

# VERTICAL GRINDING SOLUTIONS

VG-DVG



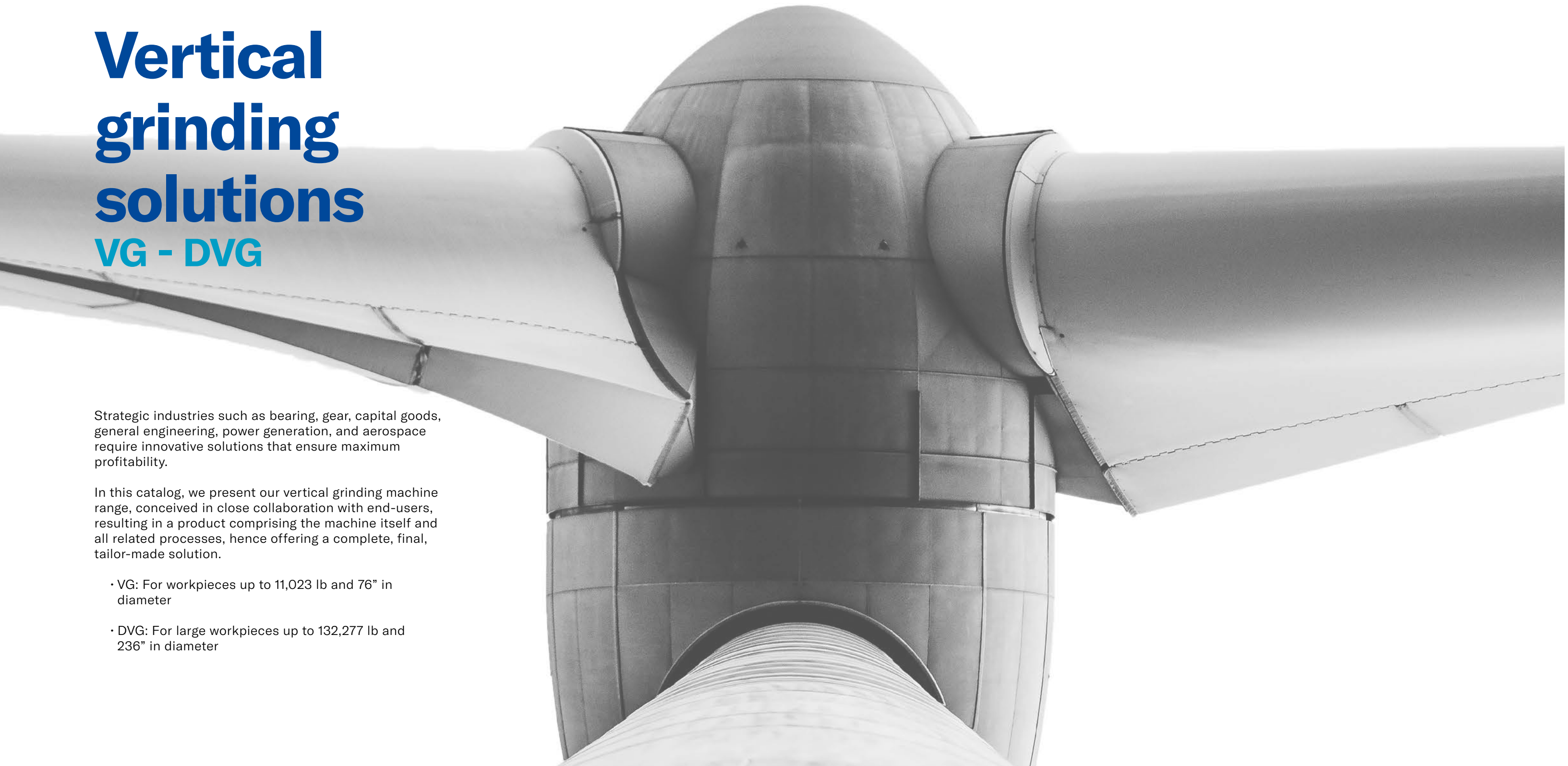
# Vertical grinding solutions

## VG - DVG

Strategic industries such as bearing, gear, capital goods, general engineering, power generation, and aerospace require innovative solutions that ensure maximum profitability.

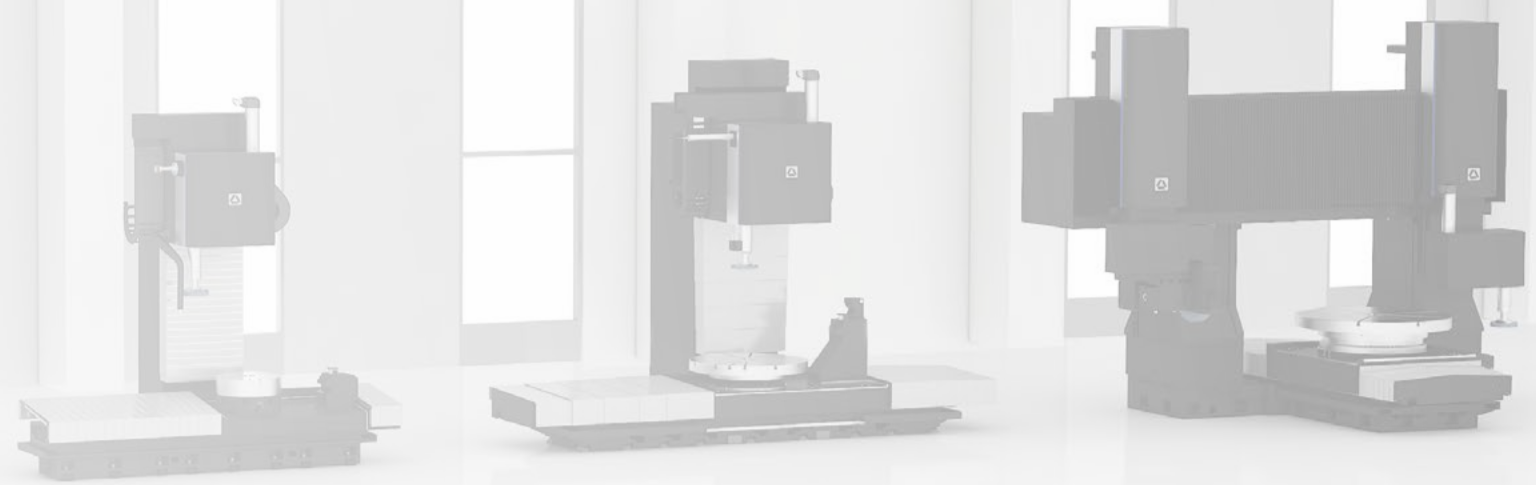
In this catalog, we present our vertical grinding machine range, conceived in close collaboration with end-users, resulting in a product comprising the machine itself and all related processes, hence offering a complete, final, tailor-made solution.

