RECKNAGEL®

Präzision in Stahl

PRECISION

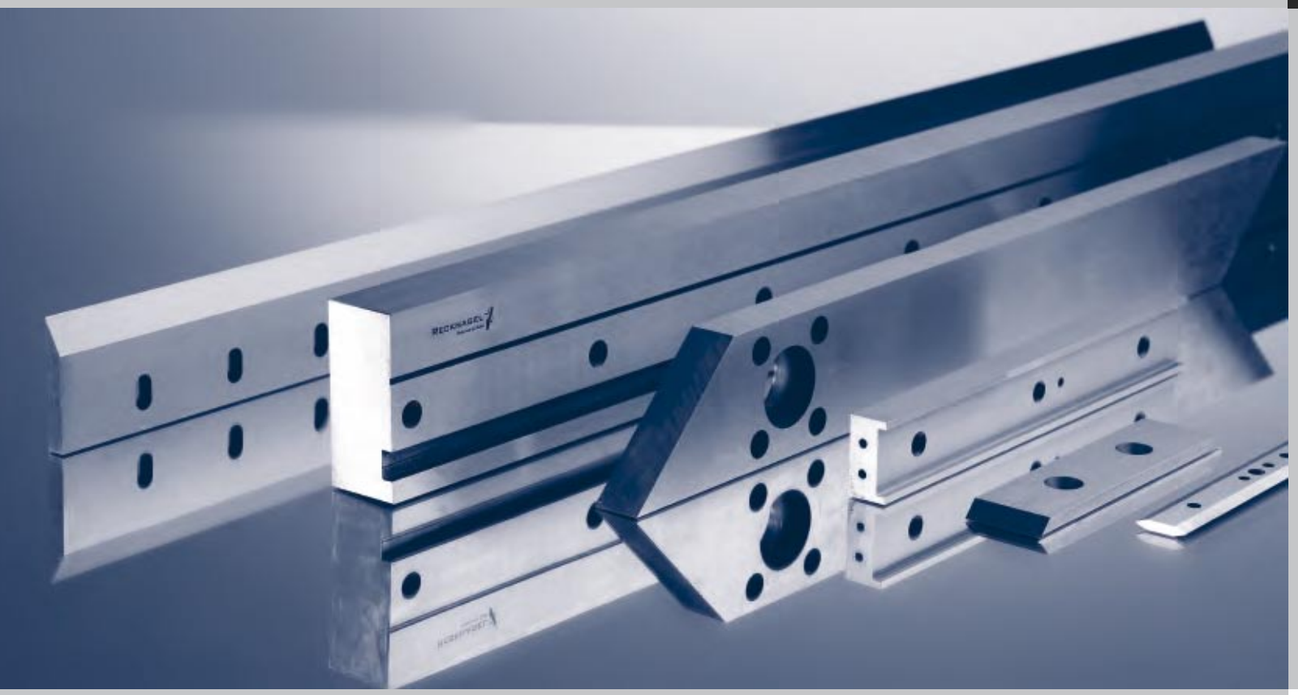
Made in Germany

PRECISION GUIDE RAILS

Hardened precision guide rails are our traditional core product in mechanical engineering and serve as a determining element of quality. With 50 years of experience as manufacturers of high-quality machine parts based on individual customer designs, Recknagel is recognized as a competent partner in the field of mechanical engineering.

From a wide selection of particularly suitable steels, combined with the appropriate heat treatment options, we manufacture a high-quality product tailored to your demanding applications. For quick response capabilities, we maintain an extensive tool steel inventory: www.stahlnetz-werkstoffe.de.

Recknagel's guide rails are delivered ready for installation, including heat treatment and machining within tight tolerances.



Our standard parallelism is 0.01 mm per meter, and the standard surface finish during fine grinding is Ra = 0.8 µm. Micro-precise guide rails are possible depending on the design.

We manufacture through-hardened precision guide rails up to a length of 4,000 mm. Long guide tracks should be divided, and precisely ground end faces allow for continuous assembly. With fine grinding surfaces of up to 1,000 mm × 3,000 mm or 600 mm × 4,000 mm, we can also grind multiple rails as a set.

Due to the heat treatment, there may be a length change of +/- 1‰ relative to the measuring length for through-hardened guide rails, which is not always avoidable and should be considered in the design, as specified by DIN 69056:1992-01 for guide rails.

For the most accurate borehole distances, hard drilling is possible for hardness levels up to 60 HRC. We manufacture inductively hardened guide rails up to 5,000 mm. The rails are hardened with minimal distortion and, therefore, receive a threaded hole on the end face for suspension during hardening.

