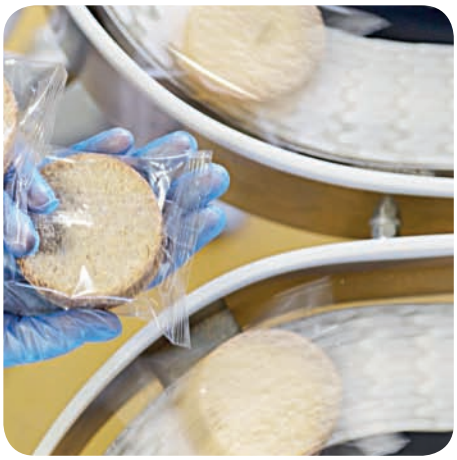
Lenze Consumer Goods

Automation solutions for the packaging industry.



As easy as that.

Lenze


70 years
experience in
the packaging
industry.

As one of the leading drive-technology and automation specialists with extensive knowledge of the packaging industry and a worldwide network of experts, we will work closely with you to find the best solution for your needs. We take great pleasure in being able to set your ideas in motion, regardless of whether you want to upgrade an existing packaging machine or develop a completely new one.

We will support you in all phases of your projects in accordance with your individual requirements and goals. And when you develop an innovative concept, we will be there to help you make it a reality.

We develop innovations for the packaging industry – as easy as that:

- Experienced experts understand your requirements and goals
- State-of-the-art hardware and software for the implementation of efficient solutions
- Reliable drive systems for typical packaging applications
- Use of open standards
- Global production with uniform Lenze quality standards
- Worldwide logistics concept
- Global service network and a range of training courses offered

Rising requirements for packaging machines.

In today‘s innovative packaging industry new challenges are constantly arising with regard to the systems and machines that it uses. Increasing digitization is and will continue to be a part of the current and future requirements for packaging machines. The following across-the-board trends are becoming more and more important.

Flexibility
Machines are increasingly being considered as individual units and use flexibility in production, enabling a quick response to the market by a single machine. Retooling and format changes can be carried out more quickly. The time and effort needed to launch new products are therefore reduced.

Individualization
Flexibility can be maximized to such an extent that even batch sizes of one are possible. This means that a very individual approach to the customer can be adopted, whereby the customer becomes directly involved in product development. A reduction of stock – the key idea here being “Make-to-order” – is possible at the same time.

Transparency
Improved data management is the basis for inter-company networking. All process sequences are simplified due to standardized data structures. Optimized monitoring processes facilitate preventive and corrective maintenance while the entire production control system is also perfected. Servicing for the customer is improved due to the use of mobile devices and track & trace options.

Availability
The early detection of problems ensures maximum machine availability. Maintenance can be planned and the need to keep fewer replacement parts in stock minimizes the amount of tied-up capital. Replacement parts can be ordered easily, delivered quickly, and installed without any learning process. This enables greater freedom in machine procurement.

Human-machine interaction
Intuitive concepts make it easier for operators to handle complex technology and it also reduces their susceptibility to making errors. Mobile terminals and open interfaces enable flexible control and access to all of a machine's functions. Internet technologies support diagnostics and also reduce the number of errors in production.

Resource efficiency
Digital networking can be used as a lever to enhance resource efficiency, whereby the machine adapts itself to the material and not vice versa. In this way, the consumption of material and energy can be optimally adapted and the loss of product and materials can be minimized. In addition, intelligently controlled motors enable energy recovery – a considerable benefit.

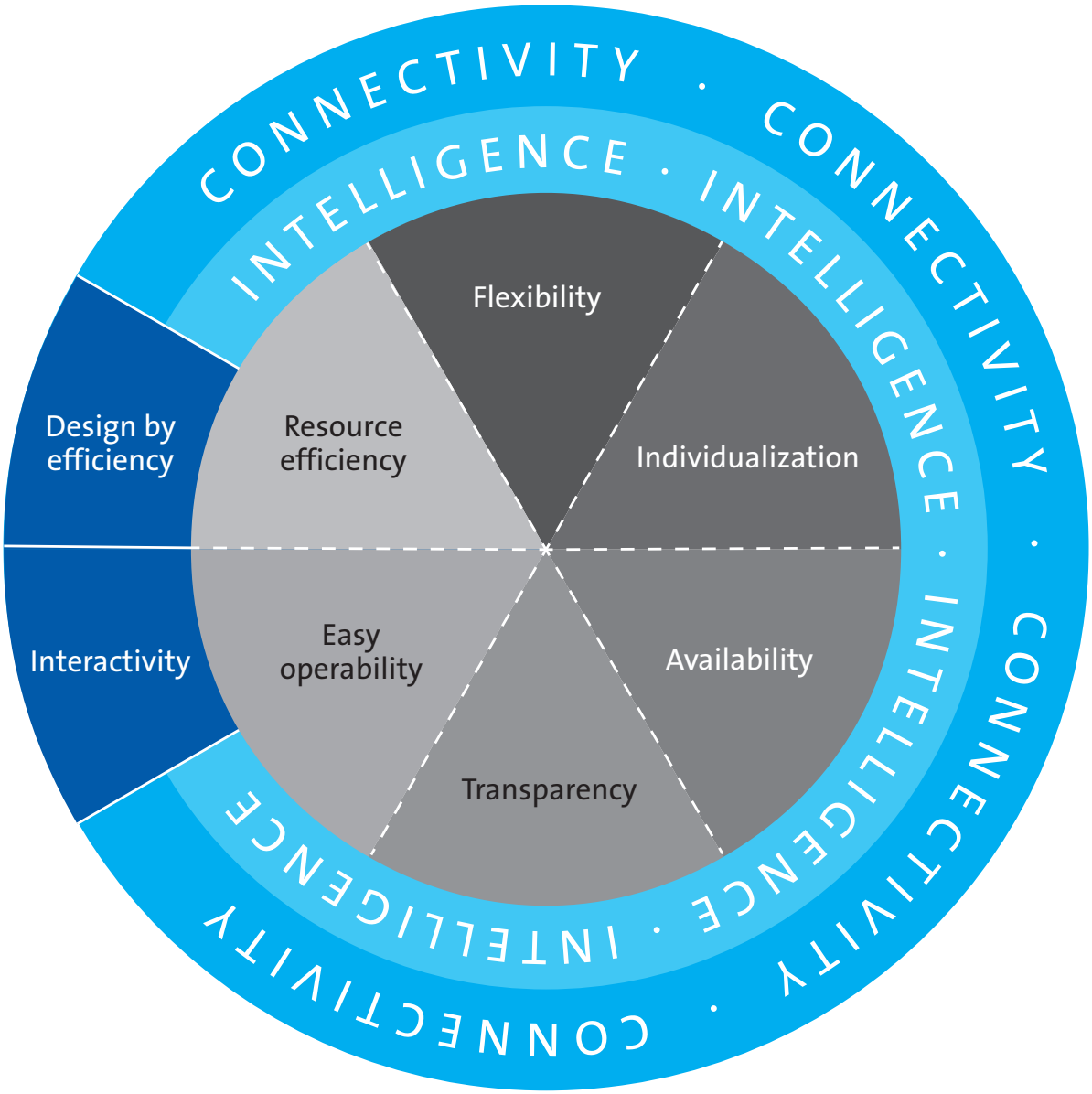
Industry 4.0 – Cooperation skills as a new core competence.

