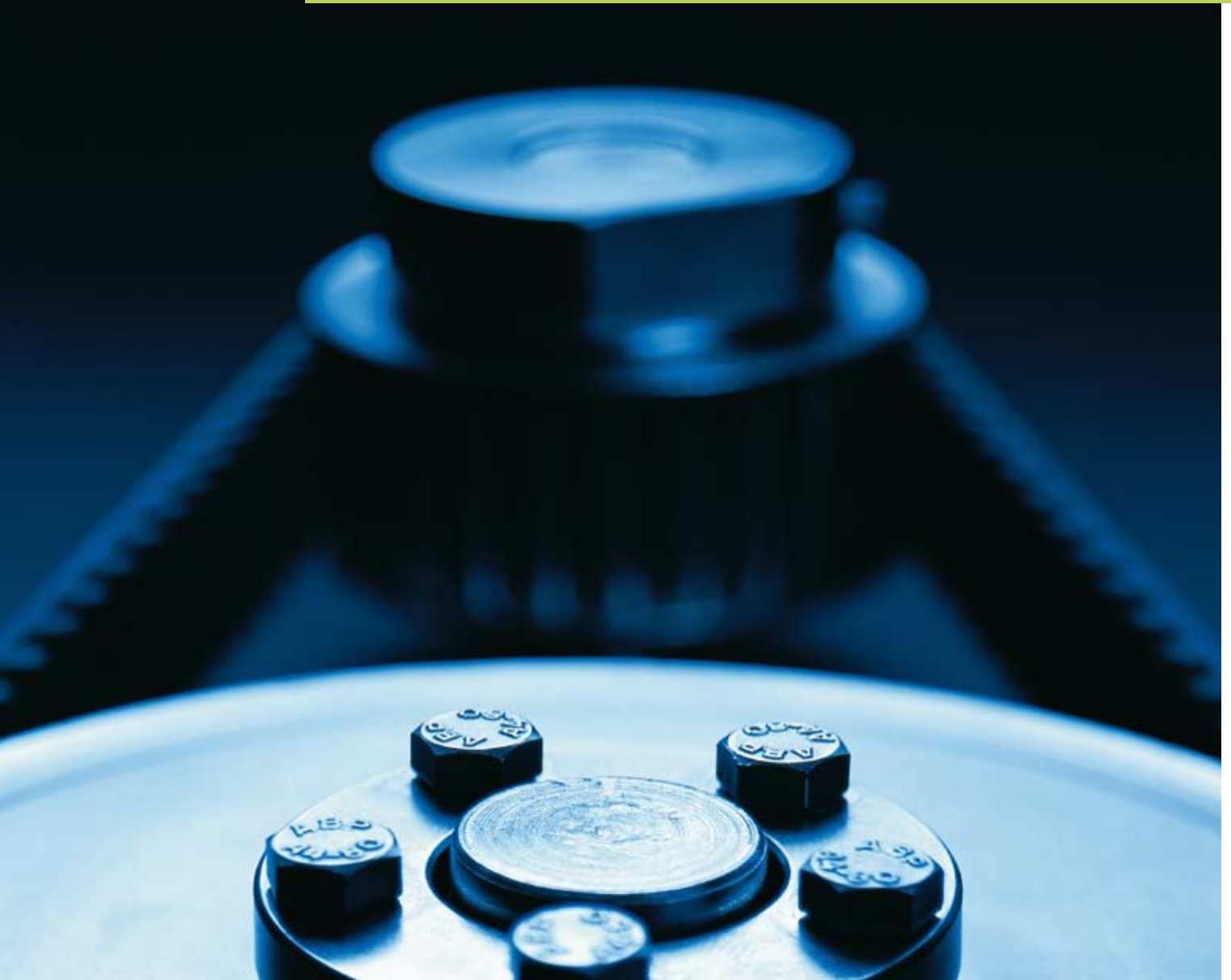


Drive components



Right through from the power source to the machine shaft



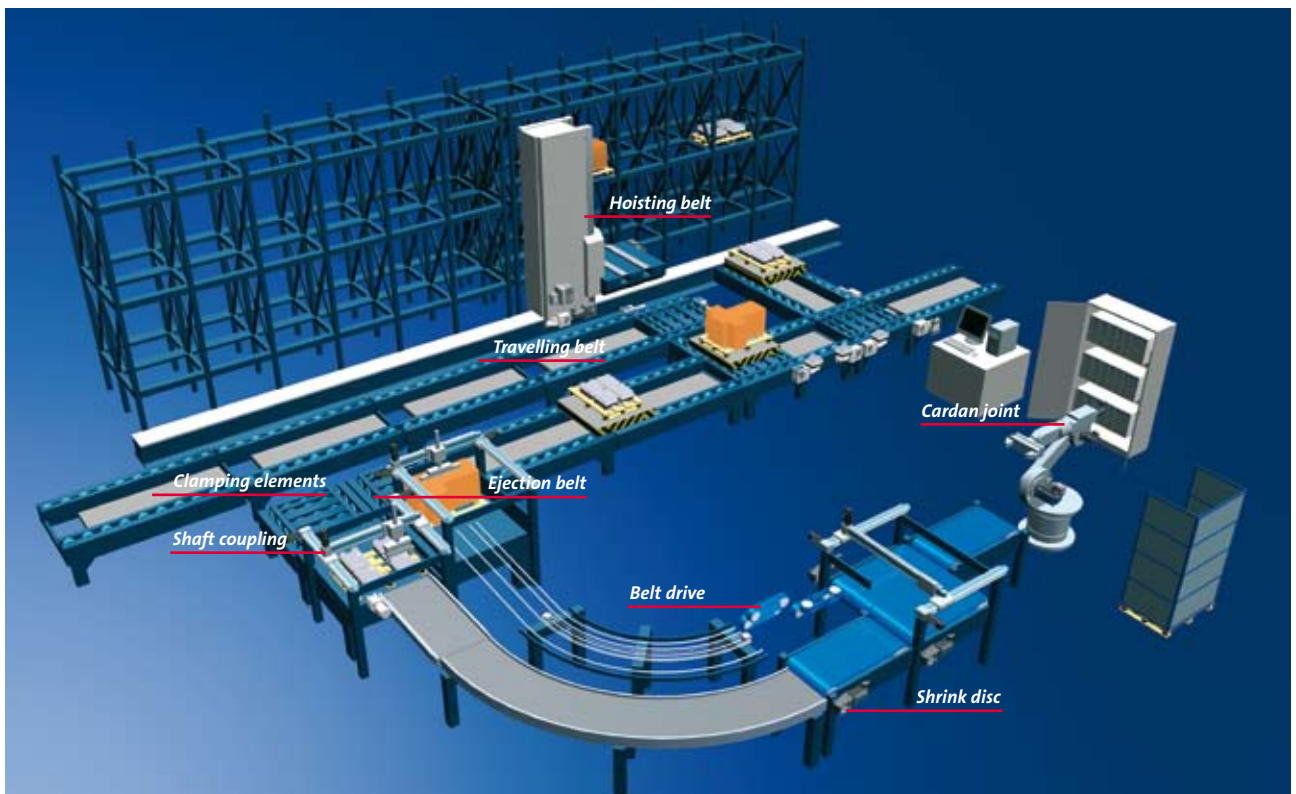
Drive components | for the complete drive solution

Lenze has been successfully applying its expertise in the field of drive components for over thirty years. With an extensive range of products and services under its belt, Lenze provides customers with the opportunity to extend their applications with tried-and-tested Lenze products from systems engineering and, first and foremost, drive technology.

Drive components connect machine parts to form a larger unit and thus supplement the precise drive technology of motors and geared motors. High precision parts guarantee long-term, accurate positioning and interruption-free running.

