



BUDERUS SCHLEIFTECHNIK GMBH

EFFICIENT AND PROFITABLE PRODUCTION

Grinding technology and automation



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The company

BUDERUS from ABlar is a leading mechanical engineering company for the hard-fine machining of rotationally symmetrical components.

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iCompact

The iCompact is a modern, compact machine for small to large batch sizes.



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uFlex 800/1500

The uFlex combines the complete hard-fine machining, highly flexible grinding applications for small to medium batch sizes.



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22" multitouch display

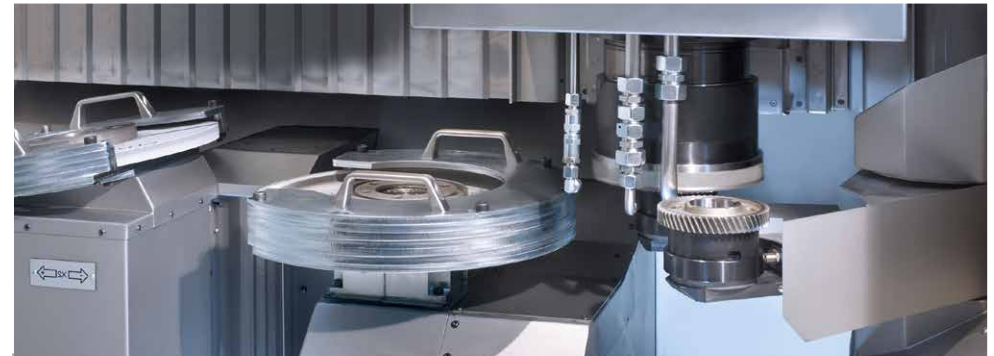
Find out about the advantages of the 22" multitouch displays with Siemens control.



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The multifunctional tool turret guarantees maximum flexibility during the machining process.



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Your partner for high-efficiency automation systems.

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DVS CleanTec®

The sustainability label for BUDERUS machines.





BUDERUS SCHLEIFTECHNIK GMBH

BUDERUS Schleiftechnik GmbH is a leading international mechanical engineering company for the hard-fine machining of rotationally symmetrical components. The company specializes in precision machines for combined internal and external grinding as well as the integration of hard turning operations, bore honing, and other hard-machining processes.

Located in Aßlar in the Hessen region, Buderus Schleiftechnik develops and produces highly efficient and flexible machine and automation solutions. Our solutions enable highly precise machining of your workpieces down to μ -accuracy, flexibly, and with short cycle times.

A DVS TECHNOLOGY GROUP COMPANY

The DVS TECHNOLOGY GROUP is a group of experienced companies engaged in the machining technologies of turning, gear cutting, grinding and honing. The DVS TECHNOLOGY GROUP employs more than 1050 staff worldwide and is considered a leading system provider of machines, tools, and manufacturing solutions for the soft and hard-fine machining of components.

The DVS TECHNOLOGY GROUP includes the following divisions:

DVS Machine:

Manufacture and sale of high-precision machine tools and automation systems

DVS International Sales & Service:

Local DVS partners for sales and service in international markets.

DVS Services & Tools:

Customer-specific development, manufacturing, and sale of machine components, tools, and abrasives and related services.

FOCUS ON CORE TECHNOLOGIES



**INTERNAL CYLINDRICAL
GRINDING**



**EXTERNAL CYLINDRICAL
GRINDING**



BORE HONING



THREAD GRINDING



HARD TURNING



MEASURING

Combination of multiple technologies in a single machine

Internal and external grinding, turning and honing

Integrated automation

From manual loading to integration in complex automation systems

Treatment system with integrated cooling lubricant

Enables a closed circuit of the cooling lubricant without requiring more space for the machine



Compact machine design

Maximum productivity on a small footprint

Ergonomic 22" operation panel

Intuitive operation, individually configurable and excellent haptics

Machine base made of natural granite

For high rigidity, vibration damping and optimal thermal properties

iCompact

Flexibility on a Small Footprint

Thanks to its high degree of flexibility and intuitive user interface, the iCompact is a modern machine that offers the best quality at the lowest unit costs.

MAXIMUM FLEXIBILITY FROM SMALL TO LARGE BATCH SIZES

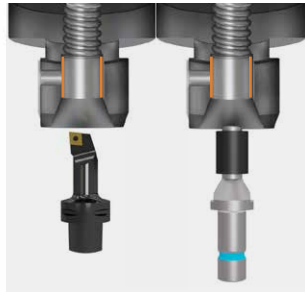


Machining Scope

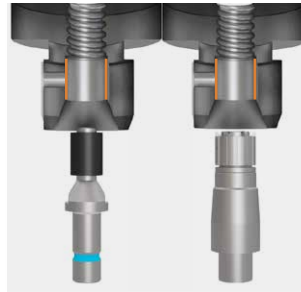
Simultaneous use of multiple technologies



