

**supfina**

Functionally perfect surfaces

Engineering  
with High Precision



Unique applications - Custom solutions

# Engineering with High Precision

Our technology centers provide the ability to run your workpieces on our machines in a practical environment, partnering with you to develop the optimal process for your application. A climate-controlled Metrology Lab with state-of-the-art measuring equipment delivers precise and reliable results.

## — Superfinishing

Superfinishing and flat finishing with stone, tape and cup wheel

## — Precision Abrasive Machining

Fine grinding and Double disk grinding

## — Attachments and Tools

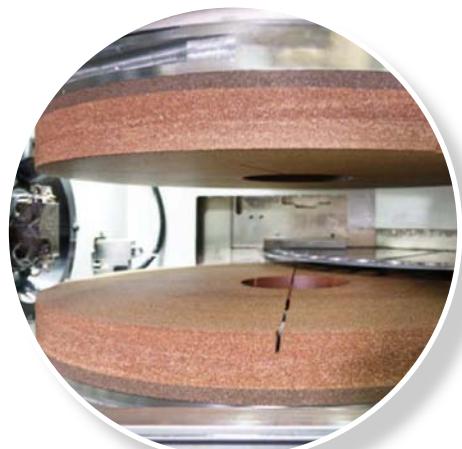
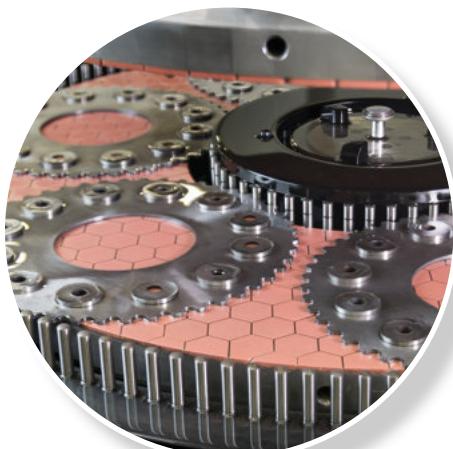
Superfinishing attachments, Speedfinish as well as tools like stones and tapes

## — Precision Robotics Machining

Automation of manufacturing processes, robot-assisted manufacturing and interlinking

## — Services

Inspection, maintenance, retrofitting, used equipment, sample processing and training



An ideal solution is the result of constant interaction and development. We know this as well as our customers do, which is why Supfina's corporate philosophy is based on an integrated approach. This means combining traditional knowledge and experience with high technology and uncompromising customer service.

As a system supplier, we offer you complete solutions from one source. We develop the right professional solution for every requirement. This allows you to react quickly to changing customer requirements and strengthen your own market position.

Our systems are supplemented by a comprehensive, digitally supported service to ensure that as a customer, you can continue to rely on Supfina at all times.

Supfina Grieshaber conducts targeted research and combines many years of experience in the field of superfinishing and grinding as well as automation with knowledge of upstream and downstream processes.

Systems for surface finishing  
Completely from one source

## Your solution-provider

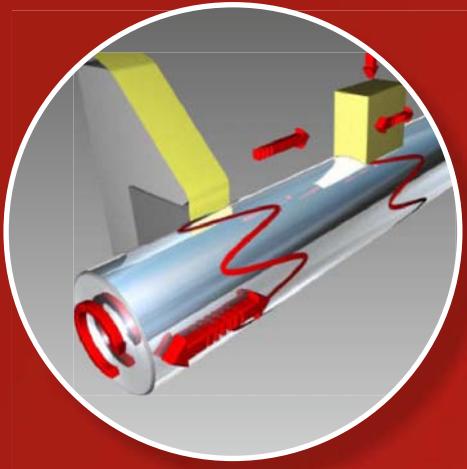
Supfina Grieshaber is your reliable partner worldwide when it comes to implementing economical machining solutions for the highest demands – both today and into the future!



Supfina Technology Center Wolfach, Germany

Supfina Technology Center North Kingstown, USA

Supfina Beijing Representative Office, China



### Superfinishing

A process that is unlike the others. In contrast to the classic lathe turning and grinding methods, there is full surface contact between the tool and the workpiece.

This is precisely the feature that produces the unique characteristics of a perfectly machined surface.

This is superfinishing!



### Flat finishing

Flat finishing is primarily the process of using a cup wheel to machine a workpiece's face. The workpiece is clamped in a chuck and rotated. The rotating cup wheel is then precisely advanced to the workpiece's surface.

We are the experts!

# Technology

No matter the tolerance or requirements, let our decades of process know-how and machine tool building experience help you to improve efficiency and profitability.



### Fine grinding

Machining takes place between two rotating grinding wheels. The optimal machining force is applied by the upper wheel, which is mounted on an oscillating pendulum. Fine grinding's central feature is that a fixed number of parts can be processed simultaneously, or in batches.

