

Together  
we develop  
solutions.

# 1

## **Developing ideas**

You want to build the best machine possible and already have some initial ideas? Then get these down on paper together with us, starting with small, yet detailed innovative steps and going all the way to completely new machines. Working together, we will develop an intelligent and sustainable concept that is perfectly aligned with your specific requirements.

# 2

## **Drafting concepts**

We see welcome challenges in your machine tasks, supporting you with our comprehensive expertise and providing valuable impetus for your innovations. We take a holistic view of the individual motion and control functions here and draw up consistent, end-to-end drive and automation solutions for you - keeping everything as easy as possible and as extensive as necessary.

# Lenze makes many things easy for you.

With our motivated and committed approach, we work together with you to create the best possible solution and set your ideas in motion - whether you are looking to optimise an existing machine or develop a new one. 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. It's as easy as that!

3

## Implementing solutions

Our easy formula for satisfied customers is to establish an active partnership with fast decision-making processes and an individually tailored offer. We have been using this simple principle to meet the ever more specialised customer requirements in the field of mechanical engineering for many years.

4

## Manufacturing machines

Functional diversity in perfect harmony: as one of the few full-range providers in the market, we can provide you with precisely those products that you actually need for any machine task – no more and no less. Our L-force product portfolio, a consistent platform for implementing drive and automation tasks, is invaluable in this regard.

5

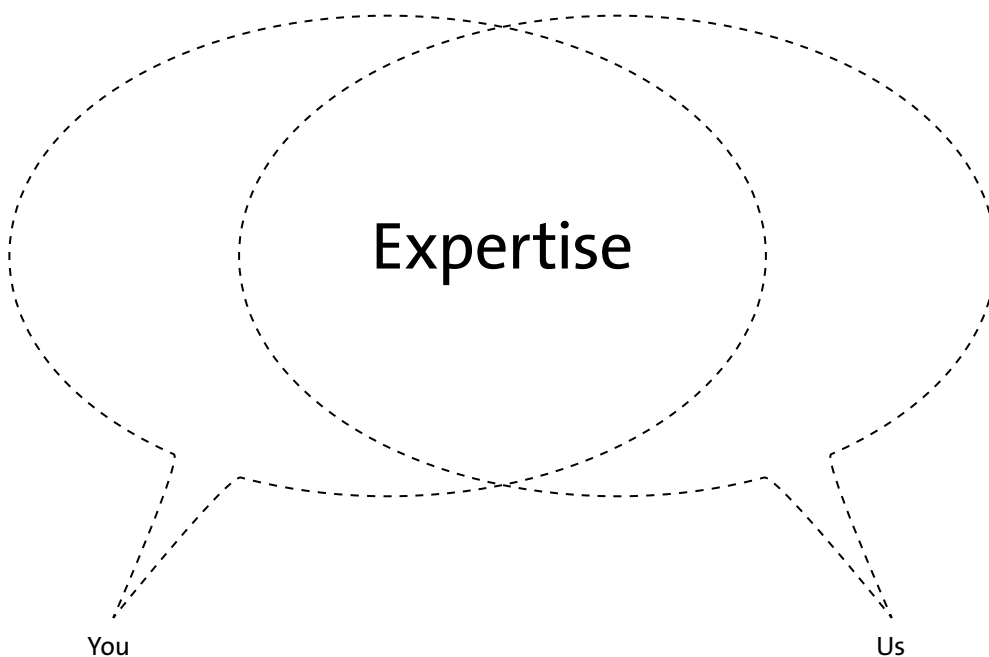
## Ensuring productivity


Productivity, reliability and new performance peaks on a daily basis – these are our key success factors for your machine. After delivery, we offer you cleverly devised service concepts to ensure continued safe operation. The primary focus here is on technical support, based on the excellent application expertise of our highly skilled and knowledgeable aftersales team.

A unique  
range of  
functions for  
your machine  
tasks.

Are you looking to implement modern machine or system concepts or modernise existing installations? With comprehensive, cross-the-board advice and innovative software, we are on hand to support you in all of your product selection decisions, as well as all issues relating to energy efficient drive dimensioning, project planning and

commissioning. These services help ensure that you get the right drive solution and a lean process throughout your value-added chain. Over the next few pages we present some options for precisely tailored implementation of your machine tasks on the basis of 12 defined drive solutions. It's as easy as that!



A blurred industrial scene, likely a factory or manufacturing plant, with a white text box overlaid on the right side. The background shows machinery, pipes, and a sign with the number '15 000'. The text in the box reads: 

