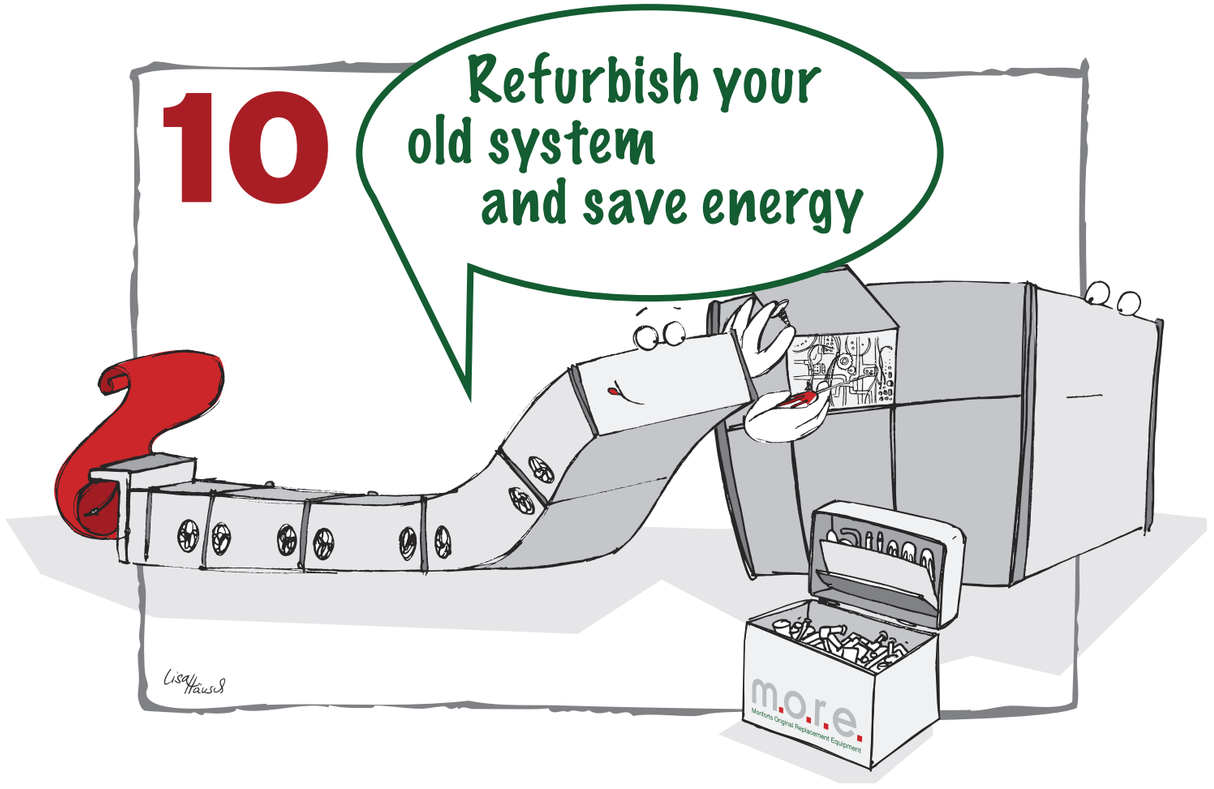
Do not heat the system longer than needed.
Do not hold the system at temperature without fabric longer than necessary. Both waste energy and contaminate the environment.



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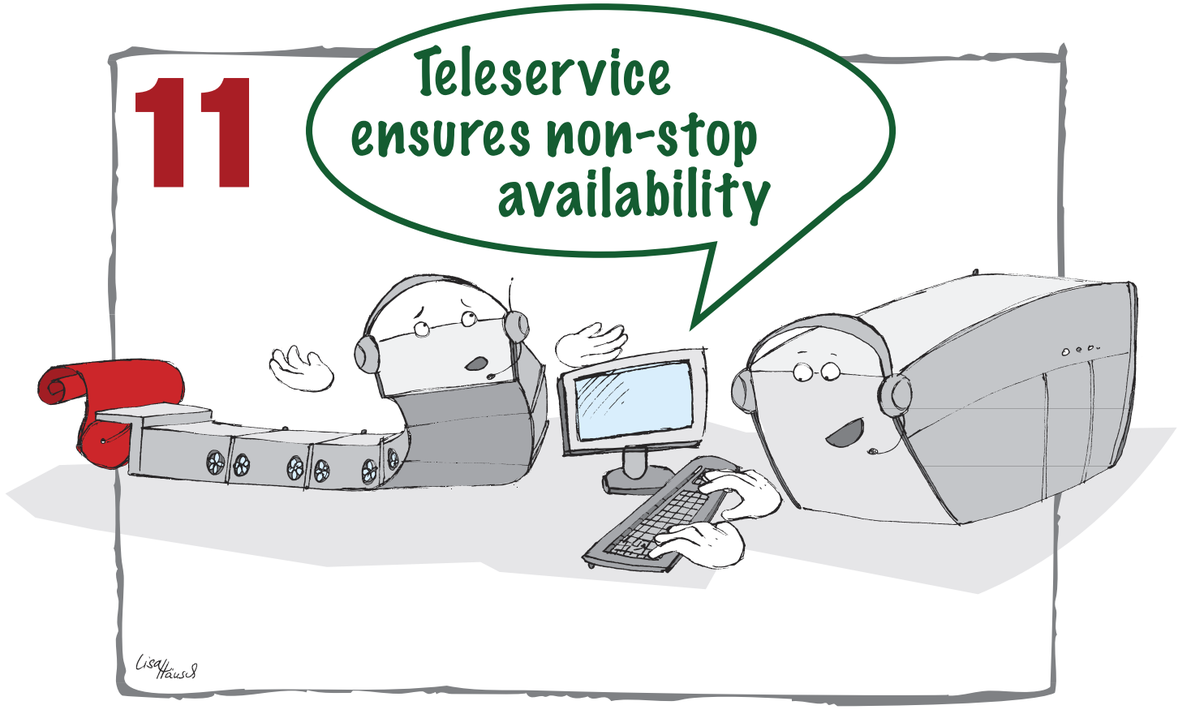
Monforts offers a variety of modification and extension kits for older systems. If a heat recovery unit is installed up to 30% of the energy needed for heating can be saved.
If your air circulation fans are fitted with modern frequency converters, the consumption of electricity can be reduced dramatically. And that with the shortest pay-back periods you can imagine.
The Monforts EcoApplicator reduces the starting moisture. This saves energy otherwise spent on drying or the production speed can be increased.
Please contact us. We will be glad to advise you.

m.o.r.e.



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Any machine downtime costs money. Therefore, modern Monforts systems are serially shipped with online tele service. This not only reduces the start-up time during the commissioning phase, it also ensures direct online assistance by the supplier if a problem occurs: For shortest downtime, software updates and reprogramming and modernisation of machine controls.