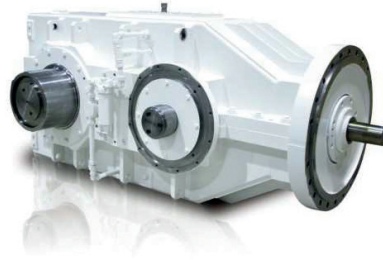
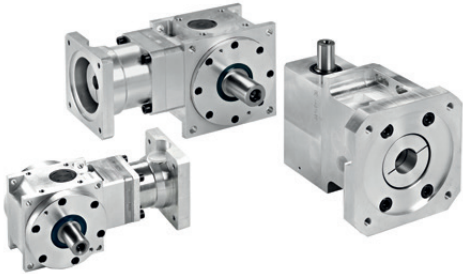
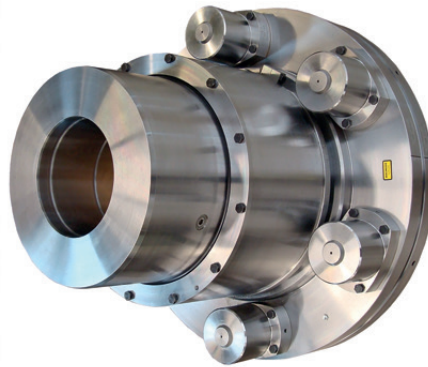
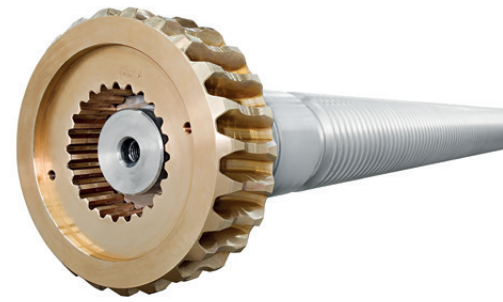


EXTRACT FROM OUR DELIVERY AND SERVICE PROGRAMME



**Gearboxes
and Drive
Technology**

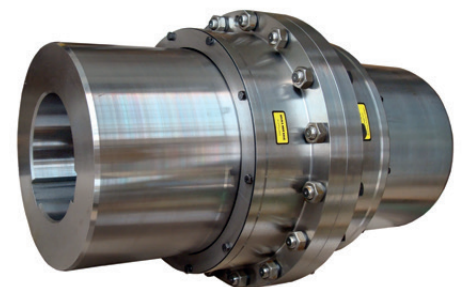
**Gears and
Transmissions**



**Couplings and
Shrink Disks**



**Sensor
Systems and
Accessories**



SHAFT-HUB CONNECTIONS

COUPLINGS / FRICTIONAL CONNECTIONS

Torsionally rigid couplings



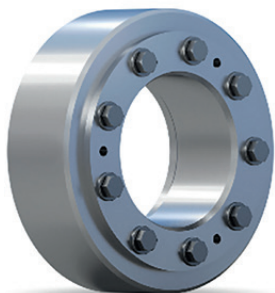
- Chain coupling
- Metal-bellows coupling
- Clamp coupling DIN 115
- Flange coupling DIN 116
- Steel lamina coupling

Flexible couplings | Compensating couplings



- Double flex coupling
- Flexible bolt coupling (Veboflex coupling)
- Cardan shaft (Megiflex)
- Elastic jaw / cam coupling (Polynorm coupling)
- Gear coupling

Shrink discs | Locking units



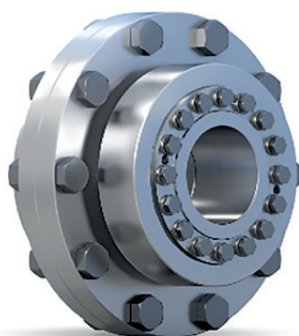
Mechanical / hydraulic shrink discs

- Safe transmission for torques up to 18,000,000 Nm
- Suitable for shaft diameters from 9 mm to 1,050 mm
- Quick, simple, space-saving assembly and non-destructive disassembly

