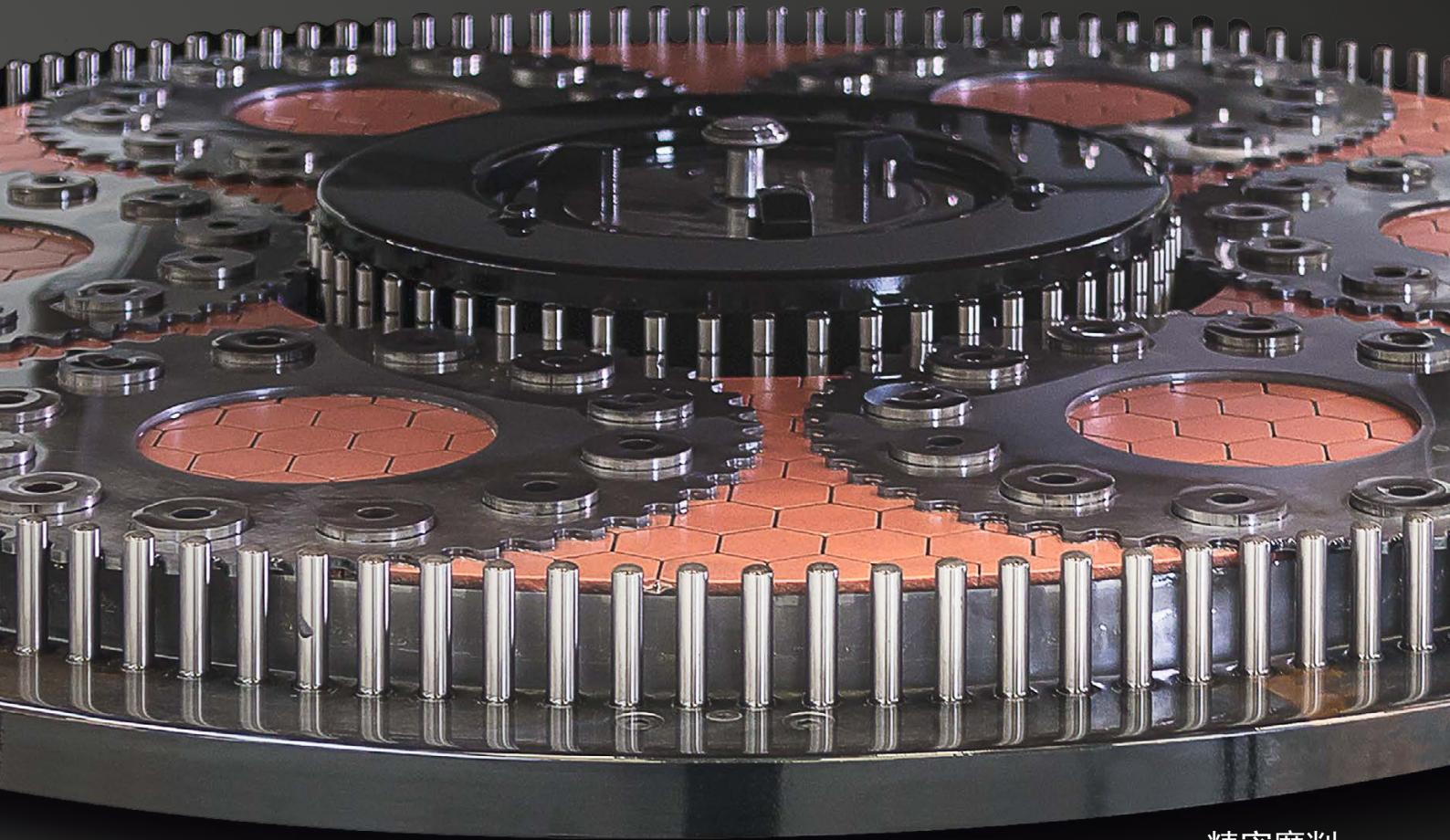


supfina



精密磨削

Fine Grinding

SPIRO

“Spiro 机型是德国索菲纳公司不断致力于研发高精度表面尖端加工技术的最新例证 — 目前已经应用到精密磨削领域。Spiro机型可以加工任何高精度的表面，并具有单位成本极低的优势。”

精密磨削 德国索菲纳成熟的精度控制

Fine grinding
with proven Supfina precision

“Spiro is the latest example of Supfina's ongoing commitment to cutting-edge technology that yields the highest quality — now extended to fine grinding. The Spiro can machine virtually any surface with high precision and at an low cost per unit.”





