

ZOLLERN

Solid metals. Fine solutions.

RÜCKLE

EIMELDINGEN

Innovation
meets tradition



The new rotary swivel table series
with ZOLLERN-torque-motors

The ZOLLERN-Group

With first-class products and customized solutions in the sectors drive technology, investment casting, sand casting and forging as well as steel profiles we are one of the leading manufacturers – worldwide.

As one of the oldest family-run businesses in Germany we are proud to look back on an impressive 300-year history during which we have merged tradition with innovation. Our main focus is on excellent quality and service.

Welcome to the world of ZOLLERN, where experience and progress go hand in hand to offer our customers the best solutions and products for their requirements in various industrial sectors.

Inhalt	Seite
Innovation meets tradition	3
The new rotary swivel table series	4
Dimensions	6
ZOLLERN-torque-motors in all axes	8
Alternative drive options	9
Modular design	10
State-of-the-art CNC technology	10
Components made in Germany	11
Product examples ZOLLERN-rotary swivel tables	12
Service at the highest level	14
Measuring technics	16
Further ZOLLERN products for tool machines	17
ZOLLERN Group Product areas	18

Innovation meets tradition: The new rotary swivel table series of ZOLLERN



The new standardised swivelling table series from ZOLLERN enables maximum productivity in 5-axis machining. Thanks to the use of ZOLLERN torque motors, the rotary swivelling axes can achieve maximum dynamics.

This series combines state-of-the-art technology with established quality and sets new standards in precision and flexibility.

The modular design enables customised configurations with a high cost-efficiency.

An outstanding characteristic of these swivel tables is the spring-actuated precision clamping, which guarantees extremely high positioning accuracy.

This characteristic makes it the ideal choice for complex machining processes where maximum precision is required. The series is available in two versions: As a mill version and for milling-turning applications as a Mill-Turn model.

Both designs offer maximum flexibility and enable a wide range of machining options to meet the different requirements of modern manufacturing.

With this new swivelling table series ZOLLERN is once again demonstrating innovation and quality, based on a long tradition. Trust on the expertise and experience of ZOLLERN and experience yourself the future of precision machining.