Mechanical engineering has always been characterized by a high degree of orientation to the customer, converting their needs into real technical solutions. With Industry 4.0, possibilities and new facets offer fresh opportunities from outside the industry of mechanical engineering. Anyone who cooperates with partners faster and more effectively, and who integrates their on-going processes, will always win in competition with others. Cooperative skills generate a level of expertise to manage end user trends and the requirements that will be placed on the next generation of machines.

This core competence creates technical solutions and innovations that answer the following:

- What benefits are most important for you?
- What technical measures have already been taken?
- Where do your greatest challenges lie?

We look forward to talking to you about possible joint projects and perspectives for the future.



Industry 4.0, in all its many facets, can only succeed if everyone concerned – the end users, machine builders, technology providers and the scientific world – all pull together.

Adjusting to reality.

Shorter innovation cycles, aggressive competitors and high pricing pressure are challenges that mechanical engineering companies are facing. Good reasons for us to make your everyday work easy.

With our engineering tool chain, we offer tailor-made tools for all aspects of your engineering and in all the different phases of a machine's overall lifecycle. These tools are designed for the performance of mechatronic engineering tasks and have been precisely tailored for both the user and the task. We also make your software engineering simple by modularizing and standardizing machine software, thereby significantly reducing the time needed to develop a new machine.

For the performance of exceptionally different automation tasks, we offer intelligent solutions for controller-based or drive-based motion. Moreover, due to our energy-efficient L-force portfolio, you profit from reliable technologies, long-lasting quality and easy handling of all products.

As a result, you not only reduce the number of different types of drives needed, but also shorten your entire engineering process. At the end of the day, this pays off for everyone.

Efficient software solutions

- Consistent engineering tool chain over the entire lifecycle
- Intelligent motion control with standardized technology functions

