

# REISHAUER

Gear Grinding Technology

## RZ 360



**MACHINES**

PERIPHERAL SYSTEMS

TOOLING

TECHNOLOGY

SERVICES

# Gear Grinding Machines

# Customer Value in Focus

## Invented and refined to perfection by Reishauer, our gear grinding process offers valuable advantages:

- Maximum productivity due to high machining rates and short idle times
- Excellent grinding results due to limited influence of the gear blank quality
- Extreme process reliability due to shifting and dressing of the grinding worm on the spindle
- Low perishable costs due to long life of the dressing tool and grinding wheel
- Application of Reishauer Low Noise Shifting technology to produce quiet running gears
- Short contact times between gear and grinding worm flank result in high compressive residual stresses
- Optional tooth root grinding to achieve optimum load capacity
- CNC machine kinematics allowing a wide range of gear flank modifications
- Reishauer Twist Control Grinding technology enables the setting of defined values for flank twist

For more than 60 years Reishauer gear grinding machines have enjoyed an outstanding worldwide reputation. They are known for the highest precision as well as most reliable and efficient production processes.

The series RZ 60, RZ 160, RZ 260 and RZ 360 combines all technical highlights utilized in Reishauer Gear Grinding Technology. It is a scalable product and its modularity provides maximum productivity in large production series and maximum flexibility in small series. The machines are configurable to individual needs and can be adapted to changing boundary conditions.

## Your Benefit:

- Common layout for all gear grinding machines
- Common interfaces to all peripheral systems
- Consistent operation, set-up and maintenance
- Common spare parts
- Operators are exchangeable due to identical operating routines
- Exchangeable tooling
- Compatibility to other, even older Reishauer Gear Grinding Machines
- Hybrid design of machine bed and spindles for high stiffness and damping
- Multiply sealed guideways and drives for long lifetime and value retention
- Acoustic emission analysis for automatic set-up and dressing
- Reishauer balancing system for automatic balancing and monitoring of the grinding wheel
- Reishauer PrecisionDrive for adaptive control of the workspindles
- Reishauer Operator Interface with intuitive operator guidance



RZ 60



RZ 160



RZ 260



RZ 360

# Compact Machine Design for Large Gears

## Flexibility in Focus

With the hard finishing of larger gears, e.g. for commercial vehicles, the cycle time is mainly defined by the grinding time – despite increased productivity in the recent years. At the same time the batch size is reduced and the number of variants increases.