Internal / External locking units

- Space-saving or simple mounting of hubs on shafts

Flange couplings | Shaft couplings



Hydraulic flange couplings

- Safe transmission of higher forces and torques
- Simple and quick assembly and disassembly

Shaft couplings

- Secure, rigid connection between two free shaft ends
- Same or different shaft diameters possible

HEAVY LOAD COUPLINGS

Gear couplings



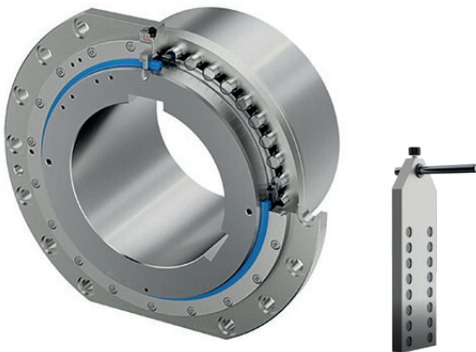
- Quiet running due to head centering
- Large permissible finished bore
- High level of operational reliability
- Easy replacement of seals with split cover
- Suitable for reverse operations
- Long service life with low levels of maintenance
- High ambient temperatures possible

Gear joint spindles



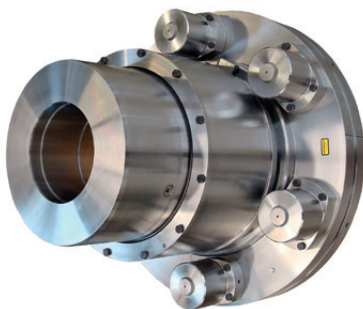
- Ideal for large torques with the small outside diameters / high misalignments
- Highest manufacturing precision
- Long service life
- Quick replacement of wear parts
- Made of alloyed steel (QT)

Drum couplings



- Ideal for the construction of crane drum drives and materials handling technology
- High load capacity
- Up to 25 % higher permissible torque
- Increase in radial load
- Incl. wear indicator
- Long service life
- Measuring tool MIC 2.0 for couplings of the TTXs / MTTXs / TT series

Safety couplings for the heavy industry



- High load capacity / robust design
- High cut-off accuracy
- Torques up to 1,000,000 Nm realisable
- Shaft diameter up to Ø 255 mm standard
- Suitable for reversing operation
- Quick and easy re-engagement (also remote controlled)
- Maintenance-free / long service life
- Optionally with automatic wear indicator

OVERLOAD / SAFETY COUPLINGS

Overload protection | Safety couplings



- Made from highly resistant stainless steel
- Without backlash
- Torque range 1,5 to 900 Nm; maximum bore Ø65 mm
- High resistance to corrosion
- Suitable for the food and pharmaceutical environments

Friction torque limiter



- Simple and compact solution
- Quiet and vibration-free function
- Protection in both directions of rotation
- High triggering and repeat accuracy
- Up to 23,000 Nm of torque; max. bore Ø 140 mm

Torque limiter (backlash-free)



- High-tech ball bearing safety coupling
- Motion transmission without torsional backlash
- Immediate precise disengagement
- Low wear with constant disengagement accuracy

Switchable couplings (pneumatic)



Pneumatic phase roller clutch

- Transmission through rollers with re-engagement
- Torque range 5 - 30,000 Nm; max. bore Ø 120 mm

Friction pneumatic clutch

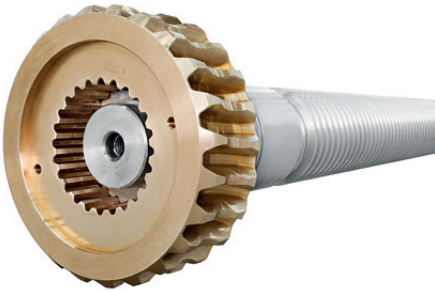
- As tensioner, brake and torque limiter
- Torque range 3 - 875 Nm; max. bore Ø65 mm

