Automation solutions for the textile industry.



As easy as that.

Lenze


More than
60 years
experience
in the textile
industry.

As one of the leading specialists in drive and automation technology with extensive know-how and a worldwide network of experts in the textile industry, we work with you to devise the very best solution for your needs. We take great pleasure in setting your technical ideas in motion. Irrespective of whether you want to optimise existing equipment or develop a new textile machine. In line with your individual requirements and aims, we provide you with support for all aspects and in all phases of your projects, not only cooperating with you in these projects but also helping you to implement an innovative overall concept.

We develop innovations for the textile industry the easy way and this is how we do it:

- Experienced experts in this sector understand your requirements and the tasks you are faced with
- Innovative hardware and software for the implementation of energy-efficient solutions
- Reliable drive systems for typical textile applications
- Use of open standards
- Global production based on uniform Lenze quality standards
- Worldwide efficient logistics concept
- Global service network and training courses

Adjusting to reality.

Shorter and shorter innovation cycles, aggressive competitors and high pricing pressure are challenges that machine builders are increasingly having to grapple with. Good reasons for us to make your everyday work easy.

With our Engineering Toolchain, we supply tailor-made tools for all aspects of your engineering work in the different phases of a machine's life cycle. These tools are designed for the tasks involved in mechatronic engineering and are precisely tailored to users and the diverse tasks they are faced with. In addition, we make your software engineering work easier by modularising and standardising the software for your machines, thus significantly reducing the time taken to design and develop them.

For the implementation of very different automation functions, we supply you with intelligent solutions for controller-based automation and drive-based automation. Moreover, thanks to our energy-efficient L-force portfolio, you profit from reliable technologies, long-lasting quality and easy handling of all our products.

This not only reduces the number of different drives you need but also your overall engineering process. And in the end, this is to everyone's advantage.

Efficient software solutions

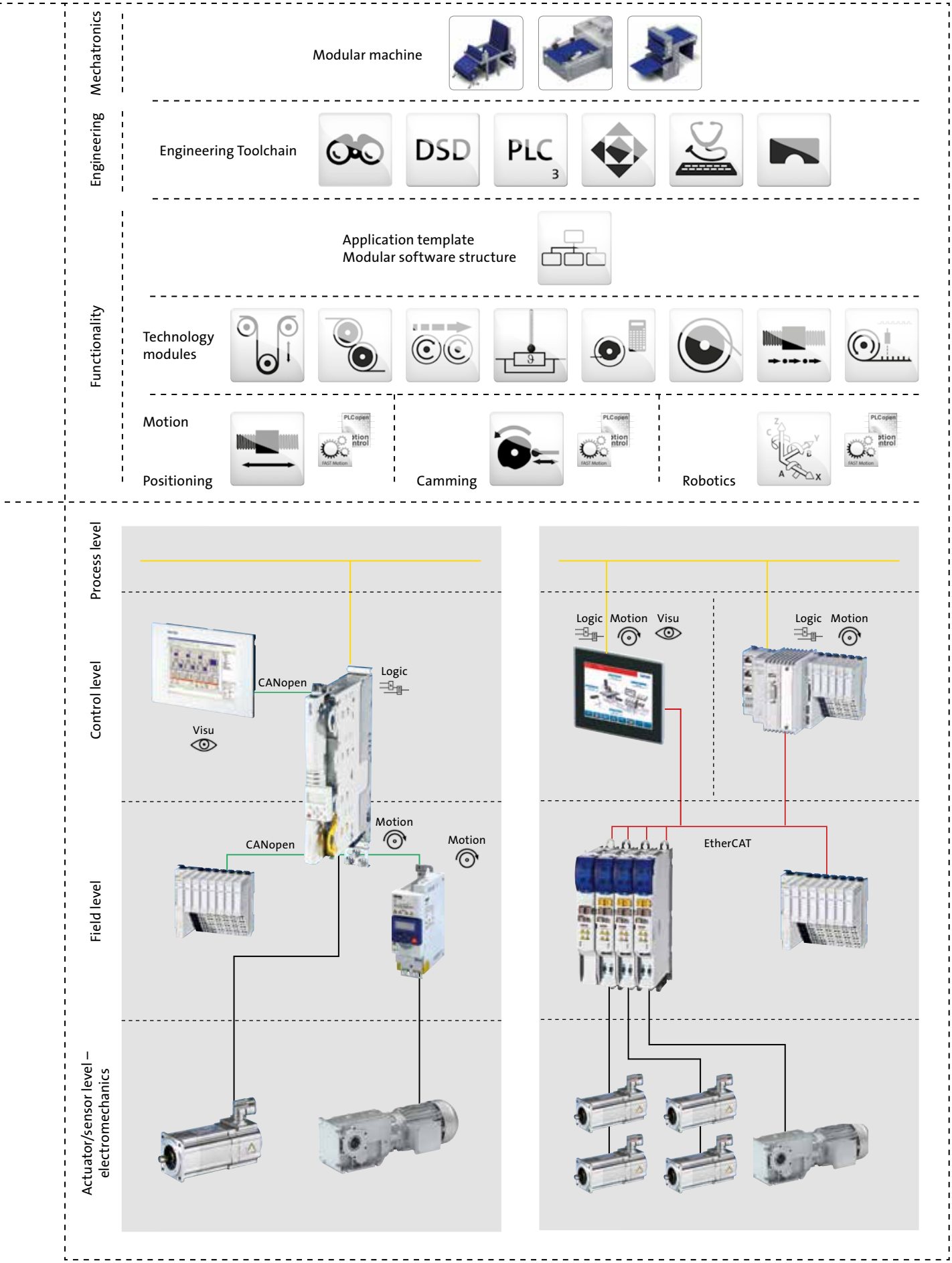
- Uniform Engineering Toolchain covering the entire life cycle
- Intelligent motion control with standardised technology functions.

