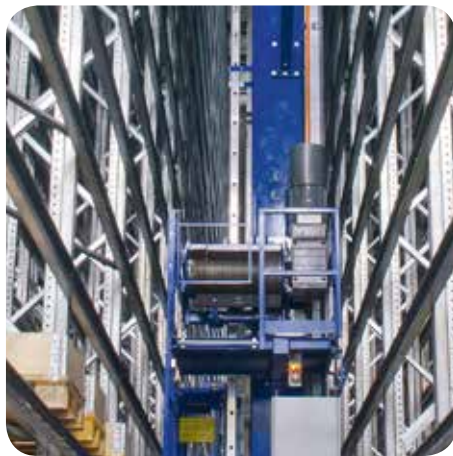


Automation solutions for warehouse logistics.



As easy as that.



70 years
experience
in the area of
warehouse
logistics.

As one of the leading specialists in drive and automation technology, with extensive know-how and a worldwide network of experts in intralogistics, we always work with you closely to find the very best solution. We set your ideas in motion with great enthusiasm and an eye for what works. Irrespective of whether you want to improve existing equipment or develop a completely new machine.

In line with your individual requirements and ideas, we provide you with comprehensive support – from the planning of individual assemblies or complete materials handling systems to commissioning of the actually built equipment you need.

We develop innovations for warehouse logistics with ease:

- Experienced industry insiders 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 warehouse applications
- Use of open standards
- Global production with uniform Lenze quality standards
- Worldwide efficient logistics concept
- Global service network and range of training courses offered



Adjusting to reality.

Shorter and shorter innovation cycles, aggressive competitors and considerable pressure on prices are challenges that mechanical engineering companies are increasingly having to deal with. Good reasons for us to make your everyday work easy.

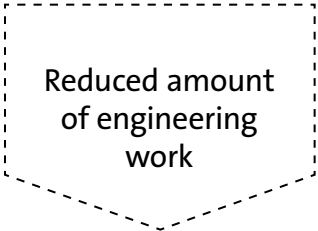
With our Engineering Toolchain, we offer tools for consistent engineering in the different phases of your equipment's life cycle. They have been specially designed for mechatronic engineering tasks and are precisely tailored to both the user and the work involved.

In order to enable the performance of very different automation tasks, we offer intelligent solutions for controller-based automation or drive-based motion. Moreover, you profit from our modular, scalable and coherent mechatronics kit. With reliable technologies, long-lasting quality and easy handling of all products.

You can not only reduce the variety of drives you use but also your entire engineering process. At the end of the day, this pays for everyone.

Efficient software solutions

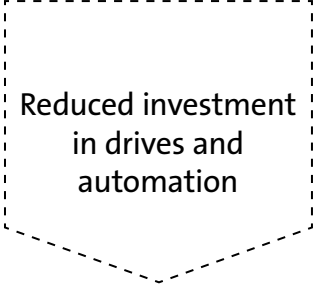
- Consistent engineering tool chain over the entire life cycle
- Intelligent motion control with standardised technology functions.



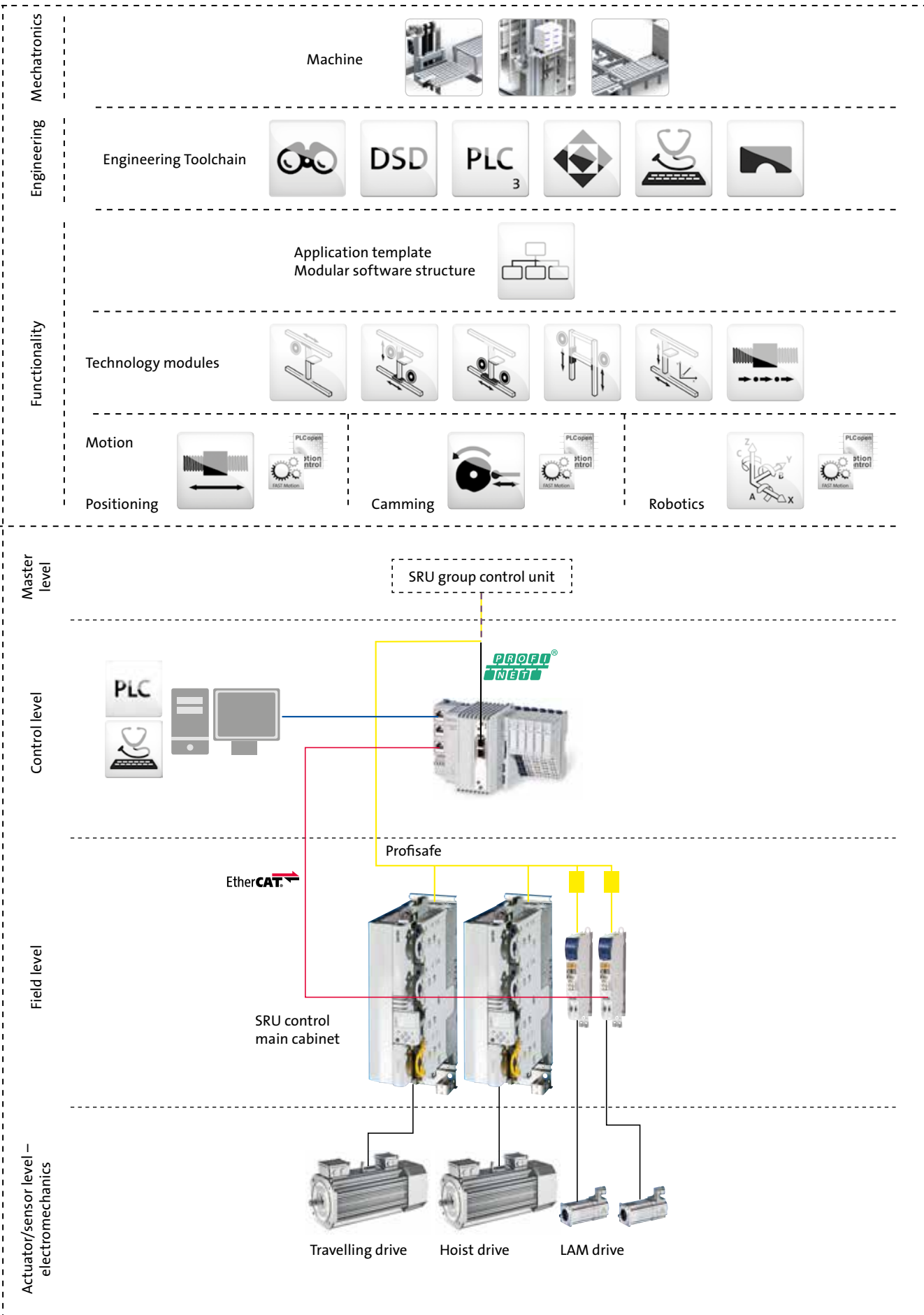
Reduced amount of engineering work

Appropriate automation solutions

The right system and the right products for every machine



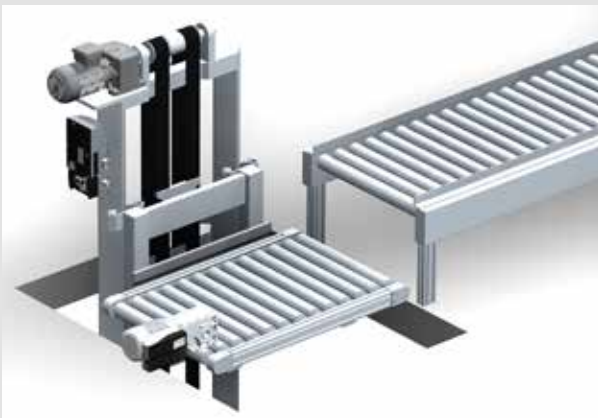
Reduced investment in drives and automation



Exactly what you need for your warehouse logistics application.

We work with you to develop intelligent automation solutions for your systems for the reliable flow of material – from small materials handling applications to complete logistics systems.