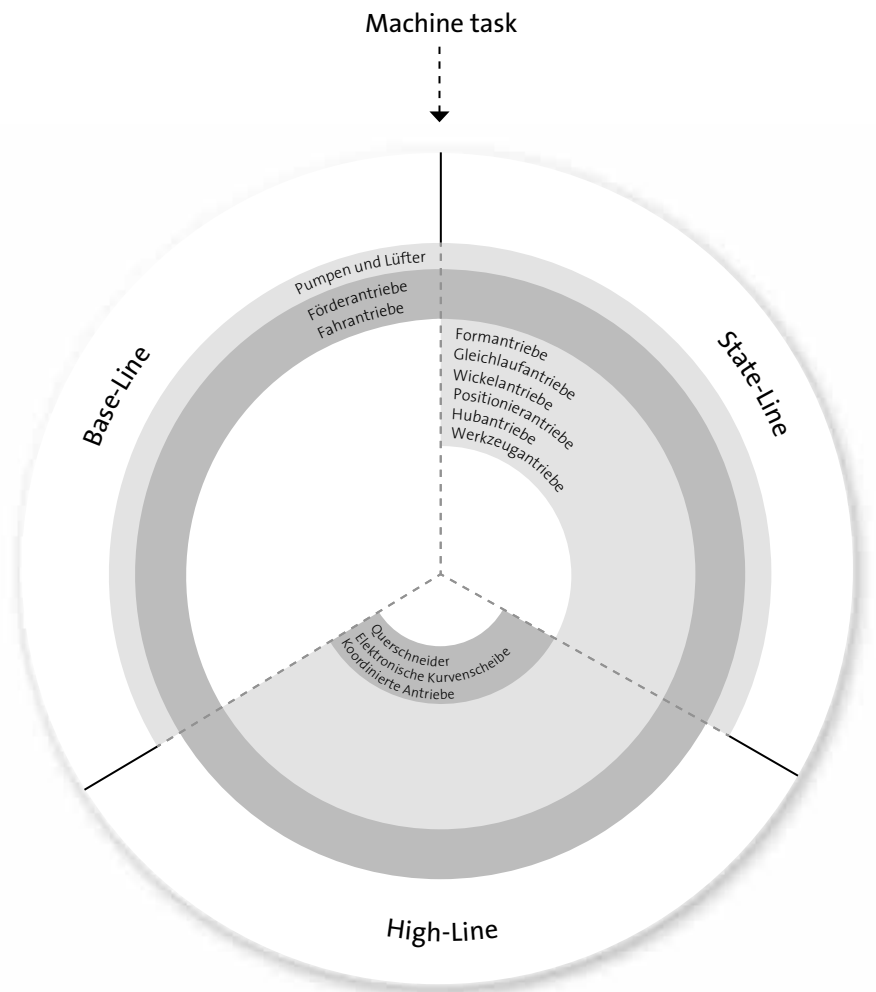
**12 drive  
solutions  
for all  
requirements.**

With our extensive L-force product portfolio, we can offer you all the automation products and drives you require to implement your machine tasks. This leads to energy-efficient drive solutions – which we call "BlueGreen Solutions". This approach will help you find the right drive quickly, with scaling based on what is required of the drive:

**For basic tasks:**  
**Base-Line.**

**For more comprehensive tasks:**  
**State-Line.**

**For the most sophisticated tasks with the highest precision and greatest dynamic performance:**  
**High-Line.**



# Easy solutions for all systems: conveyor drives.

If you have material that you need to transport and sort, you require reliable conveyor drives. These drives are a key component of warehouse and logistics systems and between the various processing stations of a manufacturing system. For example when conveying general products inverters adapt the speeds dynamically to the flow of goods. With bulk materials, on the other hand, constant speeds are achieved by using geared motors.

## Typical applications

- Roller conveyors
- Belt conveyors
- Screw conveyors
- Ejectors
- Circular conveyors

## Our product recommendations for your machine tasks.

### Base-Line tasks

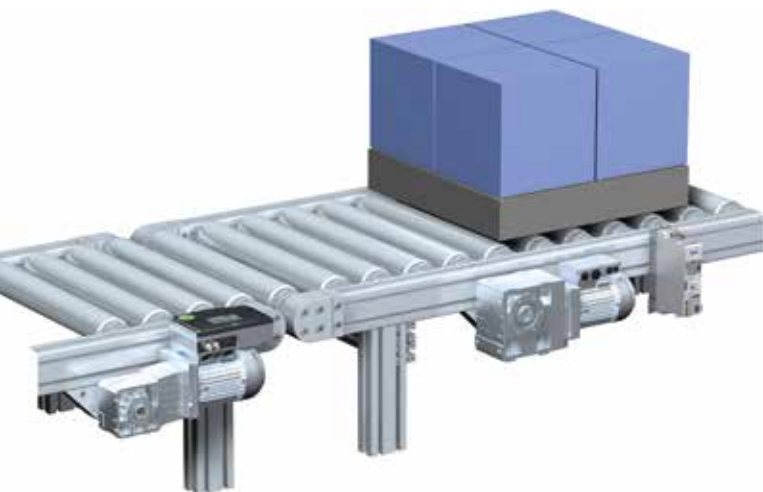
- Standard three-phase AC motors MD, MF or MH with gearbox and brake
- Inverter Drives 8400 motec, Inverter Drives 8400 BaseLine or Inverter Drives smd

### State-Line tasks

- Standard three-phase AC motors MD or MH with gearbox and brake
- Inverter Drives SMV IP65
- Inverter Drives 8400 StateLine, HighLine, motec and 8400 protec

### High-Line tasks

- SDSGS, MCS or MDXKS synchronous servo motors with gearbox, with or without brake
- Servo-Inverter i700 for multi-axis applications, Servo Drives ECS for multi-axis applications or Inverter Drives 8400 TopLine or Servo Drives 9400





# Flexibility on track: travelling drives.

With travelling drives, you are perfectly equipped for tasks such as moving payloads from one station to another. This transport often takes the form of vehicles, which travel either on a horizontal or inclined level.