Reduced amount of engineering time

Appropriate automation solutions

The right system and the right products for every machine

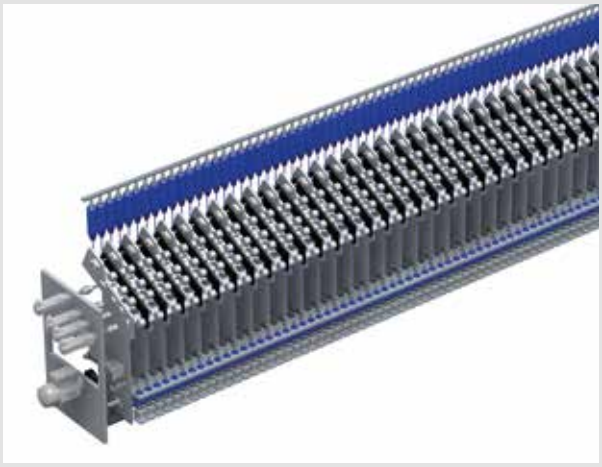
Reduced investment in drives and automation

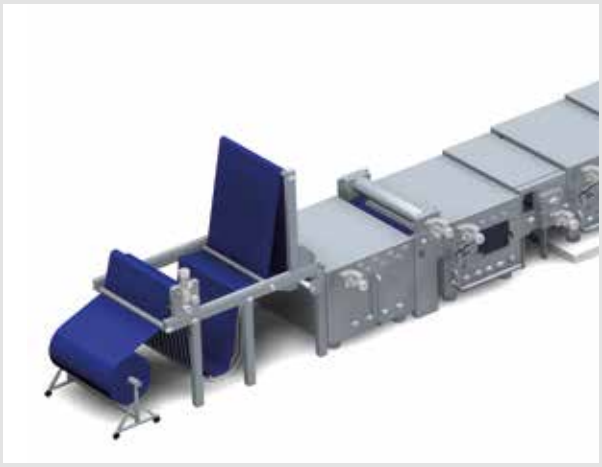

Mechatronics
Modular machine
Engineering
Engineering Toolchain
DSD
PLC 3
Functionality
Application template
Modular software structure
Technology modules
Motion
Positioning
Camming
Robotics
Process level
Control level
Field level
Actuator/sensor level – electromechanics
CANopen
Logic
Visu
Motion
CANopen
Motion
Logic
Motion
Visu
Logic
Motion
EtherCAT

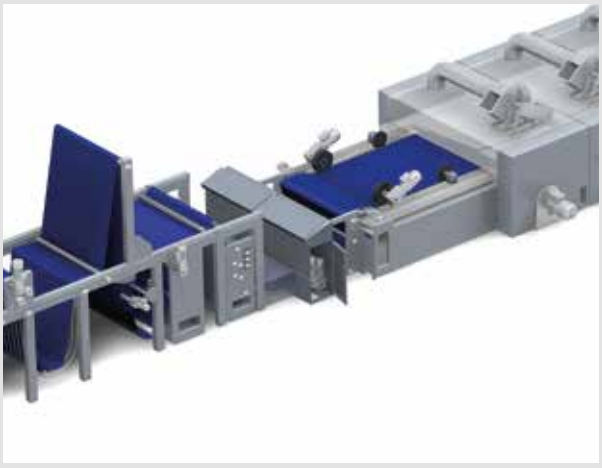
Exactly what you need for your textile machine.

From spinning to finishing –
With our intelligent automation solutions, we work with you closely to quickly find the best solution for the machine you want to create.

You can rely on our easy software engineering aids, the use of open standards, the right dimensioning for your drives and energy-efficient solutions.

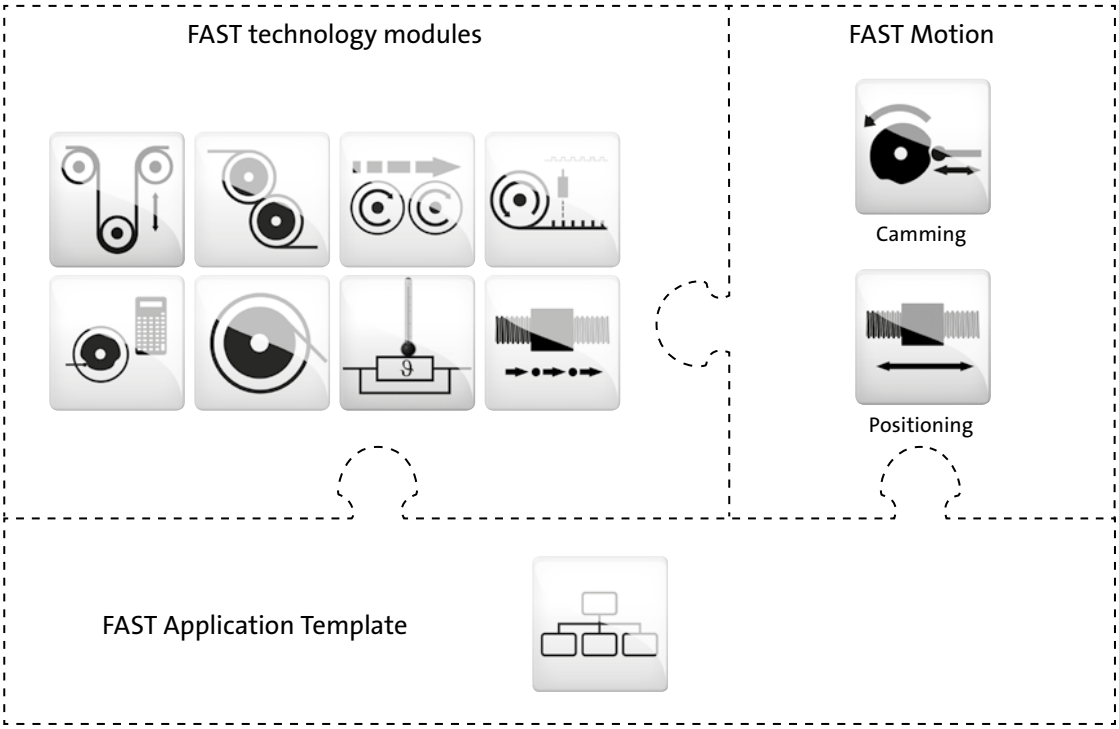






Software engineering made easy

With Lenze FAST, our application software toolbox, you can combine intelligent standardised software modules for very different machine modules in a single template and thus create your machine software the easy way. This reduces your motion software engineering work by up to 80%, which, in turn. leads to a considerable reduction of the time you need to develop the basic functions of your machine.



Open standards

Lenze automation systems are open systems! Due to the use of market standards, we can network with the manufacturers of other control and drive systems at any time, an ability that enables easy integration into higher-level line structures. This openness makes mechanical engineers and end users confident of being able to adapt to changes in the future.

You are always in control, wherever your machine is!

The digital networking of machines, products and components – and of people as well, of course – is the basis of Industry 4.0. Due to permanent acquisition of data indicating the condition of machine components and the possibility of combining this data with information from third-party suppliers, you can optimise the maintenance of your machine. In order to ensure secure access to your machine's data, we have devised a Cloud solution which satisfies the highest requirements for IT security. You thus have access at all times to all relevant information.