Reduced amount of engineering work

Appropriate automation solutions
The right system and products for every machine

Reduced investment in drives and automation

Mechatronics

Modular machine

Engineering

Engineering Toolchain

Functionality

Application template modular software structure

Technology modules

Motion

Positioning

Camming

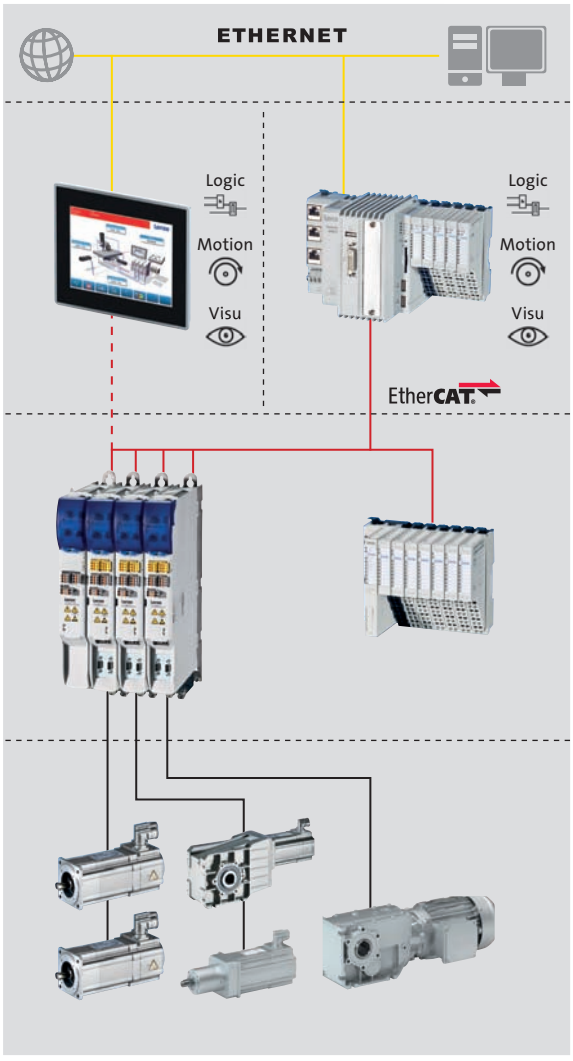
Robotics

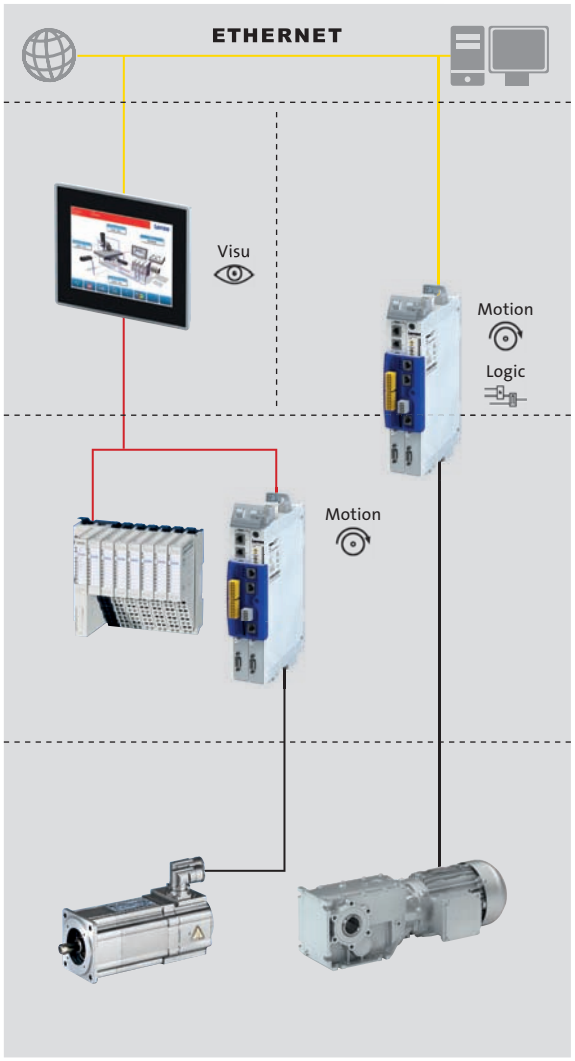
Process level

Control level

Field level

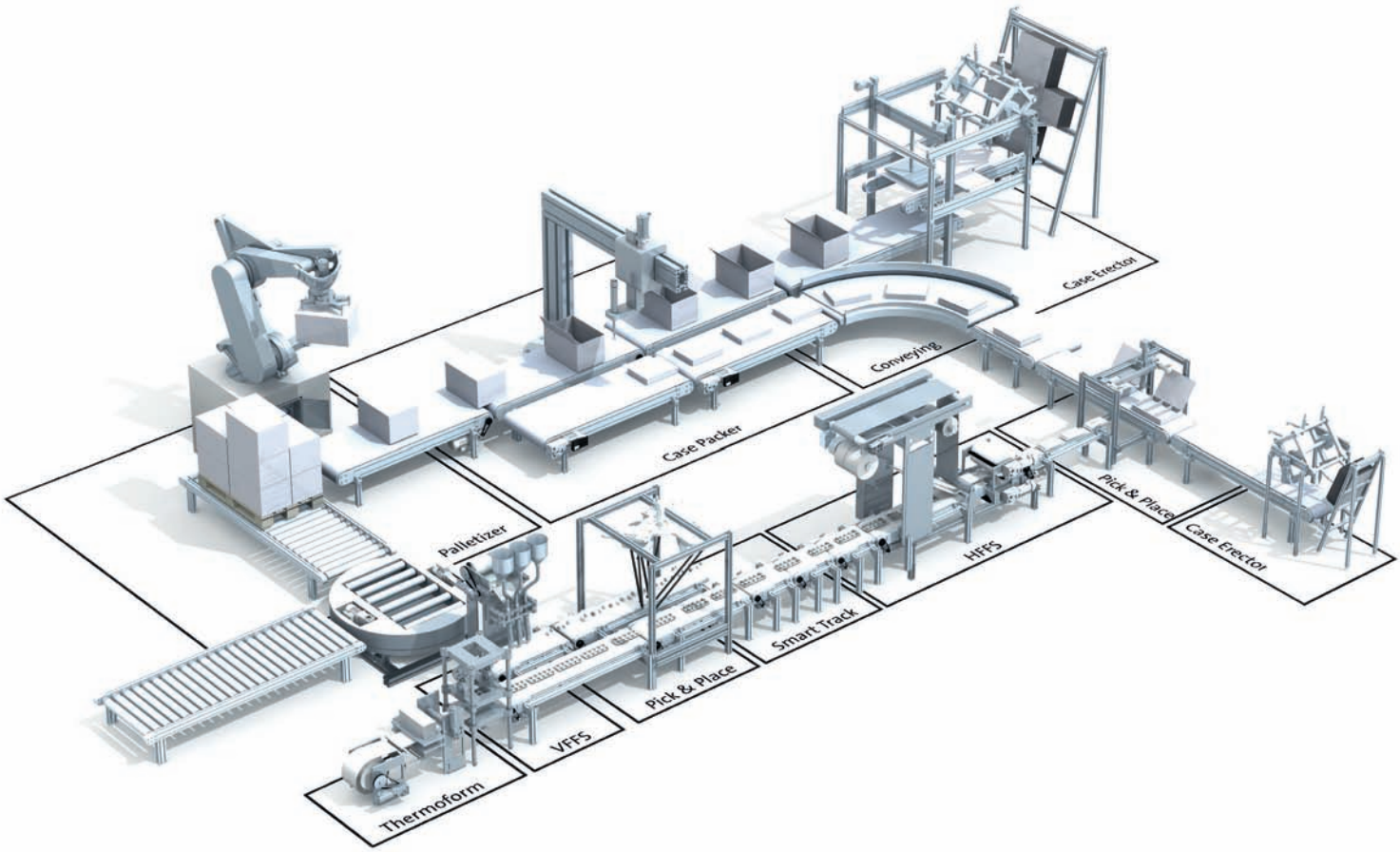
Actuator/sensor level – electromechanics