## Typical applications

- Rail vehicles or trolleys
- Overhead and gantry cranes
- Monorail overhead conveyors
- Storage and retrieval units
- Automated guided vehicle systems

## Our product recommendations for your machine tasks.

### Base-Line tasks

- Standard three-phase AC motors MD, MF or MH with gearbox and brake
- Inverter Drives smd
- Inverter Drives 8400 motec or Inverter Drives 8400 BaseLine

### State-Line tasks

- Standard three-phase AC motors MD or MH with gearbox and brake
- GKK range of gearboxes with integrated disconnect clutch
- Inverter Drives 8400 StateLine or HighLine (optional with safety engineering)
- Inverter Drives SMV IP65,
- Inverter Drives 8400 motec and 8400 protec

### High-Line tasks

- SDSGA, MCA or MQA asynchronous geared servo motors with gearbox and brake
- Inverter Drives 8400 protec EMS – specifically for electric monorail systems
- Servo Drives 9400 with integrated positioning control and optional safety functionality



# Fresh air as a driving force: pumps and fans.

Pumps and fans ensure efficient performance in any applications that involve transport and/or compression of liquid and gaseous substances. There are two basic operating principles here. Pistons and gear pumps or axial-flow fans work according to the principle of displacement, while centrifugal pumps and radial-flow fans operate with centrifugal force.

## Typical applications

- Water supply
- Compressed air generation
- Fans for industrial machining processes
- Sewage and waste water treatment technology
- Refrigerating machines
- Vacuum pumps

## Our product recommendations for your machine tasks.

### Base-Line tasks

- MD or MH standard three-phase AC motors
- Inverter Drives 8400 motec, Inverter Drives 8400 Baseline or Inverter Drives smd

### State-Line tasks

- MD or MH standard three-phase AC motors
- Inverter Drives 8400 Stateline or Inverter Drives SMV IP 31
- Inverter Drives SMV IP65 or 8400 protec



# Form follows function – and vice versa: forming drives.

Shaper drives are used wherever workpieces are created or brought into their final shape from raw materials. Benefit from our scalable products for the wide range of different forming processes. These products operate either continuously or cyclically, depending on the respective requirements in each case.

## Typical applications

- Extruders
- Presses
- Shakers
- Deep-drawing machines
- Chamfering of metal workpieces

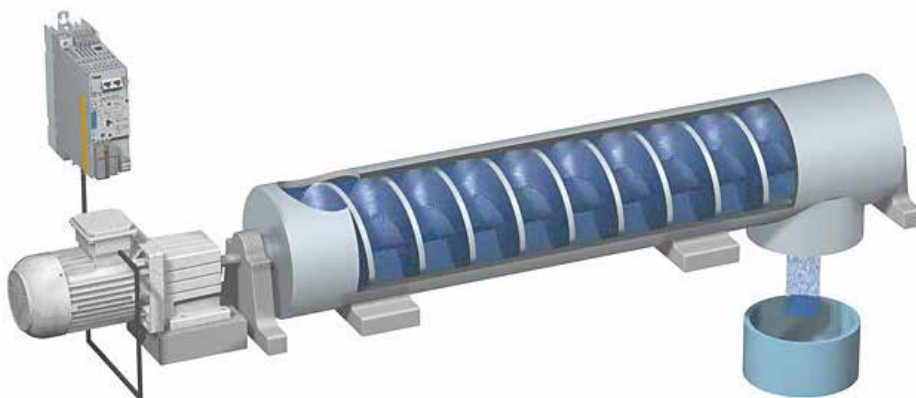
## Our product recommendations for your machine tasks.

### State-Line tasks

- all synchronous and asynchronous motors, possibly combined with gearboxes
- Inverter Drives 8400 TopLine or Servo Drives 9400

### High-Line tasks

- all synchronous and asynchronous motors with high-resolution resolver, possibly combined with gearboxes or as direct drives
- Servo-Inverter i700 for multi-axis applications, Servo Drives ECS or Servo Drives 9400 in a multi-axis system with central mains supply



# Create flow processes with ease: synchronised drives.

Synchronous drives are the most common choice for processing continuous materials. They are perfect for manufacturing, transporting, processing or finishing materials such as paper, film, textile yarn and webs, sheet metal or wires.