软质或硬质？铝制到镀锌，从软质的塑料到硬质的陶瓷：无论工件的特性如何，Spiro机型都会提供最实用的精密磨削加工工艺同时达到高精度的要求。无论是何种材质，都可以达到最严格的微米级的公差要求，由Supfina带给您所期望的精度要求。

Soft or hard? From aluminum to zinc, from soft plastics to hard ceramics: No matter the workpiece properties, Spiro provides the best fine-grinding solution for achieving highly precise plane parallelism. And whatever the material, the job can be done to the most stringent tolerance requirements in the micron range, with the precision that you've come to expect from Supfina.

What's more, such precision can perfectly meet a customer's specific needs. Drive performance; loading options; filtration and cooling; optimal tooling: Supfina works closely with each customer to determine what solution works best for that particular machining task.

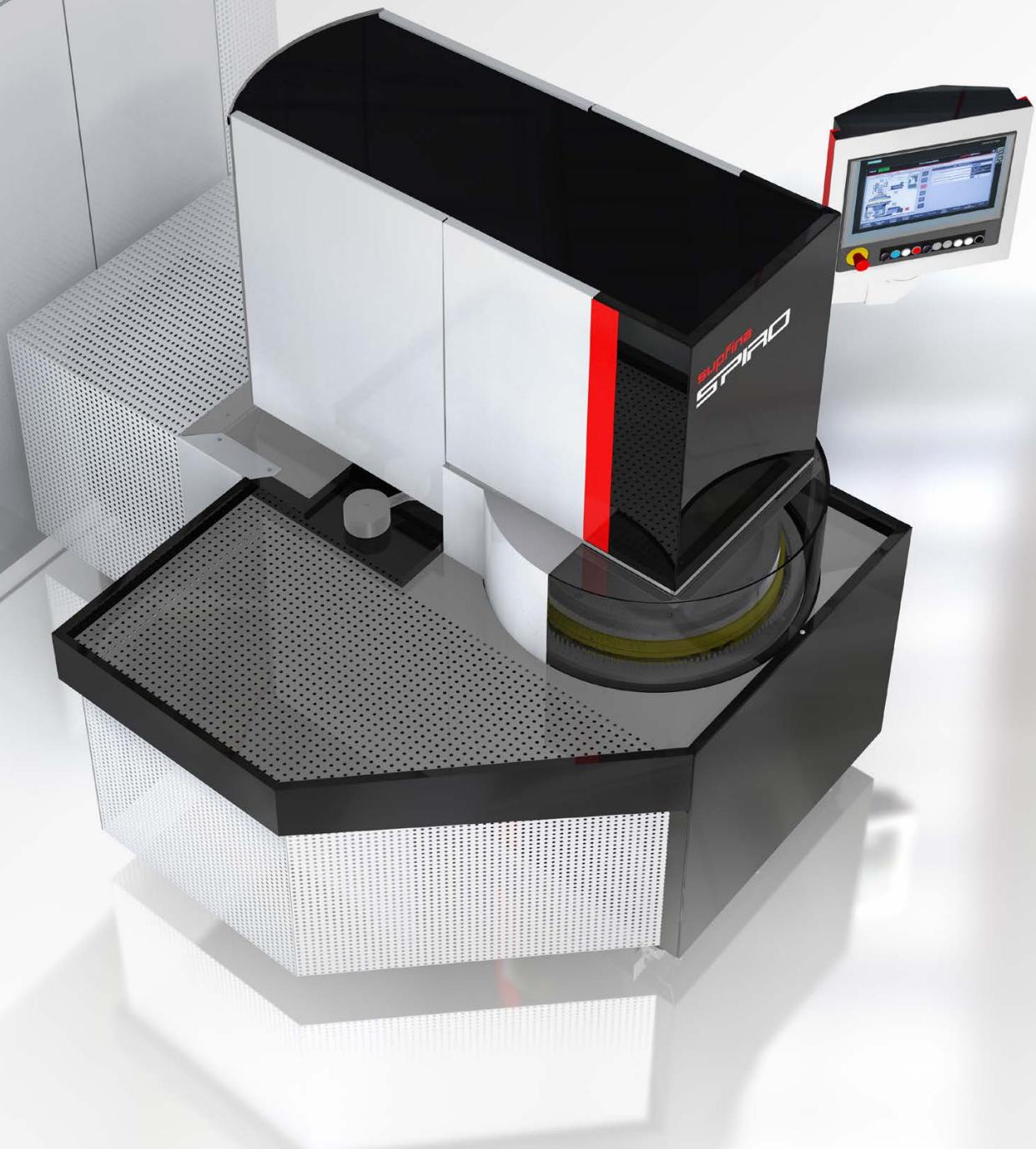
精密磨削 最大效率和高精确度

Fine grinding

Maximum efficiency and high precision



supfina



supfina SPIRO

	Spiro F5	Spiro F7	Spiro F7 Automation	Spiro F12
盘直径 Disk diameter	445/475 mm	720 mm	720 mm	1160 mm
环的宽度 Ring width	120/150 mm	200 mm	200 mm	341 mm
最大压力值 Maximum pressure	400 daN	1800 daN	1800 daN	3000 daN
工件直径 Workpiece diameter	4–150 mm	5–220 mm	5–220 mm	6–420 mm
工件厚度 Workpiece thickness	0,3–50 mm	0,6–80 mm	0,6–80 mm	1–100 mm

外形和功能
全部尺寸的精密磨削

Form and function
Fine grinding in all sizes



德国索菲纳Spiro F5精密磨床是为精密磨削小型同时对平行精度要求比较高的工件特别设计的。它的存在完美的契合了用户的需求。

此机型的问世使索菲纳公司成功扩展了高精度的Spiro产品线 — 始终为了用户的成功及最大收益化。

优势

- 可储存100个加工程序
- 整合了锐化程序
- 多达7个工艺循环
- 可选上料台

The Supfina Spiro F5 was specially developed for fine grinding smaller workpieces that require highly precise plane parallelism. It's the perfect fit for your needs.

With this machine, Supfina continues to successfully expand its high-precision Spiro line — all for our customers' success and profitability.