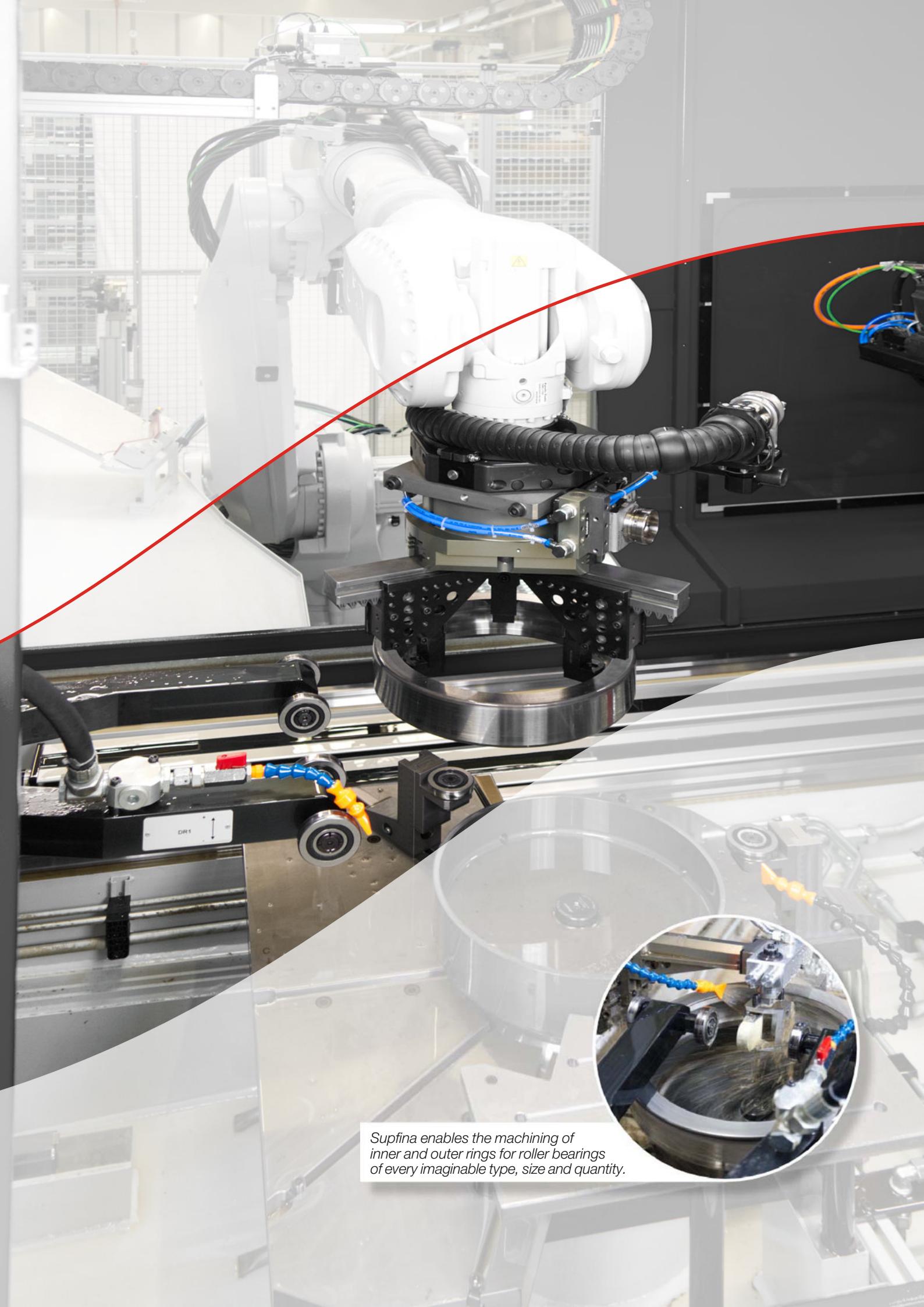
### Double disk grinding

The workpiece is not fixed for this process. Instead, it is loosely placed in the "nest" of the workpiece carrier. Then both sides of the workpiece are simultaneously machined between two grinding wheels. The upper grinding wheel is adjusted with the "tilt" navigation setting, which allows the upper wheel to maintain the desired angle with the lower wheel.



### SpeedFinish

SpeedFinish is faster than comparable processes. Workpieces are machined at high speed, reducing the machining process by as much as 75 percent.



*Supfina enables the machining of inner and outer rings for roller bearings of every imaginable type, size and quantity.*

Superfinishing of antifriction ball bearings

## Race finishing

The world of rolling bearings is almost endless. From the gigantic bearings of offshore wind turbines to the micro bearings of the smallest variable displacement motors in our cars, a wide variety of shapes and sizes are used.



Supfina always provides the appropriate solution for the perfect surface of inner and outer rings:

- Deep groove ball bearings
- Angular ball bearings
- Cylindrical roller bearings
- Tapered roller bearings
- Self-aligning roller bearings

Whether small batch production or series production in flexible production lines, we can supply you with the most suitable machine for processing your surface requirements, including complete automation.