## Typical applications

- Rolling, extruding, stretching or coating systems
- Transporting and positioning continuous material
- Calenders
- Printing units with single drives

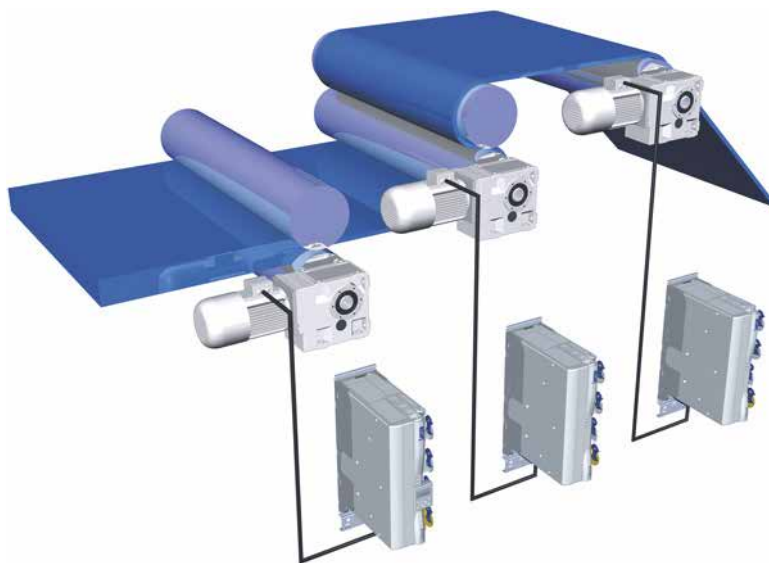
## Our product recommendations for your machine tasks.

### State-Line tasks

- standard three-phase AC motors MD, MF or MH with resolver, possibly combined with gearboxes
- Inverter Drives 8400 HighLine
- Inverter Drives SMV
- Inverter Drives 8400 motec or 8400 protec

### High-Line tasks

- standard three-phase AC motors MD, MF or MH with high-resolution resolver
- Inverter Drives 8400 TopLine or Servo Drives 9400 with integrated drive function for “electronic gearbox”



# Perfect tension in your machine processes: winding drives.

If you have to process continuous material, you will know that winding and unwinding the material is of key importance in securing a smooth and reliable process. Winding drives are the perfect solution for unwinding material stored on reels for a specific process and then winding it back up again once this process is complete – the synchronised drives are positioned between these two stations.

## Typical tasks

- Winding devices for textiles, films, paper and sheet metal
- Printing machines
- Packaging machines
- Continuous processing and finishing operations

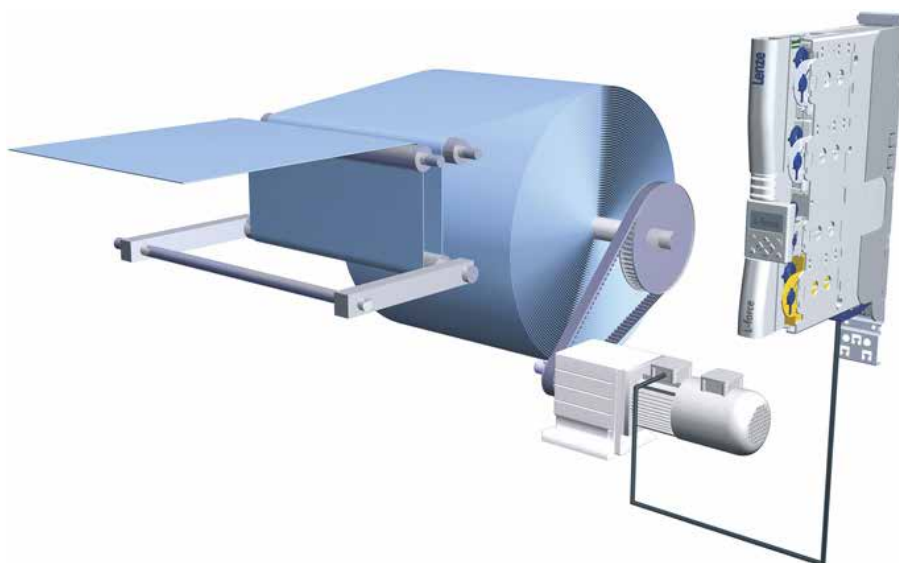
## Our product recommendations for your machine tasks.

### State-Line tasks

- standard three-phase AC motors MD, MF or MH with resolver, possibly combined with gearboxes
- Inverter Drives 8400 HighLine

### High-Line tasks

- standard three-phase AC motors MD, MF or MH with high-resolution resolver
- SDSGA, MCA or MQA asynchronous motors with high-resolution resolver, possibly combined with gearboxes or as direct drives
- Inverter Drives 8400 TopLine or Servo Drives 9400



# Aiming for precision: positioning drives.

Do you need to move goods, workpieces or tools to precisely defined target positions? Positioning drives are ideally suited to this, operating either on a rotary or linear basis to move products towards their target position and guide moveable machine parts to a defined target location based on your requirements.