»» All axis with ZOLLERN-torque-motors ««

The new rotary swivel table series

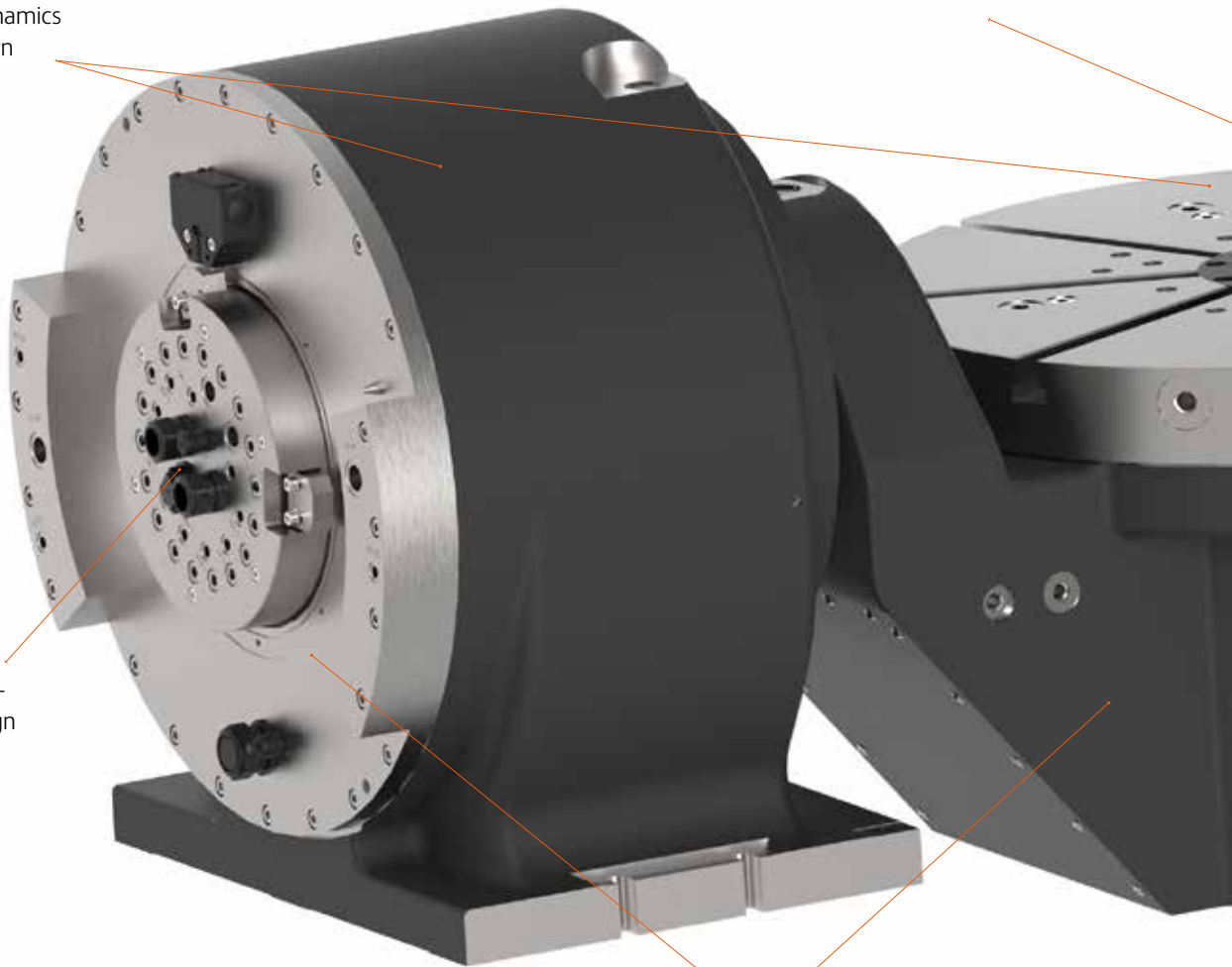
High-performance ZOLLERN-torque-motors for high dynamics and precision in all axes