You are directly informed of any problems that occur such as fluctuating power consumption levels. You can then rectify these problems immediately. As a result, you reduce or even completely rule out unforeseen downtimes and the associated production bottlenecks. All this serves to improve productivity and manufacturing quality while simultaneously lowering maintenance and service costs for your equipment.

Being secure with the best solution:

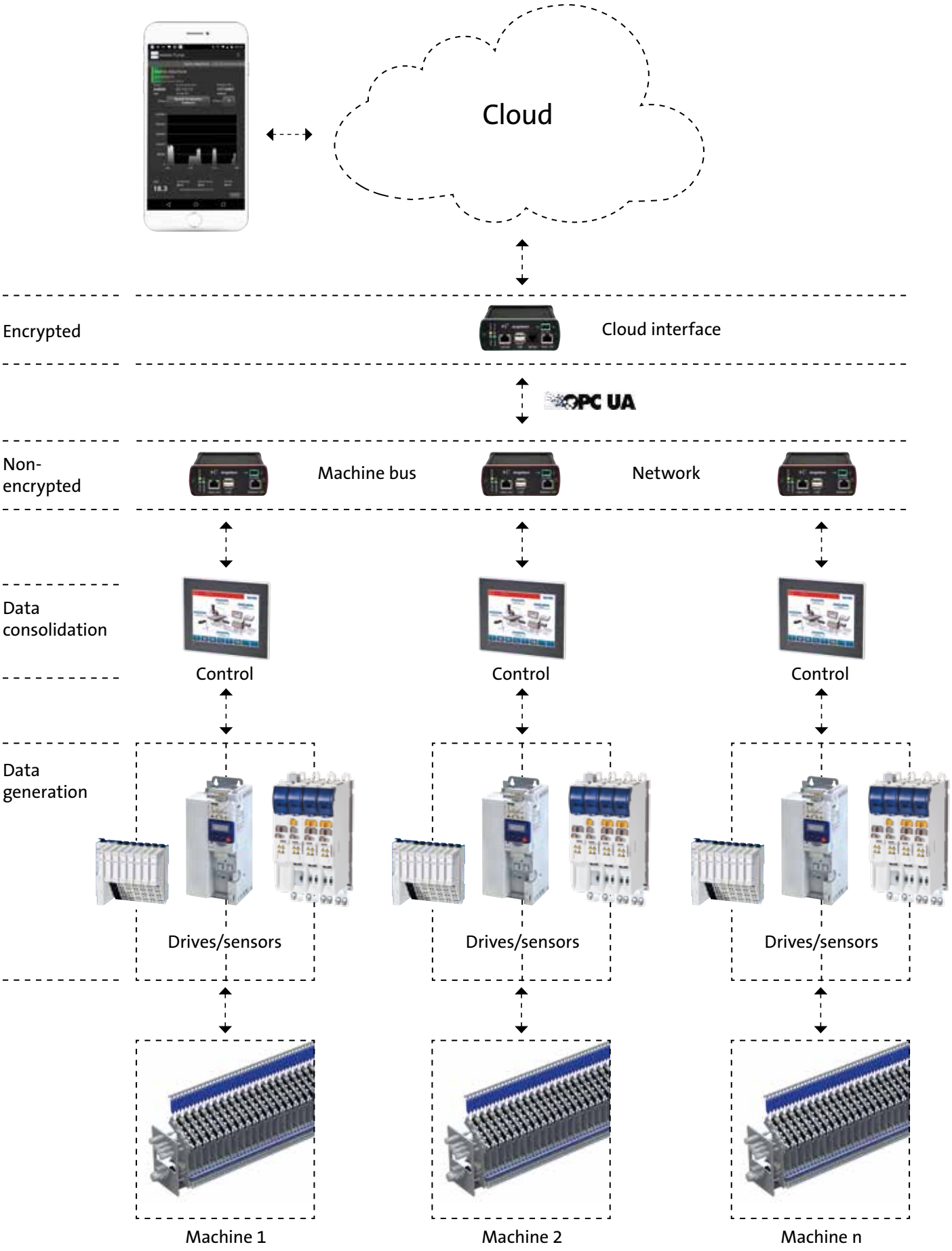
The highest security level
"Financial Grade Security"
- Encoded data from the network to the Cloud
- NCP standard
- Transparent data transfer in the company's network

Ready for the future
- OPC-UA access to Lenze controllers
- Permanent data transfer to the Cloud
- All the data are available for immediate or future analysis

Plant management
- Monitoring of machine utilisation and availability
- Track&Trace respectively productivity information
- Monitoring of quality parameters

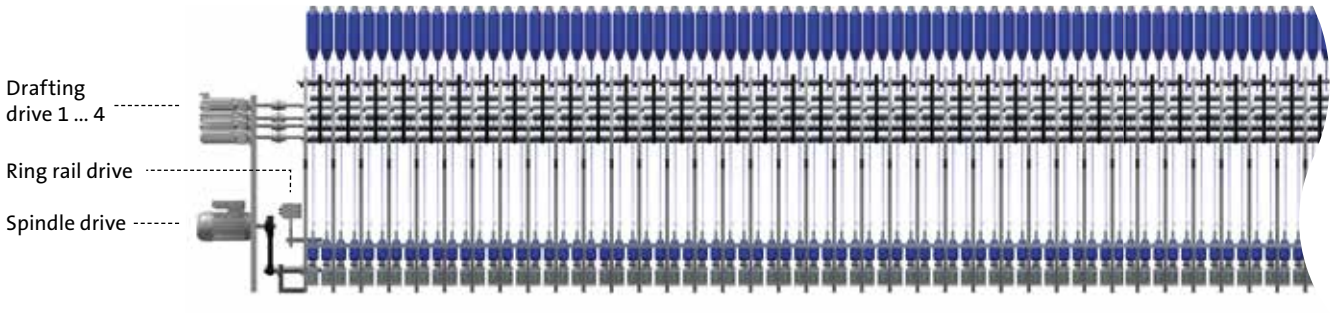
Remote maintenance
- Worldwide access to data
- Remote diagnostics and service
- Up to 80% fewer field-service assignments

Predictive maintenance/
Digital services
- Advance detection of potential faults on the basis of the "Cloud" data
- "Big Data" as the basis for consulting services regarding the optimisation of production by the OEM


Cloud
Encrypted
Cloud interface
OPC UA
Non-
encrypted
Machine bus
Network
Data
consolidation
Control
Control
Control
Data
generation
Drives/sensors
Drives/sensors
Drives/sensors
Machine 1
Machine 2
Machine n

So that your machine runs like clockwork.