- VG: For workpieces up to 11,023 lb and 76" in diameter
- DVG: For large workpieces up to 132,277 lb and 236" in diameter



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# Vertical grinding range



## VG


### Vertical grinding machine with moving table

- Independent X and Z axes
- Linear guides in X and Z axes
- Flexible design for both short and tall components
- Hydrostatic workhead
- Automatic tool changer

See this machine in action:



 11,023 lbs

 76"

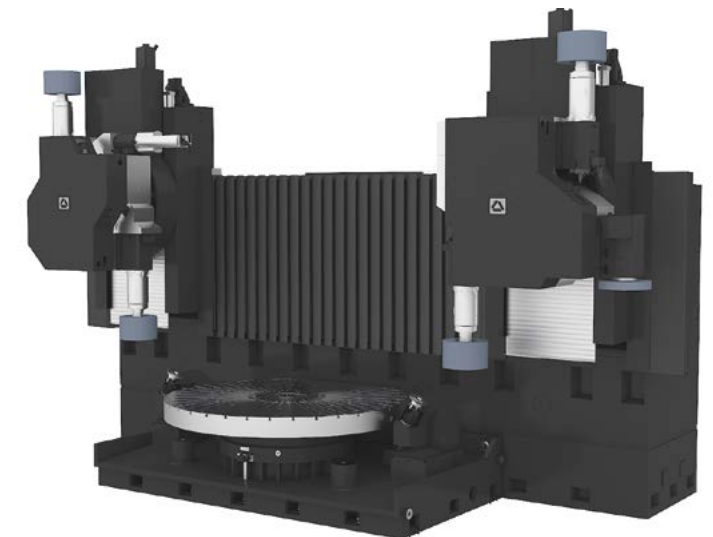
TECHNICAL CHARACTERISTICS	VG-600	VG-800	VG-1000	VG-1500	VG-1800
Max. swing	31.50 in	39.37 in	47.24 in	62.99 in	76.77 in
X stroke	74.80 in	86.61 in	86.61 in	100.39 in	122.05 in
Z stroke	39.37 in	59.06 in	59.06 in	76.77 in	76.77 in
Table load	2,200 lb	4,400 lb	6,610 lb	8,820 lb	8,820 lb
Tools	4	4	4	4	4

## DVG


### Vertical grinding machine with cross slide configuration

- Cross slides
- Fully hydrostatic
- Designed for high precision on components up to 23.6" in height
- Y axis
- Simultaneous grinding capability. Reduce machining times up to 25%
- Automatic tool changer

See this machine in action:



 132,277 lb

 23.6"

TECHNICAL CHARACTERISTICS	DVG-2500	DVG-4000	DVG-6000
Max. swing	98.43 in	157.48 in	236.22 in
X stroke	98.43 in	118.11 in	118.11 in
Z stroke	39.37 in	39.37 in	39.37 in
Table load	44,092 lb	66,139 lb	132,277 lb
Tools	4 + 4	4 + 4	4 + 4

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# Core technology

## Precision assemblies

Precision assemblies such as grinding spindles, workheads, B-axis, dressing turbines etc. are assembled by highly trained and experienced assembly specialists.

Components are assembled in a temperature-controlled clean room environment. Well-documented processes and sign-off protocols allow for exact traceability and ensure component interchangeability if ever needed.

## Machine structure

- Made of stress-relieved pearlitic cast iron, optimized with finite element calculation

## Spindles

- Universal, internal and tangential precision spindles
- Built-in motor and bearing cooling system
- Wide range of cutting speeds, constant surface speed

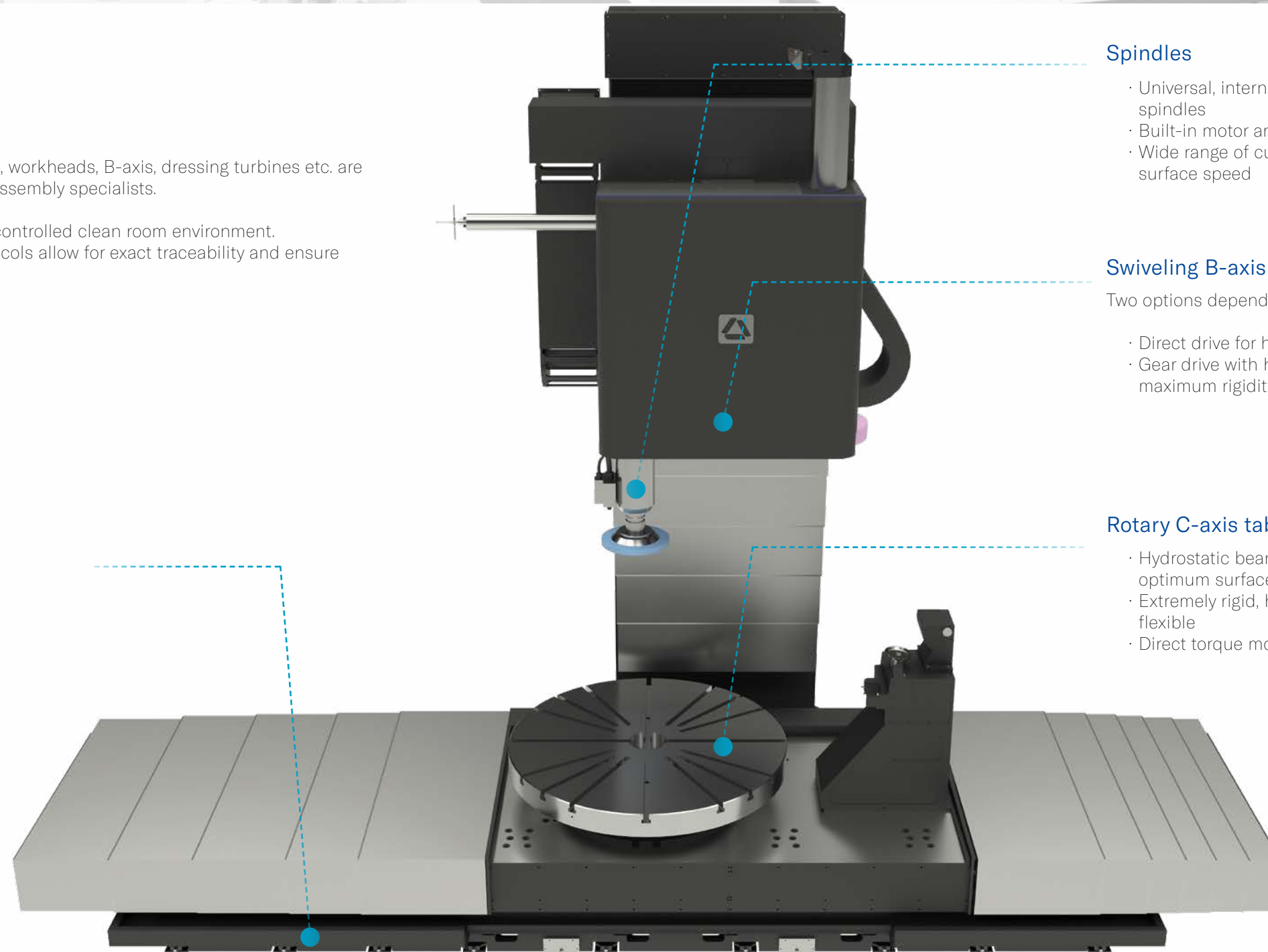
## Swiveling B-axis

Two options depending on customer applications:

- Direct drive for higher flexibility
- Gear drive with hydraulic Hirth locking system for maximum rigidity

## Rotary C-axis table

- Hydrostatic bearing for smooth motion and optimum surface finish
- Extremely rigid, high positioning accuracy and highly flexible
- Direct torque motor drive, backlash free



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# Software

## DoGrind+: An intuitive and easy-to-use software

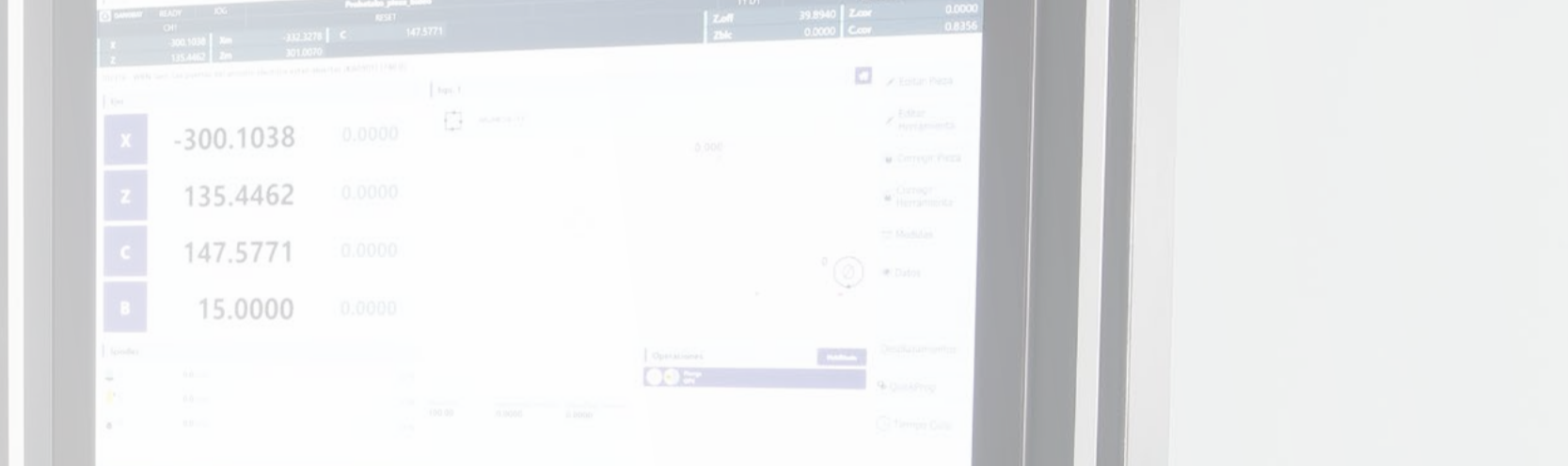
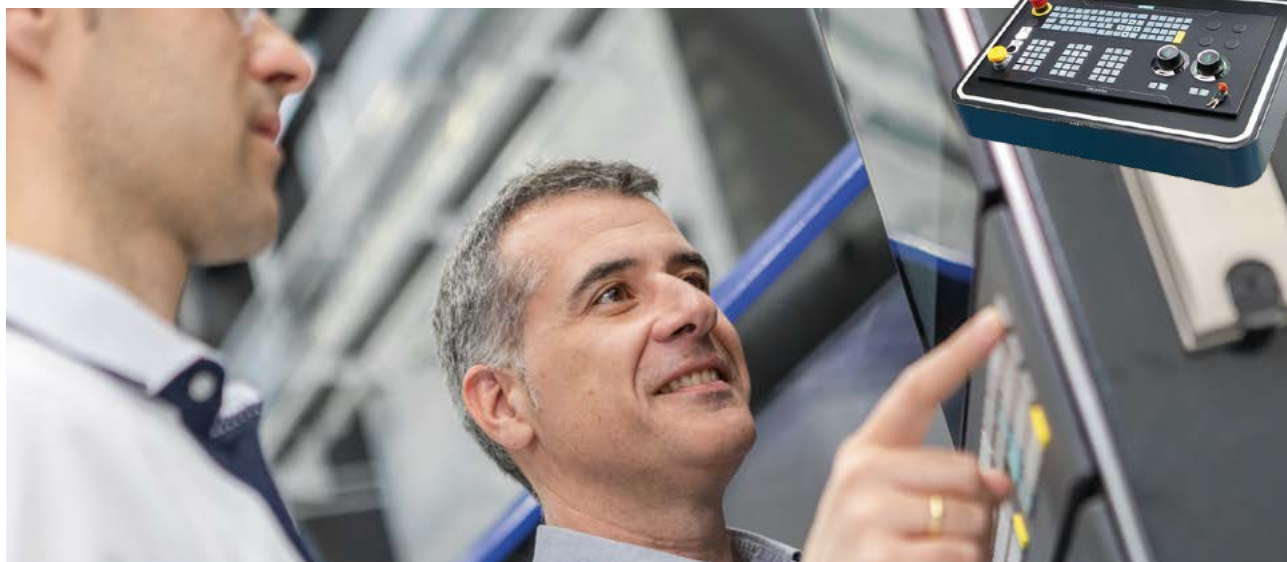
DoGrind+ software is optimised for a quick and simple operation of the machines.

### Grinding program

- User-friendly menus for programming the grinding processes in automatic mode, as well as setup functions for efficient operation
- Easily edit complex tool and part geometries

### Monitoring

- Total control in a single dashboard view
- Integration with ERP or external databases
- Measurement viewer app for results analysis and part traceability



### Execution

Most relevant machining information displayed in a single view.

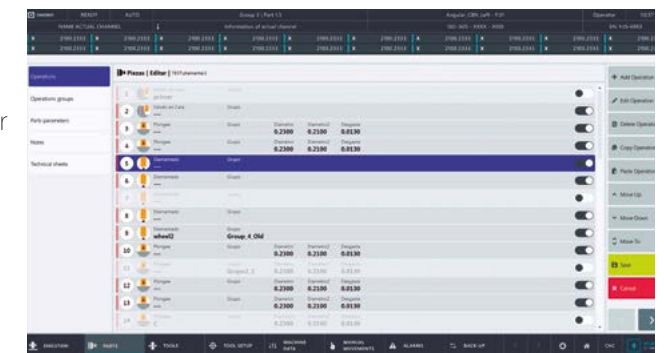
- Machining cycle progress
- Key process variable display
- Alarm visualization with troubleshooting



### Operations

A clearer, more comprehensive list of operations showing the main parameters so that they are easier for the user to understand.

