



WITTENSTEIN

alpha

Gearheads and actuators for Delta robots

The right solution for all requirements

Flexible
Precise
Powerful



Specialists in Delta robots: More than 10 years of experience in drive technology

Individual solutions for your robot concept

Varying customer requirements create major challenges for Delta robots and require continuous further development of the drives. For more than ten years, WITTENSTEIN has been developing and manufacturing gearhead and actuator solutions for Delta robots that are just as individual as the applications of our customers. With unique engineering experience, recognized methodological

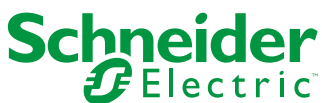
competencies and software expertise as well as a high-performance product portfolio, we offer our customers the security of a technically and economically refined drive design for highly dynamic, multidimensional movement profiles. Our success story is continuing with an extended product portfolio and new individual drive solutions for your robot concept.

Delta robot design variations



WITTENSTEIN is setting benchmarks in drive technology

The number one point of contact for many international customers



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Experience
since 2005



alpha



motion control

Market requirements for the Delta robotics industry

Optimized drive solutions for highly dynamic applications

The varying requirements of machine users and construction companies create major challenges when developing robot concepts. This has an effect on the machine design and component selection.

Production requirements

- Lightweight construction
- High protection class
- Small footprint
- High degree of productivity
- Increased flexibility
- High degree of accuracy
- High speeds
- Low energy consumption
- Maximum safety level

Challenges for machine construction companies

- Safety
- Reliable system design
- Performance
- Flexibility
- Speed and dynamics
- Accuracy
- Resource efficiency
- Selection of components and materials

Range of industrial applications



Packaging



Cosmetics



Electronics

The advantages of WITTENSTEIN drive solutions:

Reliability

Extremely reliable gearheads prevent cost-intensive machine breakdowns

Positioning accuracy

Minimal backlash and extreme rigidity ensure maximum positioning accuracy at the tool center point

Speed

High speeds increase machine output

Low maintenance

Highest quality standards guarantee a long service life and extend maintenance intervals.

Consistently high performance

Constant backlash throughout the service life of the gearhead ensures a consistently high performance.

Low inertia

Use of an actuator further reduces inertia.

Drive and component requirements

- Highly dynamic 3D movement profiles for TCP with requirements for maximum positioning accuracy
- Different vibration movements of the drives
- Resistance to vibrations
- High degree of rigidity for reducing low-frequency vibrations
- Heterogeneous load allocation for different drives
- System interaction generates maximum torque



Confectionery



Pharmaceuticals



Foodstuffs

Delta robot design requires adapted product features

Maximum performance and efficiency:
Delta drive components from WITTENSTEIN.

Basic requirements

- Reliability
- Positioning accuracy
- Speed
- Low maintenance
- Consistently high performance
- Low inertia



Rotating axis drive (at the bottom)

- Requirements:
- Low weight
 - Low backlash
 - High rigidity
 - Positive connection for flange installation
 - Outstanding dynamics

With this version of Delta robot, the rotating axis is driven directly at the tool center point instead of being controlled by a fourth axis in the center.



premo
advanced
line



cyber®
dynamic line



NP



LPK+



SP+ / SPK+



premo base line

Rotating axis drive Precision (at the top)

Requirements depend on the accuracy of the goods being positioned



DP+



premo advanced line



HDP



Project-specific actuator solutions on request

Top arm drive

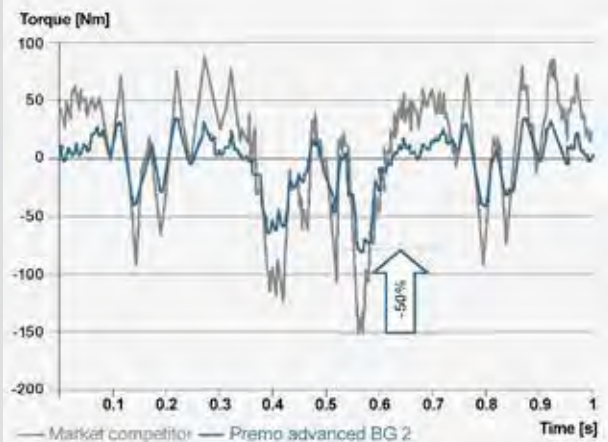
System integration

Requirements:

- High rigidity
- Low backlash
- Low inertia
- Outstanding dynamics
- Positive involute connection of arms

Up to 50% reduced energy consumption with the same productivity

Through the use of servo actuators, the premo advanced line achieves the same degree of productivity while drastically reducing energy consumption. The high rigidity of the servo actuator allows the use of a smaller motor with lower inertia. Power savings of up to 50% are possible.