Advantages

- 100-program storage
- Integrated sharpening programs
- Up to seven process cycles
- Optional loading table

德国索菲纳Spiro F5精密磨床
紧凑式设计, 出众的加工性能

Spiro F5
Compact design, great performance

高度柔性的德国索菲纳Spiro F7精密磨床是各种不同材质直径范围从5 mm到220 mm之间工件端面加工的理想设备。

气动控制压力系统在加工过程中压力可以增加到1800 daN。无接触式在线测量系统可连续调整工件的高度，监控高度公差和平行度以生产出符合平面度要求的工件。

优势

- 可储存192个加工程序
- 坚固的床身设计
- 用户界面友好，可视化过程控制

The flexible Spiro F7 fine-grinding machine is ideal for creating precise flat surfaces on workpieces made from a wide variety of materials and with diameters of 5 mm to 220 mm.

The pneumatically controlled pressure system can be equipped with a force of up to 1800 daN for the process. Workpiece height is continuously adjusted with a no-contact, in-process measuring system that monitors required height tolerances and parallelism to produce the desired flatness.

Advantages

- Memory for 192 programs
- Rigid machine concept
- User-friendly, thanks to visual-process control

德国索菲纳**Spiro F7**精密磨床 适用于大规模加工的精密磨床

Spiro F7

Fine grinding in large-scale production

supfina
SPIRO





supfina
SPIRO

德国索菲纳Spiro F12精密磨床 — 是Spiro系列中最大型的机床 — 设计用于加工直径范围在6mm–420mm之间的工件, 可加工特殊高度、平行度和平面度要求的工件, 具有加工精度质量高和性价比出众等特点。

此外, 异常坚固的床身设计 — 使得加工过程非常稳定 — 对于人机工程学和可视化操作非常重要。

优势

- 节能环保, 维护内容简单
- 良好的易接近性
- 用户界面友好, 可视化过程控制
- 和不同的上料系统柔性化连接

The Spiro F12 — our largest Spiro machine — is designed to process workpieces with diameters of 6mm to 420mm and with special height, parallelism, and flatness requirements, all with high precision and cost-effectiveness.

In addition to its very rigid design — allowing for stable processing — great importance was paid to the machine's ergonomic and visual operation.