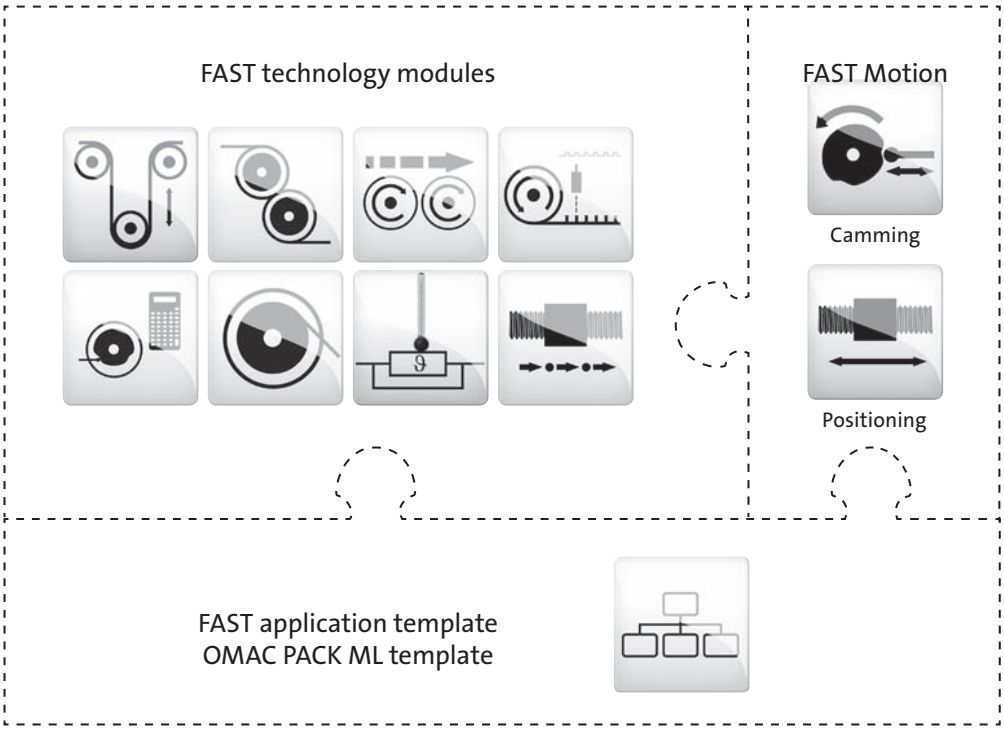
Exactly what you need for your packaging machine.

From primary packaging to palletizing – with our intelligent automation system, we will work closely with you to quickly find the best solution for any machine task. Rely on easy software engineering, the use of open standards, and exactly the right drive design.



Software engineering made easy
With Lenze FAST, our application software toolbox, you can combine intelligent standardized software modules for very different machine modules in a single template, creating your machine software the easy way.

This reduces your motion software engineering work by up to 80%, which leads to a considerable reduction of time needed 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 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 in being able to adapt to changes in the future.

Much more than just remote maintenance: Remote Services & Analytics offer added value for OEMs and end users.

Industry 4.0 is based on the digital networking of machines, products and components – and people as well, of course.

We offer a reliable platform for remote maintenance using a connection that can be monitored in order to connect the service engineer to the machine. The machine operator then has the certainty that only authorized people gain access to the machine and do so only at the right time.

Additionally, data can be collected from the machines and saved to a private 'cloud'. The data is then analyzed and converted into key performance indicators that provide deeper insight into how the machine is working. We offer a completely cloud-based quality management system. These services are in the form of a flexible subscription service, complete with a series of advantages over an in-house system. No maintenance, no IT investment, and no costly software licences necessary. The crucial aspect is that complex individual programming is rendered unnecessary. These services can be provided for a monthly subscription fee so that the online transfer of machine data becomes scalable.

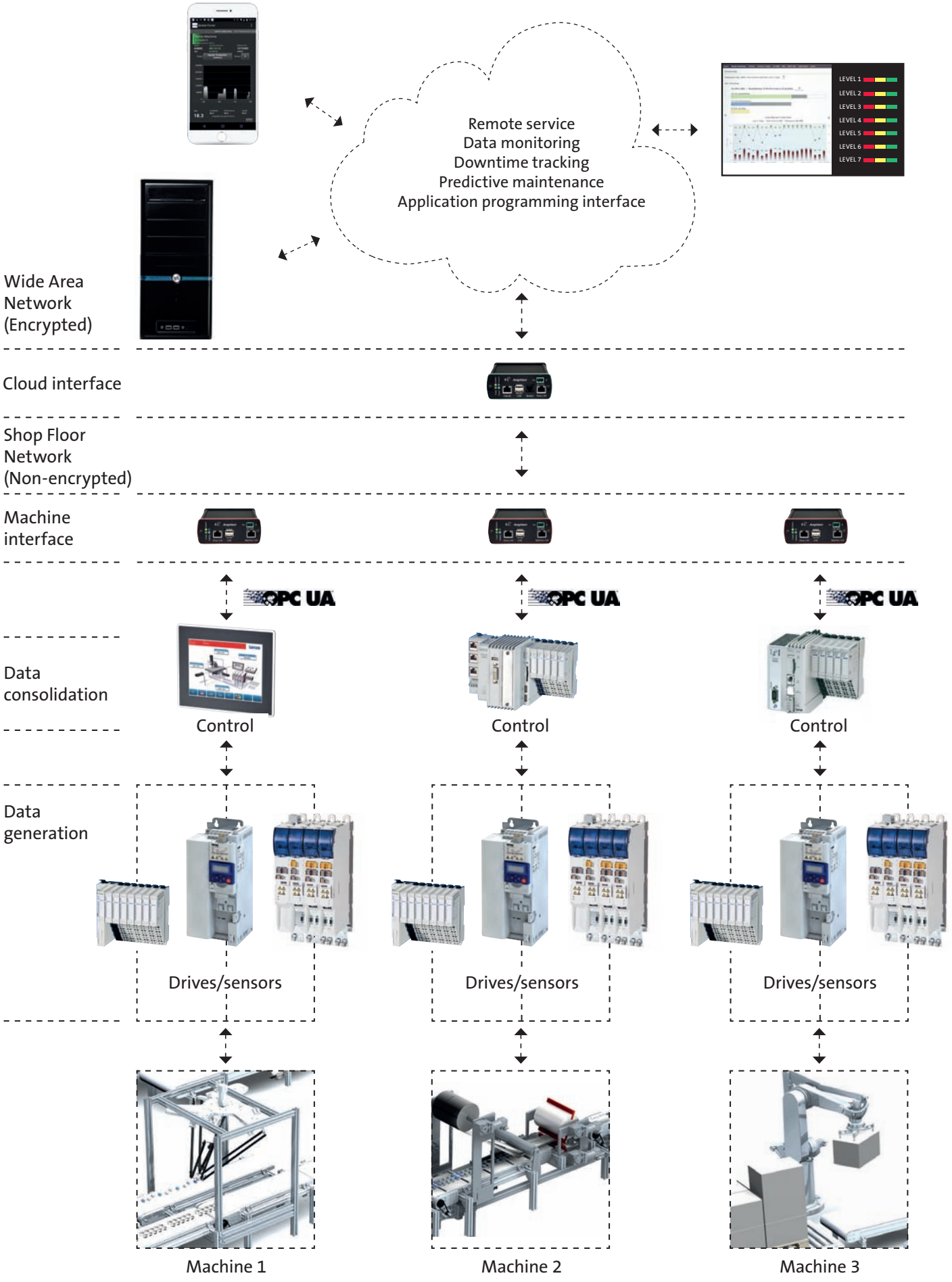
Undoubtedly, the most secure solution: The maximum security level "Financial Grade Security"
- Encrypted data from the network to the cloud
- NCP standardTransparent data exchange in the company network