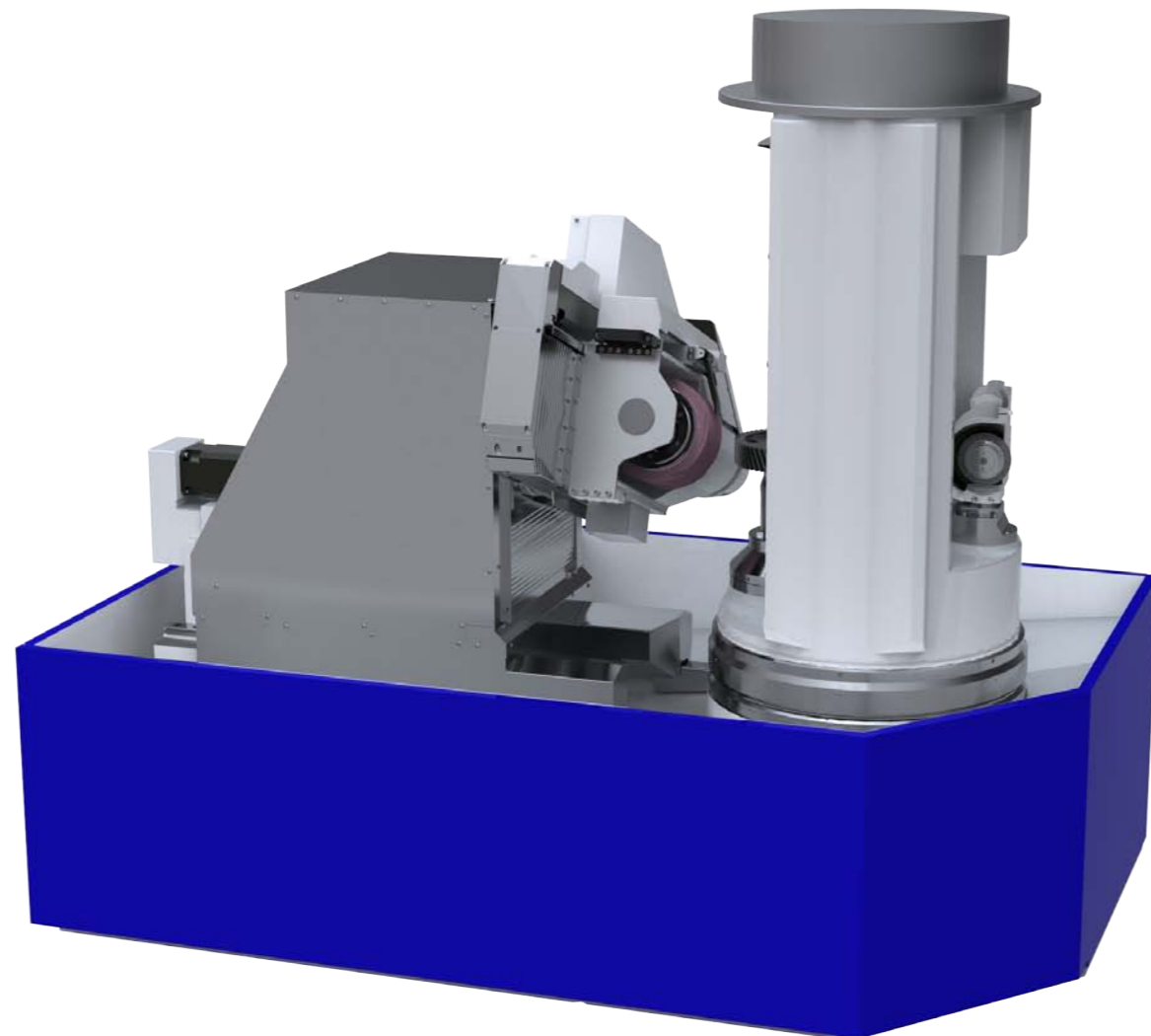
For this reason Reishauer has developed the RZ 360 which – in comparison to the smaller machines RZ 60 to RZ 260 – is offered with just one workspindle.

Like on the smaller machines, the workspindle is also integ-

rated in a rotating turret, carrying the workspindle as well as the dressing unit. This dressing unit is placed at 180° offset towards the workspindle, which enables an excellent accessibility for loading and unloading.

Despite the great working range up to a diameter of 360 mm and a module of 6 mm the external dimensions of the RZ 360 are identical with the small machines.

It is therefore an extremely compact machine – especially with regards to the great working range.



## Quick Change-Over

The architecture of the RZ 360 is especially designed for quick change-over. The revolving turret enables the change of the clamping fixture while the grinding wheel is being dressed. Due to the parallel operations the change-over time can be reduced significantly.

For small batches and numbers of pieces the RZ 360 offers the possibility of profile grinding in which the investment costs per gear type can be reduced. In addition a scanning stylus can be integrated that further minimizes the time of the initial set-up of a new part as well as the change-over time.

The RZ 360 offers even more advantages:

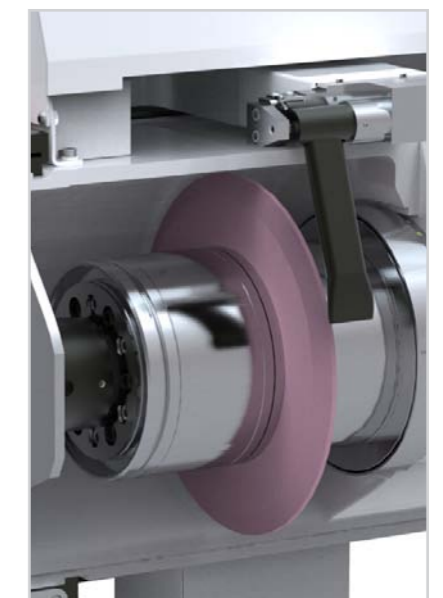
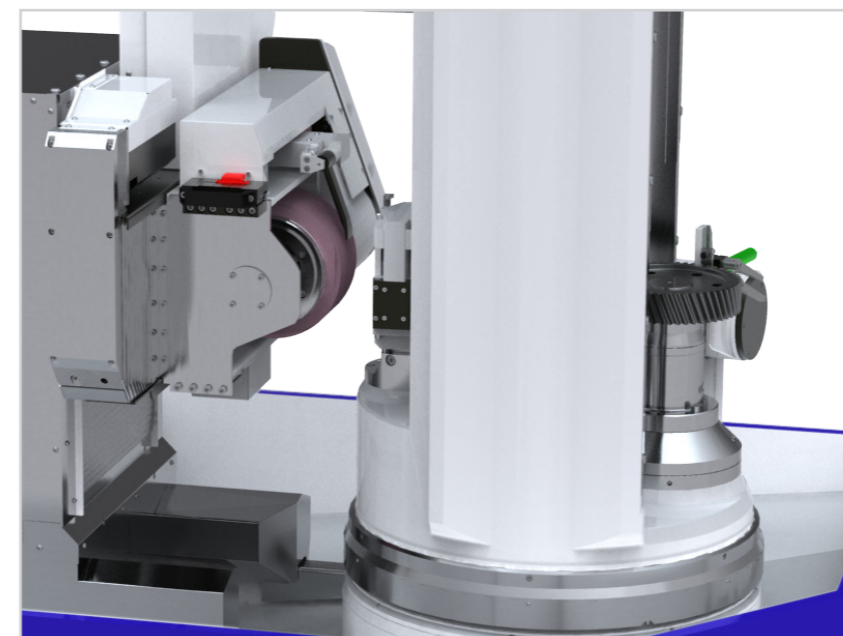
- Profile grinding on main spindle or on Reishauer Profile Grinding Head with integrated high-speed spindle to accommodate small diameter grinding wheels
- Measuring system with scanning stylus for short measuring times at high resolution
- Separate diamond tool for quick and low-cost outside diameter dressing of the grinding wheel
- Modular grinding head for the use of a wide range of continuous generating as well as profile grinding wheels



Reishauer Profile Grinding Head



Gear Inspection



Profile Grinding on Main Spindle

# Technical Data

| Working Range*                         | RZ 360                 |
|--|------------------------|
| Gear Outside Diameter                  | 0 – 360 mm             |
| Module                                 | 0.5 – 6 mm             |
| Swivel Angle (Grinding Head)           | +/- 48°                |
| Grinding Stroke (max.)                 | 180 mm                 |
| Shaft Length (max.)                    | 610 mm                 |
| Workspindle Speed (max.)               | 1600 min <sup>-1</sup> |
| Workpiece Weight (incl. Fixture)       | 100 kg                 |
| Grinding Speed (max.)                  | 80 m/s                 |
| Grinding Wheel Outside Diameter (max.) | 275 mm                 |
| Face Width of Grinding Wheel (max.)    | 160 (125) mm           |
| Diameter of Dressing Tool              | 123 / 140 mm           |

\*Out of range dimensions can be verified upon request.

## Hardware Options (Extract)

|   |
|---|
| Pivoting Dressing Unit                          |
| Tailstock                                       |
| Profile Grinding Head for small grinding wheels |
| Gear Inspection                                 |

## Technology Options (Extract)

|  |
|--|
| Profile Grinding                           |
| Twist Control Grinding                     |
| Grinding of Conical Gears (Beveloid gears) |
| Grinding of Non-Involute Gears             |
| Line Dressing                              |
| Integrated Oil Spinning                    |
| Work fixture set-up during dressing        |

## Control

|                                      |
|--------------------------------------|
| Siemens Sinumerik 840D Solution Line |
| Reishauer Precision Drive            |
| Reishauer User Interface             |



The RZ 360 is a very compact machine. The Operator's panel can be easily moved from the grinding to the dressing position. All service components are easily accessible and located in a central position, making the machine very user-friendly and efficient to operate.

Colors: RAL 9010 (Pure White)  
RAL 5022 (Ultramarine Blue)

# Gear Competence from one Source



## REISHAUER and FELSOMAT are redefining Gear Manufacturing

Reishauer not only manufactures excellent gear grinding machines, we are a reliable partner offering our systems expertise allowing you to master the entire gear grinding process. In "Reishauer Gear Grinding Technology" we see the commitment to machines, loading systems, workpiece fixtures, dressing tools, grinding wheels, gear inspection and process technology. Project engineering and consulting complete our scope of responsibility.

And with FELSOMAT as a member of the Reishauer Group, this approach is consequently extended to the whole gear manufacturing chain. With the FlexLine, we provide pure efficiency in gear manufacturing to our customers.

REISHAUER  
GROUP

REISHAUER

FELSOMAT

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