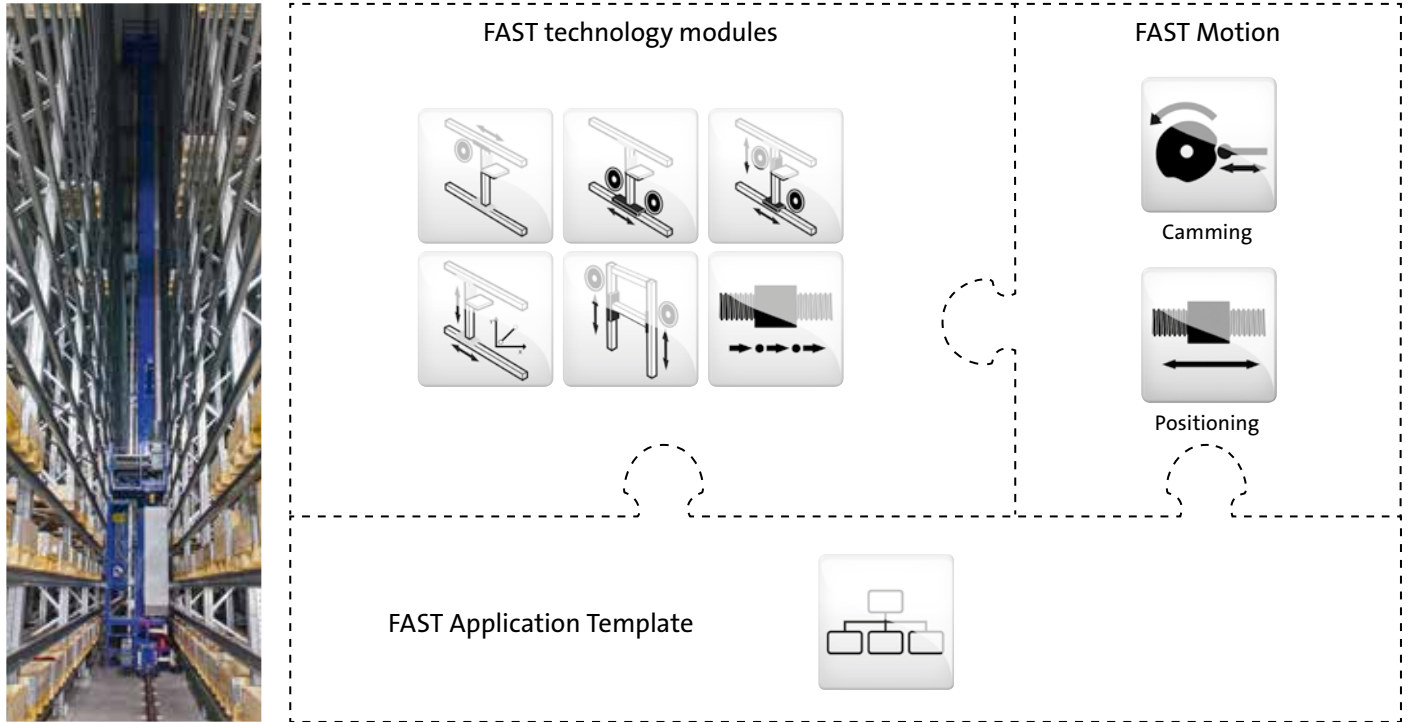
Rely on easy software engineering, the use of open standards, exactly the right drive design and energy-efficient solutions. Create your successful system at greater speed, with less need for space and for maximum availability.



Software engineering made easy

With Lenze FAST, our application software toolbox, you can combine intelligent standardised software modules for very different technology modules in a single template and thus create your machine software

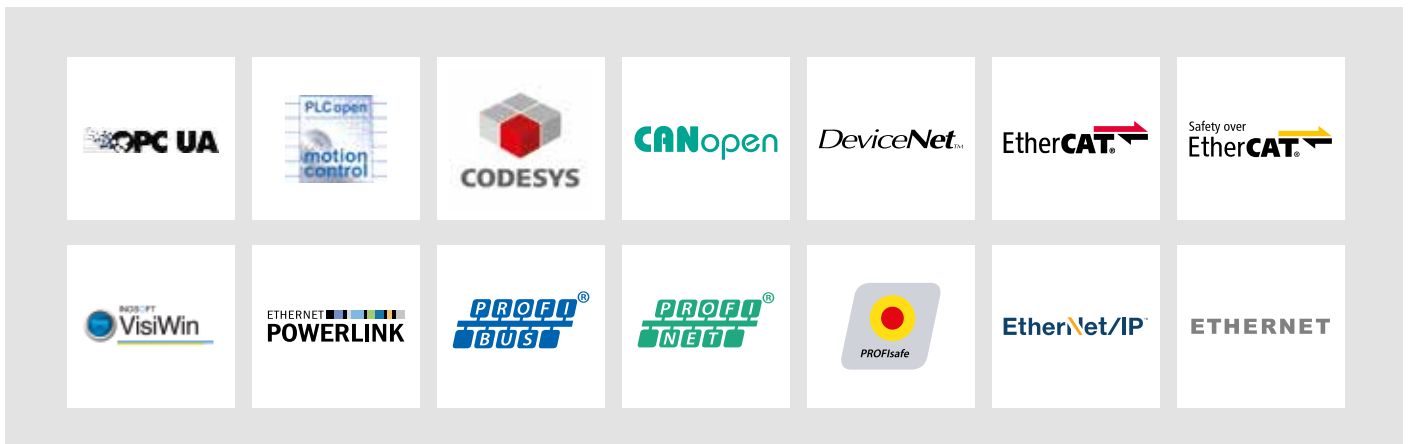
the easy way. This reduces your motion software engineering work by up to 80%, which in turn leads to a considerable reduction of the time you need to develop the basic functions of your machine.



Open standards

Lenze automation systems are open! Due to the use of market standards, we can network with the manufacturers of other control and drive systems at any time. This enables easy integration into higher-level line topologies. In addition,

this openness makes everything and everybody ready for the future, including the mechanical engineering company and the end user of the product. Keep your core competence in your company and secure your advantage over competitors.



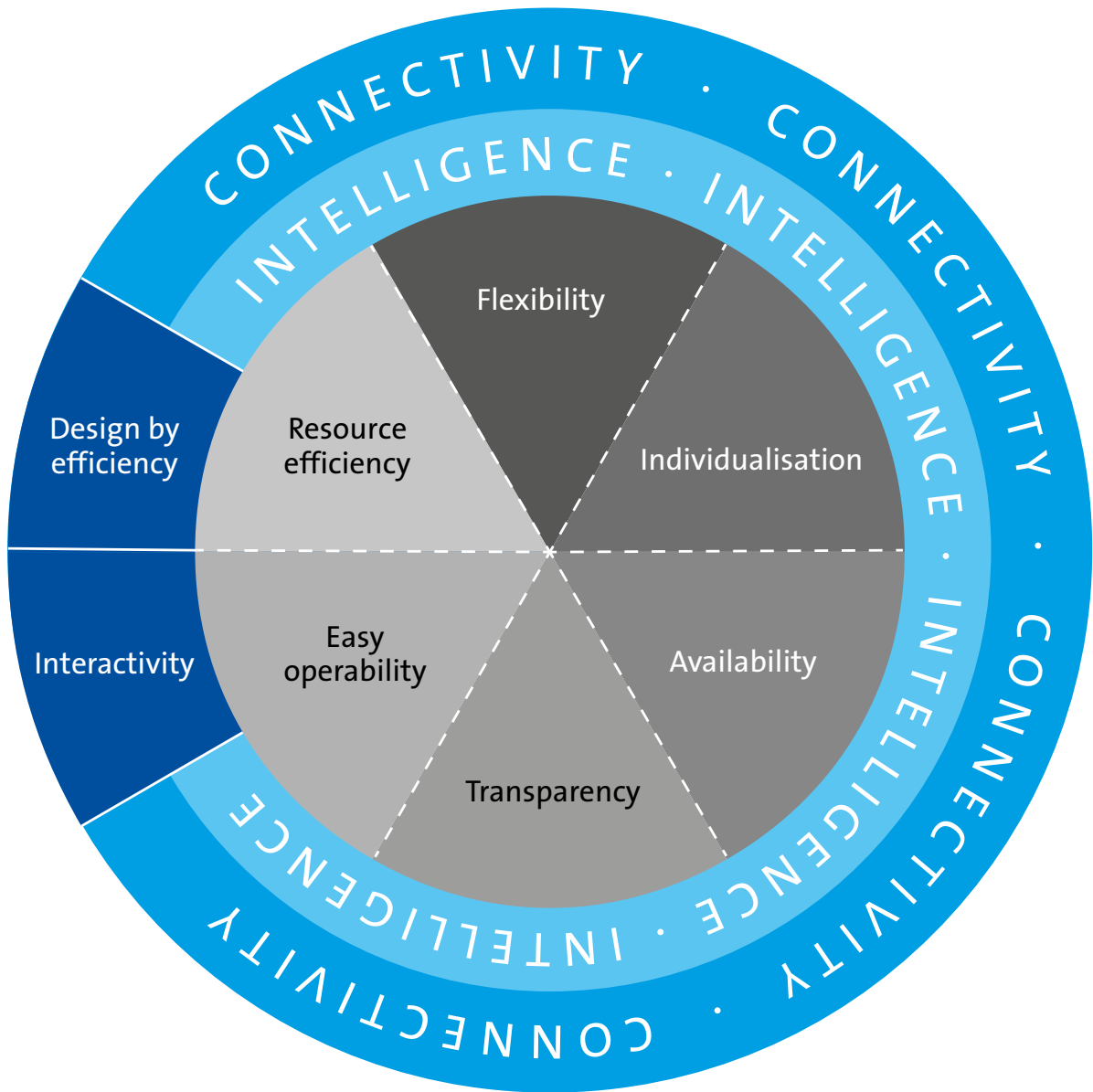
Industry 4.0 – Cooperative competence becomes the new core competence.