Spiral bevel gears | Bevel gears



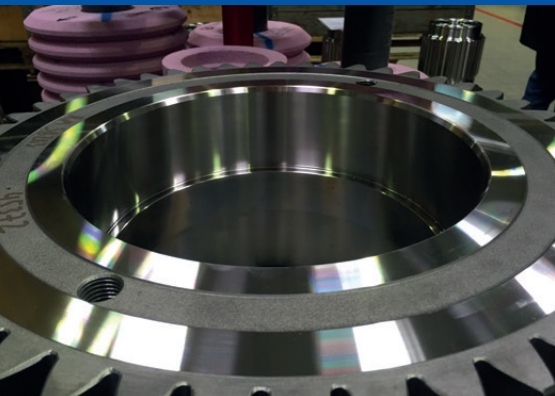
- Palloid / cyclo-palloid-toothed bevel gears
- HPGS-cyclo-palloid (teeth cut hard)
- Grounded spiral bevel gears for increased accuracy
- Conversion of bevel gears to Gleason or Oerlikon
- Straight cut bevel gears are also possible

Worm gears



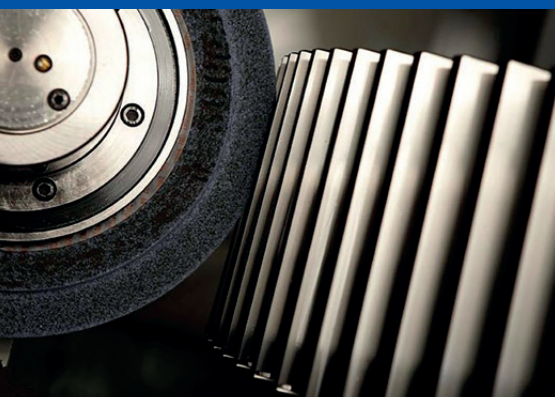
- SIMPLEX / DUPLEX versions for optimized adjustable backlash
- Hollow flank worm wheel cut for better load carrying capacity
- Spare parts manufactured according to master wheel or sample
- Economic series production according to DIN or individual production according to specification

Spur gears



- Grinding of gear flank and outer diameters for highest demands
- All standard gears are cut according to DIN 5480
- Gears ranging from $\varnothing 20$ - $\varnothing 4,000$ mm and module 0,5 to 36
- Special individual gears manufactured with 5-axis milling machine
- Grinding for highest precision (inside and outside)

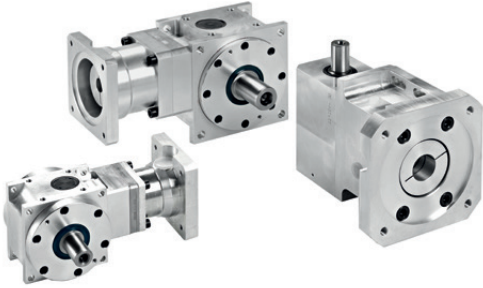
Special gears



- Straight bevel gears
- Herringbone gears with web and in free-form geometry
- Module gears
- Special modules and special gears in 5-axis machining process

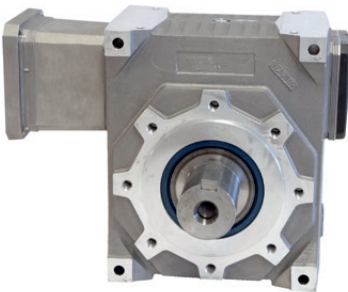
GEAR TECHNOLOGY

Bevel Gearboxes | Planetary gearboxes



- HPGS-toothed precision gears for highest accuracy
- Palloid-gearred and lapped design for standard and series gears
- Standard gear ratio with high torque and ratios from 1:1 to 1:6
- Servo-hypoid gearbox with ratio up to 15:1 by axial-displacement

Worm Gearboxes



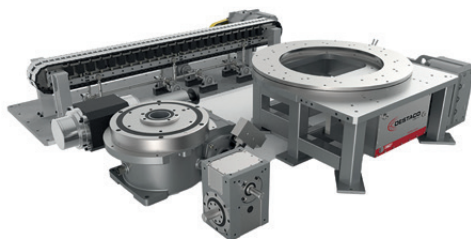
- Standard worm gearboxes for optimum efficiency
- DUPLEX-gears for low backlash, adjustable gearboxes
- Single- and multi-thread worm gears
- Screw-jack-units and lifting systems