The product range

- ▶ electromagnetic clutches and brakes
- ▶ shaft couplings
- ▶ hydraulic locking bushes
- ▶ mechanical clamping elements
- ▶ cardan joints
- ▶ belt drives
- ▶ customised solutions



Solution partnership | total customer focus

Know how, products, and service – three core components that make up the Lenze solutions. Experiences gained with regard to customer needs are integrated into three factors of success:

Optimizing

The project partner you need

Is your drive and automation concept state-of-the-art? Would your drive and automation concept win or lose in the competitive market? Our engineers work with you and perform a thorough analysis to develop a technically optimal solution.

Rightsizing

The flexibility you need

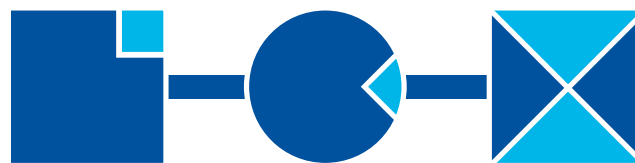
Different customers have different requirements - and you want to meet them all? Achieve maximum flexibility at minimum effort according to the Lenze philosophy. Our electronic products have a high degree of scalability, and every one of our mechanical products is part of a modular system.

Solutionizing

The individuality you need

Does a standard product or standard service not meet your requirements? Lenze carefully assess the overall situation for you. Our engineers provide you with products and services that accommodate your requirements. For instance, Lenze offer their customers the entire range, from individual product combinations up to completely mounted and pretested subsystems. As a result, the danger of failure is reduced and the procurement effort for our customers is diminished in addition.

Optimizing



Rightsizing



Solutionizing



Brakes and clutches | modular and powerful

Regardless of whether you wish to accelerate or decelerate mass in motion with a fast turnaround time or need to decelerate your production process in cycles – we always have the perfect solution for bringing your drives to a standstill in a precise and safe manner, and that is in virtually every application.

INTORQ spring-applied brakes

▶ INTORQ BFK 458

(braking torque: 2 – 600 Nm)

This can be universally applied as a standard product and, thanks to its modularity, meets the requirements of special sectors, such as the Long Life BFK458-L design for high switching cycles in materials handling technology or BFK457 as the basic design in non-modular types of construction.

▶ INTORQ BFK468

(braking torque: 100 – 2,400 Nm)

For the high power range with consistently higher motor speeds and drive torques. The innovative multipole technology enables consistently higher motor speeds and drive torques to be realised at high forces as a result of a large air gap.

▶ INTORQ BFK466

(braking torque: up to 14,000 Nm)

Multipole technology for high braking torques, fast response times and low levels of operating noises in the case of direct drives in modern lift technology. Can be adjusted to the contours of the motor.

▶ INTORQ spring-applied brake BFK461 (braking torque: 4 – 235 Nm)

In a sealed design specially developed for application areas with increased requirements in terms of degree of protection. It is a self-contained system available in seven sizes and with braking torques of 4 - 235 Nm, making it ideally suited for use in wind power plants, cranes and textile machines.

INTORQ electromagnetic clutches and brakes

▶ INTORQ 14.105 and 14.115

For application areas where masses in motion are to be accelerated or decelerated with a fast turnaround time. Drive and braking torques are transmitted by friction in dry running. With seven different sizes, a clutch torque or braking torque of 7.5 – 480 Nm is covered.

INTORQ accessories

An extensive range of accessories such as brake levers, microswitches, terminal boxes, various mounting flanges and covers as well as rectifiers and spark suppressors round off the entire portfolio.



Mönninghoff clutches and brakes (slip-free)

- ▶ **Electromagnetic tooth clutches (torque range: 20 – 2,200 Nm)**
Designs: with and without slip ring, various of tooth system options also available for synchronised switching operations as toothed holding brake.
- ▶ **Spring applied tooth clutches (torque range: 10 – 1,000 Nm)**
Designs: with and without slip ring, released electromagnetically or pneumatically, also available as toothed holding brake.
- ▶ **Pneumatic tooth clutch (torque range: 80 – 1,000 Nm)**
High, slip-free torque transmission, various tooth system options also available for synchronised switching operations.