Race



RaceNeo



RaceFlex



RacePro

## Superfinishing

In the most recent generation of roller bearings, the improvements in performance and permissible load are based on the consistent reproduction of exactly defined surface parameters.



Plunge machining:  
RollerFlex



Throughfeed machining:  
RollerPro

The highly productive Supfina machines play a crucial role and are the industry standard for superfinishing of spherical, cylindrical and tapered rollers.

At the same time, the highest demands regarding geometrical and surface quality are met

- Spherical rollers
- Cylindrical rollers
- Tapered rollers
- Piston pins
- Piston rods
- Rollers

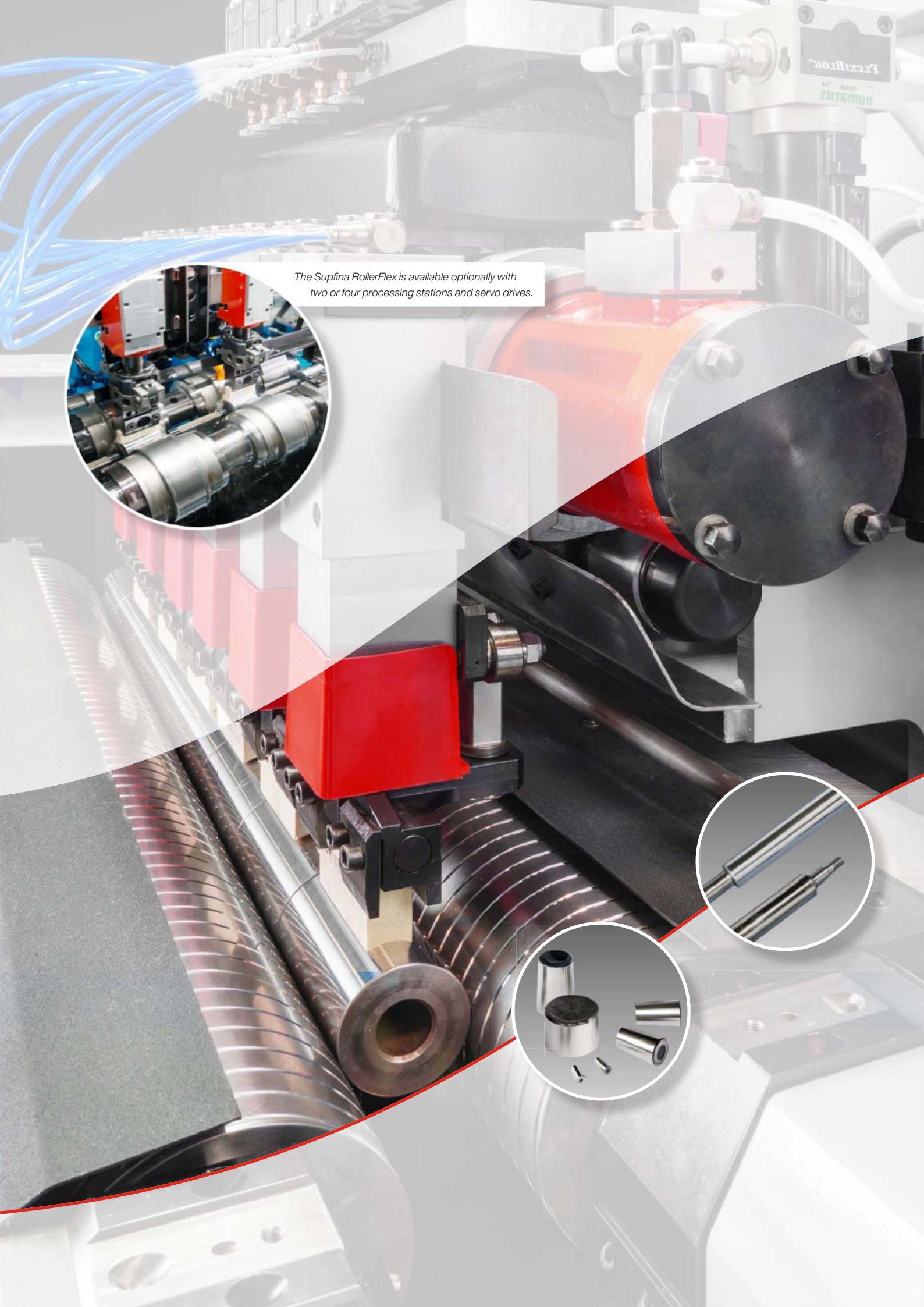
Superfinishing of roller bearings, piston rods and other cylindrical workpieces

## Centerless machining

Supfina throughfeed and plunge-cutting machines for superfinishing offer highest quality at maximum output.

Thanks to minimized set-up times and extended tool service life, high production rates can be achieved with a minimum of low work effort.





The Supfina RollerFlex is available optionally with two or four processing stations and servo drives.



## Superfinishing



CenFlex 1



CenPro S



LCM



CenFlex 4

The Supfina machine series Cenflex, Cenpro, MultiTool and LCM are used for plunge-cutting of shafts between centers.