Ready for the future
- OPC-UA access to Lenze controllersPermanent data transfer to the cloudAll data is available for immediate or future analysis

Plant management
- Monitoring of machine utilization and availability
- Track-n-trace and productivity information
- Monitoring of quality parameters

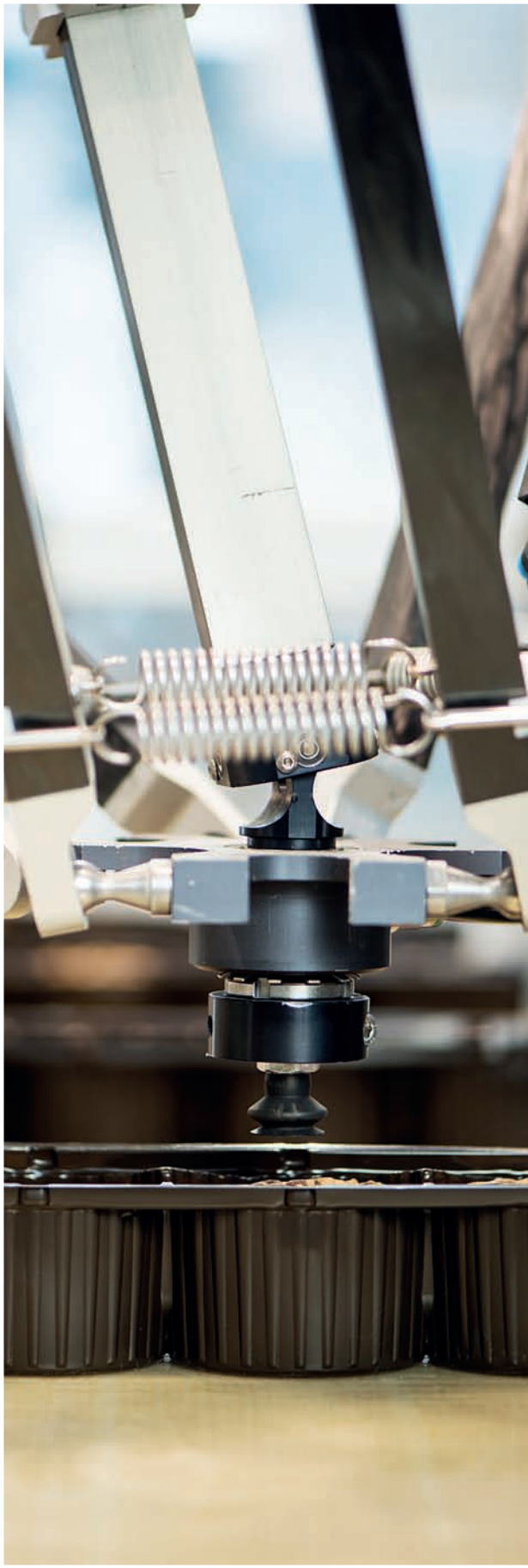
Remote Maintenance
- Worldwide data accessRemove diagnostics and servicing
- Reduces all field service assignments by up to 80%

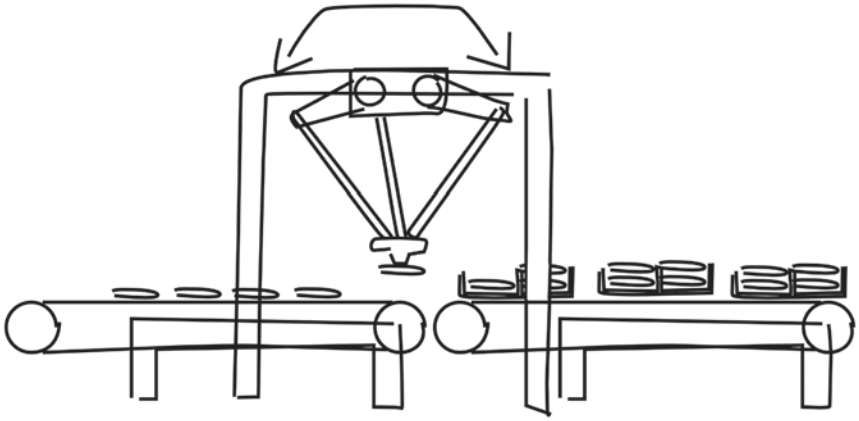
Predictive maintenance/Digital services
- Predictive detection of potential faults on the basis of the "cloud data"
- "Big data" as the basis for advisory services for the optimization of production by an OEM