- Easy and precise control as well as modification of the yarn count, due to the use of servo systems in the stretching machines
- Maximum flexibility with regard to bobbin shape due to recipe-controlled variation of the lift-to-wind ratio.
- Greater productivity due to fully automatic and therefore fast adaptation when the material is changed
- Energy saving due to optimised dimensioning and DC coupling
- High degree of robustness due to compensation of short interruptions of the power supply
- Always informed due to feedback of production data and energy consumption in real time

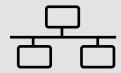


Process level

Control level


Remote host

ETHERNET



Field level

EtherCAT

Actuator/sensor level – electromechanics


Spindle drive


Drafting drive M1


Drafting drive M2


Drafting drive M3


Drafting drive M4


Ring rail drive

From standard to something special.

- Flexible and modular machine design due to distributed, synchronised controllers as well as optional drives and I/O cells
- Easy engineering due to verified application templates for the traversing drive as well as the drawing and thread transport systems
- Cost-efficient temperature control with short set-up times and, thanks to fewer cycles, self-adapting due to integrated temperature controllers in the I/O modules
- Best yarn quality due to highly precise control of tensile force
- Innovative visualisation with database link for purposes of quality control and documentation

Bobbin creel | Heat setter | Accumulator | Take up winder

Process level

Control level

ETHERNET

Main machine

Accumulator

Database

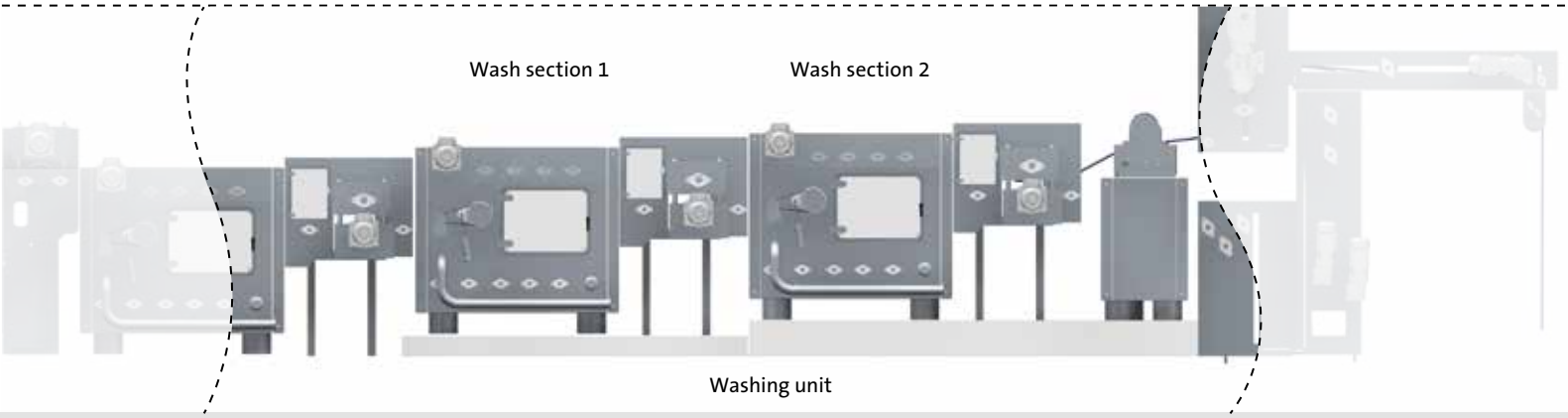
Field level

Actuator/sensor level – electromechanics

Draw-in roller | False Twist | Stuffer roll | Oscillator | Lower strip | Upper strip | Take up roller | Tensioning roller | Draw in | Winding drive | Carriage drive

Always a clean solution.

- Easy control due to touch panel with visualisation – no additional PLC needed
- Space-saving due to the use of a servo inverter with double axis modules
- Cost-saving due to motors running parallel on one axis
- An I/O system with temperature sensor card for temperature control inside the PLC; this makes additional hardware controllers superfluous
- Use of an EtherCAT valve island, which considerably reduces the number of additional I/O modules
- Remote maintenance with transparent access to EtherCAT nodes



Process level

Control level

Remote host

Router

ETHERNET

Field level

EtherCAT

Hydraulic valve cluster

Actuator/sensor level – electromechanics

Drum drive 1

Drum drive 8

Paddle drive 1

Paddle drive 4

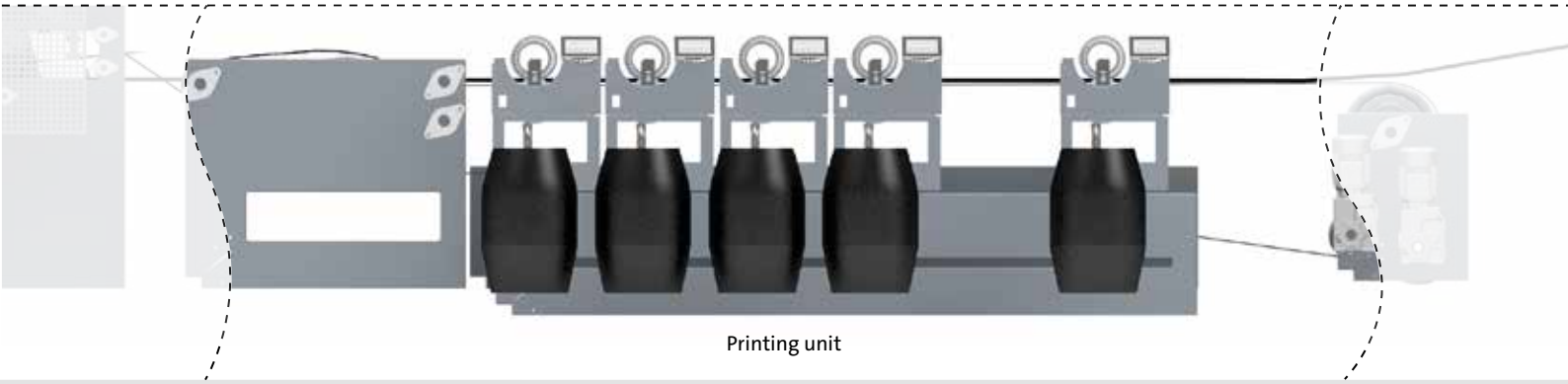
Expander drive 1

Expander drive 4

Squeezing machine

For high quality patterns

- Easy engineering due to uniform software environment for visualisation, printing roller drives and variable speed drives
- Support of modular machine concepts based on a configuration for a maximum number of colours with optional nodes
- High printing precision due to synchronised servo axes
- High plant availability due to possibility of using an alternative printing axis in the event of a printing unit fault or failure