## Typical applications

- Automatic assembly machines
- Rotary indexing tables
- Adjusting limit stops in production machines
- Travelling and hoist drives, e.g. in storage and retrieval units
- Tool changers

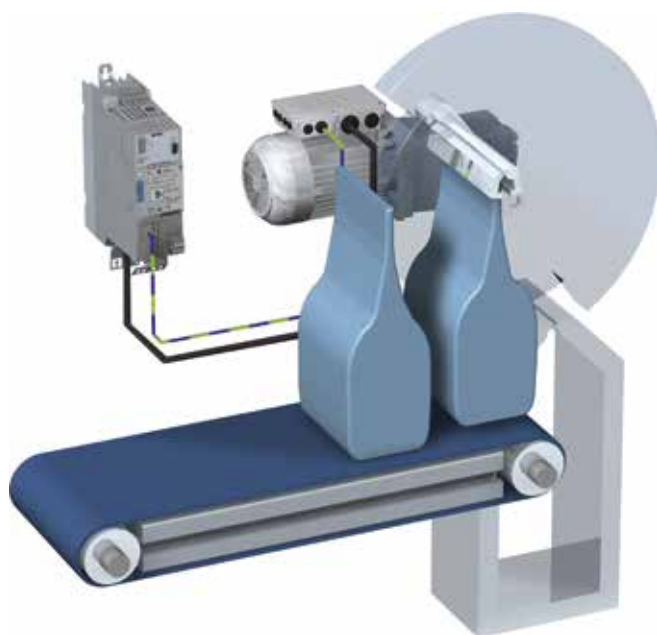
## Our product recommendations for your machine tasks.

### State-Line tasks

- Standard three-phase AC motors MD, MF or MH with gearbox in the motor
- Inverter Drives 8400 HighLine with integrated positioning control
- Inverter Drives 8400 protec with integrated positioning control

### High-Line tasks

- all synchronous and asynchronous motors with or without brake
- Servo-Inverter i700 for multi-axis applications, Servo Drives ECS or Servo Drives 9400 with integrated positioning control



# For high targets: hoist drives.

Hoist drives are used whenever loads need to be raised and lowered. They securely maintain the specified positions, which are controlled using a limit switch or via sensors.

#### Typical tasks

- Goods elevators
- Crane systems and winches
- Hoists in storage and retrieval units
- Hoisting stations and scissor lift tables

#### Our product recommendations for your machine tasks.

##### State-Line tasks

- Standard asynchronous motors MD or MH with gearbox and brake
- Inverter Drives 8400 motec or 8400 protec
- Inverter Drives 8400 HighLine with integrated brake logic and optional safety engineering

##### High-Line tasks

- SDSGA, MCA or MQA asynchronous geared servo motors with brake
- Inverter Drives 8400 TopLine or Servo Drives 9400 with integrated positioning control



# Ideally equipped for efficient processes: tool drives.

A tool drive determines the speed of a tool and thereby provides the necessary machining power. Whether your processes require material cutting or material machining operations, our extremely reliable drives will provide you with the results you are looking for.

## Typical applications

- Machining centres
- Milling, drilling, turning and sawing machines
- Polishing and grinding machines

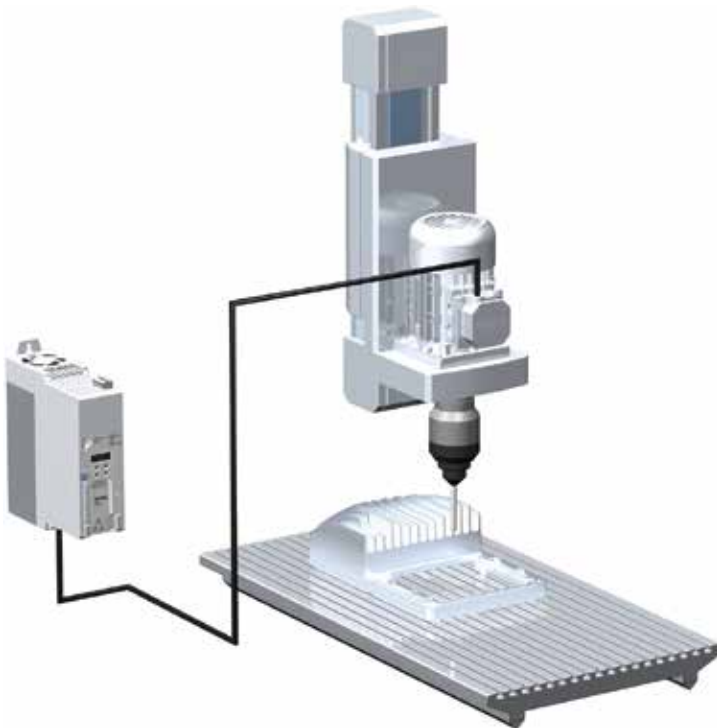
## Our product recommendations for your machine tasks.

### State-Line tasks

- Standard three-phase AC motors MD, MF or MH without resolver as direct drives or combined with gearboxes
- Inverter Drives 8400 StateLine or HighLine
- Inverter Drives SMV IP65, Inverter Drives 8400 motec or 8400 protec

### High-Line tasks

- Three-phase asynchronous motors MD, MF or MH or asynchronous servo geared motors with resolver
- Inverter Drives 8400 TopLine with phase-angle encoder
- Servo Drives 9400





# All axes in motion together: coordinated drives.

Coordinated drives, such as handling systems, offer you a great deal of flexibility. They are used to move goods, workpieces or tools on defined tracks or freely within a space. These drives are capable of implementing complex motion sequences.