Engineering has always been highly customer-oriented, transforming the needs of customers into technical solutions. Industry 4.0 brings in facets and options from outside of the known world of engineering that offer new opportunities. Those who collaborate better and more quickly with partners and who integrate Industry 4.0 in more detail will ultimately have a better competitive edge. Collaborative skills create an expertise that has the answers to the trends and end customer requirements for the next generation of machines, allowing for

technical solutions and innovations that bring competitive advantages to be created:

- What benefits are most important to you?
- What technical measures have already been taken?
- What are your greatest challenges?

We look forward to discussing possible shared perspectives with you.



With all its many facets, Industry 4.0 can only succeed if all those involved, i.e. the end users, the mechanical engineers, the technology suppliers and science, all pull together.

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 provide a secure platform for remote maintenance in that we link the service technician to the machine via a connection that can be monitored. The machine operator therefore has the assurance that only authorised persons can gain access to the machine and can do so only at the selected time.

Moreover, we can collect data from the machines and save the data in a private 'cloud'. The data are then analysed and converted into key figures that enable a deeper insight into how the machines are functioning. We offer you a complete cloud-based quality management system. You can obtain all cloud services from us in the form of a flexible subscription service, which makes the online transfer of machine data scalable. This has several advantages over an in-company system. IT investment, costly software licences and maintenance of any kind are unnecessary. What is also decisive is the fact that complex, individual programming is rendered superfluous.

Undoubtedly, the most secure solution: The maximum security level “Financial Grade Security”

- Encrypted data from the network to the cloud
- NCP standard
- Transparent data exchange in the company network

Ready for the future

- OPC-UA/MQTT access to Lenze controller
- Permanent data transfer to the cloud
- All data is available for immediate or future analysis

Plant management

- Monitoring of machine utilisation and availability

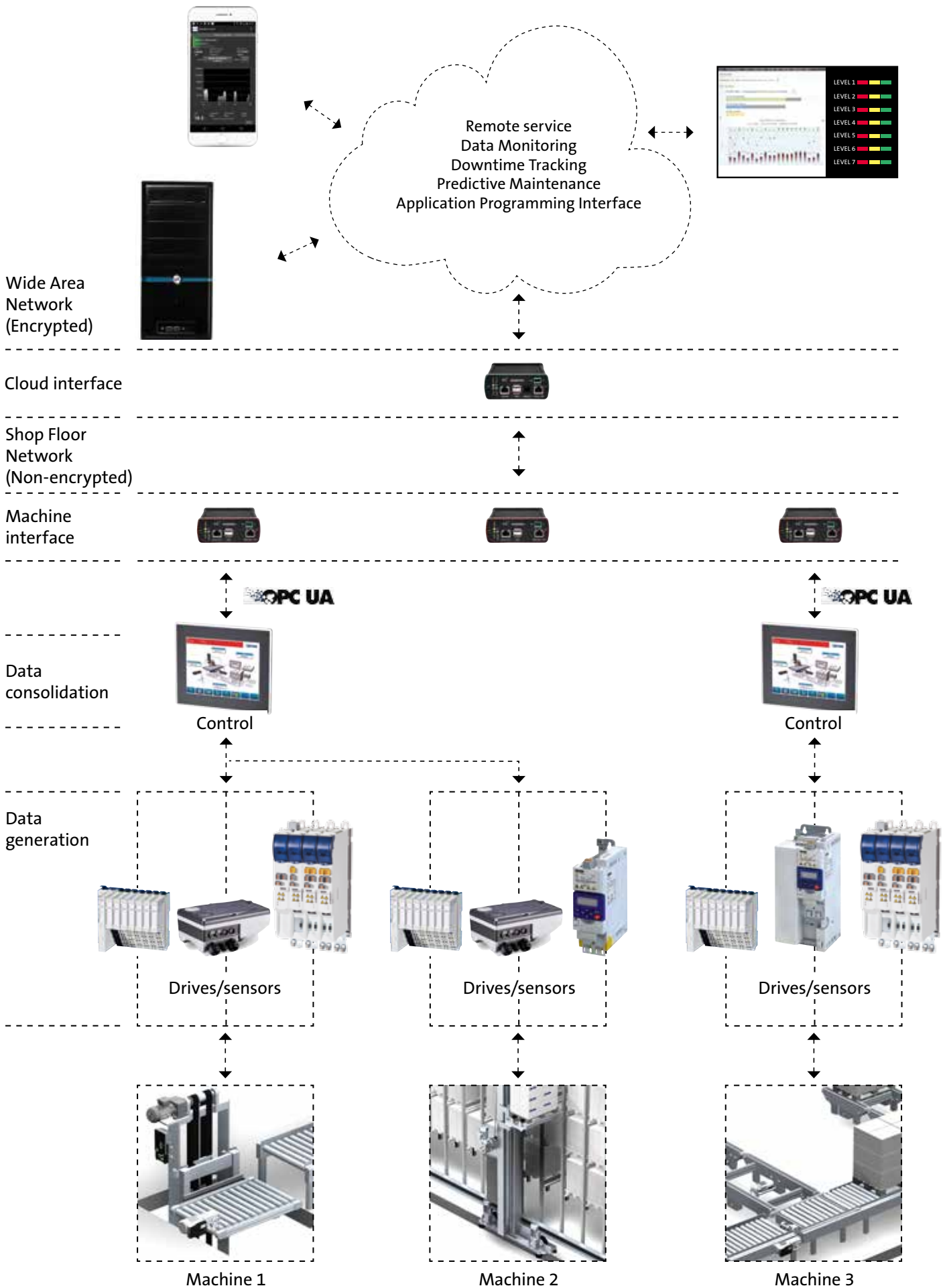
Remote maintenance

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

Predictive maintenance/

Digital services

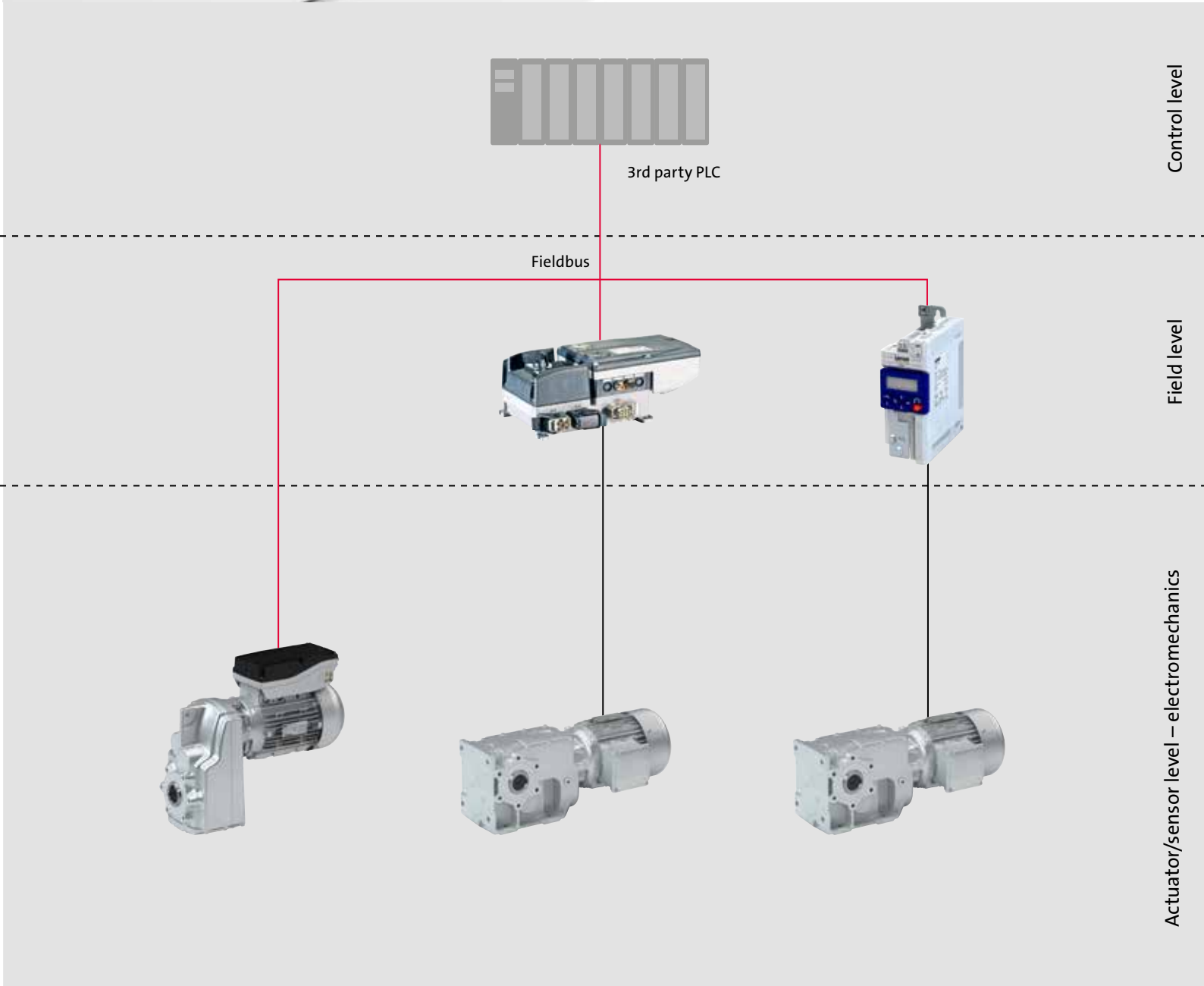
- Predictive detection of potential faults on the basis of the "cloud data"
- “Big data” as the basis for advisory services for production optimisation by the OEM



Mobile racking: More storage space in a very small area.