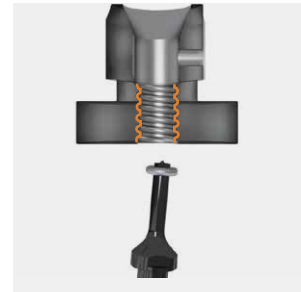
HARD TURNING



PRE-TURNING/GRINDING



PRE-GRINDING/HONING

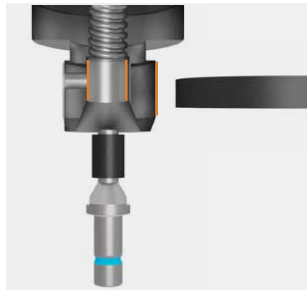


THREAD GRINDING

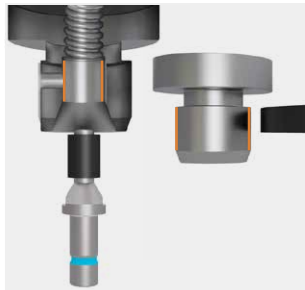
The iCompact is a machine that can be equipped with up to three technology units in a very small space. The processes can be carried out sequentially or concurrently. Flexible configuration enables the realization of different machining processes: internal and external grinding, turning (hard and soft), honing as well as using powered tools.

From hard turning and grinding combined with picking up from the pallet conveyor to hard turning, cone and internal grinding in combination with decoupled automation, for example. The iCompact enables economical machining of your workpieces.

With its very small footprint, the iCompact is the convergence of optimized construction and a modern machine design.



CONCURRENT MACHINING



**INTERNAL AND
EXTERNAL GRINDING**



**POWERED
TOOLS**



FLUTE GRINDING

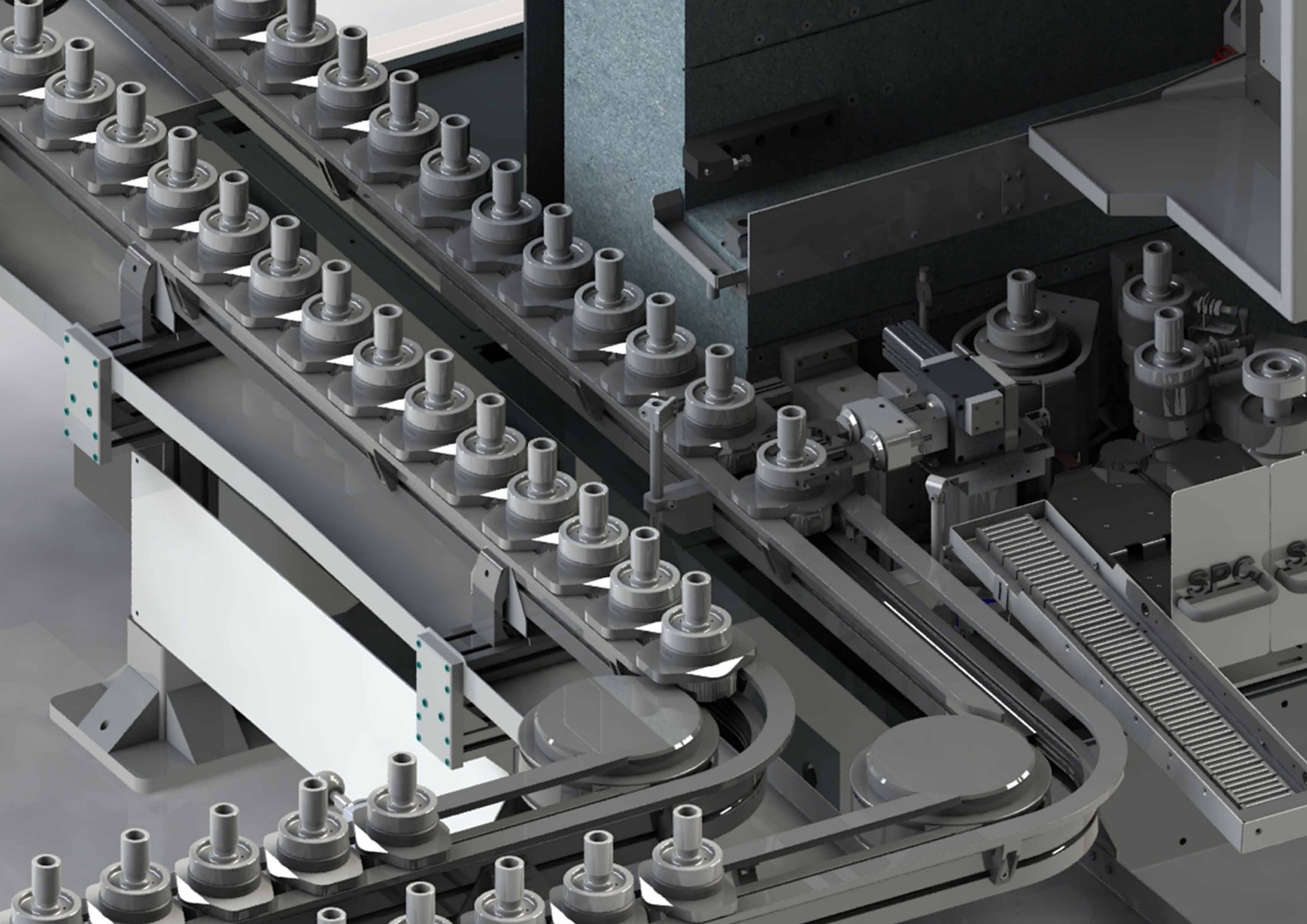
Examples of series and simultaneous machining - the flexible configuration allows the implementation of different machining processes