Advantages

- Energy-efficient, low-maintenance drive concept
- Very good accessibility
- User-friendly, thanks to visual-process control
- Flexible connection to different loading systems

德国索菲纳**Spiro F12**精密磨床 适用于大型工件的精密磨削

Spiro F12

For large workpieces

用户通常会有多种上下料方式的选择 — 从最短的节拍要求到减少停机时间的要求，从机床设置时间短到柔性化的上料系统再到可视化过程控制。德国索菲纳会针对各种条件提供最合适的解决方案。

德国索菲纳Spiro精密磨床的平行式上料系统使得精密磨削更加高效 — 包含柔性化设置对半自动生产的优化。

优势

- 设置时间短
- 柔性化的上料选择
- 可视化过程控制
- 加工节拍短

Customers require a wide range of loading and unloading options — everything from short cycle times to reduced downtime, short setup times to flexible feeding systems to visual-process control. Supfina offers the right solution for every situation.

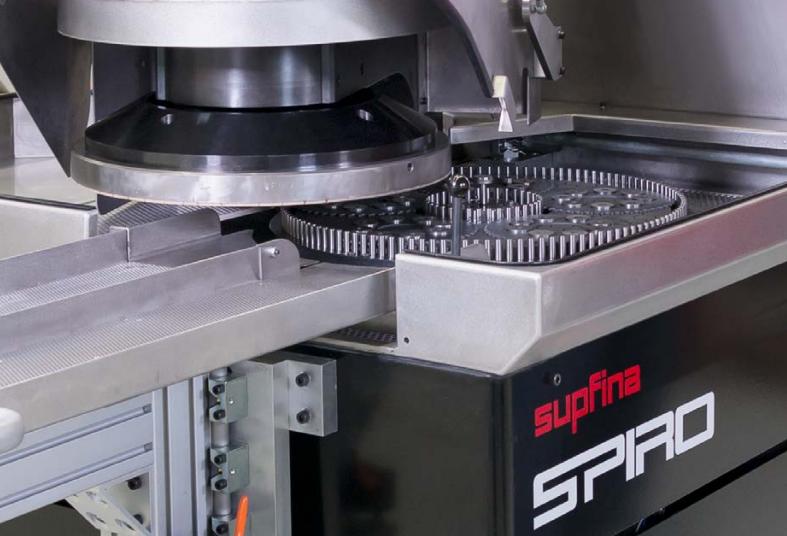
The Spiro's new parallel loading system makes fine grinding even more efficient — including semi-autonomous production that's optimized by flexible setup.

Advantages

- Short setup time
- Flexible feeding option
- Visual process control
- Short cycle time

德国索菲纳**Spiro**精密磨床 优化的全自动加工

Spiro
Optimized automation



手动上料
Manual loading



手动上料台
Manual loading table



旋转换盘装置
Rotor disk changer



堆垛单元机械手上料
Robot loading from stacking cell

从工程设计阶段，德国索菲纳已经考虑到要设计出更具有性价比的机床。正因为如此在设计Spiro机型的时候我们务必要达到质量无可挑剔以及所有相关机床部分的易接近性。例如为了便于更换工装将上部的磨削装置移出机床，从而使日常维护工作更加简便。尽可能少的占用空间同时对各种组件进行柔性化排列，Spiro机型只需要很少的占地面积。

手动和自动化上下料通过不同的模块系统进行。根据用户的要求定制解决方案或采用新研发的部件提升解决方案。

根据工件的材质，尺寸，表面精度和去除余量的技术要求，单台Spiro可以进行精密磨削每小时加工上千个工件。

Even in the engineering phase, Supfina focuses on cost-effectiveness. That's why we designed each Spiro model to have excellent, everyday accessibility to all relevant machine areas. For example, the upper grinding unit swings out to facilitate tooling changes, and there's easy access to perform all routine maintenance tasks. With a minimal footprint and flexible arrangement of the components, a Spiro machine requires little floor space.

Modular systems are available for manual and automatic loading. Naturally, these can be customized to individual customer requirements or enhanced to accommodate newly developed components.

