

PRECISION GUIDE RAILS

Hardened precision guide rails are our traditional core product in mechanical engineering, serving 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.

For inquiries, it is best to send us 3D CAD files in formats such as STEP, JT, or native NX. However, if those formats are not available, DXF, DWG, conventional drawings, or a meaningful sketch will suffice.

Using a wide selection of specially suited steels in combination with 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. *Precision in steel.*

Upon request, we are happy to share our expertise and recommend the most suitable tool steel and heat treatment process for your design.

Depending on your requirements, design, and operating conditions for your guide rails, we produce 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 (800–900HV5 64–67HRC).

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guide rails

Certainly, we also offer tempered, inductively or case-hardened components. Our standard parallelism is 0.01mm per meter, with the standard surface finish during fine grinding being $R_a = 0.8\mu\text{m}$. μ -accurate guide rails are possible depending on the design.

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

For through-hardened guide rails, a length change of +/- 1‰ relative to the measuring length is technically not always avoidable due to heat treatment 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 5,000mm. 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 2mm 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 75kW spindle power, we can achieve precise radii, profiles, inclinations, and more with high performance and precision.

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PRECISION HARDENED ADHESIVE STRIPS VARIODUCT

Hardened and ground 'adhesive strips' are commonly used for both new machinery and equipment as well as in retrofit applications. VarioDuct is a standard program offering typical adhesive strip dimensions, with a thickness of 4 mm, freely selectable length, and optional chamfers on the longitudinal edges. Your desired length is quickly produced through cooled CBN cut-off grinding, and the desired chamfers can be ground up to 2 x 45° per edge. Chamfers are typically applied when the strips are to be glued into a milled groove in the machine bed. You can calculate your adhesive strip configuration online at:

www.varioduct.de.

Specifications:

Material: 1.2842 / 90 MnCrV 8

Hardness: 58 – 62 HRC

Thickness: 4 mm

VarioDuct is available in standard widths:

20, 25, 30, 35, 40, 45, 50, 55, 60, and 80 mm.

The length is freely selectable between 100 and 3,100

mm. Top side: Fine grinding, Ra = 0.8 µm

Bottom side: Cross grinding, Ra = 6 µm

(Rough for better adhesive bonding)

Tolerances:

Thickness: +0.05 / -0 mm

Width: +0.20 / -0 mm

Length: with cut-off grinding +/- 1 mm,

upon request with angular grinding +0 / -0.2 mm

Chamfers are possible up to 2 x 45° on the selected longitudinal edges.

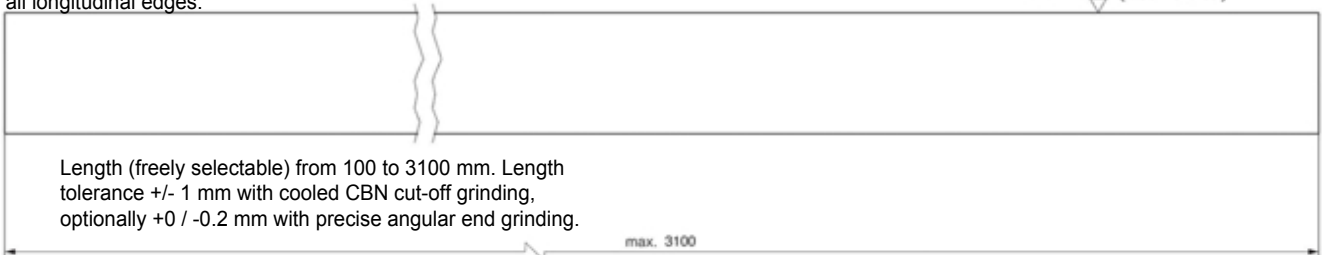
Sample prices for 2 pieces, adhesive side down with 2 longitudinal chamfers, and end sides cut-off ground:

price per piece

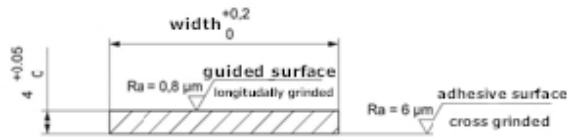
thickness	width [mm]										
	20	25	30	35	40	45	50	55	60	80	
length [mm]	1,000	119	125	130	131	136	140	145	149	164	182
	2,000	211	222	234	235	245	253	262	271	301	337
	3,000	303	320	337	340	354	366	380	393	438	492



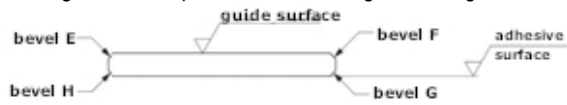
VarioDuct adhesive strip, thickness 4 mm, fully hardened, 58 - 62 HRC, adhesive side roughened (cross grinding), Ra = 6 µm, top side finely ground, Ra = 0.8 µm, optional bevels 0.2 to 2.0 x 45° possible on all longitudinal edges.