In combination with a wide range of automated solutions, these machines can finish surfaces on a wide variety of shafts.

- Car and truck crankshafts
- Large crankshafts for industrial engines, marine diesel engines and locomotives
- Camshafts, eccentric shafts
- Balancer shafts
- Gearshafts
- Pump gears



Superfinish for pinion, cam and crankshafts

## Plunge machining

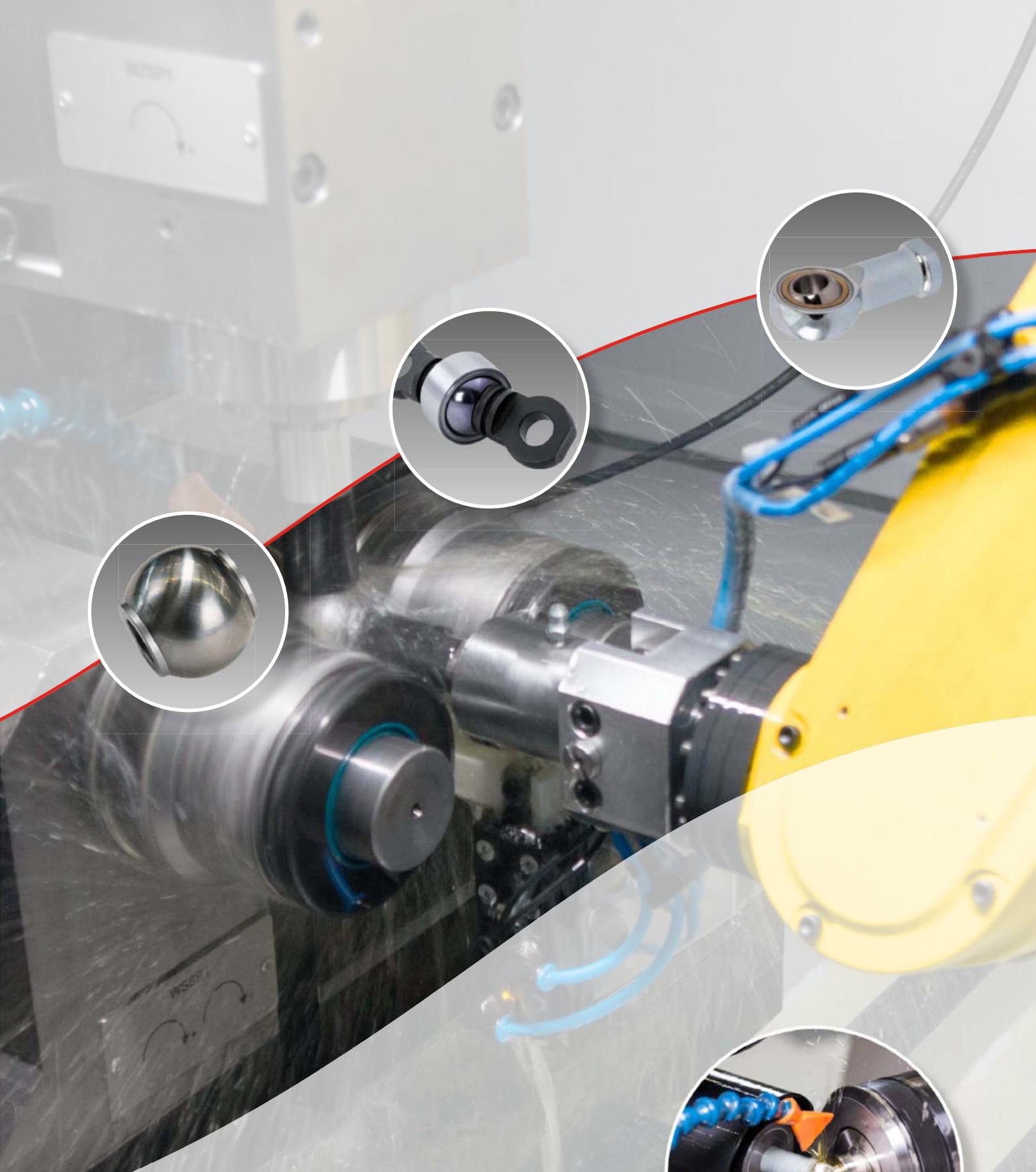
In the powertrain of an automobile, some components are exposed to extreme loads. Gears and shafts are among them. Only an absolutely perfect surface guarantees longevity and low wear – and Supfina has the right solutions.

Our superfinishing machines not only produce components of outstanding quality. They can be used flexibly, and work extremely economically and reliably.





Longevity and low wear can only be guaranteed by an absolutely perfect surface – Supfina also offers the right solution for these requirements.



*Functional surface and symmetry are important in spherical superfinishing for tightness and high stress.*



Superfinishing of spherical components

## Ball machining

Spherical plain bearings and spherical components are used in diverse areas: they are installed in a wide variety of ways in the aerospace industry as well as in the automotive and agricultural industries.