Remote service
Data monitoring
Downtime tracking
Predictive maintenance
Application programming interface
LEVEL 1
LEVEL 2
LEVEL 3
LEVEL 4
LEVEL 5
LEVEL 6
LEVEL 7
Wide Area Network (Encrypted)
Cloud interface
Shop Floor Network (Non-encrypted)
Machine interface
OPC UA
OPC UA
OPC UA
Data consolidation
Control
Control
Control
Data generation
Drives/sensors
Drives/sensors
Drives/sensors
Machine 1
Machine 2
Machine 3

Maximum flexibility due to robotics.

- As a flexible component of a machine, the Delta robot is the very first choice for customized production.
- Lenze FAST technology modules enable parameterization instead of programming – with no deep knowledge of robotics needed. Software complexity that is easy to handle.
- Openness of our software: You remain independent and are able to contribute your individual core competence.
- Integrative control combines logic, motion and robotics in one controller. This eliminates costs and engineering work for additional controllers.
- Easy linkage of peripherals such as cameras, conveyor belts etc.
- Simple connection to the MES/ERP system, like track-n-trace functionality, recipe management and machine management.





ETHERNET

Remote Host

Process level

Visu

Motion

Logic

EtherCAT

Pick & Place

Transformation

Motion control

Touch probe

Electric shaft

Control level

Field level

Delta 1

Delta 2

Delta 3

Rotation

Tilt

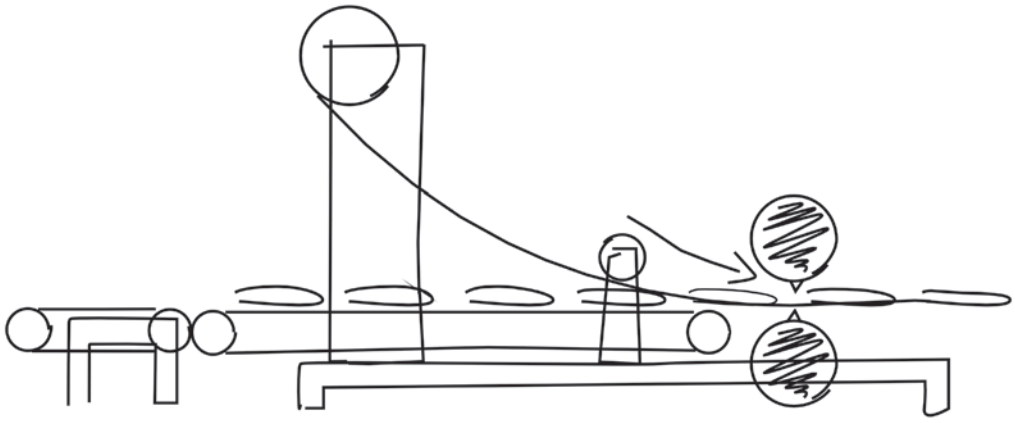
Conveyor

Conveyor

Actuator/sensor level – electromechanics

Efficient use of resources and maximum productivity.

- Modular and scalable software and hardware can be adapted to any requirements.
- The winder solution from Lenze compensates for problems such as friction and the influence of acceleration. This prevents material cracks/waste, and enables the use of thinner films that are sensitive to pulling. This solution is available with no additional costs for special sensors that are used to measure tensile force.
- Intelligent drives: The machine gets to know the parameters of the drive technology during the process. These parameters no longer need to be determined by means of time-consuming and costly expert tests.
- If the packaging material or humidity changes, the machine adapts itself accordingly.
- The predefined “cross cutter” technology module calculates the cam for the synchronous movement of a cross sealing roller and synchronizes it with the master axis. Empty packages and products between the sealing jaws are prevented.