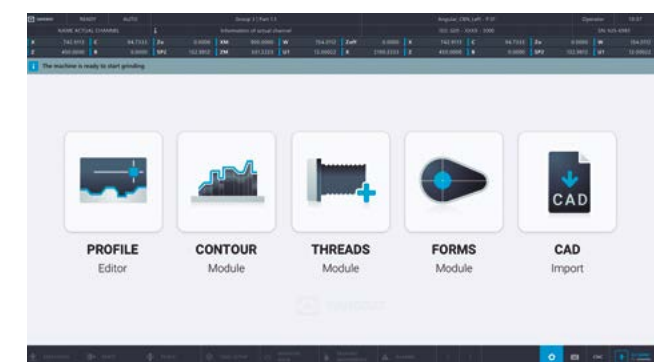
- Intelligent cycle library based on machine configuration for grinding, dressing and measuring operations
- Easy navigation and configurable structure definition
- Quick program operations for fast and easy programming



### Integrated modules

Multiple optionally integrated modules:

- Profile editor
- Contour module
- Threads module
- Forms module
- CAD files import



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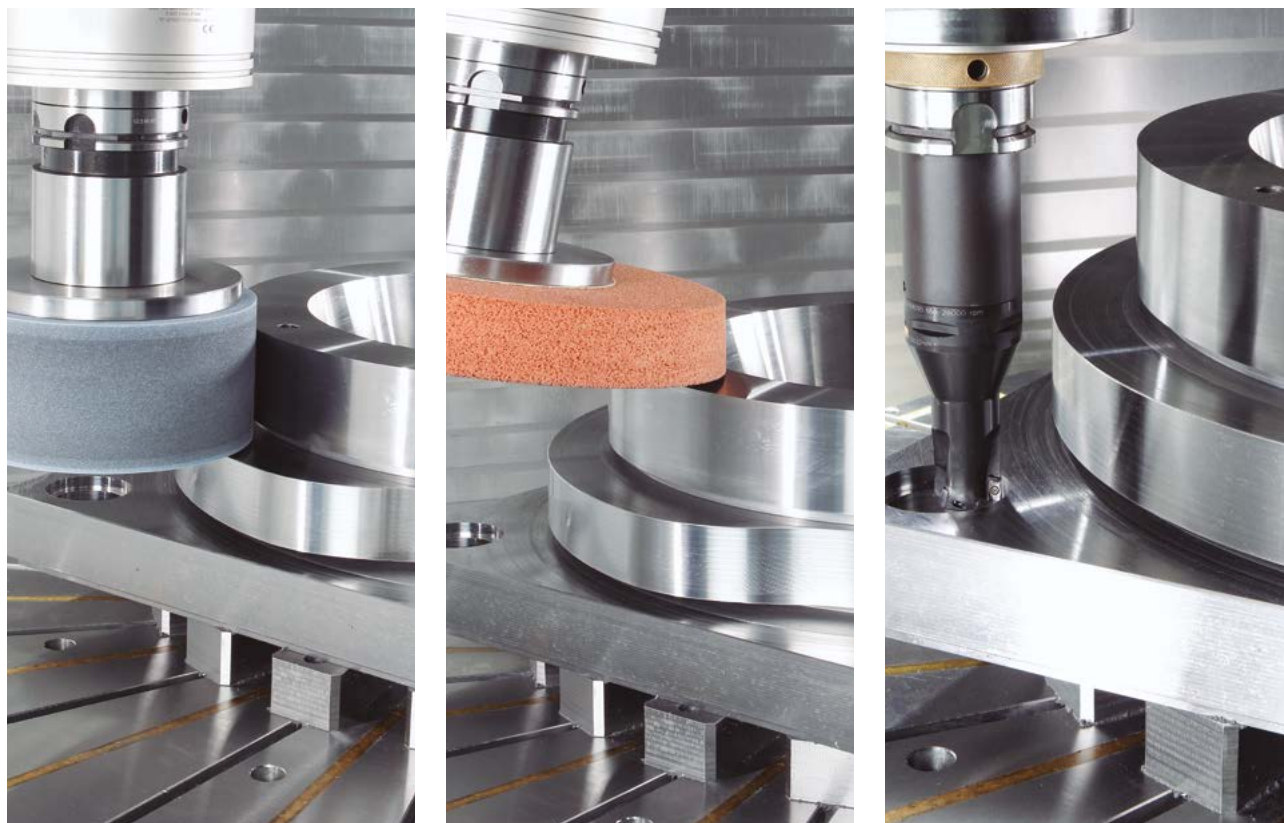
# Multipurpose

## Multipurpose: All operations in a single machine

It performs multiple operations in a single setup:

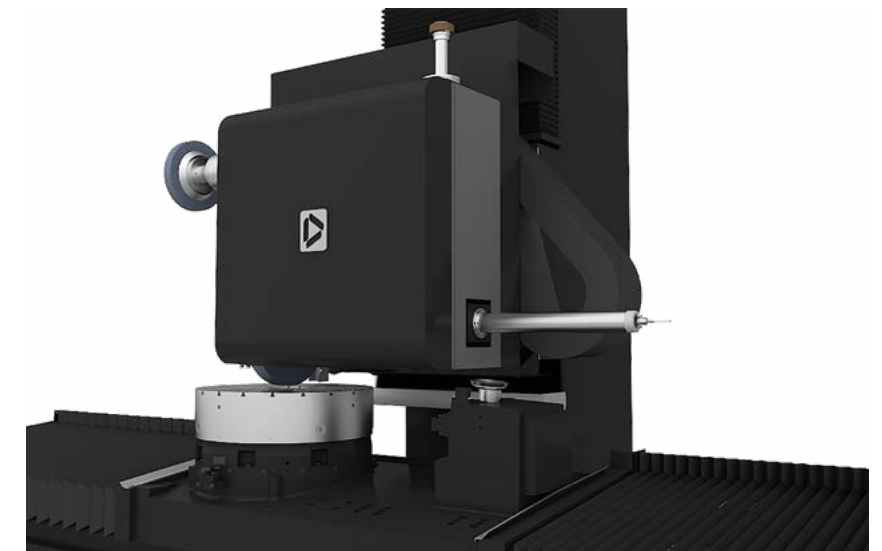
- Grinding
- Hard turning
- Drilling
- Boring
- Milling
- Measuring

It is designed to minimize part setup and thus, avoid errors that are critical when you grind such valuable parts.