In all areas, however, these parts are subject to the highest quality requirements, as they must function perfectly despite high loads.



Precise machining and production are therefore imperative. In addition, long-term process reliability and low cycle times are of utmost importance for the cost-efficient production of the required quantities in constantly growing industrial sectors.

Based on our decades of experience in superfinishing and the automation of manufacturing processes, our solutions meet these demands with precision.

In cooperation with our customers, we develop systems that meet any specific requirements.

In this way, maximum accuracy and consistent surface quality are achieved, even for individual components, with low unit costs.

- Increase of OEE through automation
- Fulfillment of the required qualities
- Increase of material carrying capacity
- Improvement of microgeometry
- Optimization of surface structure
- Competitive advantage through high flexibility



LCM TS



Nano

## Superfinishing

Flat finishing is primarily the process of using a cup wheel to machine a workpiece's face. The workpiece is clamped in a chuck and rotated. The rotating cup wheel is then precisely advanced to the workpiece's surface.

Components from the fields of injection technology, transmission components, hydraulic or engine parts can be produced with the tightest tolerances in the tenth micrometer range and with the highest reliability and efficiency.

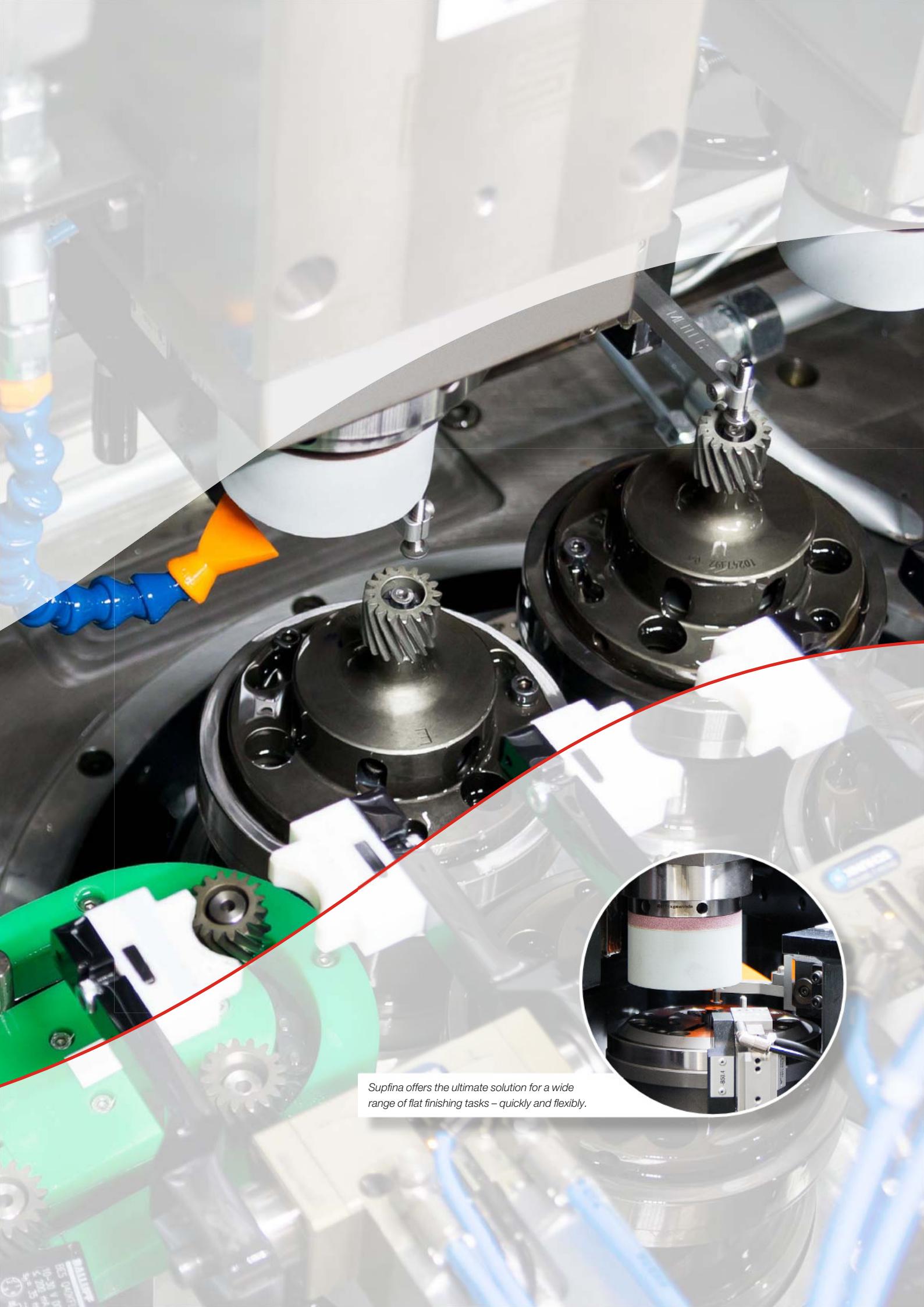
- Camshaft phasing unit
- Planetary gears
- End faces of roller bearing bodies
- Sealing surfaces
- Retaining bodies
- Nozzles
- Valve plates