- Soft starting and braking with adjustable ramps mean less strain and stress on material and goods being transported, while simultaneously reducing the amount and cost of maintenance work needed
- Flexible installation concepts due to decentralised and central drive technology
- Highly efficient drive technology with multiple overload capacity
- Reduced energy consumption due to savings during idling and partial-load operation as well as due to use of the "VFC eco" energy saving function
- High degree of reliability due to 70 years experience in the area of materials handling technology

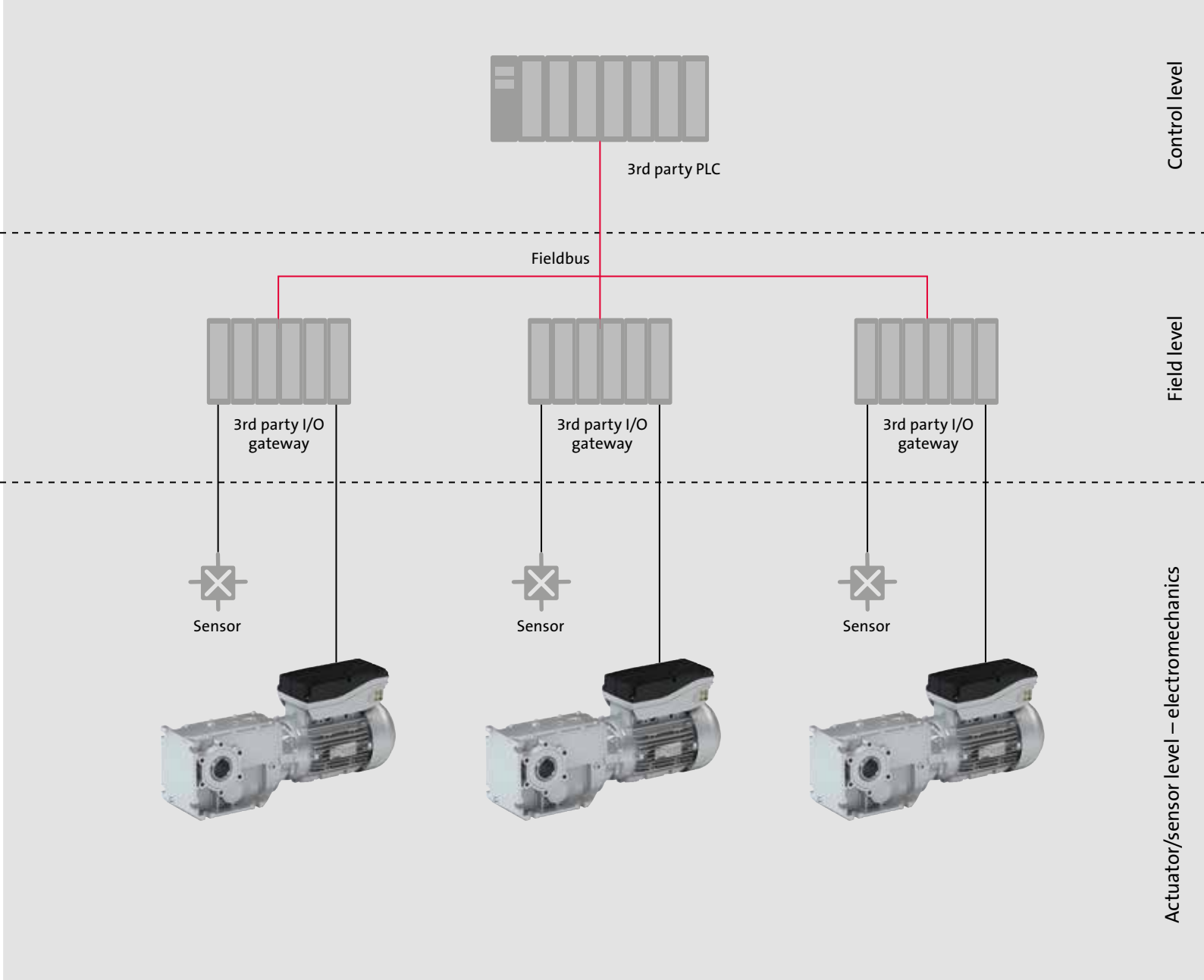
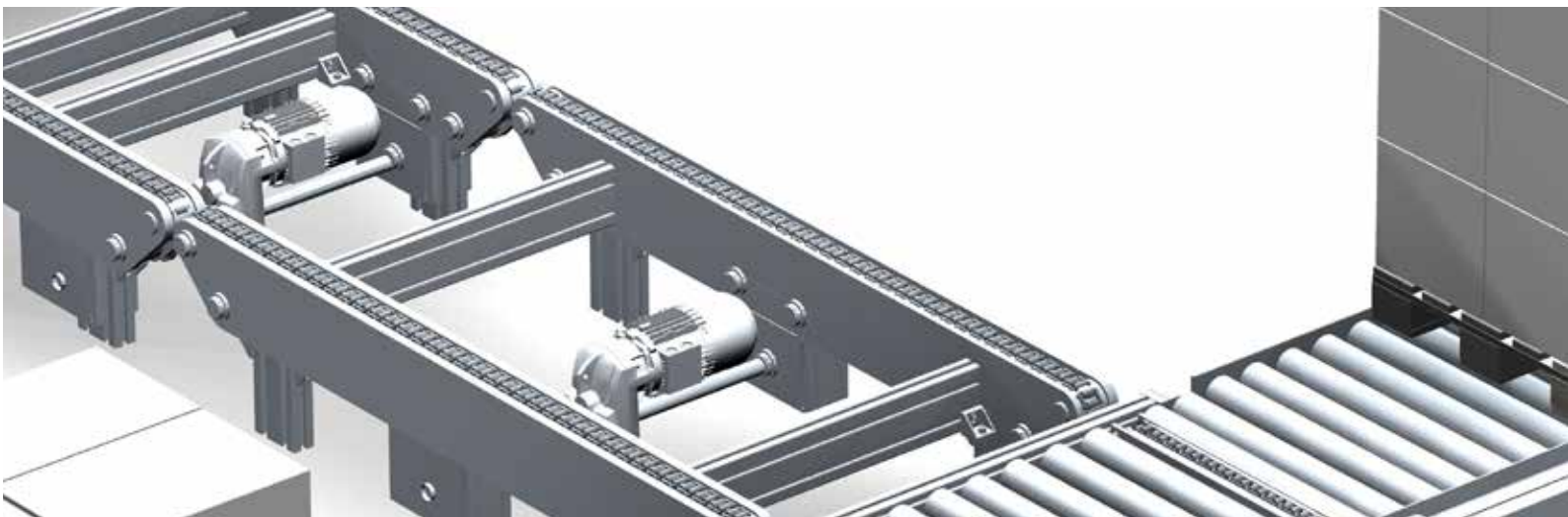




Belt, roller and chain conveyors: efficiency in motion.

- Simple and efficient decentralised drive solution for variable and fast conveying speeds of horizontal material handling systems
- High degree of reliability due to 70 years experience in the area of material handling technology
- Reduced energy consumption due to savings during idling and partial-load operation as well as due to use of the "VFC eco" energy saving function
- Soft starting and braking with adjustable ramps mean less strain and stress on material and goods being transported, while simultaneously reducing the amount and cost of maintenance work needed
- Minimal installation and wiring complexity due to decentralised drive concept
- Compact drive solution for constant speeds, even in the case of heavy load