Length (freely selectable) from 100 to 3100 mm. Length tolerance +/- 1 mm with cooled CBN cut-off grinding, optionally +0 / -0.2 mm with precise angular end grinding.

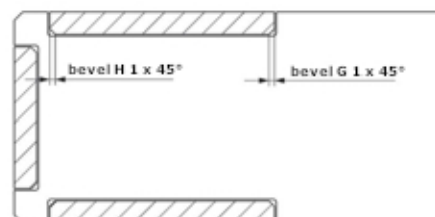
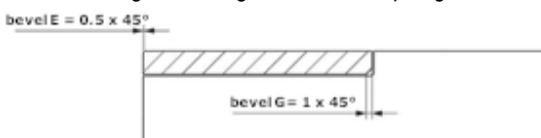


Designations for optional bevels on longitudinal edges:



Installation example: Groove with side guide and undercut: Bevel G and bevel H selected, longitudinal edges E and F sharp-edged.

Installation example: Step with bevel E and bevel G selected, longitudinal edges F and H sharp-edged.



Order example:

VarioDuct adhesive strip, 40 x 4 x 1,000 mm, bevel E = 0.5 mm, bevel G = 1.0 mm, end sides ground at a right angle.

Order example:

2 pieces of VarioDuct adhesive strip, 40 x 4 x 1,800 mm, bevel G = 1.0 mm, bevel H = 1.0 mm, 1 piece of VarioDuct adhesive strip, 25 x 4 x 1,800 mm, bevel G = 1.0 mm, bevel H = 1.0 mm.

STANDARD-LINEAR GUIDE RAILS

Guide rails made of tool steel or aluminum, with sliding elements made of high-performance plastic, are commonly used in various applications.

Standard linear guide rails may have limitations when exposed to special environmental conditions such as temperature variations, dirt, corrosion, or when high requirements are placed on cleanliness or vibration damping.

In many cases, the appropriate solution is sliding guide rails from the SYSTEM-DEINHAMMER.

The limitations of ball bearing guides are just the beginning of the possibilities with SYSTEM-DEINHAMMER sliding guides. The adjustable sliding elements made from special high-performance plastics offer outstanding technological characteristics. Smooth operation, ease of maintenance, and durability meet high standards.

With high-performance plastics in mechanical engineering, designers have access to a standard component that can be easily integrated into their developments. These new components work even in situations where no solution was previously conceivable, such as extreme environments and demanding conditions.

For configuring your Deinhammer sliding guide system, you can use the **online configurator** available at www.deinhammer.de. For inquiries, you can reach out via email at deinhammer@stahlnetz.de.



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SYSTEM-DEINHAMMER SLIDING GUIDE STRUCTURE

Guide rails

SYSTEM-DEINHAMMER sliding guide rails are made from hard-anodized aluminum, bright steel, or Toolox 33 / Toolox 44, depending on the application. Nitrocarburizing is also possible.

Size "0": 30 x 8mm	Size "3": 80 x 20mm
Size "1": 40 x 12mm	Size "4": 100 x 25mm
Size "2": 60 x 15mm	Lengths up to 3,000mm

Carriage body

Carriage bodies are manufactured from high-strength aluminum, steel, or stainless steel. Side slots allow for the adjustment of clearances using a series of tension and compression screws.

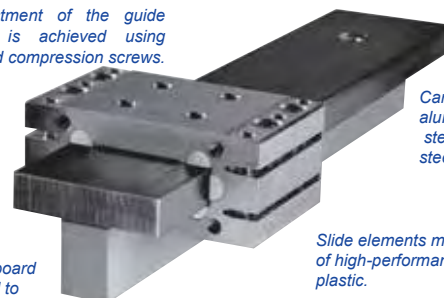
Slide elements

Slide elements are made from high-performance plastics and serve as wear parts that can be easily replaced from the rail without the need for disassembling the carriage.

The adjustment of the guide clearance is achieved using tension and compression screws.

Guide rails are available in anodized aluminum, steel, or stainless steel, and can be hardened and ground as needed.

Baseboard bolted to guide rail.



Carriage bodies in aluminum, steel or stainless steel.

Slide elements made of high-performance plastic.