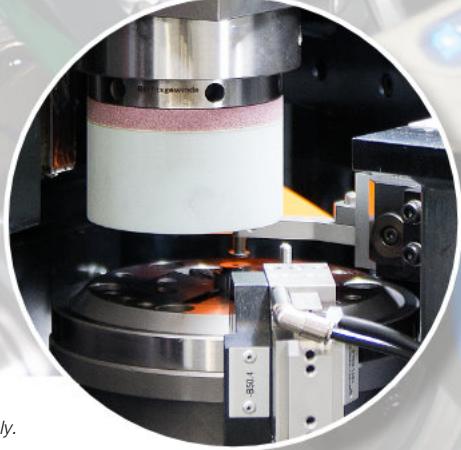
Superfinishing for flat surfaces

## Flat finishing

Perfection in a plane is a requirement for effective sealing applications. The Nano Flat Finishing Machine from Supfina is perfection at its purest.



*Supfina offers the ultimate solution for a wide range of flat finishing tasks – quickly and flexibly.*



## Precision Abrasive Machining

The Spiro fine grinding machine series offers exactly the perfect solution for every application: from the compact Spiro F5 for processing small workpieces to the universal Spiro F7 and the Spiro F12 for workpiece diameters up to 420mm.

Modular systems are available for manual and automatic loading, which can be individually used or extended by newly developed components. In particular, the Spiro's new parallel loading system makes fine grinding even more efficient - right up to semi-autonomous production.

Flexible in set-up, productive in series production.



Maximum efficiency and high precision

## Fine grinding



The machine series 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.



**SUPFINE**  
**SPIRO**



*High-precision and economical fine grinding for  
workpiece diameters from 4-420 mm*





The workpiece is loosely placed in the "nest" of the workpiece carrier. Then both sides of the workpiece are simultaneously machined between two grinding wheels. The upper grinding wheel is adjusted with the "tilt" navigation setting, which allows the upper wheel to maintain the desired angle with the lower wheel.



Planet V4



Planet V7

More efficient than ever

## Double disk grinding

The latest generation of the Planet V machine series takes double sided grinding, also known as Double Disk Grinding, to a new level.

From small to large quantities, from small batches to mass production.



Unique features include the Smart Dressing Cycle, the patented grinding gap visualization and the integrated tool change aid. This reduces downtime as tool changes and retooling operations are kept to a minimum.

The vertical spindle arrangement offers the user the highest resulting workpiece qualities while reducing piece costs.

Due to its space-saving design, Planet V machines can be easily integrated into new or existing production lines.

- Smart Dressing Cycle SDC
- Grinding Gap Visualization System
- Patented Tilt Navigation TNS
- In-Process Measurement
- Smaller Footprint
- Extremely Rigid Machine Base
- Automation

## Attachments and Tools

For the highest surface qualities, our superfinishing attachments can be easily attached to your grinding machines and lathes. In this way, you can offer your customers completely new opportunities along with increasing your competitiveness.

Thanks to the quick and uncomplicated integration to existing lathes and the process support provided by Supfina, you can get started immediately. In this way, you instantly increase your competitiveness and meet all customer requirements.

- Wide range of attachments
- Stone, tape and hybrid devices
- Attachment for existing CNC, grinding machines or lathes
- Flexible and universally applicable
- Proven technology
- Low investment costs
- High cost-effectiveness and accuracy

Supfina 90



Supfina 100



Tape and stone finishing for your carrier machine

# Superfinishing attachments

Depending on the number of pieces and the geometric size of the workpieces to be machined, superfinishing attachments are used on conventional grinding machines or lathes.

Supfina 220



Supfina 300



Supfina 204







Supfina SpeedFinish: Longer tool life, shorter machining times compared to grinding and lower investment costs than a conventional grinding machine.



The fast fine grinding

## SpeedFinish

SpeedFinish technology was developed in order to combine the advantages of grinding and superfinishing into one process. That means creating a homogenous surface free of grind marks in as little time as possible.



The SpeedFinish process offers higher material removal compared to superfinishing and is performed dry.

Typical workpieces for processing with Supfina's SpeedFinish process:

- Work rolls
- Calander rolls
- Piston rods
- Guides
- Color doctors
- Rubber rolls
- Paper rolls



SpeedFinish

## Precision Robotics Machining

With the R-Cell, Supfina presents an innovative robotic cell that easily meets all these requirements. In the modular cell, a large number of components can be arranged entirely according to your own needs and, thanks to the flexible design, can also be expanded or adapted at any time.

This ensures increased flexibility and quicker reaction times and offers great potential for savings thanks to efficient production in a compact space.