ETHERNET

Remote host

Process level

Visu

Motion

Logic

Control level

Safety over EtherCAT

EtherCAT

Winder

Tension control

Register control

Temperature control

Cross cutter

Field level

Outfeed

Sealing

Cross Cutter

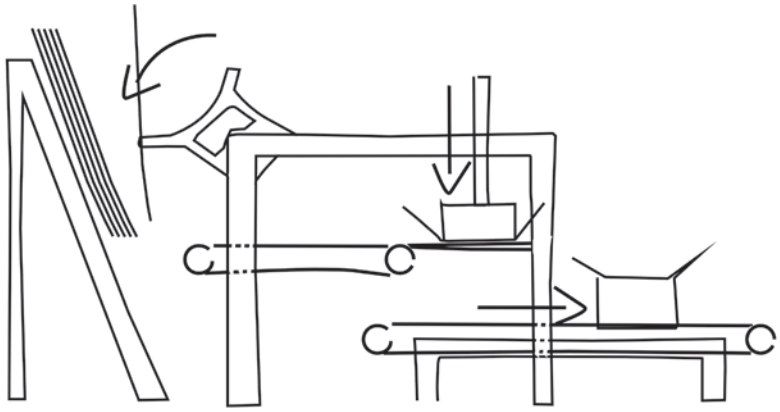
Unwinder

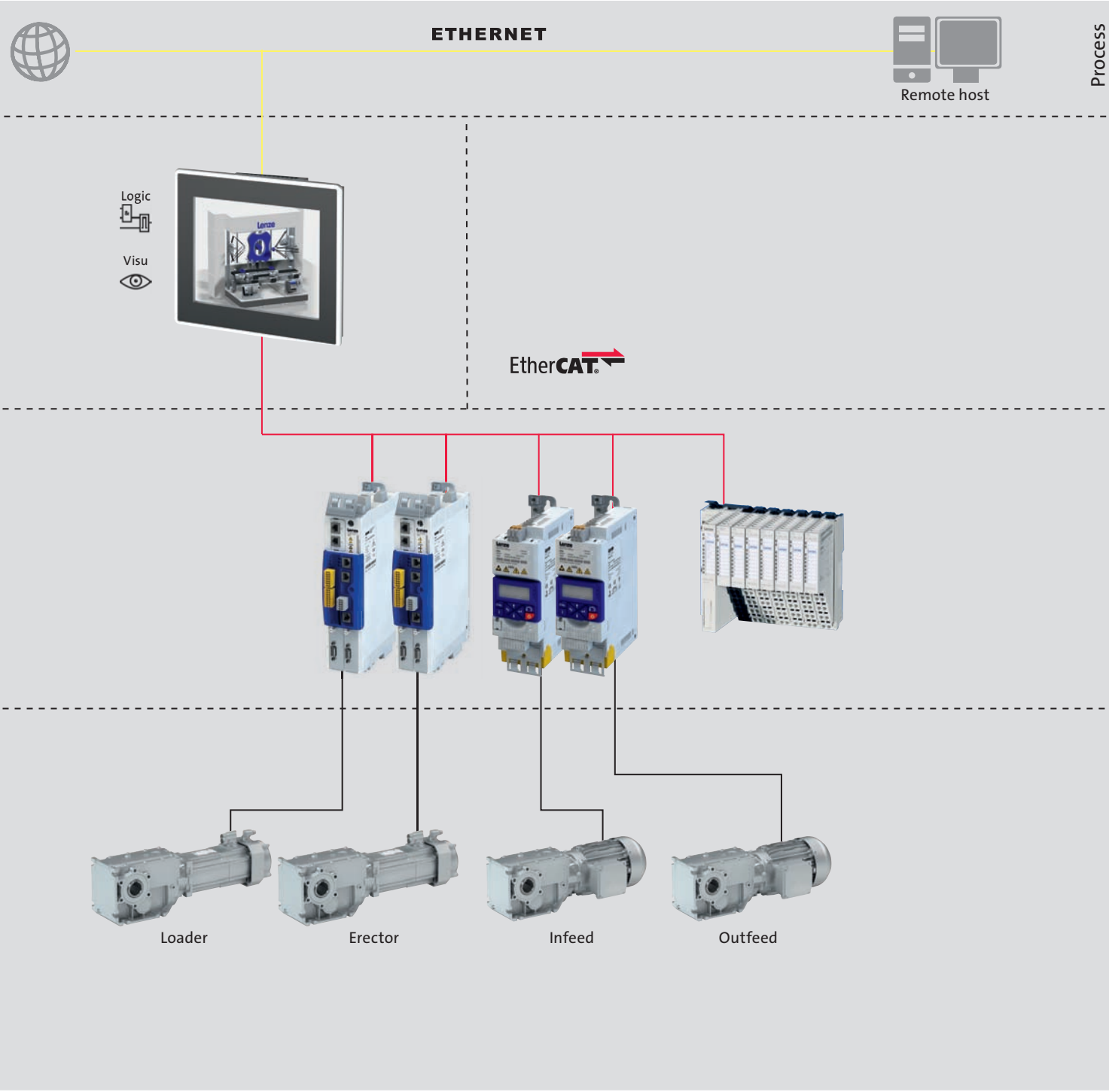
Infeed

Actuator/sensor level – electromechanics

The operator is at the center of things.

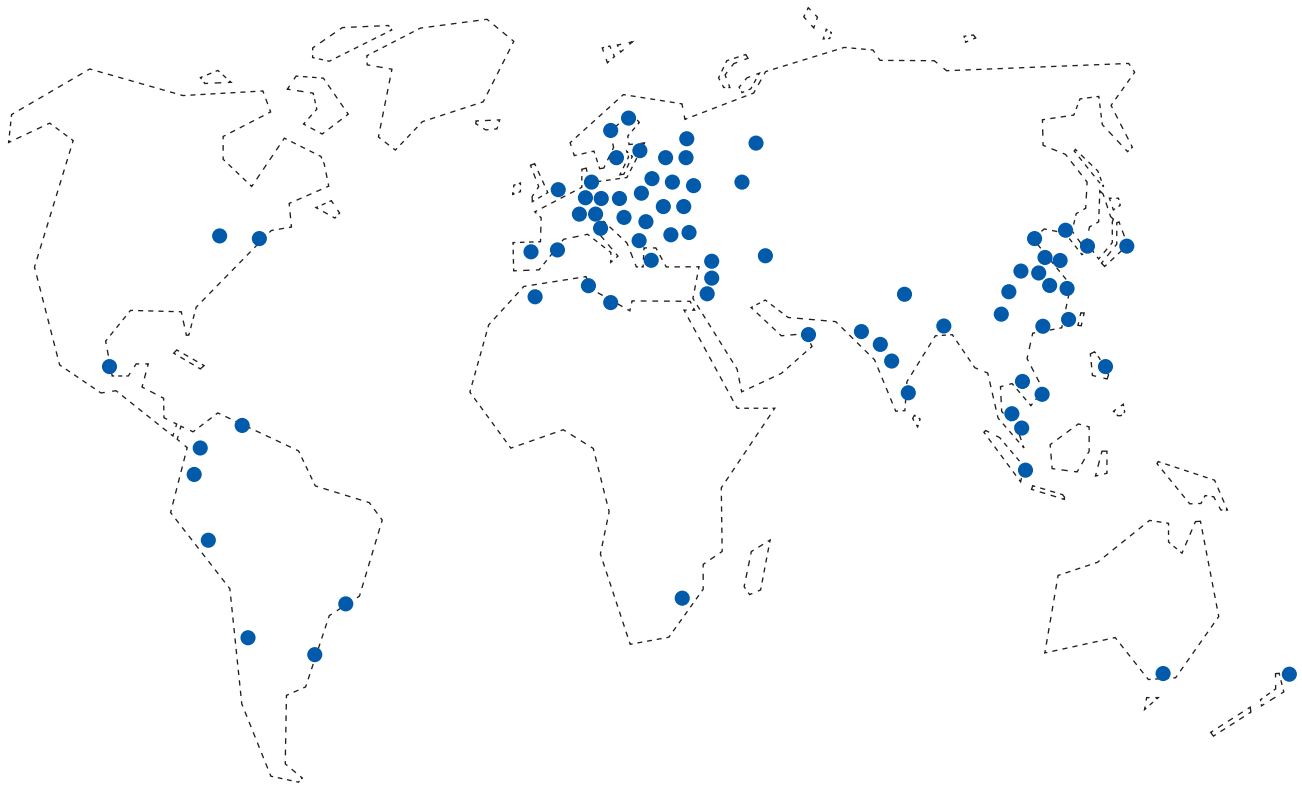
- Visualization with an operating concept centered on one user (User Centered Visualization) as well as highly flexible software.
- Intuitive control and navigation by means of language-independent user guidance (use of images and symbols).
- IPC design adapted to the existing machine design, easy user management, secure and easy log-in of the machine operator by means of RFID.
- Fast and reliable set-up, operation and servicing of the machines – worldwide.
- Visualizations on multi-touch displays as well as on different display terminals (mobile phone, tablet, browser, HMI etc.)
- Uniform HMI template provides better operability of all machines without any HMI training for individual machines. Standardized view and arrangement of the buttons and error diplsay etc.