Unmistakably WITTENSTEIN. Our products at a glance

As unique as your requirements

Process-integrated axes

In the field of Delta robotics, there is a wide range of different application areas with varying requirements such as process integration or hygiene and cleaning, for example. WITTENSTEIN therefore offers its customers individual solutions that

A DP*

Planetary gearheads designed for Delta applications are available in 4 sizes and cover a ratio range of $i=16-55$. An optimized sealing concept and reduced inertia ensure outstanding results in terms of dynamics and durability.

B HDP

HDP planetary gearheads were designed for direct contact with foodstuffs in line with EHEDG guidelines. They are available in 3 sizes and cover a ratio of $i=16-55$.

C premo advanced line

The servo actuator consists of a precision planetary gearhead designed for ratios of 16 to 55 and a brushless synchronous servo motor. Premo is characterized by higher productivity and outstanding energy efficiency.

are optimized to meet special requirements and guarantee maximum reliability while maintaining a consistently high performance throughout the entire service life of the product.

D cyber® dynamic line with simco® drive

Suitable for industrial applications, the small servo motors from the cyber® dynamic line are available in 4 sizes and cover a performance range of 7-345 watt.

The perfect addition: intelligent, space-saving simco® drive servo regulators available as a switch cabinet variant (IP20) or as a decentralized unit in protection class IP65.

E On request

We are happy to advise and offer you individual solutions for project-specific requirements.



Classification as per DIN EN 1672-2

Standard application in dry areas (not food sector)

Application in wet and damp environments (spray areas)
→ close to the process

Application in wet areas, including high-pressure cleaning as well as contact with cleaning agents and chemicals (food sector)
→ integrated in the process

No compromises: The perfect solution for every application

We are happy to help you choose the right drives

■ Dry area	■ Spray area (close to the process)	■ Wet area (integrated in the process)
		
<p>Field of application:</p> <ul style="list-style-type: none"> · Secondary packaging · End packaging · Handling (e.g. feeding, stacking, sorting, removing, etc) · Bonding/sealing · Mounting · Intralogistics 	<p>Field of application:</p> <ul style="list-style-type: none"> · Secondary packaging · Pharmaceutical industry · Medical technology · Primary packaging without hygiene design requirements · Clean room 	<p>Field of application:</p> <ul style="list-style-type: none"> · Primary packaging with hygiene design requirements
<p>Requirements:</p> <ul style="list-style-type: none"> · With standard or food-grade lubrication (NSF certified), depending on the application 	<p>Requirements:</p> <ul style="list-style-type: none"> · Corrosion resistant for mild cleaning agents · If required, no paint or labels (e.g. type plate) on the product · Standard incl. food-grade lubrication (NSF certified) 	<p>Requirements:</p> <ul style="list-style-type: none"> · Protection class IP69X (30 bar) · Easy removal of dirt (microorganisms) · No dead spaces, high surface quality · Resistant to aggressive cleaning agents · CIP/SIP compatible
<p>Your benefits:</p> <ul style="list-style-type: none"> · Fast availability · speedline® available 24h 	<p>Your benefits:</p> <ul style="list-style-type: none"> · Protection from external influences (spray water protection as per IP65) · Protection against flash rust and oxidation · Easy removal of dirt 	<p>Your benefits:</p> <ul style="list-style-type: none"> · Hygienic and sterile production drive · New freedom in design through direct process integration · Direct contact with foodstuffs possible · Fast, efficient and safe cleaning · Resistant against chemical cleaning agents and disinfectants
<p>Products:</p> <ul style="list-style-type: none"> · DP+ for industrial applications (S) · DP+ with foodstuff lubrication (F) · premo advanced line · cyber® dynamic line with simco® drive IP20 and IP65 	<p>Products:</p> <ul style="list-style-type: none"> · DP+ corrosion-protected (W) · DP+ corrosion-protected without paint, project-specific solutions on request · cyber® dynamic line with simco® drive IP20 and IP65 - Inox design 	<p>Products:</p> <ul style="list-style-type: none"> · HDP Hygienic Design · Project-specific actuator solutions on request · cyber® dynamic line with simco® drive IP20 - Hygienic Design

Competitive edge with innovative drives in Hygienic Design

Simpler, more compact, efficient and hygienic.