- Hand tools
- Fittings and locks
- Medical instruments
- Post-processing AM parts



R-Cell compact



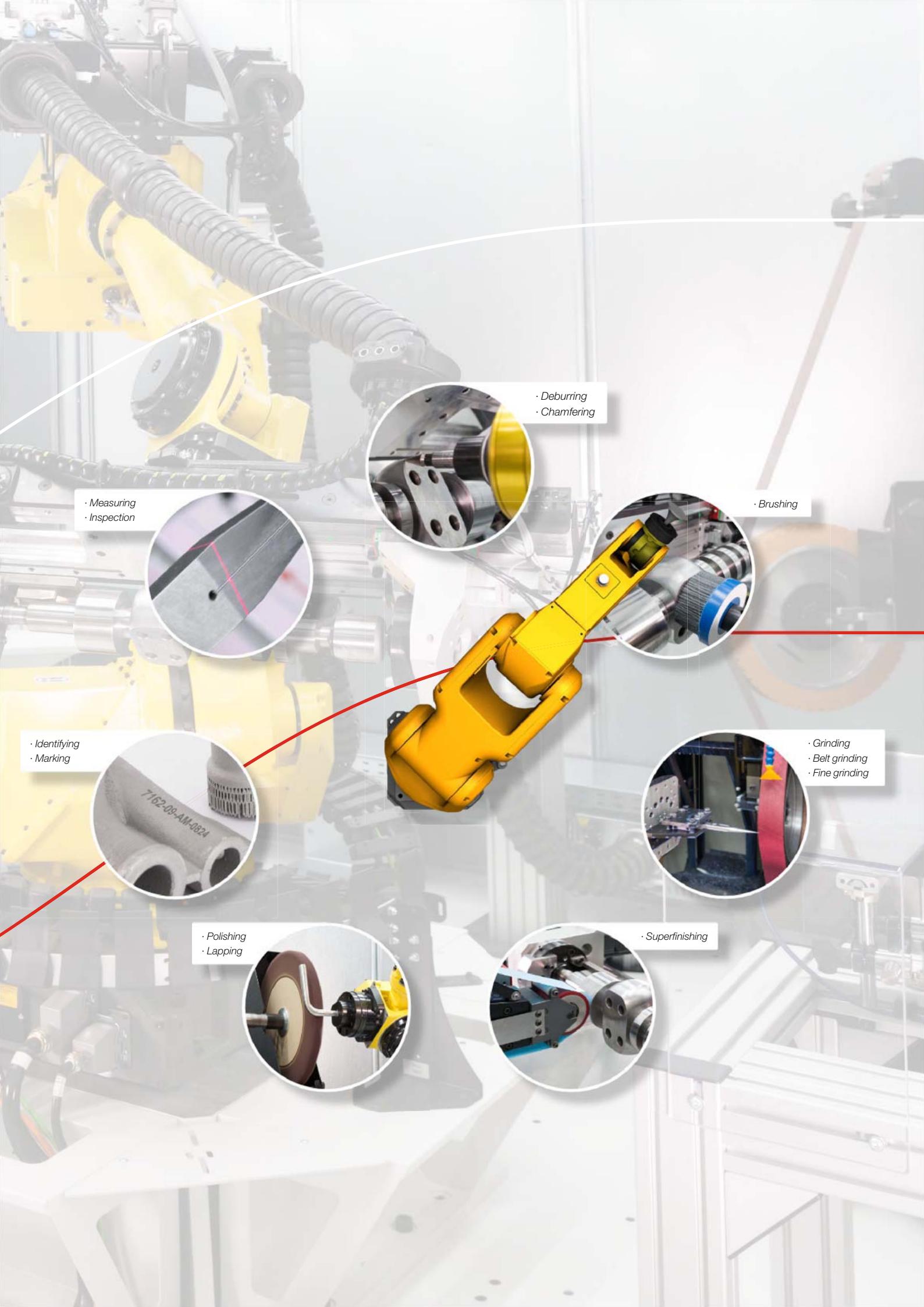
R-Cell

Customized solutions

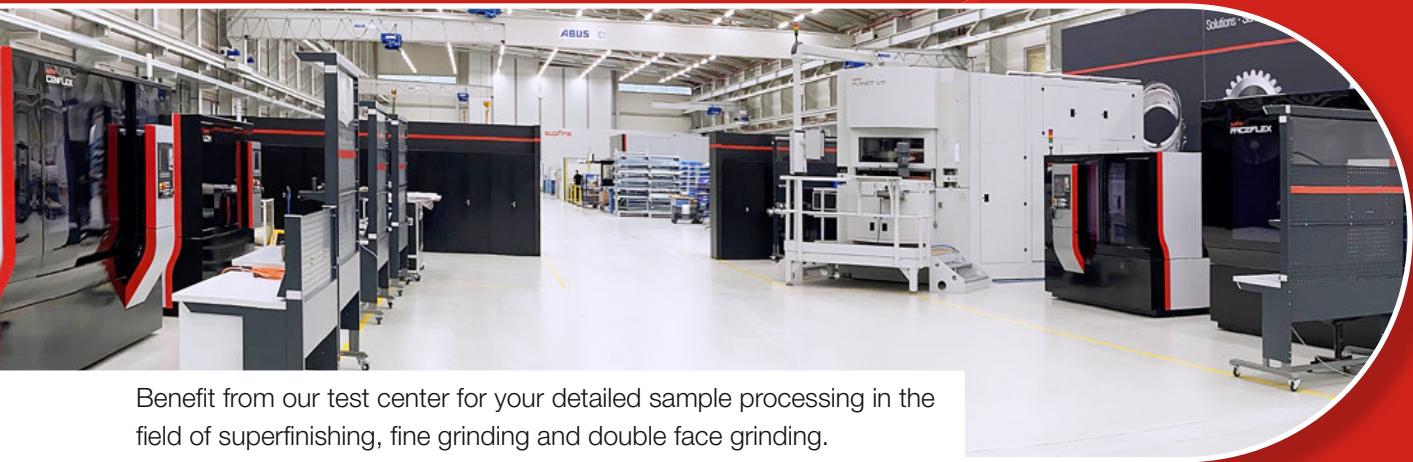
# Robotics Process & Automation

From consulting to planning, implementation and programming, to commissioning and service – Supfina partners with you as a full-service solution provider on your way to the future of production.





## Services



Benefit from our test center for your detailed sample processing in the field of superfinishing, fine grinding and double face grinding.

Reduce your risk and benefit from our trained and experienced staff with the possibilities of our extensive machining abilities and air-conditioned metrology lab for verifiable sample processing.

We process the first sample series, whether it's a small series or a large series. On request, customers can provide their personnel for any part of the start-up phase.

- Sample work, small and large series processed in our test center
- Large machine park
- Well-equipped measuring room
- Trained personnel



Test center and sample processing

# We test for you

Real results create trust. We believe in transparency, and we'll show you the finished result in advance.

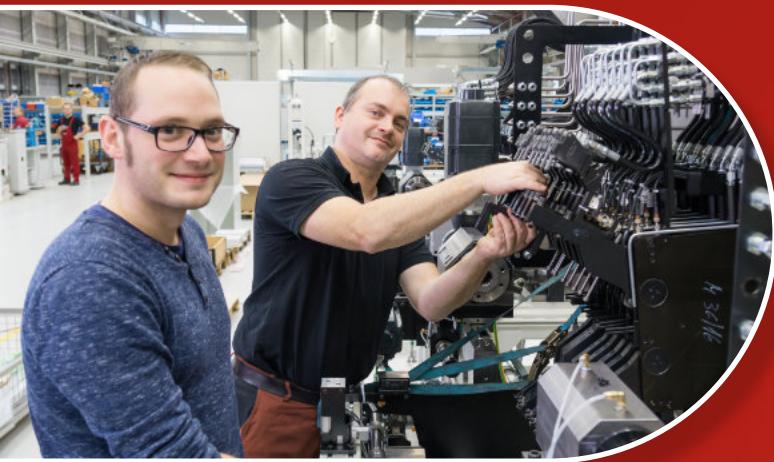
- Combined roughness and contour measurement
- Cylindrical coordinate measurement
- Non-contact ra measurement of surface topography
- Flatness measurement
- Roughness measurement on round workpieces

*Modern measuring technology for the definition of surface qualities on workpieces of different geometries.*



Air-conditioned measuring room for precise evaluation of machining results.

## Services



### Our new service packages optimized for performance

Take advantage of our new service packages, tailored to your needs. Whether it's maintenance, servicing, spare and wear parts to complete support.