## Typical applications

- Six-axis articulated robots
- SCARA robots
- Gantry systems and linear X-Y-Z-axis systems
- Parallel kinematics, e.g. hexapods
- Automatic assembly machines

## Our product recommendations for your machine tasks.

### High-Line tasks

- Synchronous and asynchronous motors from the MCS, MDXKS and MCA series with high-resolution resolver as an angle encoder and brake, possible combined with low backlash planetary gearboxes from the GPA series
- Servo-Inverter i700 for multi-axis applications, Servo Drives ECS and Servo Drives 9400 as multi-axis system with central mains supply
- Inverter Drives 8400 motec or 8400 protec



# Fully dynamic motion: electronic cams.

Increased productivity and greater dynamic performance for all non-linear movements can be achieved using an electronic cam. It converts linear position information into cam-shaped motion profiles via a path-controlled profile generator. This allows you to implement smooth, low-impact motions which are gentle both on workpieces and the equipment used to process them.

## Typical applications

- Packaging machines
- Bag form, fill, and seal machines
- Automatic assembly machines
- Bookbinding machines
- Wood working machines
- Textile machines

## Our product recommendations for your machine tasks.

### High-Line tasks

- standard three-phase AC motors MD, MF or MH with high-resolution resolver
- all synchronous and asynchronous motors with high-resolution resolver, possibly combined with gearboxes or as direct drives
- Inverter Drives 8400 TopLine
- Servo Drives 9400 in a multi-axis system with central mains supply



# Rhythm in motion: cross cutters and flying saws.

You can achieve the right cycle speed for continuous machining processes with our cross cutters or flying saw. All continuous materials you are looking to cut or process cyclically while in motion are fed optimally to the subsequent manufacturing processes using the cross cutter.