The hardened layer on the finished rail is approximately 2 mm deep and 56–60 HRC hard. Holes and threads can usually be added in the hardened state, eliminating any changes in hole spacing due to hardening.

Thanks to state-of-the-art CNC grinding technology with up to 75 kW spindle power, we can achieve precise radii, profiles, inclinations, and more with high performance and precision.

Upon request, we are more than willing to share our expertise and recommend the most suitable tool steel and the appropriate heat treatment process for your specific design.

Depending on your needs, design, and operating conditions for your guide rails, we can manufacture components in series, as well as in small batch sizes starting from 1 piece.

For roller guides, we recommend hardness levels starting from 56 HRC, typically fully hardened. For sliding guides, our Toolox® 44 material is also a very interesting alternative, optionally with a nitrided surface (800–900 HV5 64–67 HRC).

Of course, tempered, inductively or case-hardened components are also available.

Hardened and ground "strips" are commonly used for both new machinery and equipment as well as in retrofit applications.

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PRECISION CNC PROFILE GRINDING

CNC profile grinding

Width: max. 650 mm
Height: max. 550 mm
Length: max. 2,600 mm
Depending on the machining task

Spindle drive: 75 kW, water-cooled, climate-controlled cooling water with vacuum high-performance fine filter system.

CNC control Siemens 840 D

Profile generation at the grinding tool with a diamond form roll or profile roll, max. 180 mm width

CNC flat grinding

Width: max. 1,000 mm
Height: max. 800 mm
Length: max. 4,000 mm
Depending on the machining task

Stöckel Precision Flat Grinding Machine: max. 600 x 4,000 mm, all main components made of measuring machine granite for optimal accuracy.

Waldrich-Coburg CNC Guide Rail Portal Grinding Machine: max. 1,000 x 3,000 mm, with horizontal spindle and swivel spindle for grinding angular surfaces or undercuts, table drive, and cross-axis with linear motor.

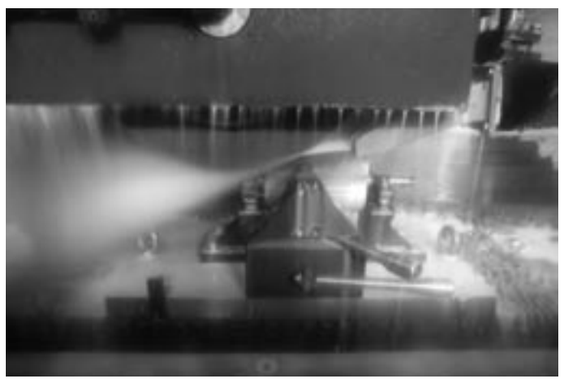
Göckel Flat Grinding Machine with Grinding Segments: max. 600 x 6,200 mm with Ra = 4 µm (depending on material and component).

The machine data represent typical and maximum values. In total, we use over 20 grinding machines with a table load of up to 3,000 kg and processing areas of 600 × 4,000 mm and 1,000 × 3,000 mm, and in cross grinding, up to 600 × 6,200 mm. The total grinding area exceeds 35 square meters!
For achieving high component quality, it's not only the high machine accuracy that matters but also the experience and skill of our employees in the precision straightening of workpieces by hand.

In the Recknagel factories in Hückeswagen and Christes, more than 100 people work with great care on your components.

With our high-performance grinding machines Mägerle MFP, we grind components up to 2,600 mm in length with the highest precision, depending on the processing requirements. Thanks to the path-controlled longitudinal axis of the machine, not only profiles but also radii, angles, and, for example, inlet bevels with transition radius can be precisely manufactured. Wear-free hydrostatic guides allow for the highest accuracy, especially when using the low-deformation materials Toolox® 33 and Toolox® 44. Due to the high spindle drive power of 75 kW and flexible profiling with diamond-shaped rollers, both individual pieces and large series can be produced economically.

You can receive an optimal offer by providing us with contour data in CAD format:
(DXF or DWG in a 1:1 scale, STEP, JT, NX native): schleifen@stahlnetz.de