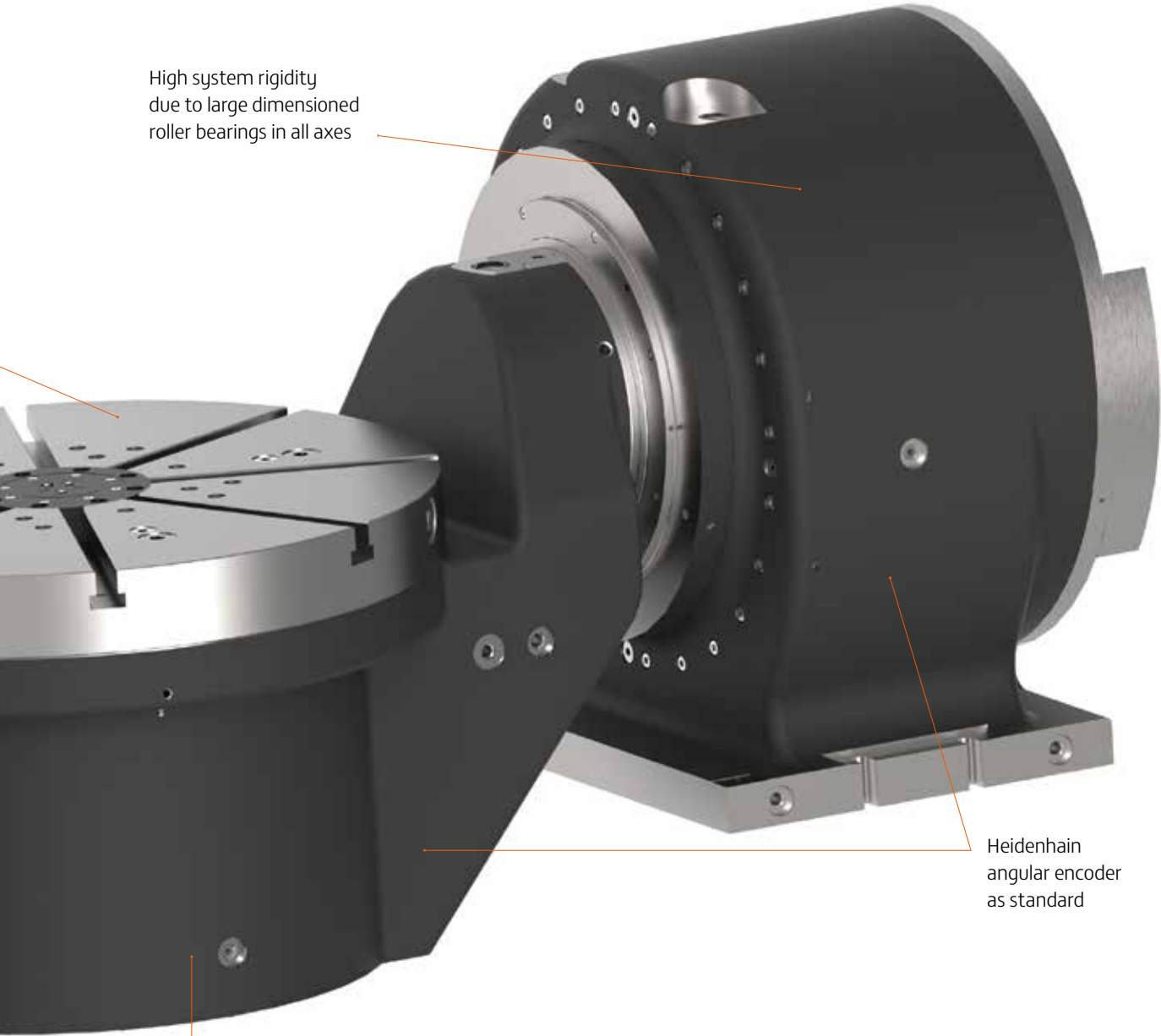
Optional ZOLLERN-torque-motors with reduced torque ripple for higher precision

Maintenance-friendly design

Spring-operated precision clamping with hydraulic booster in all axes

»» Maximum rigidity, precision and dynamics thanks to double sided clamping and torque-motors ««