## Flexible turret for multiple spindles concept

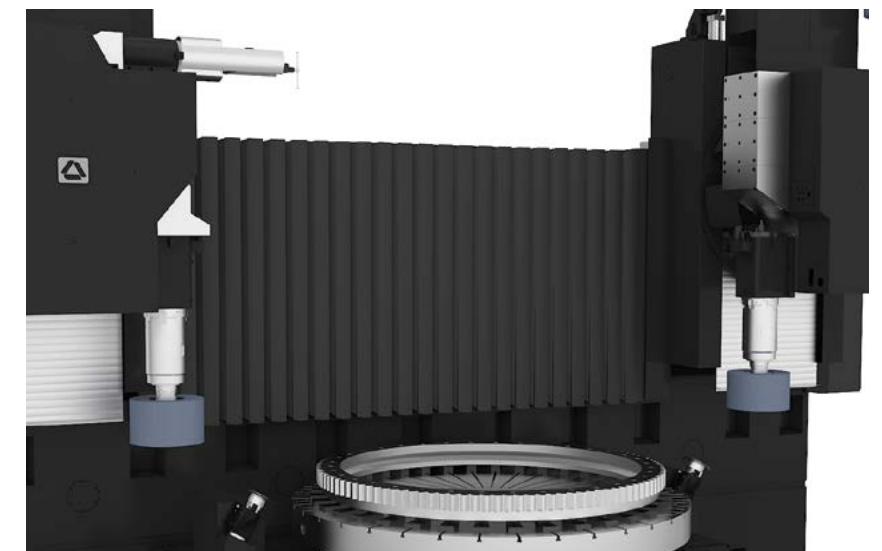
VG has been designed with a flexible turret, multi-spindle concept, to allow multiple operations in a single setup.



VG concept. B-axis for multiple spindles.

## Double wheelhead configuration

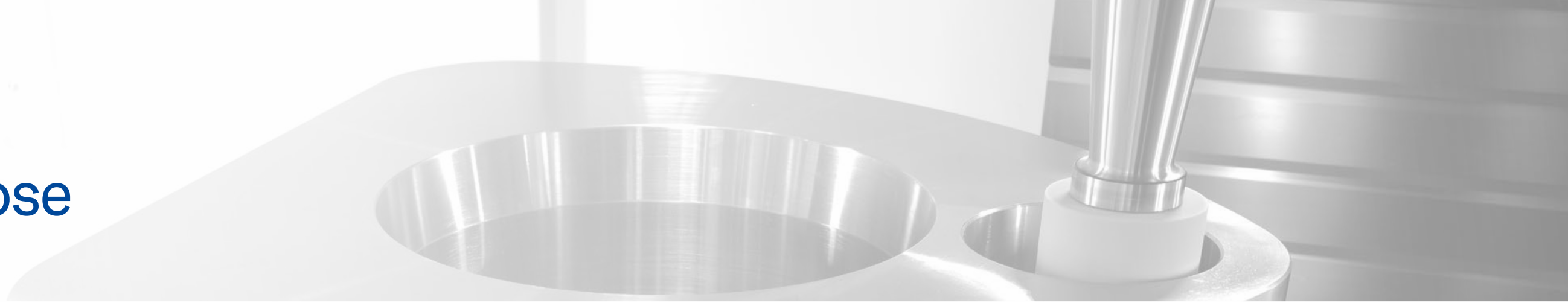
DVG has been designed to suit our customers' specific applications, ranging from universal configuration machines to the most demanding customizations.



DVG concept. Double wheelhead configuration.

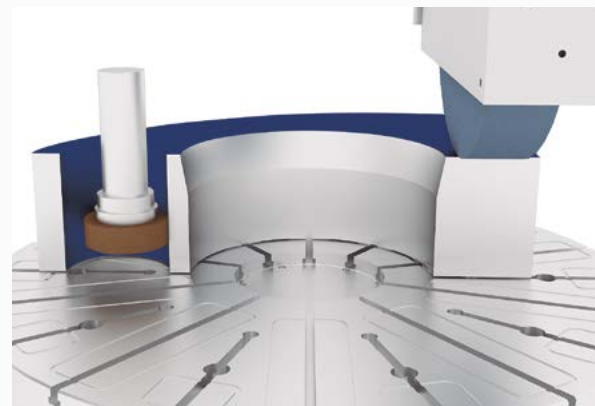
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# Multipurpose



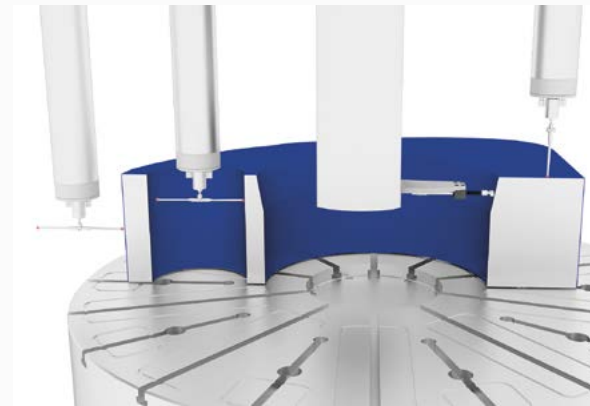
## Grinding

1. Outer and inner diameter grinding / 2. Cylindrical and taper grinding / 3. Unround grinding /
4. Jig grinding / 5. Surface grinding