ETHERNET
Remote host
Process level
Logic
Visu
Control level
EtherCAT
Field level
Actuator/sensor level – electromechanics
Loader
Erector
Infeed
Outfeed

Worldwide service for the requirements of the packaging industry.

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



Lenze inspection

What is the current status?
You know your machine extremely well. Together we will work with you to create a basis for taking 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 prevention

Prepared for the unexpected.
Our comprehensive preventive service is the ideal way to minimize potential risks to your machine. We will support you to increase machine availability and minimize reaction times and downtimes in the event of faults. This saves you time and money – providing piece of mind.

Lenze optimization

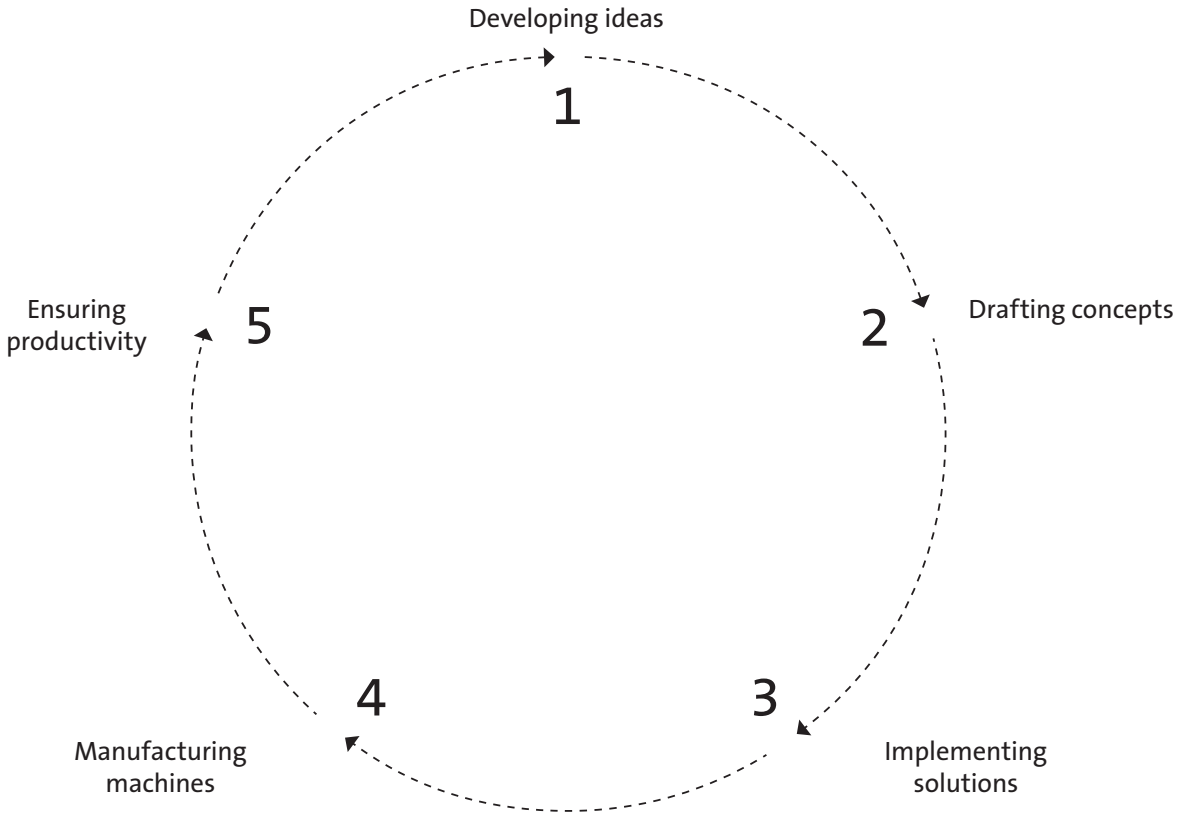
Making the good, better.
We will ensure that your systems work perfectly and show you intelligent optimization possibilities: this includes reducing energy costs, shortening set-up times for production changeovers, and improving efficiency.

Lenze emergency service

Ready for any situation.
You can depend on us in the event of an emergency. We make extensive preparations for potential problems. Should something unforeseen occur, we will make sure that your systems are back up and running quickly and 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 will work closely with you to devise the very best solution and get your technical ideas in motion. Regardless of whether you want to optimize existing equipment, develop a new machine, or design an application, we 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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