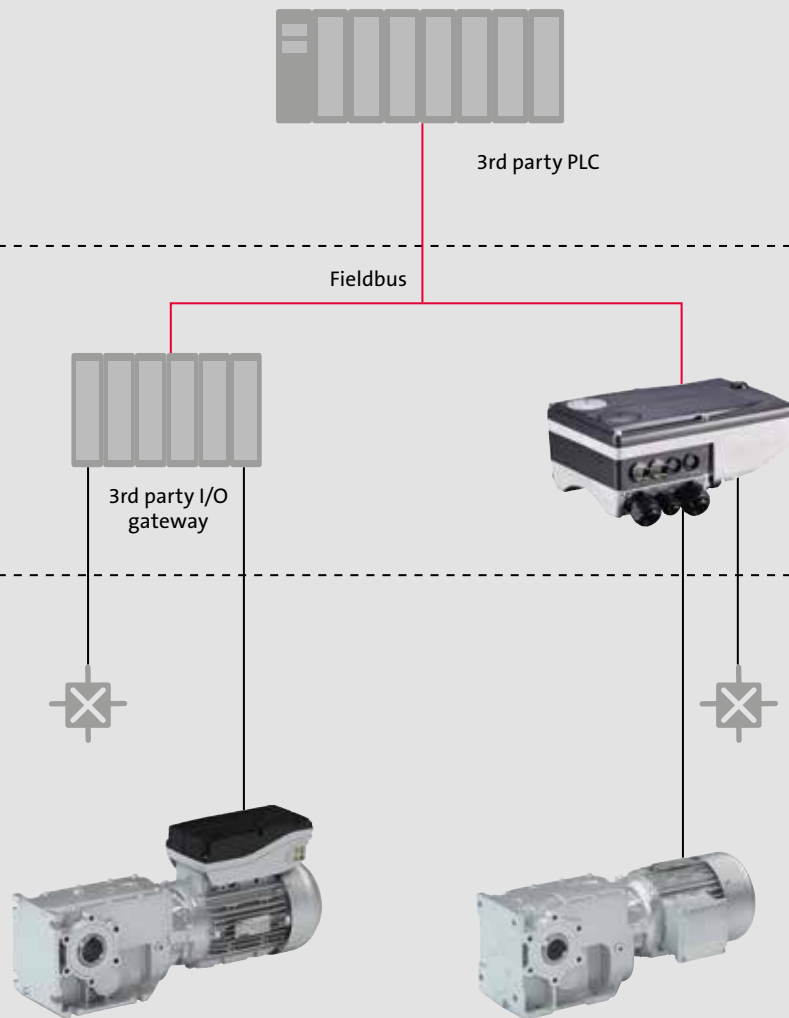
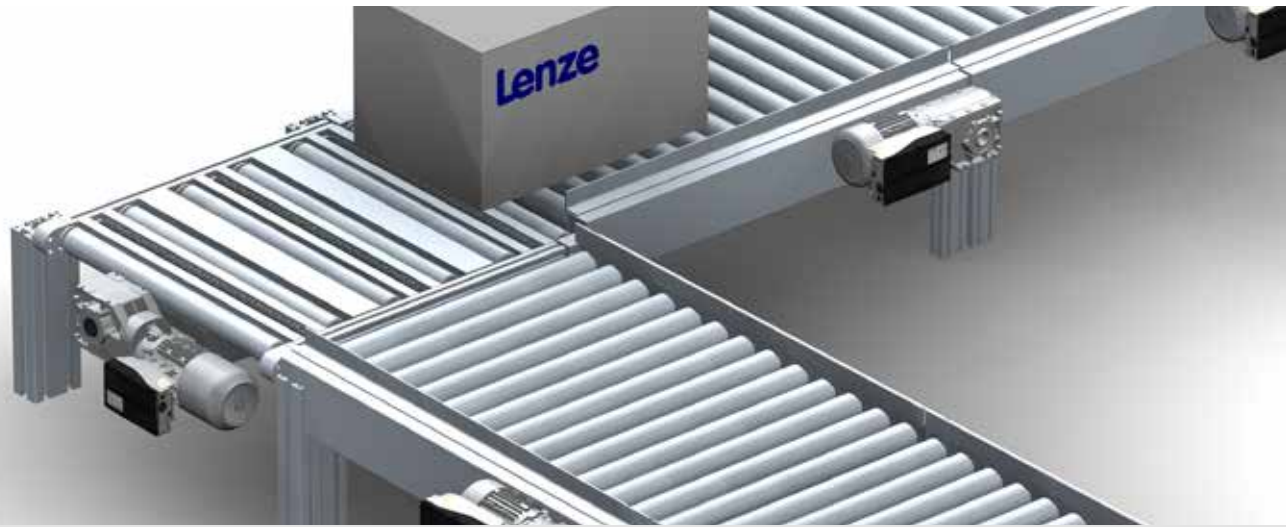




Corner transfer conveyors: successfully changing the direction.

- Compact drive solution for constant speeds, even in the case of heavy load
- Soft starting and braking with adjustable ramps mean less strain and stress on material and goods being transported, while simultaneously reducing the amount and cost of maintenance work needed.
- Minimal installation and wiring complexity due to decentralised drive concept
- High degree of reliability due to 70 years experience in the area of materials handling technology
- Reduced energy consumption due to savings during idling and partial-load operation as well as due to use of the "VFC eco" energy saving function

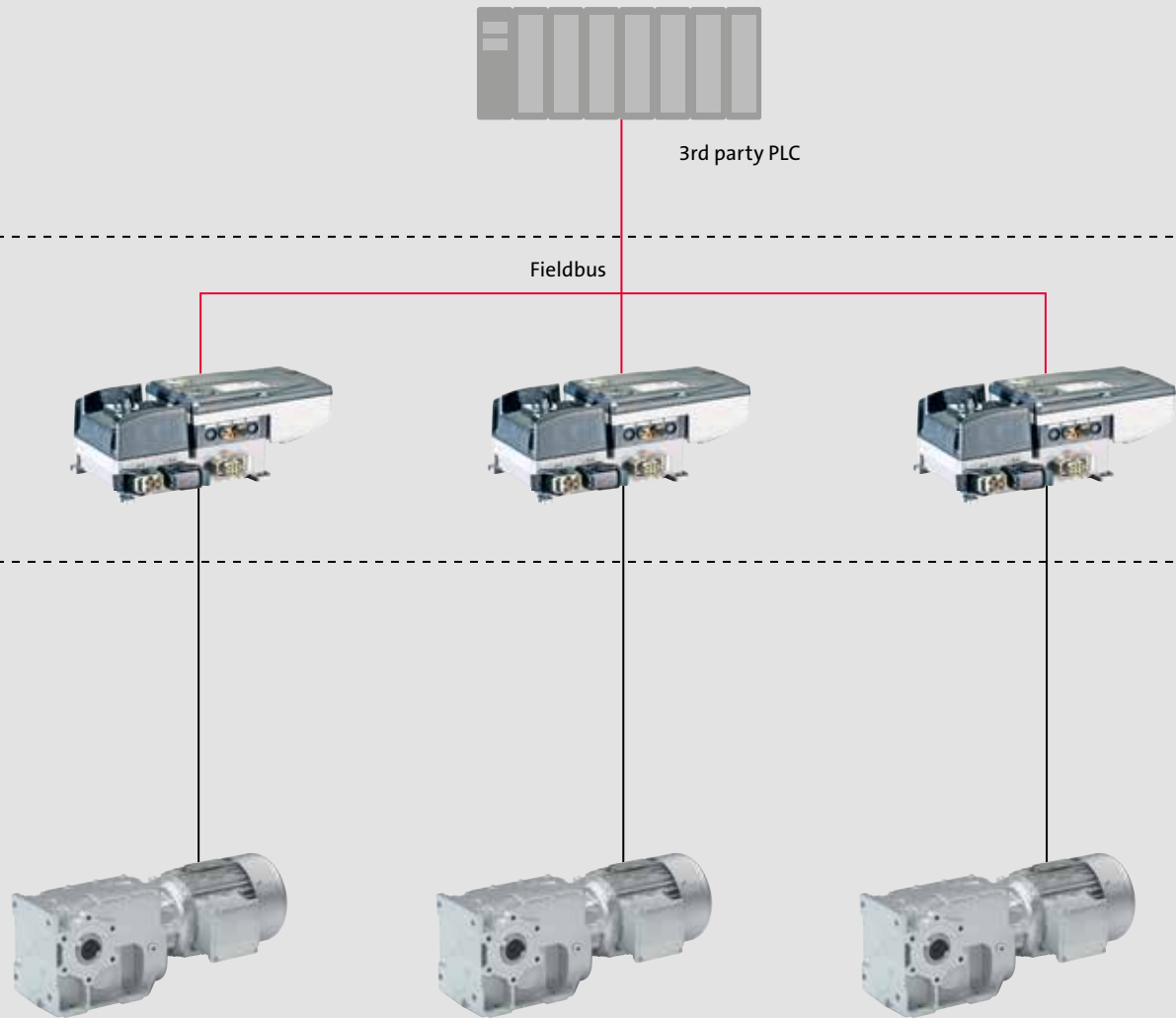
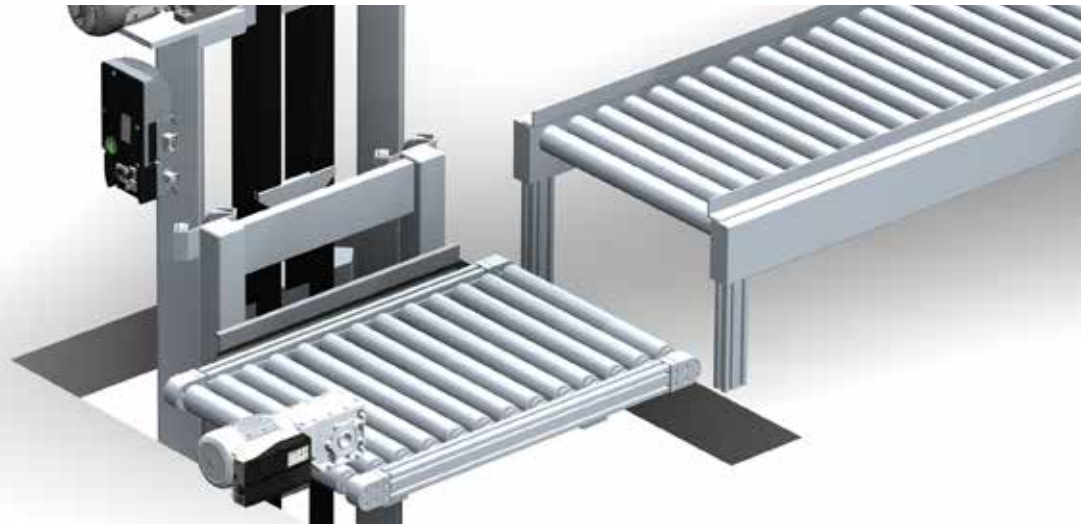




Lifting stations: for the strictest requirements.