- Inspection
- Maintenance
- Service contracts

### Tools

We can supply you with suitable tools for superfinishing, fine grinding and double disk grinding on demand – when you need it. Benefit from our decades of experience and continuous advancements.

### Spare Parts

Spare parts are usually delivered within 24 hours. If ordered before 13.00 h, delivery for Germany and neighboring countries is made by courier on the same day.

Always run at full power

## Ensure productivity

We will accompany your machines during their entire lifetime and permanently provide high availability as well as constant product quality.

Because nobody knows Supfina processing machines and tools better than we do.

## Our used systems

We bring you cost-effective used machines and equipment.

These are overhauled and refurbished in our factory, meeting CE requirements, and have the ability to be adapted to your unique needs.

Experience the future: Value retention through original, lasting Supfina quality.



## Retrofitting and Upgrading

Whether renewing, adapting or expanding, we offer you the right concepts for retrofitting, upgrading, automation or general overhaul of your existing equipment. We can perform this work either at our Technology Center or at your site.

- Increase of OEE
- Reduction of downtime
- Reduction of ancillary costs
- Securing of spare parts
- Improved productivity
- New functions and automation

## Training and education

We provide training courses that are specifically tailored to your application and carried out by our skilled experts. They are practice-oriented, filled with relevant knowledge, and can be held anywhere; online, at your site, or at our Technology Center.

- Improvement of operation
- Reduction of errors
- Minimization of machine downtime
- Improvement of process sequences
- Flexible training location



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