High system rigidity due to large dimensioned roller bearings in all axes

Heidenhain angular encoder as standard

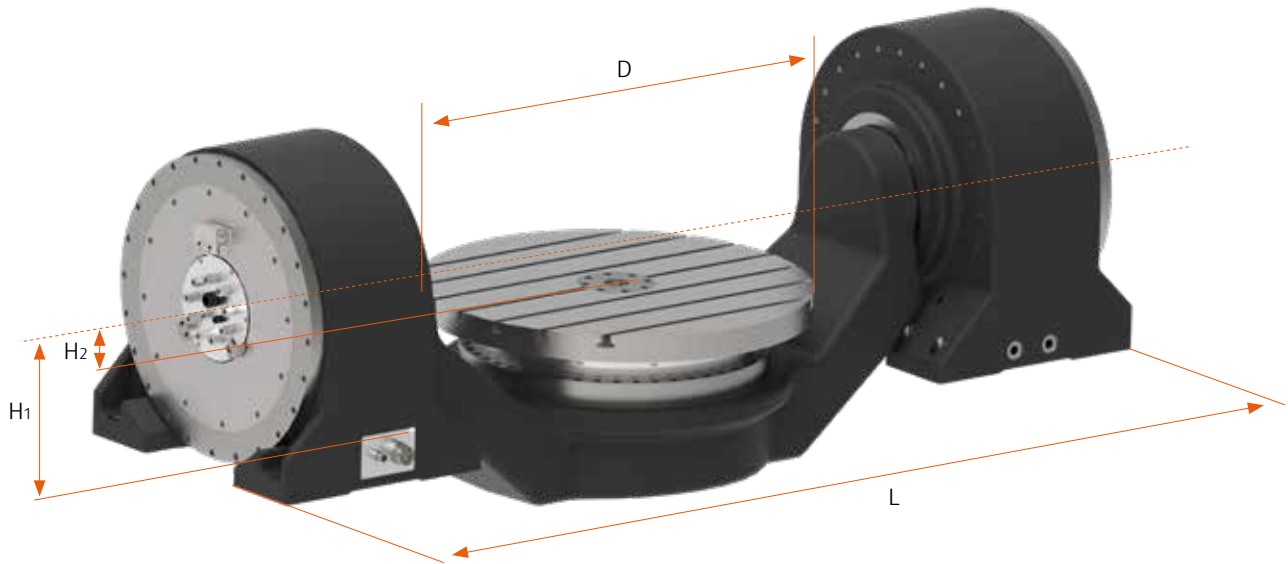
Integrated rotary transmission

- Optional high-speed series (TRT)
- For precise 5-axis simultaneous machining
- Pressure sensor clamping A-axis
- Pressure sensor clamping C-axis
- Acceleration sensors
- Temperature sensors
- Leakage sensor (optional)
- Tool measurement Renishaw or Blum (optional)



Dimensions

MRT 2xs



// Dimensions

Model	L (mm)	D (mm)	H ₁ (mm)	H ₂ (mm)
MRT 250 2xs	1800	630	250	100
MRT 320 2xs	2170	800	325	100
MRT 400 2xs	2560	1000	325	140
MRT 500 2xs	2800	∅1200 x 900	325	170

» Close dialogue between design and assembly is the basis for the quality «

MRT 2xs rotary table series

for complex 5-axis milling operations

Model		MRT 250 2xs	MRT 320 2xs	MRT 400 2xs	MRT 500 2xs
Table plate diameter	mm	630	800	1.000	Ø 1.200 x 900
Interference diameter	mm	800	1.100	1.250	1.400
Table load capacity	kg	850	1.200	2.000	2.500
Swivelling angle	° (+/-)	120	120	120	120
Total table weight	kg	1.350	2.100	3.400	4.200

A-axis					
Bearing size	mm	200	260	325	325
Dividing accuracy	" (+/-)	5	5	5	5
Clamping moment at max. pressure	Nm	2 x 2.500	2 x 3.500	2 x 4.200	2 x 5.500
Clamping moment at p = 0 (spring)	Nm	2 x 1.500	2 x 2.100	2 x 2.300	2 x 3.200
Clamping pressure	bar	60	60	60	70
Torque-motor size		360-100	530-100	530-150	530-200
Nominal torque S1	Nm	2 x 1.050	1 x 1.850	2 x 2.740	2 x 3.650
Max. torque S6	Nm	2 x 2.050	2 x 3.700	2 x 5.020	2 x 6.500
Speed	1/min	100	100	100	60

C-axis					
Bearing size	mm	260	325	395	460
Dividing accuracy	" (+/-)	5	5	5	5
Clamping moment at max. pressure	Nm	2.500	3.000	4.200	5.500
Clamping moment at p = 0 (spring)	Nm	1.500	1.500	2.200	3.200
Clamping pressure	bar	60	60	70	80
Torque-motor size		360-100	530-100	530-150	760-70
Nominal torque S1	Nm	1.020	1.820	2.740	2.900
Max. torque S6	Nm	2.050	3.340	5.020	5.300
Speed	1/min	100	100	100	80

TRT 2xs rotary table series

for dynamic 5-axis mill-turn machining

Model	TRT 250 2xs	TRT 320 2xs	TRT 400 2xs	TRT 500 2xs	
Speed	1/min	up to 1.000	up to 800	up to 600	up to 400

ZOLLERN-torque-motors in all axes



All axes in the new series are equipped with ZOLLERN-torque-motors and are characterised by following features:

- High efficiency
- Low torque ripple
- Very high torque density
- Zero backlash
- Small installation space
- Temperature stability
- Maximum standstill torques

Project planning, electrical design, engineering, production and assembly as well as the commissioning of the direct drives are carried out in-house at ZOLLERN. This ensures an efficient and cost-optimised design and high quality.