- High degree of reliability where great heights have to be overcome thanks to low-wear brake management
- As the load is held in position at a standstill, the brake is not applied and there is therefore less stress on the material
- Fast and easy replacement during maintenance thanks to pluggable technology
- Reduced energy consumption due to power recovery in the case of very large heights





Control level

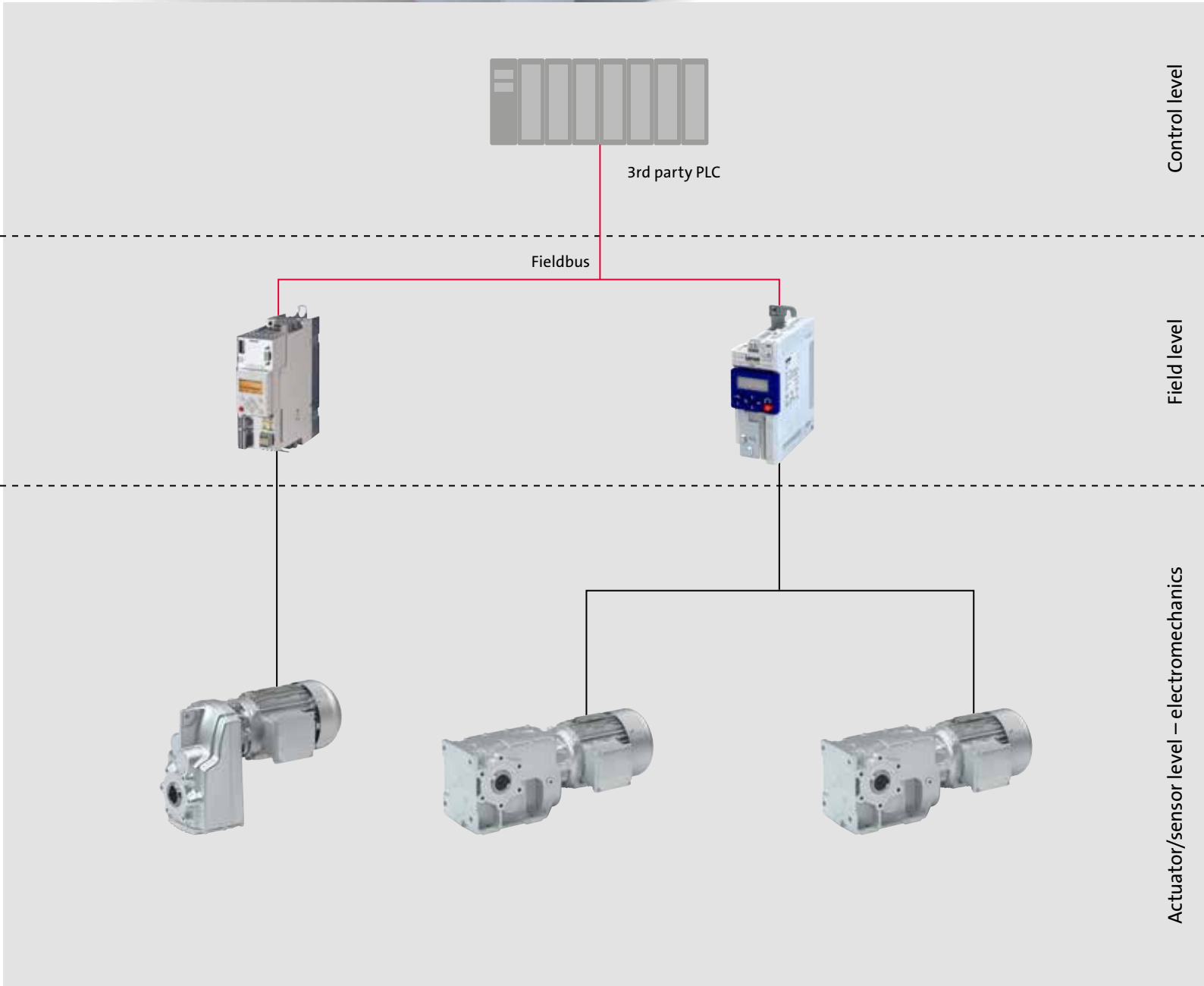
Field level

Actuator/sensor level – electromechanics

Carousel storage system: optimum use made of storage space.

- High degree of warehouse availability due to efficient automation solutions with tried-and-tested technology
- High degree of reliability due to 70 years experience in the area of drive technology
- Highly efficient drive technology with multiple overload capacity and reduced energy consumption due to highly efficient gearboxes
- Reduced energy consumption due to savings during idling and partial-load operation as well as due to use of the "VFC eco" energy saving function

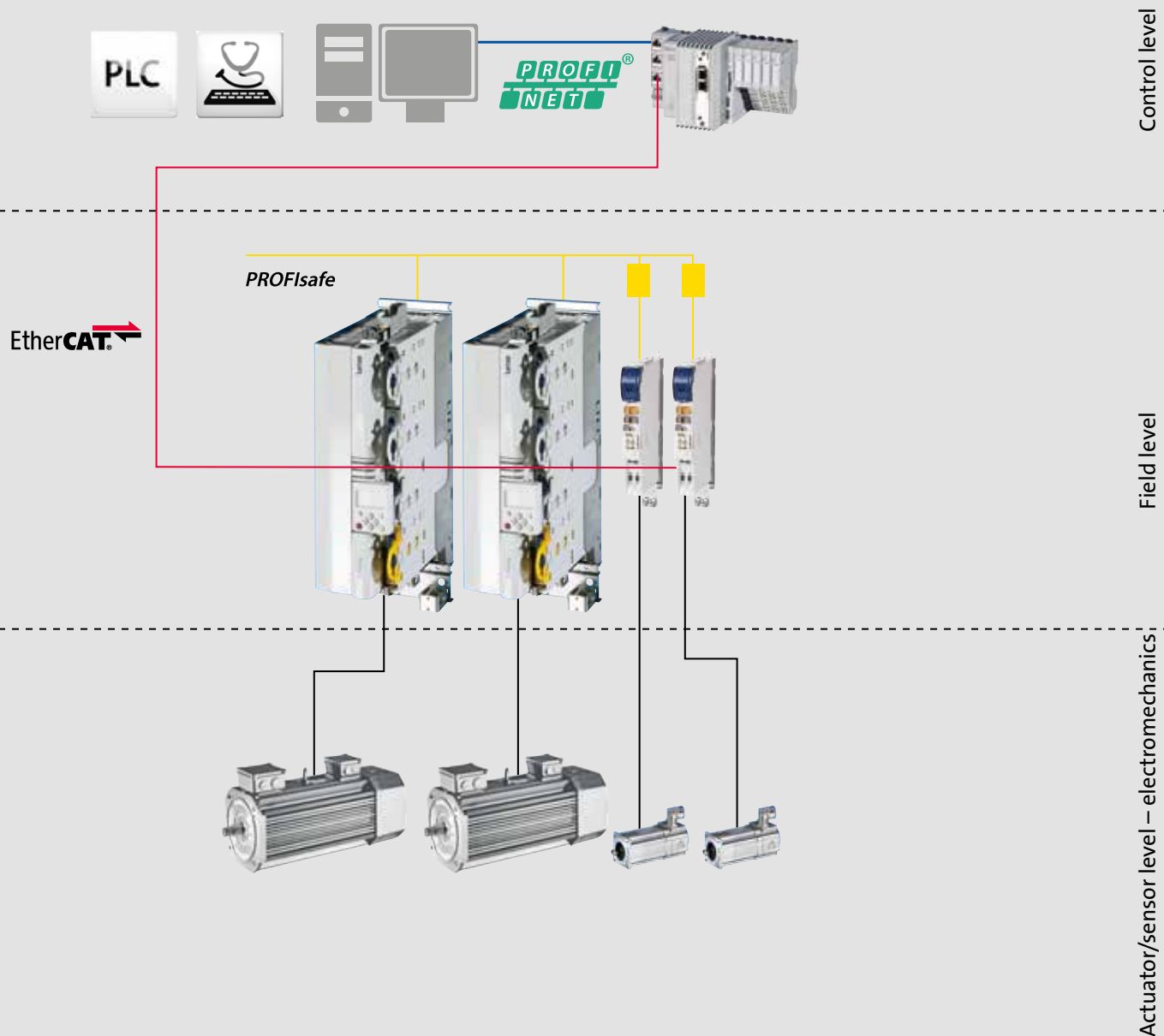




Storage and retrieval unit: highly automated warehouse worker

- Complete solution package for advanced storage and retrieval units of the next generation
- Easy commissioning due to ready-made technology functions
- More available storage capacity due to reduction of buffer zones
- High degree of availability due to decades-long experience with storage and retrieval units
- Reduced energy consumption due to DC bus connection of travelling drive and lifting drive
- Regenerative modules for optimum energy balances





Efficient in all respects.