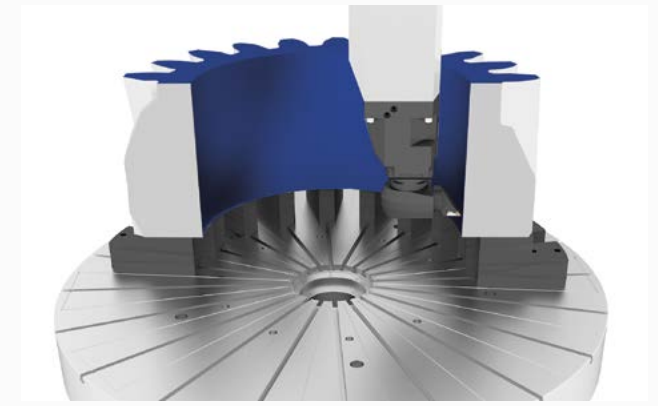
## Measuring

1. Measuring of all ground surfaces with touch probe
2. Interrupted measuring with radial scanner



## Turning

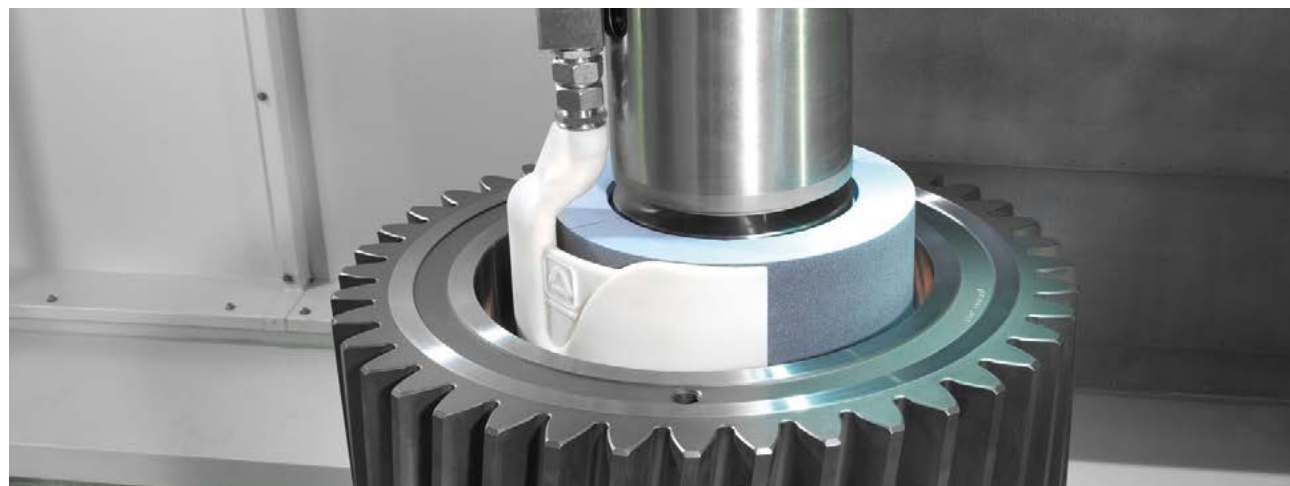
1. Turning and hard turning / 2. Outer and inner diameter turning / 3. Cylindrical and taper turning /
4. Surface turning



## Wide grinding wheels to obtain the shortest possible cycle time

Reduce cycle times while maintaining high-precision cylindricity. The machine enables plunge grinding with grinding wheel widths of up to 13.78 in.

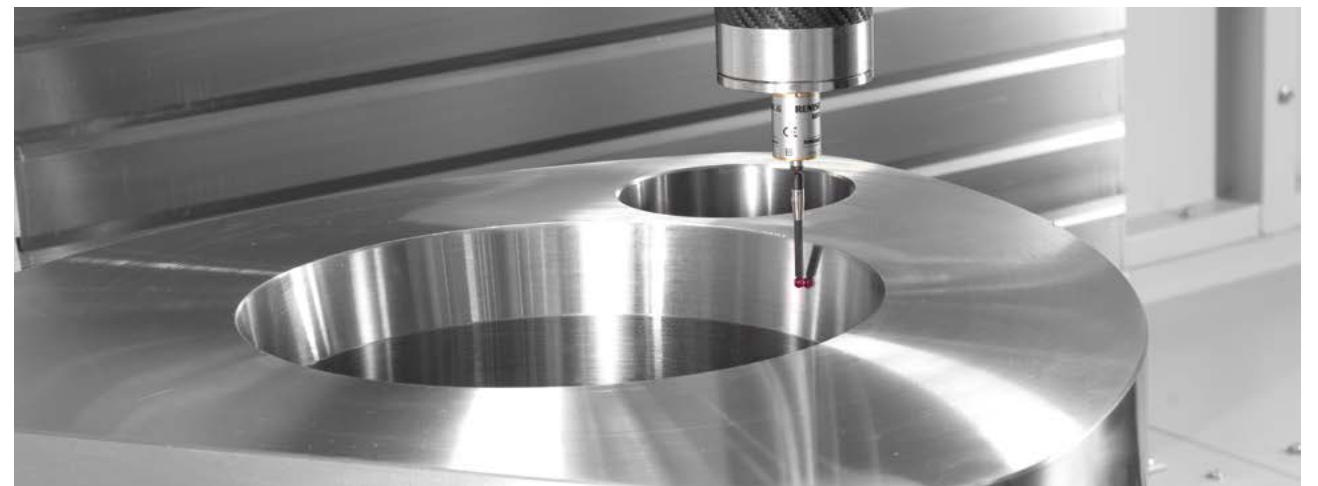
By using the latest technologies, it becomes a precise, stable and low-wear machine.



## Reliable measuring

Certifying a measurement is not just the job of a gauge. Accuracy depends on the ability to integrate mechanics, machining cycles, measurement algorithms and ultimately, the probe.

From the very first sketch, these vertical grinding machines are designed to integrate an automatic gauge.



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# Customization

More info:

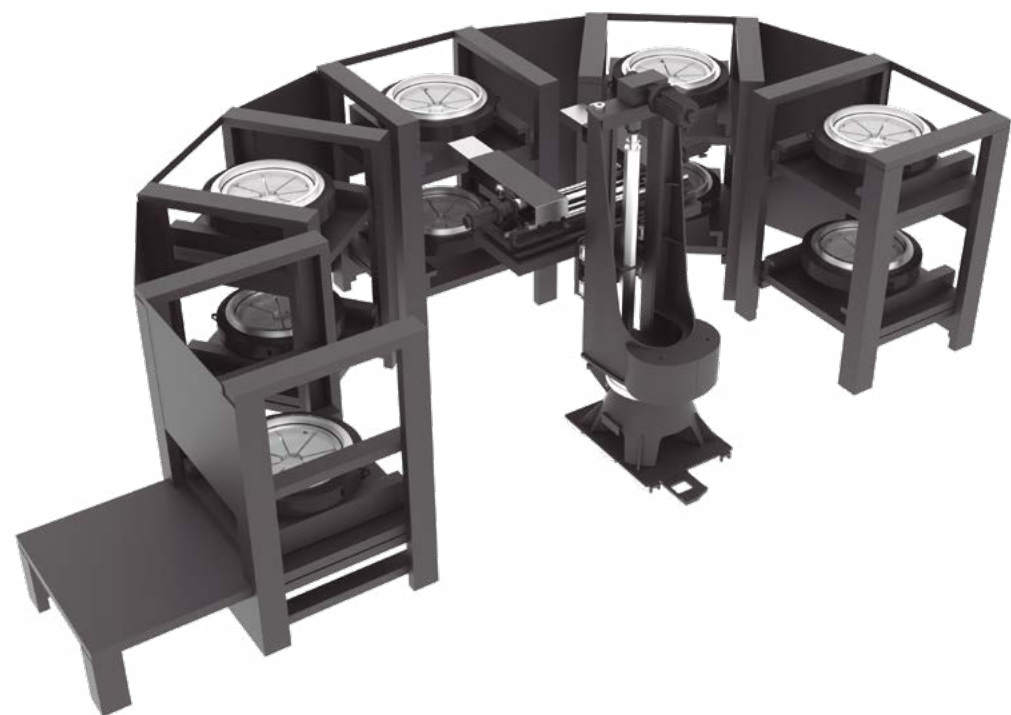


These are some of the technological solutions, which add high value to your manufacturing application, helping your company to be even more competitive.