Customer-specific wishes and requirements within the standard, such as motor design and connection geometry are of course taken into account.

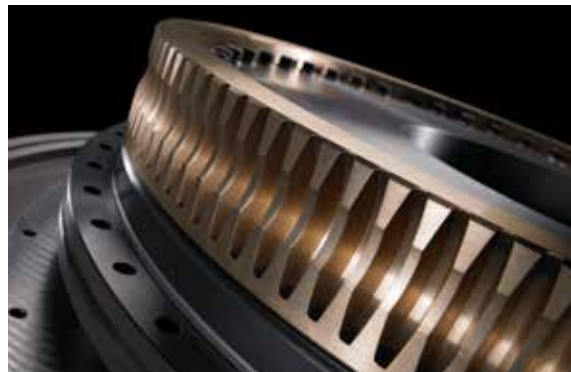


Alternative drive options



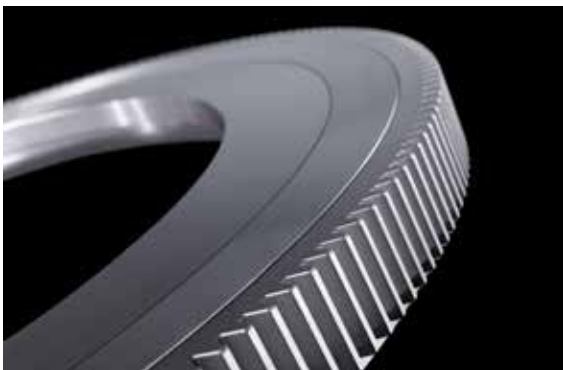
Bevel gear drive

- Compact design
- Transmission of highest torques
- Backlash-free due to master slave



Worm drive

- Compact design
- Cost-effective solution for positioning operation
 - Self-locking



Spur gear drive

- Backlash-free due to master slave
- Transmission of high torques

Broad experience from decades of successful work with mechanical drives, enables us to optimise the use of the drive options according to customer requirements from bevel gear drives, worm gears or spur gear drives.

» Depending on the customer requirements different drives can be combined.«

Modular design

Options

- High-speed torque-motor
- Rotary transmission
- Zero-point clamping system
- Clamping cones
- Pallet clamping according to DIN 55 201
- Measuring system with increased accuracy
- Energy chain



Clamping cones



Zero-point clamping system



Pallet according to DIN 55 201

State-of-the-art CNC technology



» Highest and consistent quality through high in-house manufacturing depth on modern production lines «

Components Made in Germany



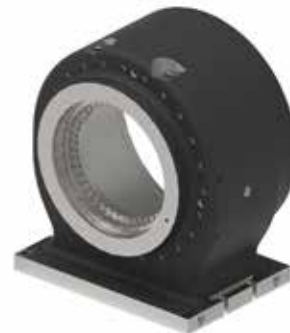
ZOLLERN-clamping system



ZOLLERN-torque-motors



ZOLLERN-rotary transmission



High-quality cast components
made in Germany

- Heidenhain angular encoder as standard
- Large dimensioned YRT bearing from European production

»» Housing and bridge made of ductile cast iron, for higher tensile and bending strength compared to grey cast iron ««

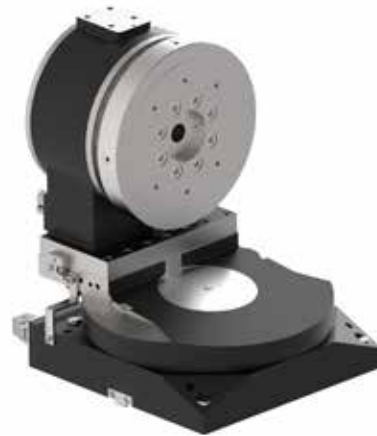
Product examples

ZOLLERN-rotary swivel tables



MRT 200 2xs

- A-Axis: Bevel gear
- C-Axis: Torque-motor
- Table plate: Ø 800 x 630 mm
- Table load: 300 kg