Energy-efficient with Lenze BlueGreen 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

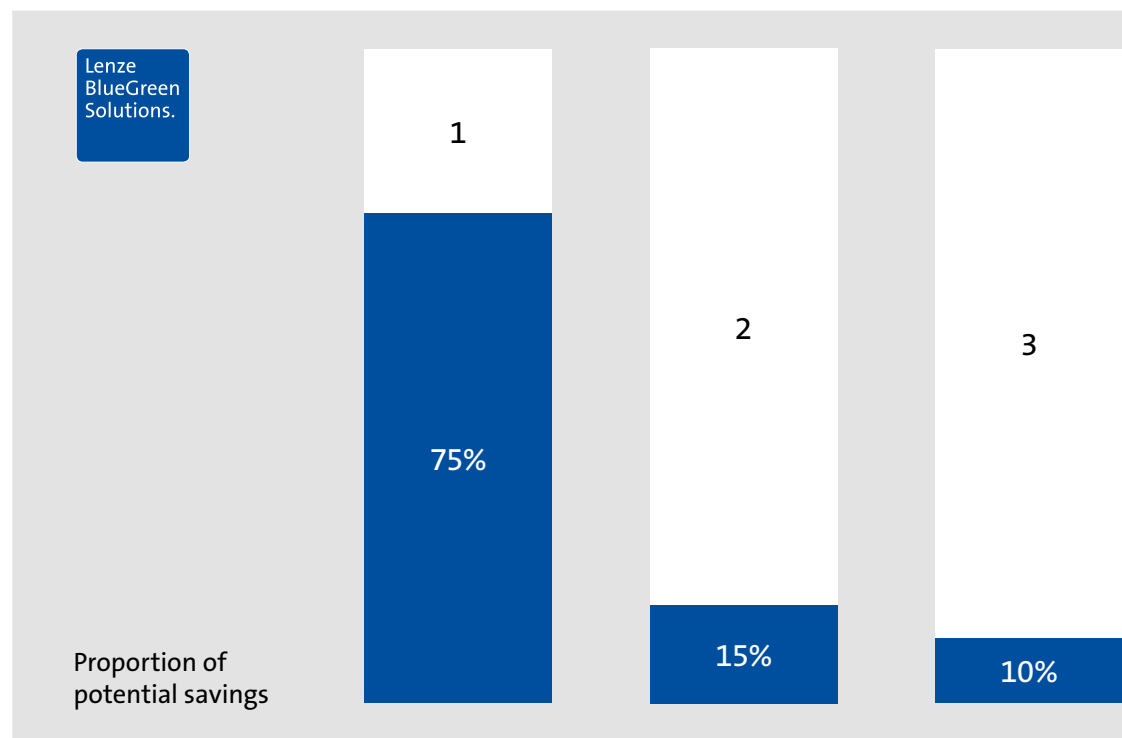
- Needs-based dimensioning
Controlled operation (frequency inverter)
- Energy-efficient motion control

2. Converting energy with a high degree of efficiency

- Components with a high degree of efficiency (motors, gearboxes)

3. Using regenerative braking energy

- Energy exchange between several drives
- Temporary storage of braking energy
- Regeneration of braking energy and potential energy

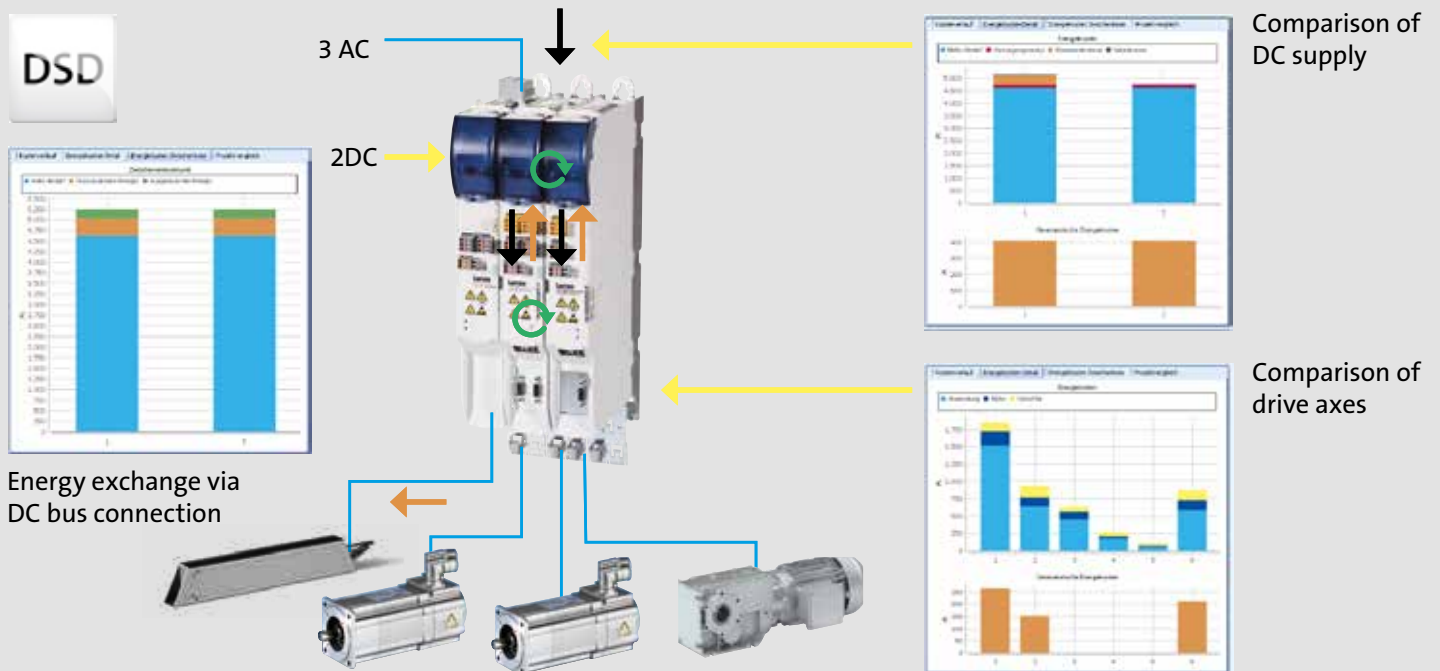


Efficient drive sizing with Drive Solution Designer (DSD)

Intelligent drive design is the basis for a drive system that has the right components, is exactly dimensioned and is therefore as small as possible. Thanks to DSD, the energy saving potential is apparent at a glance and is documented in the Energy Performance Certificate. It is also easy to comprehensibly compare different solutions.

The reason is that DSD incorporates a great deal of useful systems-design knowledge – with solidly based drive-applications know-how in areas such as drive physics, variants and energy efficiency. Drive design is based on calculations with individual process data and on speed profiles, and takes into account the complete drive structure for the requirements of the machine in question.

In our DSD training course, we will be happy to tell you more about how easy it is to use this engineering tool.



A powerful performance in any situation.

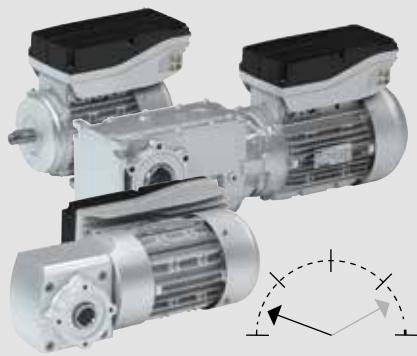
In order to do justice to the special requirements involved in warehouse logistics, you can place your trust in our drive design know-how accumulated over many years and also in our adapted and coherent product portfolio. This is the basis for a robust solution that has been adapted to the conditions of the respective plant location.

As a result, it is possible to react to power failures due to unstable power grids without any damage being done to the equipment.