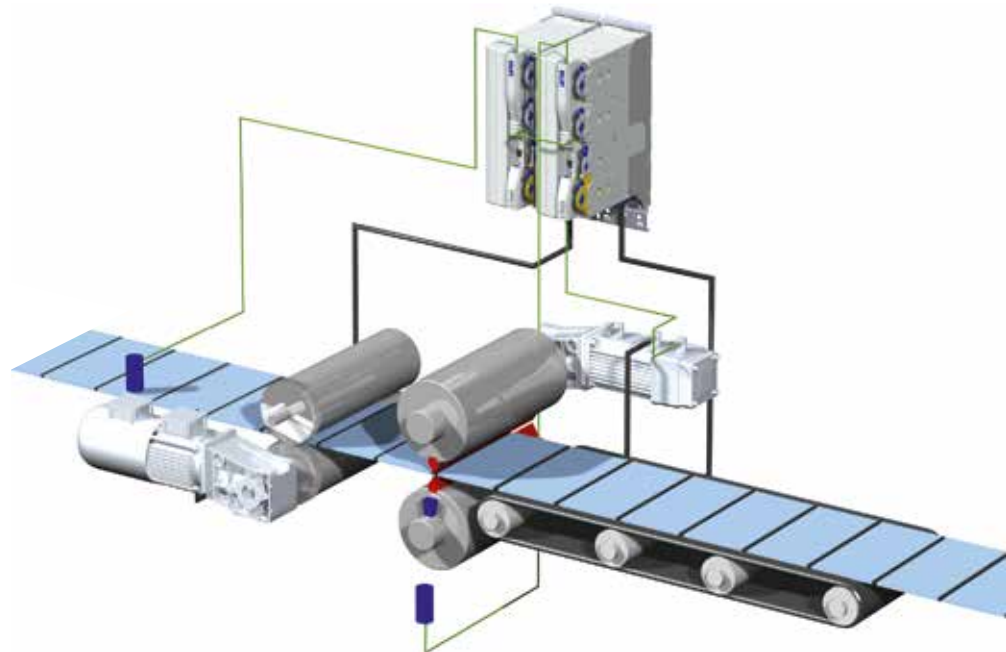
## Typical applications

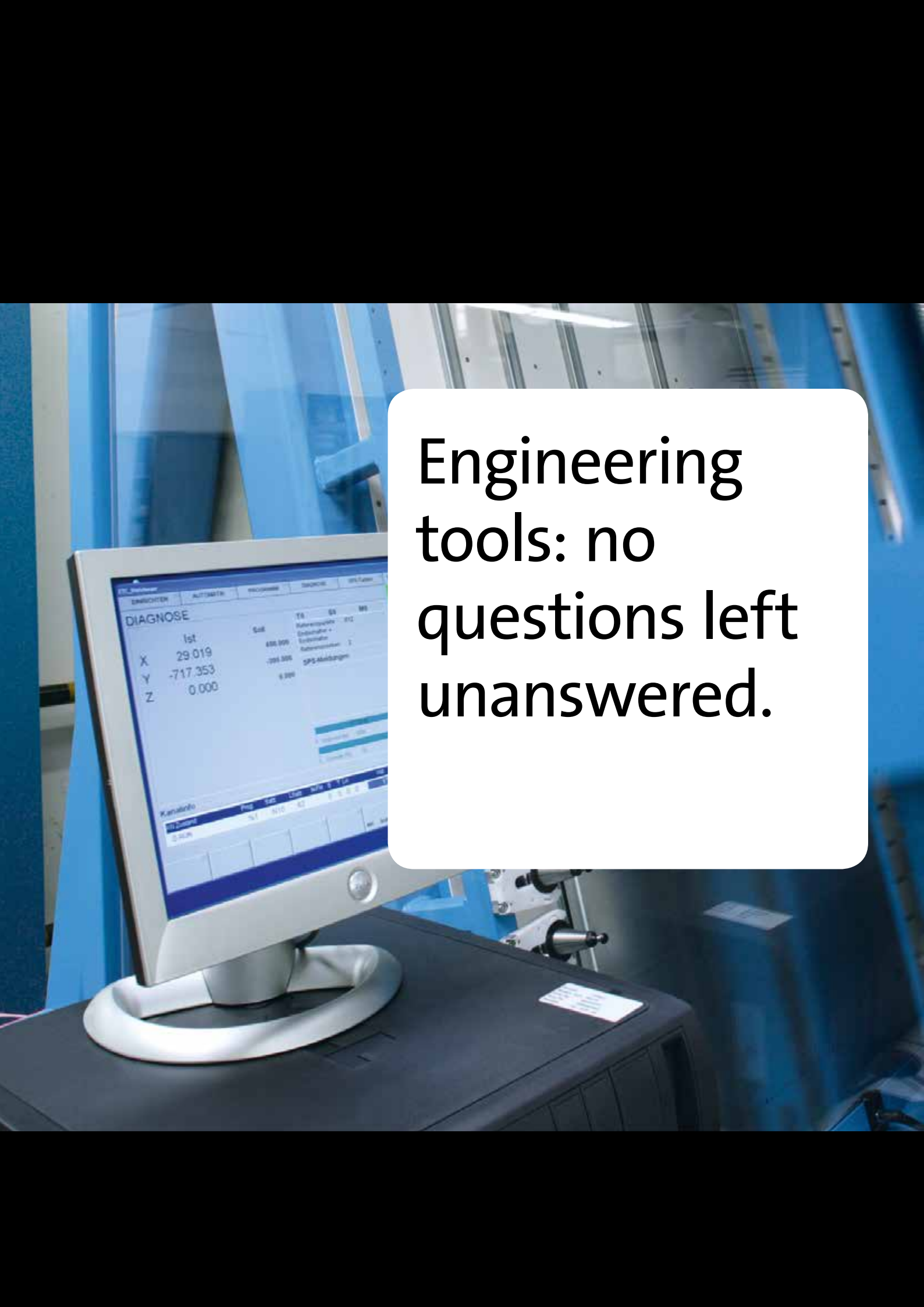
- Cutting
- Sawing
- Punching
- Welding
- Embossing
- Perforating paper, metal and foil webs, as well as wood or plastics

## Our product recommendations for your machine tasks.

### High-Line tasks

- standard three-phase AC motors MD, MF or MH with high-resolution resolver
- all synchronous and asynchronous motors with high-resolution resolver, possibly combined with gearboxes or as direct drives
- Inverter Drives 8400 TopLine or Servo Drives 9400



A computer monitor is positioned on a dark surface, likely a control console for a machine. The monitor displays a software interface with a 'DIAGNOSE' section. The interface includes a table with columns for 'Ist' (Actual) and 'Soll' (Target) values for X, Y, and Z coordinates. The 'Ist' values are 29.019, -717.353, and 0.000. The 'Soll' values are 400.000, -700.000, and 0.000. The background shows a blue industrial machine with various components and a glass safety enclosure.

Engineering  
tools: no  
questions left  
unanswered.

#### DIAGNOSE

	Ist	Soll	TS	SS	MS
X	29.019	400.000	Kalibrierung	012	
Y	-717.353	-700.000	Endschicht +		
Z	0.000	0.000	Endschicht		
			Kalibrierung	2	
			SPS-Meldungen		