Mönninghoff actuators

Mönninghoff moving coil actuators are highly dynamic DC current drives for linear motions, which can be used as extremely precise positioning drives, frequency controllable oscillating drives or in force controlled mode.

- ▶ Stroke: 5 mm – 10 mm
- ▶ Rated force: 5.7 N – 125 N

Mönninghoff clutches and brakes (friction)

- ▶ **Pole-face friction clutch (torque range: 500 – 2,000 Nm)**
Electromagnetically activated pole-face friction clutch. High torque transmission through double flux caused by magnetic potential difference. Without additional friction materials, so extremely robust and insusceptible to contamination and oil.
- ▶ **Electromagnetic multiple disc clutch (torque range: 25 – 3,000 Nm)**
Electromagnetically activated, non-magnetomotive multiple disc clutch with slip ring. Special friction materials enable usage in both oil running and dry running.
- ▶ **Spring applied multiple disc clutch (torque range: 200 – 2,300 Nm)**
Electromagnetically releasing, non-magnetomotive spring applied multiple disc clutch with slip ring. Special friction materials enable usage in both oil running and dry running.



Couplings and torque limiters

for precise connections and effective power transmission

A comprehensive modular system offers you a diverse and precisely tailored range of options for transmitting the torque from shafts and flanges.

Torsionally elastic couplings

▶ Rotex

(torque range up to 35,000 Nm)

Rotex® couplings are characterised by low construction dimensions and weights as well as low moments of inertia at high levels of torque transmission. The operating characteristics are positively influenced by the precise machining on all sides, which also significantly increases the service life of the coupling.

▶ Simplaflex

(torque range up to 900 Nm)

Simplaflex shaft couplings are highly elastic. The all-metal construction means that the standard design is unaffected by external influences such as oil and temperatures between - 40 °C and + 100 °C. For special applications, couplings can also be supplied for a temperature range of up to + 300 °C.

▶ Poly-Norm, Revolex and Euroflex couplings

(torque range up to 380,000 Nm)

supplement the portfolio in the higher torque range.

Backlash-free, torsionally elastic couplings

▶ Rotex GS

(torque range up to 2,250 Nm)

Rotex GS couplings are backlash-free due to a pre-load and thanks to the high variety of hub designs, can be used in a diverse range of applications.

▶ Hexaflex

(torque range up to 2,250 Nm)

Hexaflex couplings connect the driven shaft in the same way as a cardan joint and are characterised by their friction-type and thereby backlash-free connection. Application in reversing duty and the option of straightforward disassembly are the key benefits to the designer.



Torsionally rigid couplings

▶ Curved-tooth couplings

(torque range up to 1,500,000 Nm)

BOWEX curved-tooth couplings are characterised by the fact that their polyamide sleeves make them maintenance-free. All-steel curved-tooth couplings are used throughout all industrial sectors. Typical application areas include: shipbuilding and the steel, power and paper industries.

Backlash-free torsionally rigid couplings

▶ ArcOflex, Radex-N, Rigiflex-N, Radex-NC, Toolflex and Servoflex

(torque range until 280,000 Nm)

are torsionally rigid, all-steel couplings which enable backlash-free compensation of axial, radial and angular offsets. Membranes consisting of stainless steel serve as an integral flexing element.

This type of coupling is characterised by minimum restoring forces and high transferable torques at high speed levels. Zero maintenance and special designs, for example, for the pump industry and windmills round off the entire range.

Torque limiters

▶ Ruflex sliding hubs

(rated torque up to 6,800 Nm)

Ruflex sliding hubs have been specially designed for applications with sprockets. Along with Rotex and Bowex, Ruflex rounds off the range.

Backlash-free overload system

▶ Syntex

(rated torque up to 400 Nm)

Syntex safety couplings are torsionally rigid and backlash-free. What's more, they are available in either ratchet or synchronised design.