MRT 200 2xs

- A-Axis: Torque-motor
- C-Axis: Torque-motor
- Table plate: Ø 500 mm
- Table load: 500 kg



MRT 250 2xs

- A-Axis: Torque-motor
- C-Axis: Torque-motor
- Table plate: Ø 800 x 630 mm
- Table load: 300 kg



TRT 250 2xs

- A-Axis: Bevel gear
- C-Axis: Worm gear
- Table plate: 600 x 600 mm
- Table load: 600 kg

» 5-axis machining with highest precision «



MRT 320 2xs

- A-Axis: Bevel gear
- C-Axis: Worm gear
- Pallet: 1.000 x 1.000 mm
- Table load: 300 kg



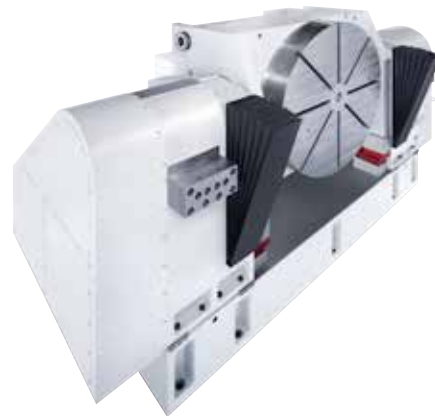
MRT 400 2xs

- A-Axis: Bevel gear
- C-Axis: Worm gear
- Table plate: Ø 1.150 mm
- Table load: 2.200 kg



MRT 800 2xs

- A-Axis: Bevel gear
- C-Axis: Torque-motor
- Pallet: 1.250 x 1.250 mm
- Table load: 4.000 kg



MRT 1000 2xs

- A-Axis: Spur gear
- C-Axis: Worm gear
- Table plate: Ø 1.600 mm
- Table load: 10.000 kg



Service at the highest level with the global service network from ZOLLERN

Fast response times and competent support on site is provided by the worldwide service network of ZOLLERN.

- Original spare parts
- Retrofitting, revision and repair
- Field service
- On-site fault analysis
- Maintenance service
- On-site commissioning
- ZOLLERN-training centre
- Diagnostics and condition monitoring
- 24/7 support, service hotline

You can find our service centres on the back of the brochure.

»» You haven't found what you were looking for?

We are glad to advise you on customized designs and further of our product portfolio from ZOLLERN-Drive Technology. «

Measuring technics

Documentation of measuring results

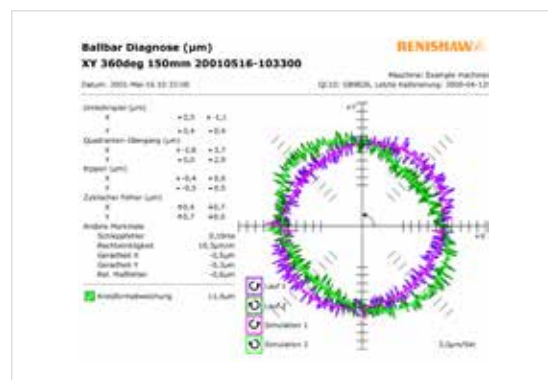
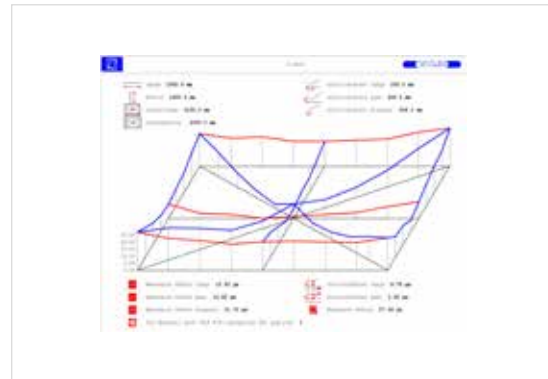
>>> Quality measuring is at ZOLLERN not only » measuring on norms «. It is elaboration and interpretation of the problematic issues in all variations «



Measuring of turning axes in all accuracies and sizes.