Kanalarbeit

Alle Zinsen

0.000

Prog

SAC

Ums

Wfr

S

T

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

U

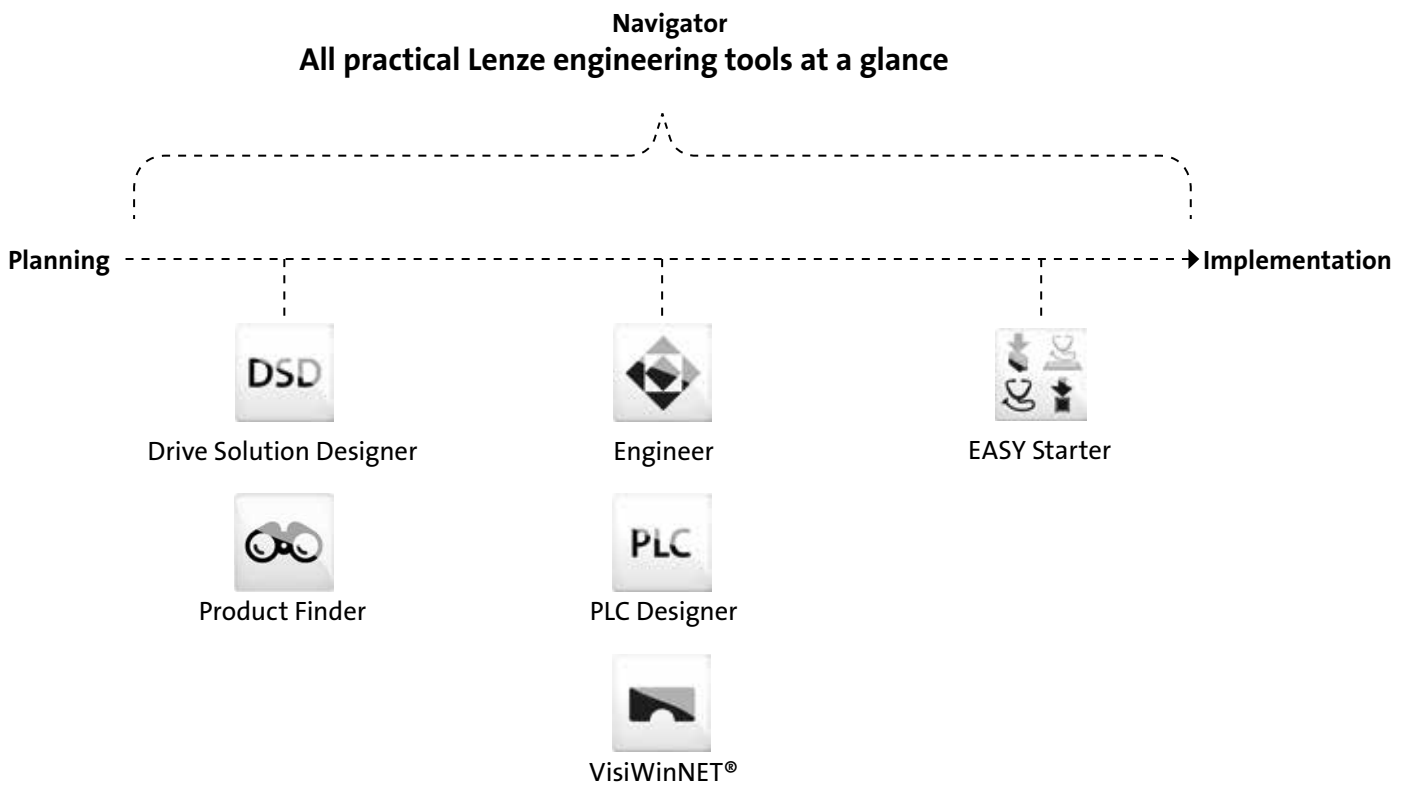
U

U

U

U

Software solutions for easy engineering. During the time between the planning and implementing stage of your machine, you need to make countless decisions that will have a significant impact on the machine's functions and efficiency. Our engineering tools will help you along the way and make your project process more simple.



## Navigator: ensures easy operator guidance.

Get where you want to be faster with convenient navigation through all of Lenze's engineering tools.

### **Your advantages**

- All practical Lenze engineering tools at a glance
- Tools can be selected quickly
- Makes the engineering processes faster and simpler

## Drive Solution Designer (DSD): helps you achieve efficient drive dimensioning quickly.

Simplified drive dimensioning for the best possible energy efficiency

### **.Your advantages**

- 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
- Lenze BlueGreen Solution: documentation of the energy consumption and highlighting of optimisation potential with the Energy Performance Certificate

---

## Product Finder: Simply select online and send a request.

Makes searches, configuration and enquiring about Lenze products easy.

### **Your advantages**

- Makes finding products quick and easy
- Products and accessories can be easily compiled with configuration tools
- CAD data for all common products
- PDF documents can be selected directly

## Engineer: your uniform, complete engineering software.

Multi-device engineering, from project planning all the way up to operation.

### **Your advantages**

- For all products in our L-force portfolio
- Practical user interface
- Graphic interfaces make it easy to navigate
- Can be applied in every phase of a project (project planning, commissioning, production)
- Parameter setting and configuration

---

## VisiWinNET®: fast and efficient visualisations.

Easy visualisation, from classic tasks all the way up to complex applications.

### Your advantages

- Consistent, integrated visualisation software
- For classic machine-oriented operator and monitoring functions (HMI) and sophisticated SCADA systems client/server technology
- Quick application creation
- Platform-independent, multi-user system
- Visualisation modules with ready-made templates
- Vertical communication
- Cross-platform applications can be created for Windows CE and Windows XP

## PLC Designer: for programming processes.

Easy programming and commissioning of our PLC products.

### Your advantages

- The ability to create your own programs
- The ability to program logic & motion in accordance with IEC 61131-3 (IL, KOP, FUP, ST, AS and CFC editor) based on CODESYS V3
- Function blocks certified according to PLCopen Part 1 + 2
- Graphic DIN 66025 editor (G code) with DXF import
- Integrated visualisation for simple presentation of processes
- All information at a glance during commissioning





---

## EASY Starter: easy-to-use tool for service technicians.

Fast commissioning – an easy way to ensure productivity.

### Your advantages

- Specifically designed for commissioning and maintaining Lenze devices
- Graphic user interface with very few icons
- Easy to run online diagnostics, set parameters and perform commissioning
- No risk of accidentally changing an application
- Loading off-the-shelf applications onto the device



We are keen to help get your ideas moving forward! Learn more about our approach, our ways of thinking, our vision and how we can make things easier for you in future. Please feel free to contact us directly or visit us at:

**www.  
Lenze.  
com**