Previously, Delta robotic drives used in sectors with high hygienic standards had to be enclosed in complex housings, which was disadvantageous in terms of cleaning and durability. The new drives from WITTENSTEIN with Hygienic Design offer innovative design freedom with enormous benefits:

Comparison of installation

	
<p>Conventional solutions: Complicated encapsulation is required to protect the drives.</p> <ul style="list-style-type: none"> · Risk of dirt and moisture build-up under the encapsulation · Surfaces to be cleaned are large · Extra costs (design, cleaning) · Heat build-up under the encapsulation reduces the service life of the drive 	<p>Hygienic solution: New design freedom thanks to the Hygienic Design motor-gearhead unit.</p> <ul style="list-style-type: none"> · Hygienic production because the drive components are cleaned directly · Smaller surfaces save time and cleaning costs · Open drive system extends the service life

Product benefits

- High chemical / corrosion resistance
- High IP protection for optimal sealing
- Design integration Hygienic Design (the complete plant can be designed according to Hygienic Design principles)
- High power density and dynamics

Benefits for plant manufacturers

- Integration in a plant designed according to hygienic principles (certification available)
- All legal obligations fulfilled (Machinery Directive, food hygiene regulations)
- Easier production / assembly because there are fewer components
- More compact machine design
- Higher overall equipment effectiveness
- Innovative technology / competitive advantage

Benefits for operators

- Easier, faster cleaning: shorter CIP / SIP times
- Improved reliability and longer life
- Quick and easy disassembly
- Reduced consumption of cleaning materials
- Minimal costs for maintenance and repair
- Cost savings: competitive advantage and lower end user price
- Increased food safety

Applications in the food industry



Fish processing



Filling and packing milk products



Portioning meat products

Our service offering

Consulting and design: We are only satisfied when you are satisfied

- Professional consulting and personal contact
- Professional application calculations and drive design
- Customized services
- Integral solutions for the most demanding applications, even under extreme conditions

Engineering: Our engineering makes your drives highly efficient

- Advanced software tools for accurate calculation, simulation and analysis
- Comprehensive expertise in mechatronics as well as many years of engineering achievement in machine construction from a single source ensure selection of the right drive for highly complex applications
- Increases machine and process reliability
- Optimization of your productivity and reduction in development costs
- Use of cymex® 5 design software

speedline®: enhancing your flexibility

- Delivery of specific series within 24 to 48 hours ex works to guarantee productivity in time-critical situations (non-binding delivery time depending on part availability)

speedline® team: +49 7931 493-10333

Service training: Benefit from the experience of our service experts

We offer the following to guarantee the availability of your plant:

- An explanation of the functions of your product
- An individual training program at our premises
- Maintenance tips and tricks

Repair service: Rapid assistance in an emergency

- Customized repairs of the highest quality and precision
- Regular maintenance of your drives through systematic replacement of wearing parts
- Short throughput times and intensive management
- Various measurements, material analyses and condition monitoring inspections
- Immediate response in critical situations such as machine downtimes
- 24 h service hotline

Service hotline: +49 7931 493-12900

Pick-up & return service Direct, quick routes

- Immediate and professional pick-up as well as the fastest possible delivery of your repaired drive in urgent cases

Preventive maintenance: Our objective is to create trust through reliability

- Intensive all-round support for individual applications with exceptional requirements under extreme conditions
- Customer-specific maintenance schedules
- Detailed documentation regarding condition and expected service life

Service hotline: +49 7931 493-12900





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WITTENSTEIN alpha – intelligent drive systems

www.wittenstein.de/delta-robot