▶ Secmatic

(rated torque up to 1,600 Nm)

▶ KTR-SI safety coupling

(rated torque up to 8,200 Nm)

▶ Hyguard safety coupling

(rated torque up to 170,000 Nm)



Hydraulic locking bushes

for the best smooth running characteristics and maximum precision

Designed for compact machines and continually increasing production speeds. Minimum levels of downtimes for setting the machine, maintenance and repairs and reduced Life Time Costs are thus realised by the extremely fast assembly and disassembly times.

▶ **ETP-EXPRESS**

(shaft diameter: 15 – 100 mm)

Consisting of a double wall, hardened steel sleeve filled with a pressure medium and a flange part. Equipped with a screw and a piston with seal for pressure build-up. Available in rust-free and nickel-plated design.

▶ **ETP-Techno**

(shaft diameter: 15 – 100 mm)

Consists of a double wall, hardened steel sleeve filled with a pressure medium and a flange part. The flange contains a press/pressure mechanism, which consists of a screw and piston with a double sealing function, an O-ring and a steel ball, which presses against a spherical seat. The outside and inside diameter as well as the plane surface of the hub-side flange are machined for extremely smooth running (0.006 mm).

▶ **ETP-CLASSIC**

(shaft diameter: 15 – 100 mm)

Consists of a double walled, hardened steel sleeve (filled with a pressure medium), a seal, a piston and a flange with retaining screws. Also available in stainless steel design.

▶ **ETP-HYLOC**

(shaft diameter: 50 – 220 mm)

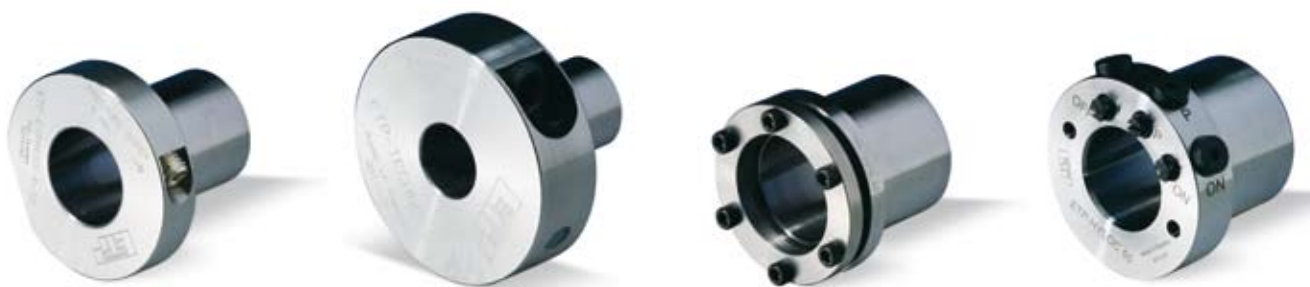
Based on a hydromechanical principle. The connecting element consists of a double walled steel sleeve with an integrated sliding conical piston. In the flange there are 3 threaded connections ("ON", "P" and "OFF") for radial and axial connection. This allows radial or axial connection during assembly/disassembly, which is performed using a hydraulic pump.

▶ **Special ETP designs**

ETP-Unigrip: tools or workpieces can be clamped axially against a shaft shoulder.

ETP-KN: is designed in a similar way to ETP-TECHNO, but the expansion is only applied against the shaft.

Other types: customised fixing and centering solutions based on ETP-TECHNO.



Mechanical clamping elements

for effective torque transmission

Mechanical clamping elements transmit torques and axial forces in a friction-fit and backlash-free manner, and these can be reused several times. The wide variety of designs and standard products offer you perfect solutions for each and every application.

► Mechanical clamping sets

Friction-fit shaft-hub joint, which is inserted between the shaft and the hub, and establishes a friction-type connection through moving taper surfaces.

► Shrink discs

Friction-fit shaft-shaft connections, which initiate external clamping, i.e. the shrink disc is attached to the hollow shaft and, as a result of clamping, reduces the inside diameter, generating a surface pressure between the shafts. High torques can be transmitted backlash-free.