Printing unit

Process level

Control level

ETHERNET

EtherCAT

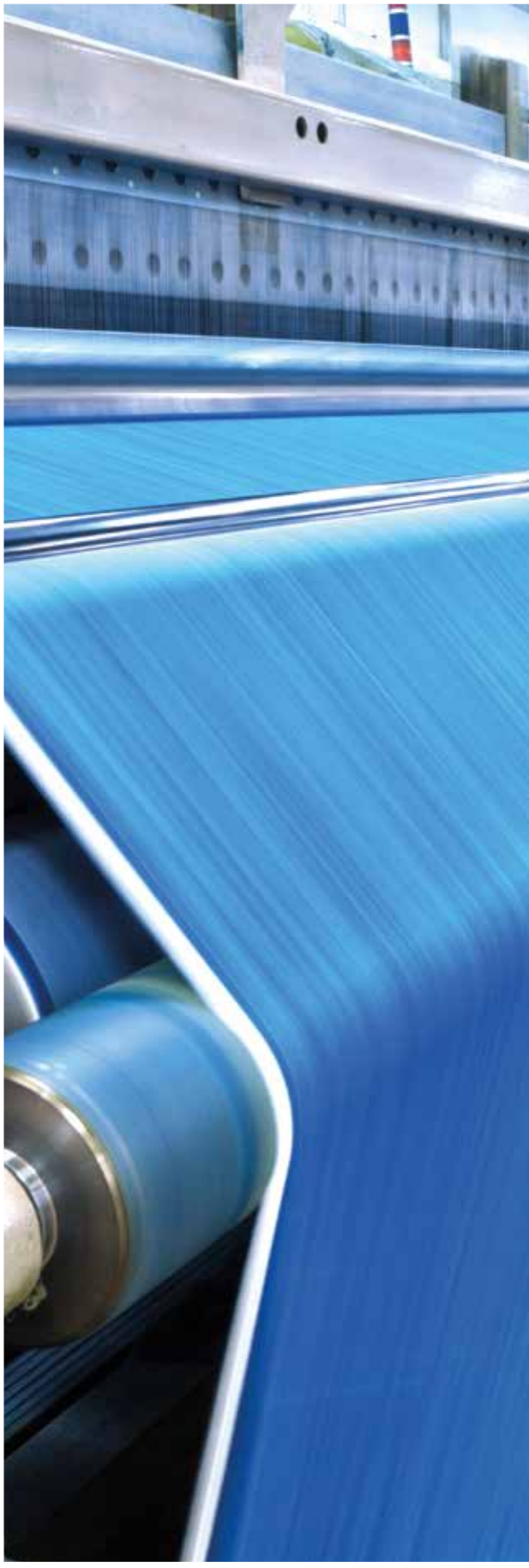
Field level

Printing blanket | Supply unit | Dye 1, 2 | Dye 3, 4 | Dye 11, 12 | Adjustment drive 1, 2 | Adjustment drive 3, 4 | Adjustment drive n

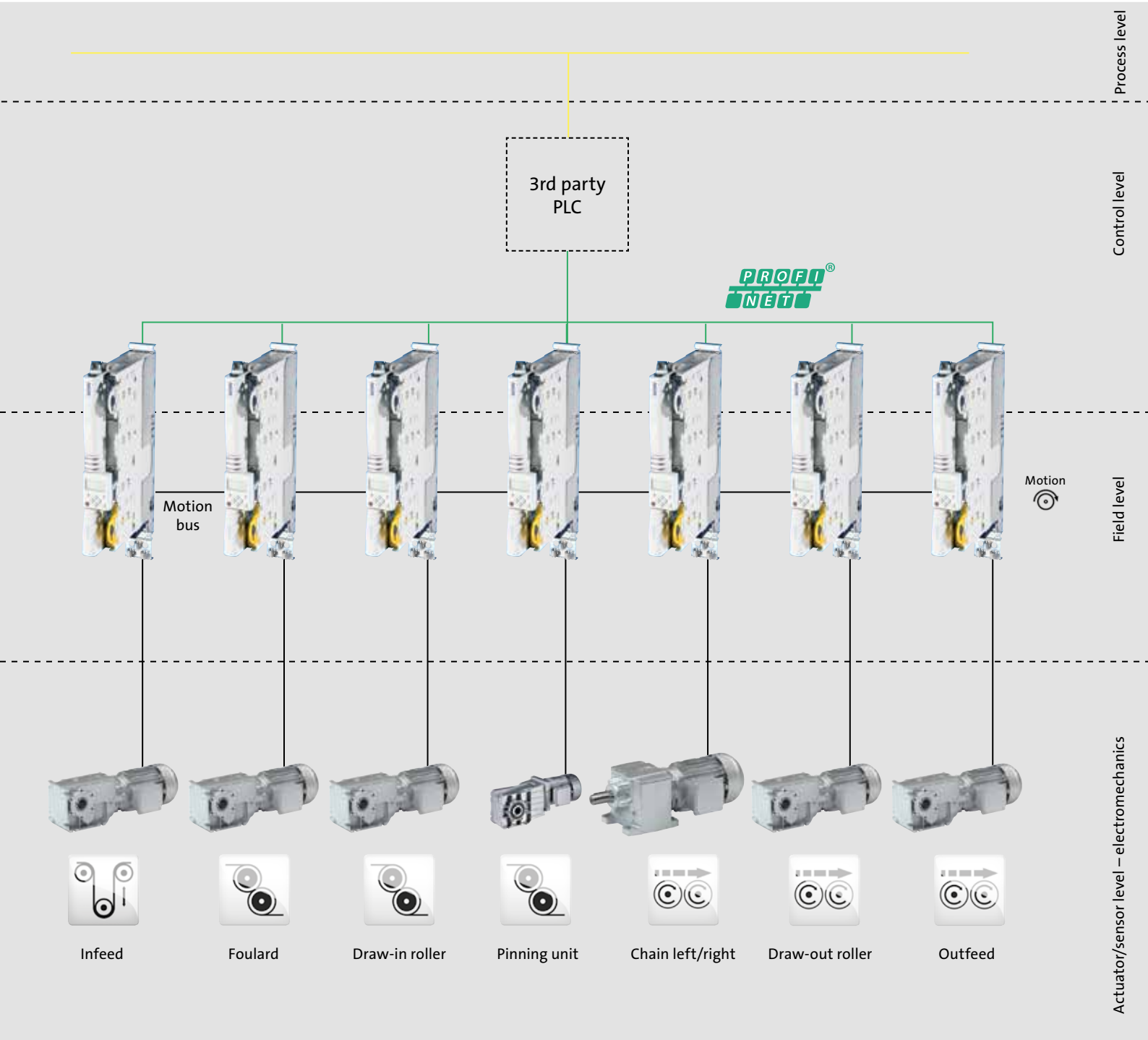
Actuator/sensor level – electromechanics

Easy solutions for complex applications.