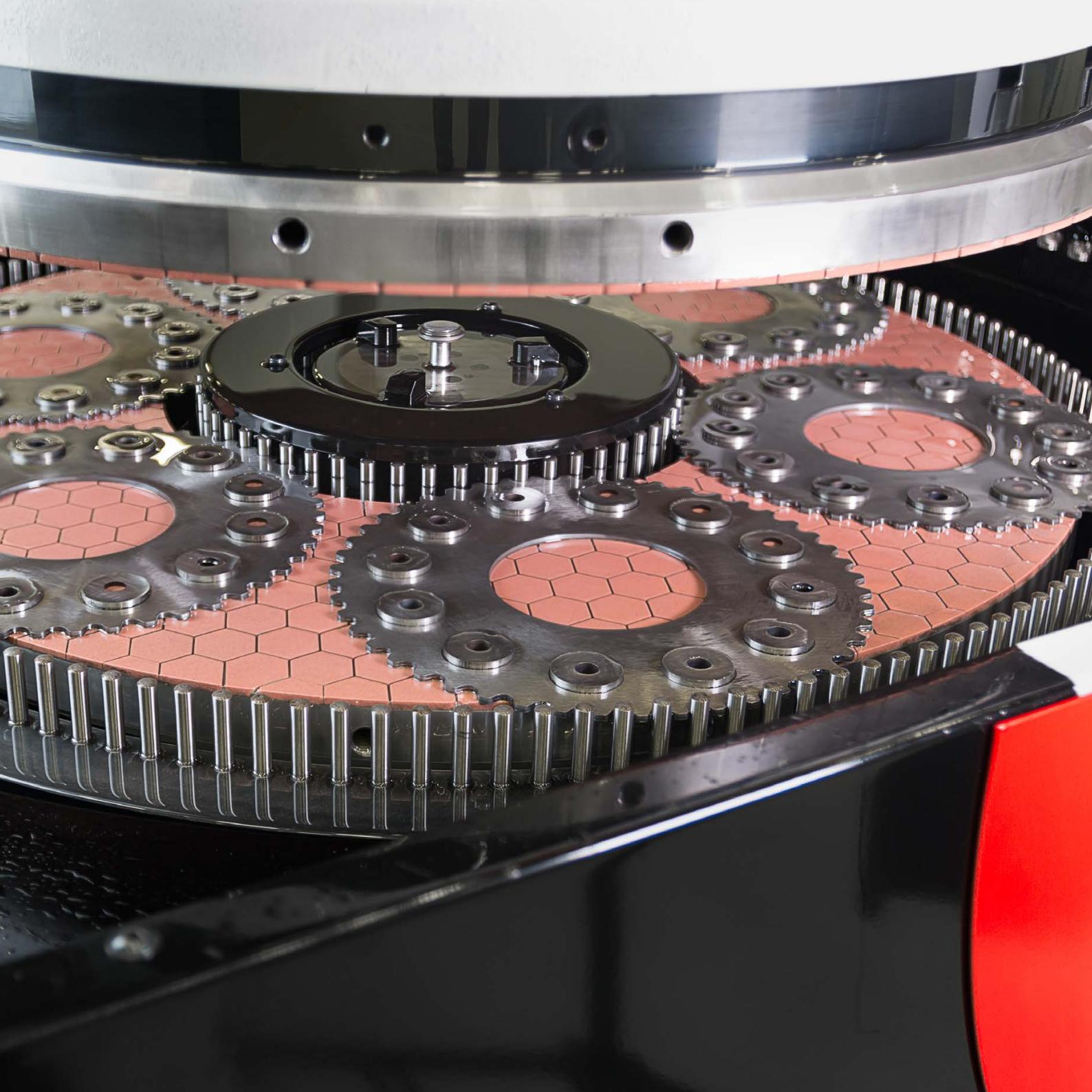
Depending on the material, workpiece dimensions, surface finish, and removal requirements, a single Spiro can perfectly fine-grind several thousand workpieces per hour.

精密磨削 下一个伟大的加工工艺

Fine grinding

The next great process





- 驱动性能强大
 - 高度柔细性适用于多种应用领域
 - 独特可定制的高精度优化解决方案
 - 床身和防护罩稳固从而减少刀具的磨损
 - 高精度, 无接触式在线测量控制技术
 - 恒定高精度加工的可视化过程控制
 - 用户界面友好和直观操作
 - 良好的易接近性
- High drive performance
 - Maximum flexibility for many applications
 - Individually customizable for optimal machining results
 - Reduced tool wear thanks to the low-vibration machine stand and guard
 - High-precision, noncontact measurement control
 - Visual process control for consistently high precision
 - User-friendly and intuitive operation
 - Great accessibility

细节 主要特征

Facts
Key features



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