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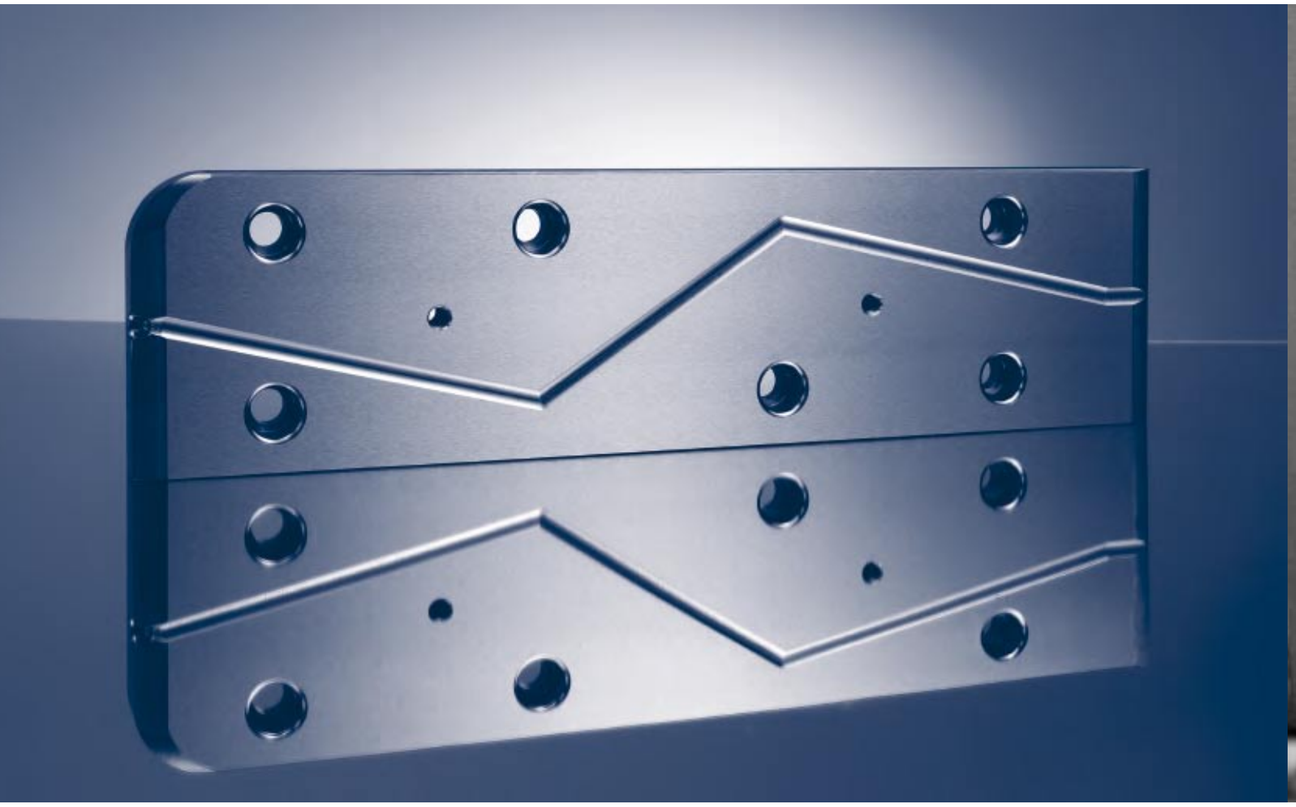
PRECISION CNC MILLING



Powerful CNC machining centers and experienced specialists, most of whom we train in-house, are complemented by efficient CAD/CAM systems (MASTERCAM, Siemens NX CAD/CAM) to integrate your design data into our CNC programs.

The optimal interaction of these three components ensures the rapid, reliable, and precise production of your workpieces. Whether it's single parts or series, small components or large-scale parts (up to 10 tons), we are equipped to meet your requirements.

We manufacture CNC milled parts from low-alloyed steels as well as high-alloyed and tempered or hardened tool steels. The right parts for your needs.

CNC Milling

10 CNC machining centers
e.g., Hedelius BC 100 1,000 × 700 × 4,500 mm
Workpiece clamping with magnet or CNC-controlled hydraulic clamping system, 55 kW main spindle drive, 30-tool changer.

CNC sawing

3 CNC panel saws Kasto and Danobat
Cutting lengths: up to 1,250 × 4,800 mm

1 block saw Kasto Up to 800 × 1,060 mm saw cross-section, piece weight up to 10 tons.

4 CNC bar stock saws Kasto and Behringer Up to a diameter of 520 mm or flat 620 x 520 mm saw cross-section.

10 conventional band and circular saws
Cutting lengths: up to 2,100 mm.

1 carbide circular saw Cutting length 1,060 mm.

Measuring and testing

Measuring Machines
Zeiss UMC 850 + UMM 550
Measurement Range: max. 850 x 600 x 2,400 mm

Hardness Testing Device
Gnehm Type OM 150
Tests in Rockwell (HRC) and Brinell (HB)

Spectral Analysis
belec compact port
Mobile spectrometers for the secure determination of steel materials

We also provide spectral analysis services for steel grade determination as a service. Utilize our material expertise in cases of damage or doubt, or simply to enhance your products.

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