- Synchronisation of the axes due to easy parameter setting
- Additional synchronisation modules are unnecessary
- Integrated motion functions such as
  - CAM
  - Register
  - Electronic shaft
  - Winding
  - Dancer control
- Easy integration into higher-level standard PLC structure due to flexible communication interfaces




Outfeed
Infeed trough
Foulard
Draw-in roller
Pinning unit
Fan
Chain left/ right
Draw-out roller

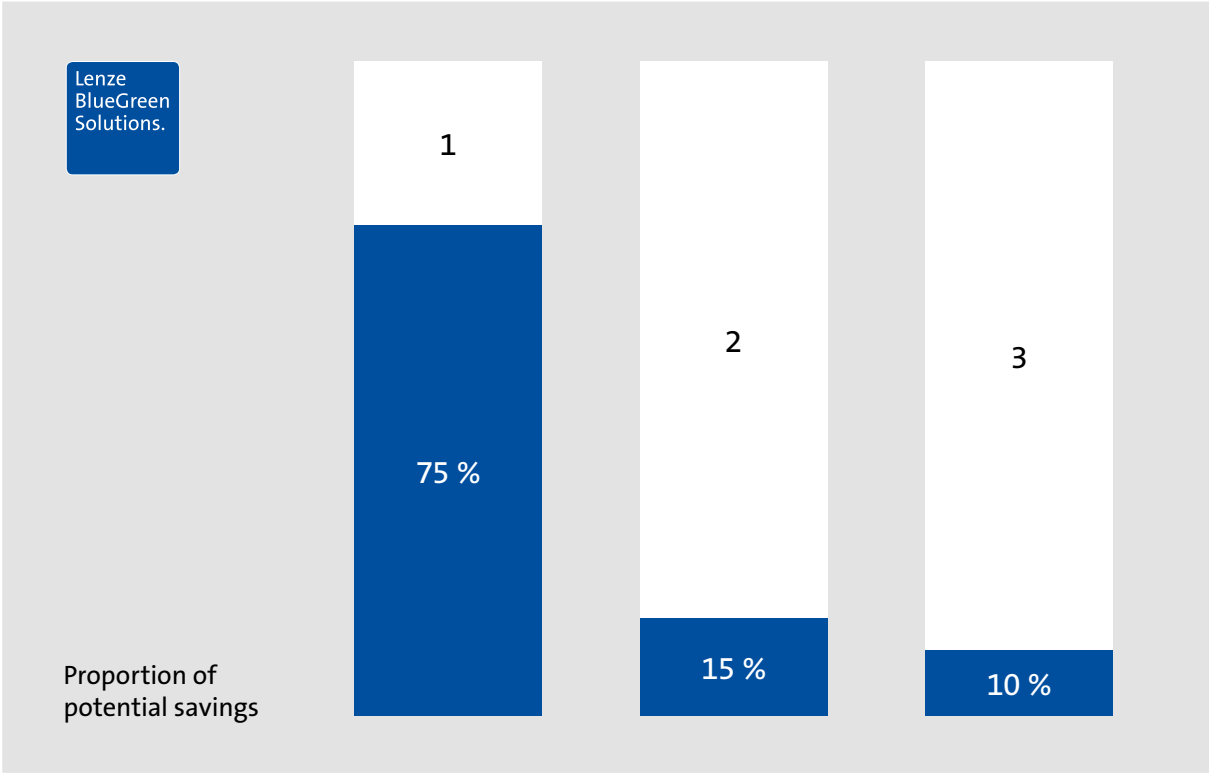

Process level
Control level
Field level
Actuator/sensor level – electromechanics
3rd party PLC
PROFINET
Motion bus
Motion
Infeed
Foulard
Draw-in roller
Pinning unit
Chain left/right
Draw-out roller
Outfeed

Efficient in all respects.

Energy-efficient with Lenze Blue Green Solutions
On the basis of a holistic consideration of the tasks involved, we show you how the energy efficiency of your drive applications can be increased with intelligent drive and automation technology. We also assist you regarding adherence to important standards and laws.

Three approaches are pursued in order to increase the energy efficiency of drives:

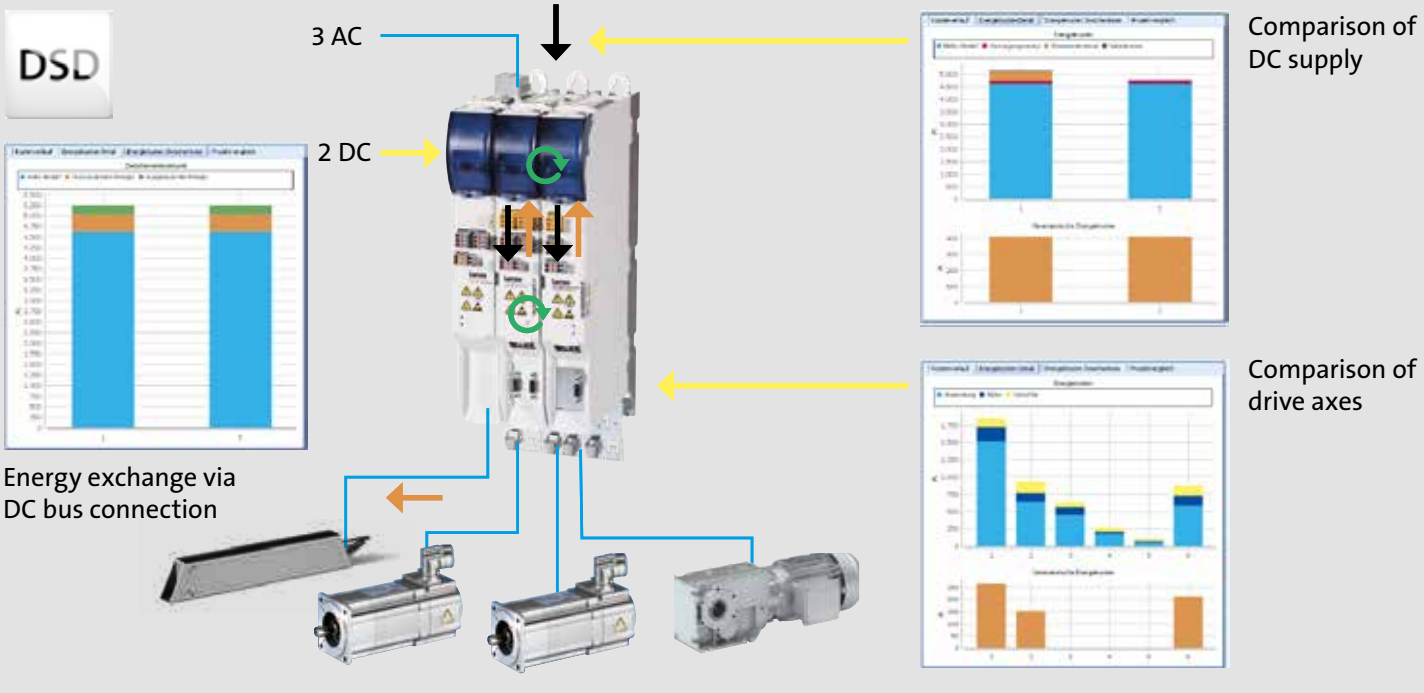
1. **Using electrical energy intelligently: as little as possible**
   - Dimensioning according to needs
   - Controlled operation (frequency inverter)
   - Energy-efficient motion control
2. **Converting energy with a high degree of efficiency**
   - Components with a high degree of efficiency (motors, gearboxes)
3. **Using recovered braking energy**
   - Energy exchange between several drives
   - Temporary storage of braking energy
   - Regeneration of braking energy



Efficient drive dimensioning with Drive Solution Designer (DSD)
Intelligent drive dimensioning is a prerequisite for an exactly dimensioned and therefore small-as-possible drive solution with just the right components. Thanks to DSD, potential energy savings can be seen at a glance and are documented in the Energy Performance Certificate. A clear comparison of different solutions is also made easy.

The reason is that DSD incorporates extensive and useful dimensioning knowledge – with solidly based drive-application know-how relating to such aspects as drive physics, drive variants or energy efficiency. Drive dimensioning takes place on the basis of calculations with individual process data such as speed profiles and takes into account the complete drive structure for the requirements of the machine.

In our DSD training course, we familiarise you with this engineering tool and show you how easy it is to actually use in practice.



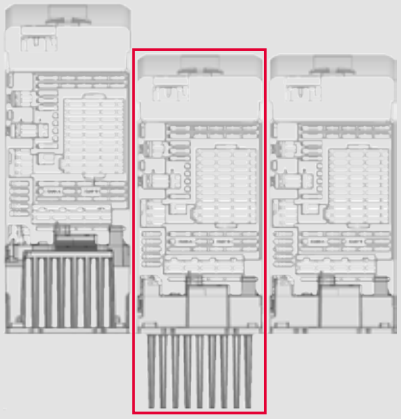
A powerful performance in any situation.

In order to do meet the special requirements in the textile industry, you can trust in our many years of experience in drive dimensioning and our adapted product portfolio. This is the basis for a robust solution that has been adapted to the conditions of the respective production location. In this way, possible power supply failures due to an instable power supply can be compensated for and you are able to cope with special ambient conditions that sometimes occur such as humidity, dust or dirt.

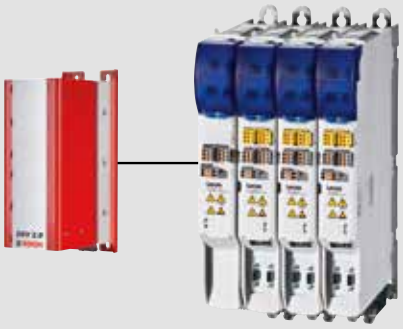
Ready for anything:

- Intelligent systems for managing power supply failures
- Products for use in high temperature environments
- Alternative cooling concepts for frequency and servo inverter in control cabinets
- Coated printed circuit boards

- Fanless motors
- Motors with special fan cowls
- Fanless controllers
  - UPS-integrated
  - Usable at ambient temperatures up to 55°



Alternative cooling concepts such as push-trough and cold-plate technologies.