Customized Special Gearboxes | Large-Scale Gearboxes



- Heavy duty gearbox, conveyer gear drives
- Custom/special solutions for all industries
- Planetary gearboxes, right angle-planetary gearboxes
- Test bench gearboxes, power gearboxes
- Gearbox design and development, performance improvement

Indexing units | Conveyor drives



- Index drives
- Positioning rotary tables
- Globoid and parallel axis gears
- Cam- and stepper components
- Indexing conveyors: magnetic or servo-mechanical drive

ROTATIONALLY SYMMETRIC DRIVE ELEMENTS

BELT DRIVES AND ACCESSORIES

V-belt pulleys | Flat belt pulleys



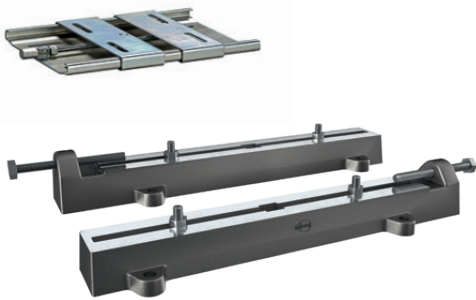
- Belt pulleys made of cast iron up to 6,000 kg and $\varnothing 2,800$ mm
- No pattern cost for casting drive pulleys
- Optimized power density through customized design
- Special designs according to customer specifications
- Standard pulleys available from stock
- TaperLock or standard DIN / ISO versions for all pulleys

Flywheels | Special pulleys



- Flywheels according to customer specifications without model costs
- Specific design and analysis of the drive pulleys
- Highest balancing quality acc. to DIN ISO 21940-11 up to 6,000 kg
- Product ready for assembly from one source

Motor mounting systems | Supplies for drive belts



- Motor slide rails made of cast iron EN-GJL-200 according to DIN 42923 or in light duty applications
- Motor slide rails to our own standard (WEN) for heavy duty drives
- Motor slide rails made of steel for light drives
- Motor slide base with monoplate and split plate for high flexibility
- Optimum support for economical and safe use

Drive belts | Measurement technology

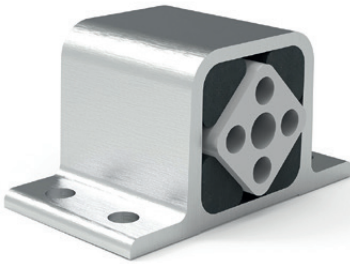


- V-belts from all major manufacturers available
- Precision design for belt drives
- High performance belts in all profiles and designs
- Optimum design for maximum efficiency and lifetime
- LüCo LaserPro: Alignment tool for pulleys
- LüCo TensionPro: Digital measuring tool for checking belt tension

TECHNICAL COMPONENTS

OSCILLATING / SUSPENSION UNITS, TENSIONER DEVICES

Rubber suspension units



- Universal, elastic bearing for machine components
- Torsion spring acting in two directions
- Torsion angle of +/- 32°
- Almost unlimited connection possibilities
- Easy handling

Tensioner devices



- Universal belt and chain tensioner
- Cost-sensitive alternative to tension and compression springs
- Precise adjustability of the tensioning force
- Torsion angle of +/- 32°
- Maintenance-free and tear-resistant

Oscillating units



- Elastic mounts e.g. for screening machines, vibratory feeders, circular vibrating screens and plansifters
- Standardised bearing variant for freely oscillating systems with highest isolation efficiency
- Universal joints ensure optimum damping
- Corrosion-resistant components

Vibration absorber | Motor bases



- Dampens vibrations and shocks
- Isolates vibrations
- Ideal insulation against structure-borne noise