Our team of experts, with a high degree of specialization, is at your service to study your manufacturing requirements with a commitment to provide a creative, competitive and intelligent machine solution that will exceed your expectations.

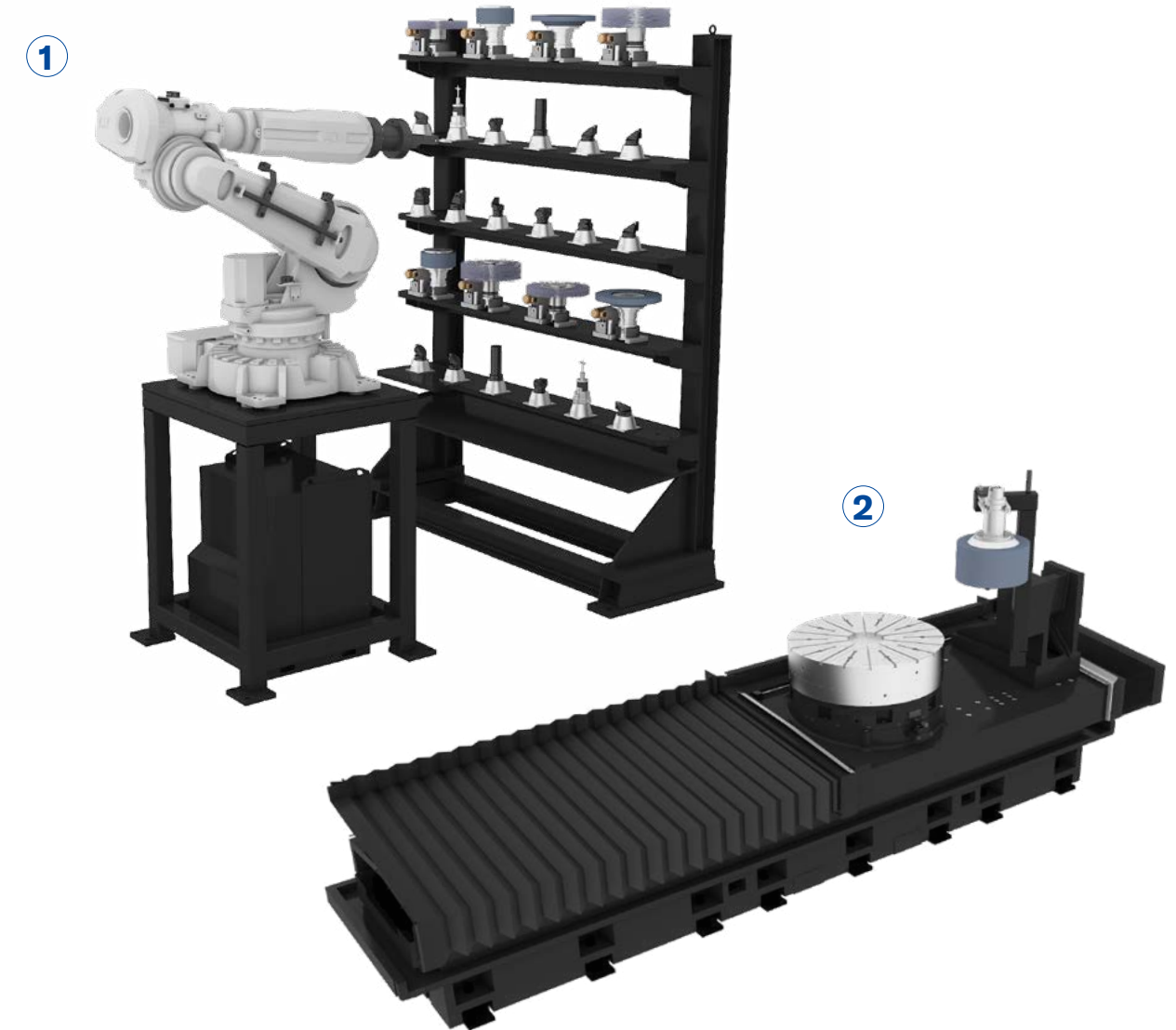
All of these solutions are backed by advanced engineering services, meaning that working in partnership with your organization, we can anticipate future trends in the industry.