Length:
Table diameter 150 mm up to 5.000 mm

Accuracy at best requirements:
± 1 arcsec (Laser)
± 0,2 arcsec (Autokollimator)



- Detailed documentation of all measuring results
- Graphical presentation for better understanding
- Documentation of measuring procedure
- Short forms (your manager just reading the facts)
- Interpretation of significant deviation of expected worth
- Analysis in different international norms, for example DIN 230, VDI/DQG 3441

Further ZOLLERN products for tool machines



ZOLLERN-rotary tables MRT for milling machines

- Table top: 320 - 4.500 mm
- Load capacity: 300 kg – 260 to



ZOLLERN-rotary tables TRT for lathes

- Table top: 600 - 6.500 mm
- Load capacity: 2.000 – 250.000 kg



ZOLLERN-pallet changer systems for machine tools



ZOLLERN-hydrostatic centre drive

- Integrated torque motor
- Centre passage from \varnothing 100 to 300 mm



ZOLLERN-aerostatic rotary tables ZART

- For measuring machines and ultra-precision machine tools
- Table diameter: \varnothing 200 – 2.000 mm
- Operating pressure: 5-6 bar



ZOLLERN-torque-motors for machine tools

- Size: TM0140 – TM2070
- Outer diameter: \varnothing 160 – 2.200 mm
- Torque: 20 – 43.500 Nm



ZOLLERN-hydrostatic rotary tables ZHRT

- For grinding machines and heavy duty applications
- Table diameter: \varnothing 200 – 4.000 mm



ZOLLERN-hydrostatic spindle

- Concentricity and axial runout accuracy < 0.1 μ m
- Thermally stable

ZOLLERN Group

Product areas

Metals and shaping

// Investment casting parts



- Turbine components
 - Vanes / Blades / Shrouds / Heat Shields
- Structural Castings
 - Gas Turbines / Aero / Engines Defense / Medical / Industrial Components
- Automotive
 - Turbine Wheels / Waste gates / Vanes / Pins / Planet carriers
- Implants
 - Knees (Femur, Tibia) / Hipps
- Alloys
 - Super alloys / Cobalt Chrome alloys

// Sand casting parts



- Sand casting
- Croningguss / Maskenguss
- Ceramic casting
- Continuous casting
- Centrifugal casting

// Forgings



- Forgings made of pure copper and copper alloys
- Semi-finished products, open die forged, flat bars, round bar
- Drop forged parts
- Rings, seamlessly rolled
- Bushings, seamlessly forged
- Individual pieces, small series, large series

// Special profiles and finished parts



- Special profiles, coils, bars
- Customer-specific finished parts
- Profile types hot-rolled, cold-rolled, cold-drawn, induction-hardened

Drive technology and automation

// Gearboxes



- Travel drives
- Slewing gearboxes
- Winch gearboxes
- Industrial gear units
- Gearboxes for tunnel boring machines
- Sugar mill gearboxes
- Electric drive systems
- Condition Monitoring and Predictive Maintenance

// Winches



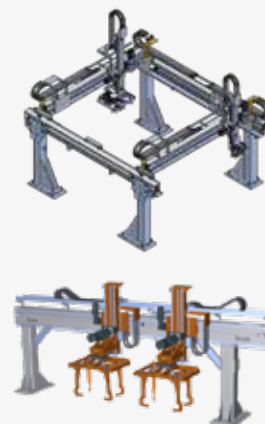
- Hoisting winches
- Free fall winches
- Pull winches
- Rescue boat winches
- Winch systems
- Winch gearboxes

// Electric motors



- Torque motors kits
- Synchronous motor kits
- Synchronous motor modules

// Automation, special systems



- Linear units, linear modules, gantry axes, portal units
- Telescoping axes
- Rotary modules, rotary tables
- Line gantries, area gantries
- Robot traverse axes, jig axes
- Storey lifter and lifting columns
- Fast conveyor
- Framing tenter handling / overhead systems
- Storage systems
- Complete systems with steel construction and control
- Special solutions
- Gripper