► ETP-Mini and Mini-R

This mechanical clamping set solution rounds off the ETP product range. ETP-MINI consists of two conical, partially slotted steel sleeves and is also available as type R stainless steel. Type R is particularly well suited for the food industry.



Cardan shafts | for precise power transmission

Cardan shafts enable power transmission of torques between offset drives and outputs, whose location can also be altered during operation. Spatial angular movements and axial length alterations are guaranteed thanks to high-quality construction elements.

▶ **Cardan shafts**

(torque range up to 175 kNm)

As a connecting element in vehicle engineering and industrial applications for transmitting high torques.

▶ **Cardan joints DIN 808**

(torque range up to 300 Nm)

Technically advanced high-grade connecting elements for connecting two shafts using a maximum inclination angle of 45° per joint.

▶ **Cardan joints, type G with plain bearing**

Can be used up to 1,000 rpm

▶ **Cardan joints, type H**

with maintenance-free needle roller bearings up to 4,000 rpm.

The production method allows a high level of precision, which proves beneficial to the bearing clearance, concentricity and long service life.



Belt drives | for cost-effective power transmission

Toothed belt drives are characterised by a synchronous, slip-free power transmission with low bearing load. As they do not require any maintenance and are low-noise and highly cost-effective, they are being used more and more in industry and mechanical engineering applications. Toothed belt pulleys and belt tension measuring devices round off the product range.

Toothed belt drives

► AT and T toothed belts

Classic toothed belts consisting of polyurethane, with trapezoidal tooth shape for transport applications. The widest variety of coatings is available for the back of the belt, for the purpose of adapting the driving capability to the application. A nylon coating at the tooth-side provides even quieter operation.

► Powergrip® HTD and GT3 toothed belt

The curved teeth profile enables the concentrated tension at the base of the tooth to be shifted to the centre of the tooth. This in turn allows extended runtimes as well as higher power transmission. Technically advanced GT3 belts are perfectly suited to a large range of industrial applications as a result of their further power increase. They are designed to run on existing drives and require no system adjustments.

► PolyChain® GT and carbon synchronous belts

Are an alternative solution to roller chains and require neither lubrication nor re-tensioning. These synchronous belts reduce space requirements, weight and costs. With the use of carbon tensile cords, performance is further increased. As such, the PolyChain® Carbon is among the most high-performance toothed

belts available on the market, thus ensuring maintenance-free, energy-saving and environmentally friendly operation.

V-belt

► Quad power (raw-edged, tooth-shaped narrow V-belt)

Offers maximum power density for implementing compact drives. Back jockey pulleys can also be used as a result of increased resistance to counter-bending.

► Predator

Characterised by its unique robustness and high load capacity. The Predator is ideally suited to operating conditions, in which conventional V-belts reach their performance limits.

► Poly-V ribbed V-belts

A belt, which is ribbed lengthways, for friction-fit power transmission. The coating characteristic ensures an optimum contact area with the belt pulleys as well as an even distribution of the belt tension. Special flexonic versions cater for applications with fixed centre distance. The power transmission is up to 600 kW. As a result of the extremely low diameter of the guide pulley, ratios of up to $i=60$ can be implemented.



It's good to know | why we are there for you



"Our customers come first. Customer satisfaction is what motivates us. By thinking in terms of how we can add value for our customers we can increase productivity through reliability."



Lenze drive and automation solutions



"We will provide you with exactly what you need – perfectly co-ordinated products and solutions with the right functions for your machines and installations. That is what we mean by 'quality'."



"Take advantage of our wealth of expertise. For 60 years now we have been gathering experience in various fields and implementing it consistently and rigorously in our products, motion functions and preprepared solutions for industry."



"We identify with your targets and strive towards a long-term partnership which benefits both sides. Our competent support and consultation process means that we can provide you with tailor-made solutions. We are there for you and can offer assistance in all of the key processes."

You can rely on our service. Expert advice is available 24 hours a day, 365 days a year, in more than 30 countries via our international helpline: 008000 24 Hours (008000 2446877).

www.Lenze.at

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