Motor rockers for belt drives

- Stepless adjustment
- Guarantees optimum belt tension

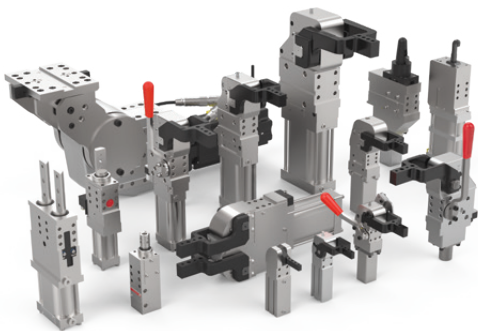
CLAMPING TECHNOLOGY AND AUTOMATION

Manual and pneumatic clamping solutions



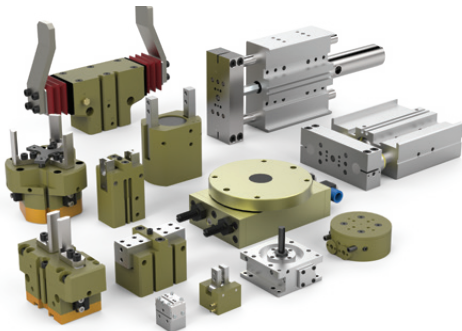
- Hold down clamps
- Push action clamps
- Squeeze action plier clamps
- Pull action latch clamps
- Pneumatic toggle clamps and swing clamps
- Wide program range
- Pneumatic power cylinders
- Long lifetime

Power Clamps | Pivot units



- Pneumatic power clamps
- Tolerance compensation clamps
- Pin clamps & packages
- Pivot units, pneumatic and electric
- Sealed clamps for welding environments
- High clamping and holding forces
- Long lifetime

Grippers | Linear slides



- Pneumatic and electrical parallel grippers
- Angular grippers
- Linear slides
- Repetition with high accuracy
- Designed for maximum production uptime

End effector solutions

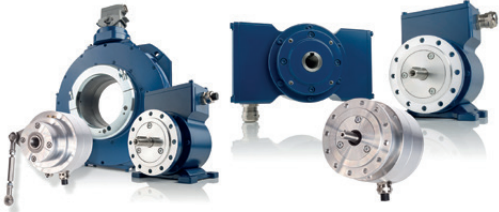


- Curved clamp gripper
- Modular high-strength, lightweight aluminium components
- Durable vacuum cups
- Tool changers
- Tooling components
- Vacuum products
- Sheet metal grippers

SENSOR SYSTEMS FROM JOHANNES HÜBNER GIESSEN

ENCODER SYSTEM SOLUTIONS

Incremental encoders | Absolute encoders | Electronic speed switches



Speed measurement

- Solid shaft design for flange or foot mounting
- Hollow shaft design up to Ø 150 mm
- HTL, TTL, Sin/Cos, 4-20 mA, opt. direct FOC-output

Position measurement

- Solid shaft design for flange or foot mounting
- Hollow shaft design up to Ø 50 mm
- PROFIBUS, PROFINET, DeviceNet, Ethernet/IP, EtherCAT, SSI, Parallel, 4-20 m

Speed / standstill monitoring

- Solid shaft or hollow shaft design
- Simple configuration and integrated diagnostics
- Switching voltage up to 230 V

Universal encoder systems | Electronic position switches



Universal encoder systems

- Speed-, position- and error-switches
- Bus interfaces
- Simple configuration

Position monitoring

- Up to 15 switching outputs
- Extremely high positioning and switching accuracy (28 bit)
- Simple configuration and integrated switch tests

Magnetic encoders | Tacho generators



Speed and / or position measurement

- Hollow shaft design up to Ø 1500 mm
- Wear-free due to bearing-free design
- Incremental, absolut and / or overspeed outputs

Speed measurement

- Solid shaft design for flange and foot mounting
- Hollow shaft design (A4 or hollow shaft type tacho generators)
- High-precision linearity 10- 500 V / 1000 rpm (0.4-100 W)