// Hydrostatic systems



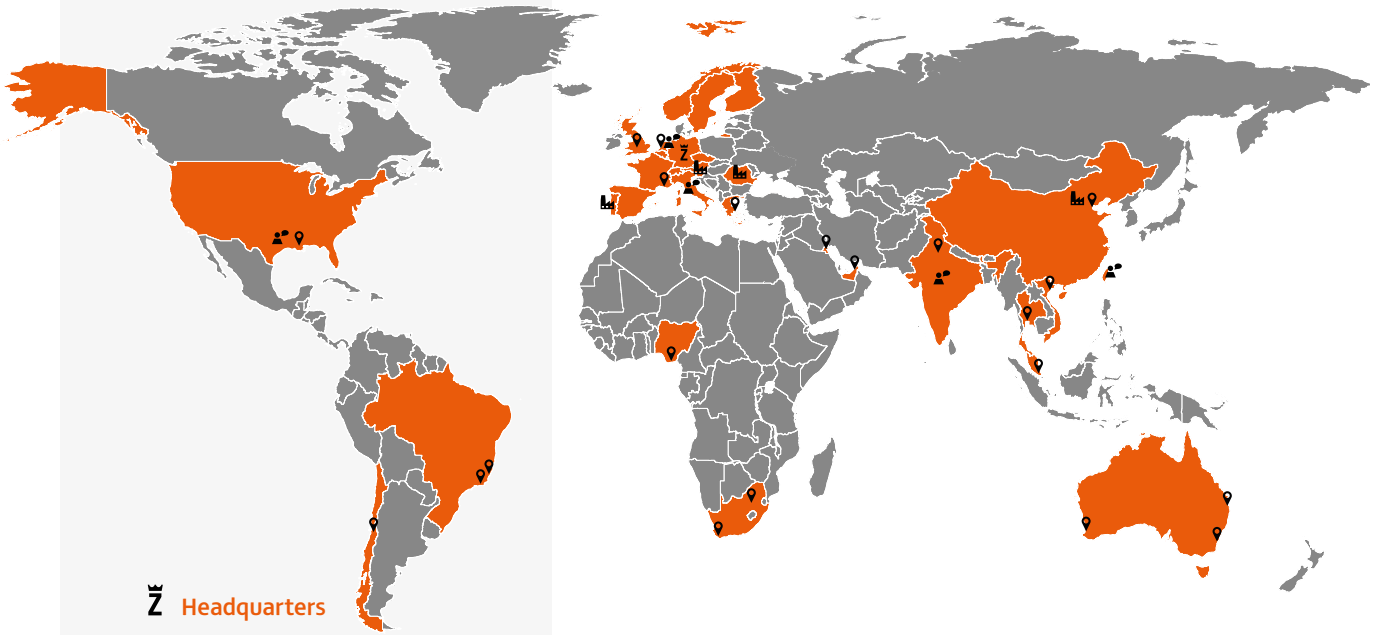
- Hydrostatic spindle units
- Hydrostatic rotary tables
- Aerostatic rotary tables
- Hydrostatic linear guides
- Hydrostatic center drive spindles
- Hydrostatic bearing components
- Hydrostatic special applications and test benches

// Rotary tables systems



- Roller bearing rotary tables
- Hydrostatic rotary tables
- Automatic pallet changing systems and linear axes
- Swiveling tables
- After sales service for products of ZOLLERN, Rückle and Eimeldingen

ZOLLERN



Headquarters

Subsidiaries

Italy and southern Europe
Netherlands and Northern Europe
USA
India and Southeast Asia
Taiwan, China

Factories

Germany
Portugal
Romania
Slovenia
China

Service partner

Australia
Brazil
Chile
Greece
Great Britain
Kuwait
Singapore
South Africa
Thailand
Dubai
USA
Vietnam



ZOLLERN-worldwide



ZOLLERN-Products

ZOLLERN GmbH & Co. KG

Heustrasse 1
88518 Herbertingen
Germany
T +49 7586 959-0
F +49 7586 959-575
zha@zollern.com
www.zollern.com