## Automatic part (un)loading device



## Automatic tool changing solutions

1. Robot with magazine / 2. Wheel loading arm

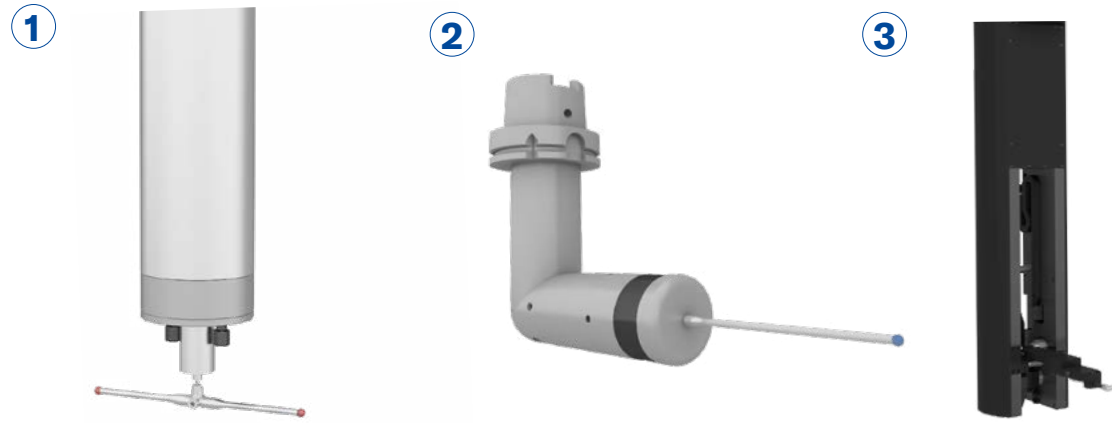




# Customization

## Measuring solutions

1. Wired measuring probe / 2. Wireless measuring probe / 3. Radial scanner



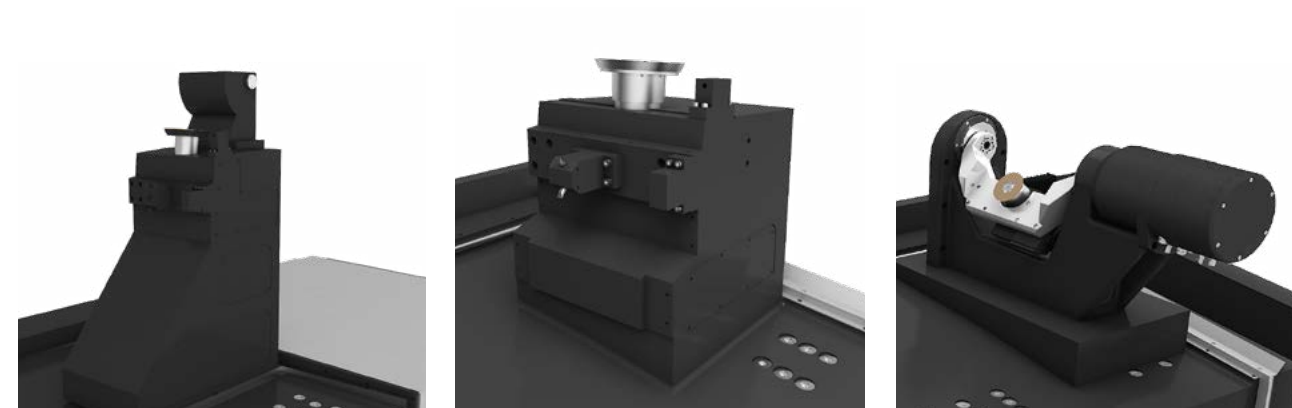
## Engineered fixtures

On demand engineering of customized fixtures to position, center, clamp and drive the work pieces, optimizing the setup and changeover times.



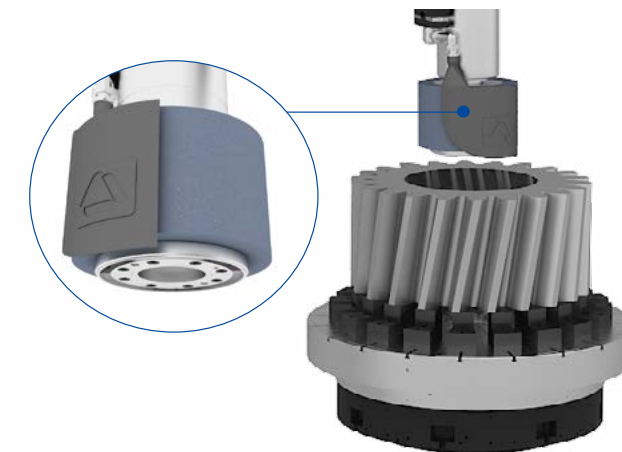
## Dressing solutions

Depending on the customer requests, machines can be equipped with single diamond, single rotary or multiple rotary dressers. Danobat also integrates special applications such as radius dressers.



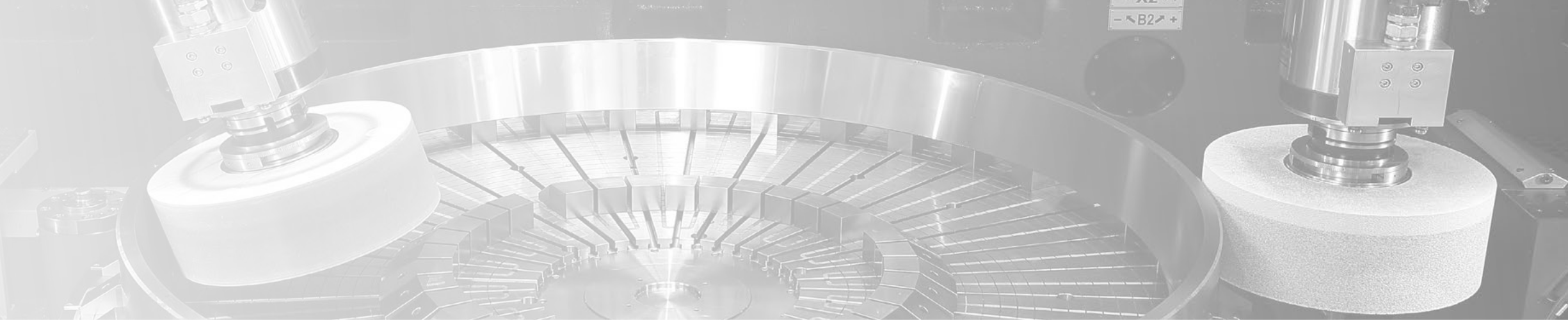
## Engineered tooling

Engineering of customized tooling in consideration of workpiece geometry, quality and production requirements with the goal of optimizing the manufacturing process.

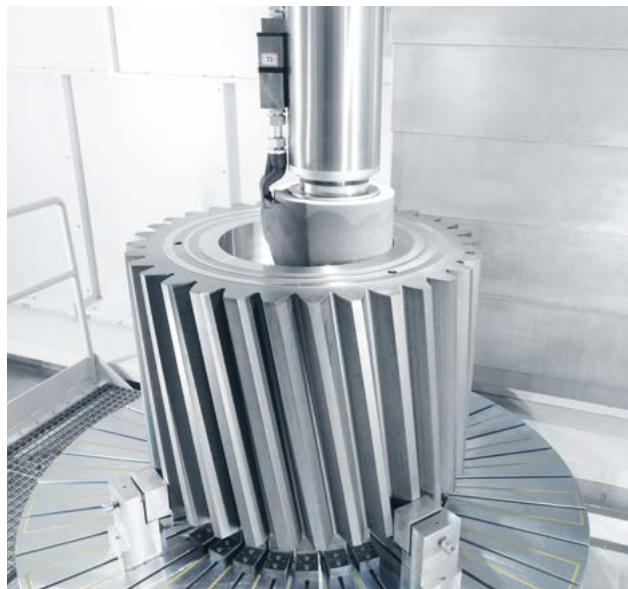


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# Applications



Gear wheels



Bearing rings



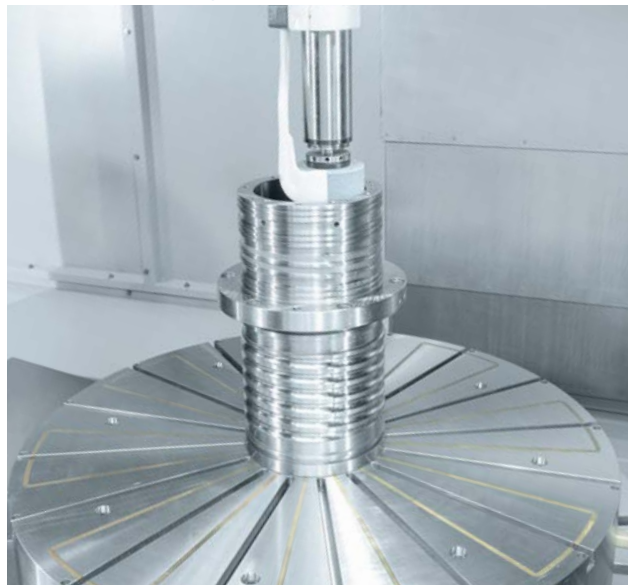
Disks



Rotor and stub shafts



Spindle housings



Hirth and curvic couplings



Honeycomb seals



Cases and stators





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