Accessories electronic and mechanical



Signal transmission, processing and diagnostics

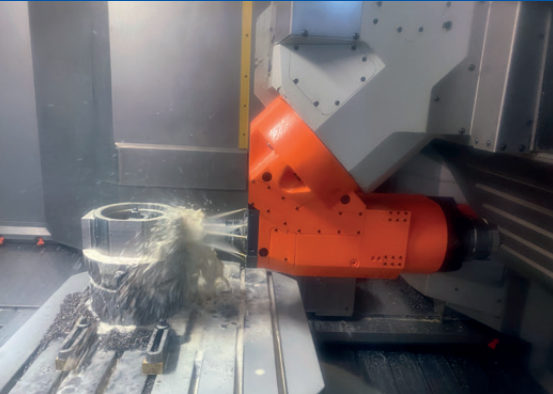
- Fiber-optic technology (FOC)
- Signal processing HTL / TTL
- Diagnostics accessories

Tailor-made encoder assembly

- Torsion resistant couplings
- Screw-in and flange adapter shafts
- Installation with integrated fault exclusion (PL e)

EXPERTISE | CAPABILITIES

CNC Turning | Milling | Drilling



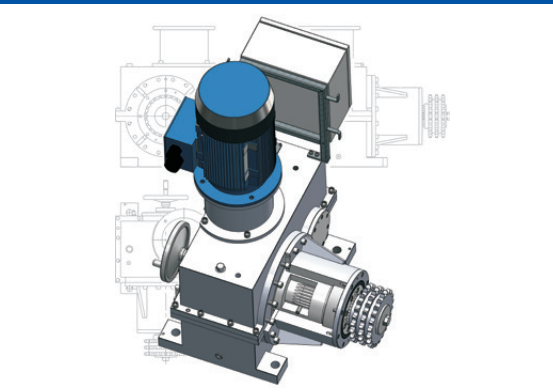
- Vertical turning centres (vertical lathes)
- High-performance horizontal bed machines
- Turning: Workpieces up to $\varnothing 2,700$ mm
- State-of-the-art CNC full-portal milling machines
- CNC 5-axis coordinate milling machines
- Milling / Drilling: Workpieces up to $\varnothing 1,800$ mm / height 1,400 mm
- High production accuracy
- Optimum surface quality

Subcontract balancing



- Balancing technology according to DIN 21940-11
- Quality levels G16, G6.3 or G2.5
- Balancing in one or two planes
- Balancing certificate according to DIN EN 10204

Gear design and development



- CAD design of gears and system associated with gears
- Customized designing and calculation of drive elements
- Prototyping
- Planning and implementation of systems for drive technology
- Optimization of all elements in the drive train

Iron foundry



- Classic hand moulding for individual parts and small series
- Complete production according to customer specifications
- Unit weights up to 6,000 kg
- Moulds without model costs

GEARBOXES

ASSEMBLY / SERVICE

Gear assembly



- Cost transparency for all assembly steps
- Large stockpile for quick response in case of emergency
- Tailor-made maintenance and service contracts
- Full support according to our customers' specifications
- Many years of experience in the reliable assembly of gearboxes
- Wide product range of standard and special solutions
- Repair and overhaul of third-party products

Gear types



- Bevel / angular gears
- Worm gear units
- Servo gearboxes
- Planetary gears
- Spur gears
- Screw jacks / lifting systems
- Superimposed gear units
- Large gears
- Special gears

Brand-independent gear repair



- Professional installation and removal service at the customer's premises
- Fast and professional damage analysis
- Fixed cost estimate for the repair
- In house mechanical production
- Using original parts or parts of equivalent quality
- Load testing on our in house testing facility
- Balancing and alignment service
- Guarantee on all of our services
- Customised spare parts storage
- Individual maintenance and service concepts available

When can we convince you? Contact us!

FLOHR Germany

Flohr Industrietechnik GmbH
Im Unteren Tal 1
D-79761 Waldshut
Phone +49 7751 8731-0

info@flohr-industrietechnik.de
www.flohr-industrietechnik.de

FLOHR Switzerland

Flohr Industrietechnik GmbH
Zilistude 164
CH-5465 Mellikon/AG
Phone +41 56 267 08 10

info@flohr.ch
www.flohr.ch

FLOHR Austria

Flohr Industrietechnik
Bucherstraße 37b
A-6922 Wolfurt
Phone +43 5572 372 158

info@flohr.at
www.flohr.at