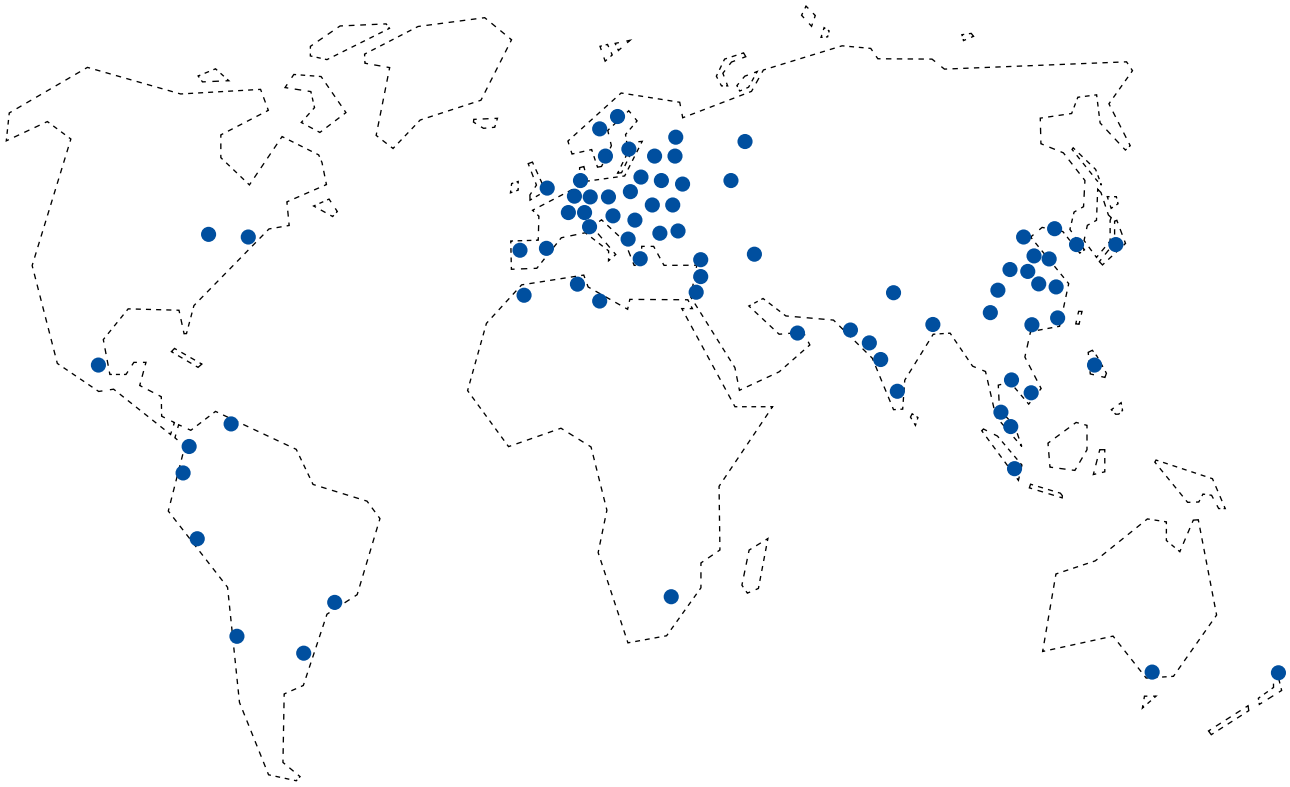


Intelligent systems to bridge brief power interruption as well as for guided shutdown of the line in the event of a power failure.

Coating printed circuit boards for protection against adverse environmental influences.

Worldwide service for the requirements of the textile industry.

Productivity, reliability and new levels of peak performance daily – These are our decisive success factors for your machinery. We offer you individually conceived service concepts for continuously safe and reliable operation. This is where our service modules play an important role, whereby expert support is provided by our experienced specialists who have outstanding know-how regarding applications in this industry. Wherever, whenever and however you need our support, we are always there to help you.



Lenze inspection

What are the facts?
You know your machine extremely well. We work together with you to create a basis for taking the appropriate measures. For example, we identify weak points or risks and tap valuable performance reserves. One thing is certain: with us, your machine is in the best hands.

Lenze preventive service

Prepared for the unexpected.
Our comprehensive preventive service is the ideal way to minimise potential risks to your machine. We support you in increasing machine availability and minimising reaction times and downtimes in the event of faults. This saves you time and money – and soothes your nerves.

Lenze optimisation

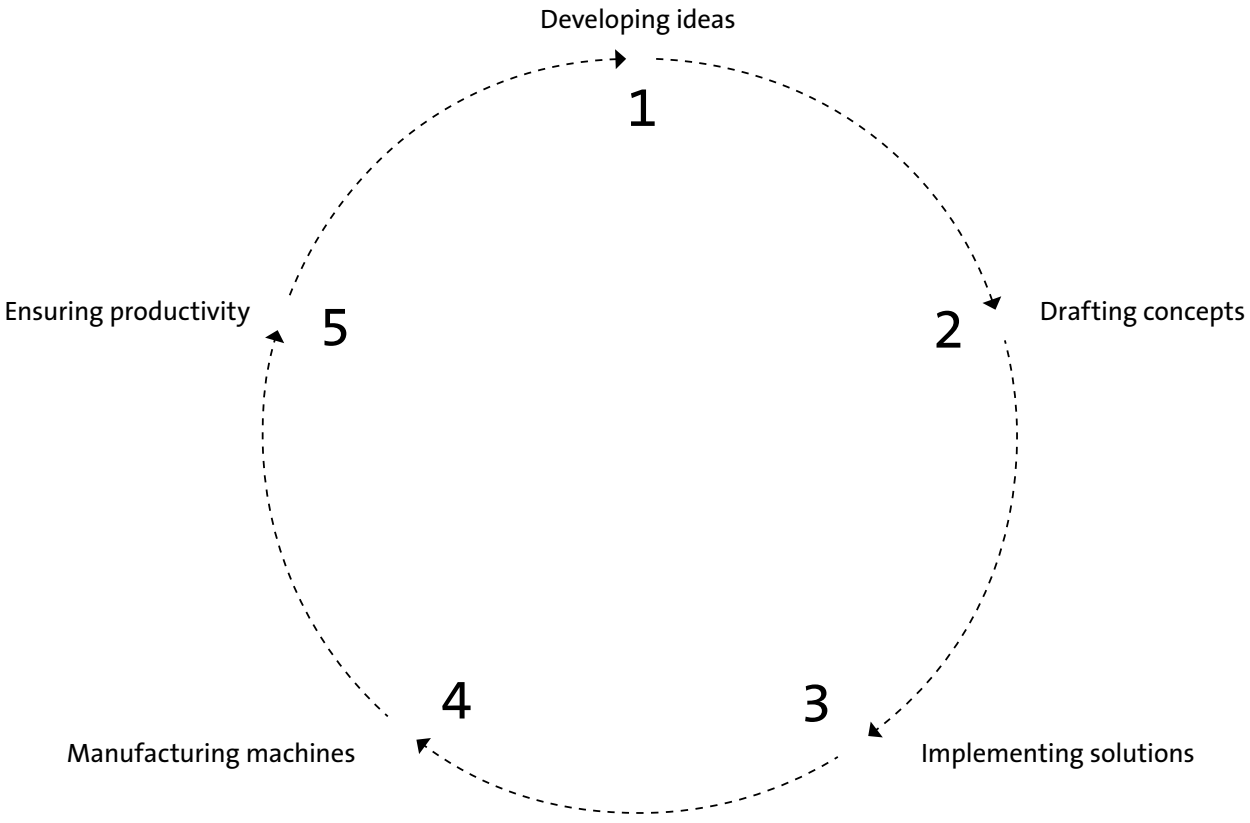
Making the good better.
We ensure that your systems work perfectly and show you intelligent optimisation possibilities: this includes reducing your energy costs, shortening your set-up times for production changeovers, or improving efficiency. We take care of it.

Lenze emergency supply

Ready for any situation.
You can also rely on us in the event of an emergency. We make extensive preparations for potential problems. Should something unforeseen ever occur, we will make sure that your systems are back up and running quickly and also perform an in-depth error analysis. With us, your projects are in safe hands.

Lenze makes many things easy for you: in every phase of the engineering process.

We work with you closely to devise the very best solution and take great pleasure in setting your technical ideas in motion. Irrespective of whether you want to optimise existing equipment, develop a new machine or design an overall application for plants in the textile industry. We always strive to make things easy and seek perfection therein. This is anchored in our thinking, in our services and in every detail of our products.

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