Ready for anything:

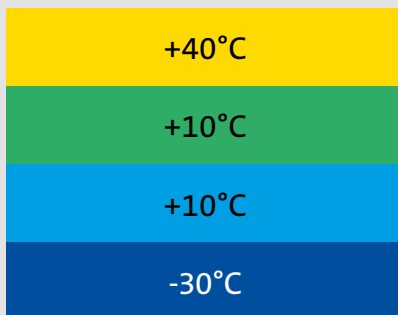
- Well thought-out systems enable device replacement during ongoing operation
- Products for low-noise use
- The scalability of the products considerably reduces the variety of devices needed
- Weight reduction due to the use of light-metal materials
- Suitable for special ambient conditions, e.g. deep-frozen goods temperatures





Reducing the number of different drive versions with ease

- Quadruple overload capacity
- Decentralised drive solutions
- Reduction of the variety of devices by up to 70 %
- Reduced stocks
- Parameterisation by means of NFC



Prepared for special ambient conditions

- Optimum corrosion protection in the fresh-goods temperature range of 0 to + 10°C
- Rust-free design
- OKS-L paints
- Special torque reserve and adaptations of the gearbox oil and the seals in the deep-frozen goods range of 0 to -30°C



Fast and easy replacement during maintenance

- Aluminium gearbox instead of heavy grey cast iron gearbox
- Pluggable connection system
- Parameterisation by means of NFC
- Connection dimensions usual in industry



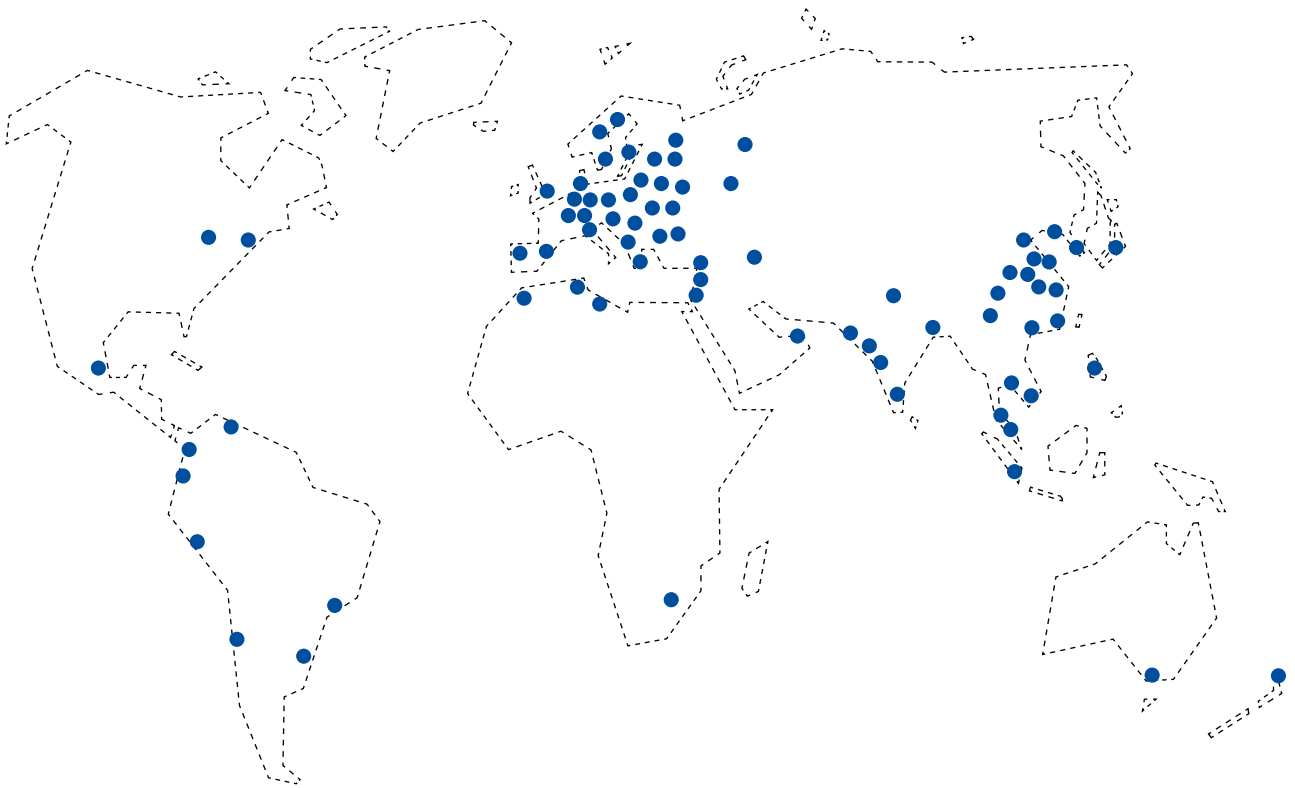
Needs-based drive design with Drive Solution Designer (DSD)

- In-depth knowledge about drive applications such as drive physics, variants and energy efficiency
- Calculations with individually applicable process data and speed profiles
- Complete drive structure for all of the machine's requirements
- Energy Performance Certificate makes savings potential visible at a glance

Worldwide service for the requirements of warehouse logistics.

Productivity, reliability and new peak levels of performance every day – these are our decisive success factors for your system. We offer individually and thoroughly thought-out service concepts for permanently safe and reliable operation. The focus here is on

our service modules combined with competent support based on the excellent application know-how of our experienced specialists. 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 exactly. Working with you closely, we create the basis for suitable measures. For example, we uncover weak points or risks and find value performance reserves. One thing is certain: With us, your machine is in the very best hands.

Lenze prevention

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 good things even 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 service

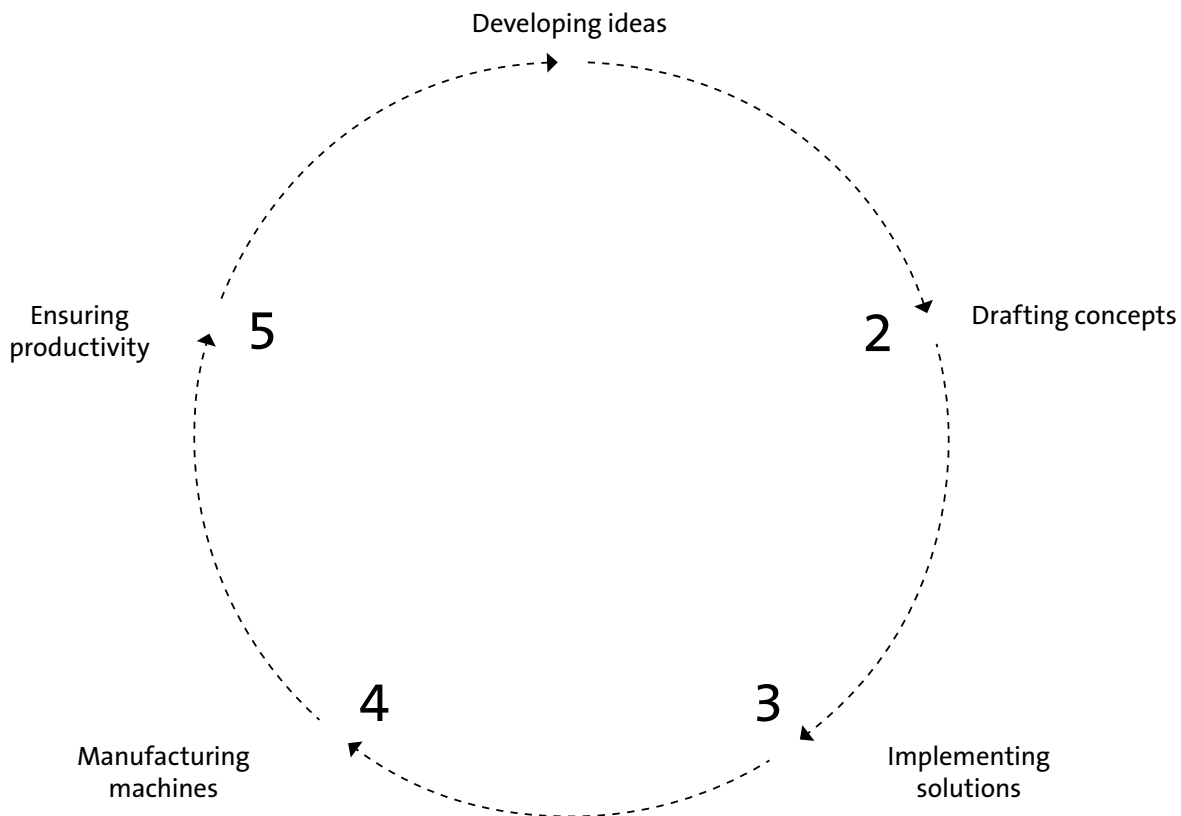
Perfectly equipped to handle any challenge.

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 always work with you closely to find the very best solution. We set your ideas in motion with great enthusiasm and an eye for what works. Irrespective of whether you want to improve existing equipment or develop a

completely new machine or application for overall warehouse logistics systems. 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.





www.Lenze.com

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