YOUR ADVANTAGE

- Complete hard-fine machining in a single machine for shorter set-up times
- Flexible use of machine for greater return on investment
- Increased productivity due to compact machine design
- More productivity through the combination of multiple technologies

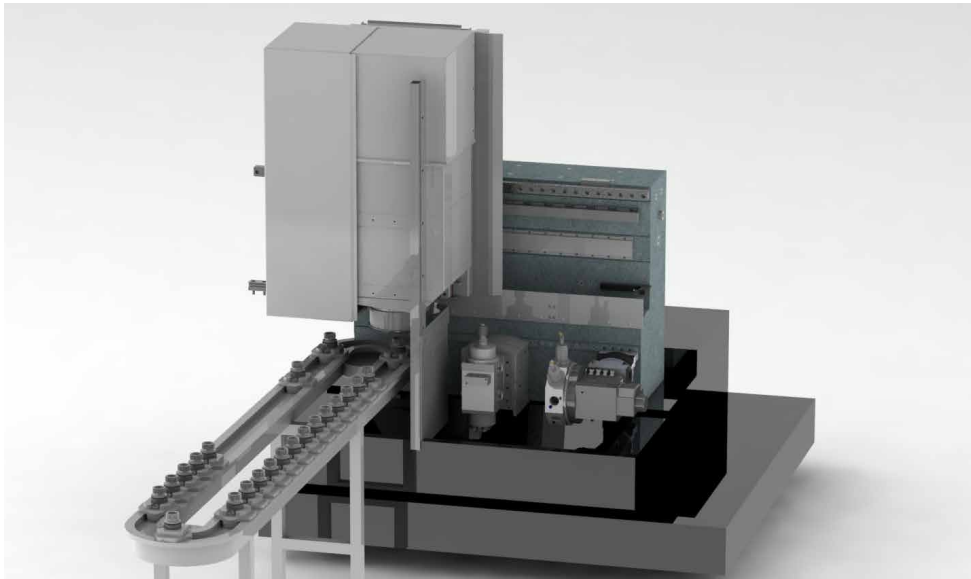
Workpiece	iCompact
Swing diameter (mm)	340
Workpiece diameter max. (mm)	150
Workpiece length max. (mm)	100



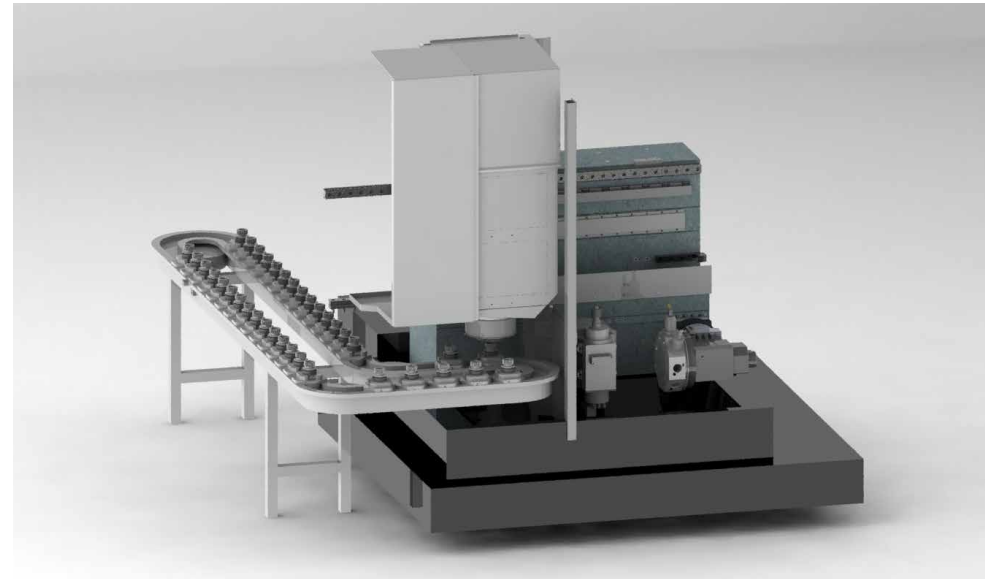
Integrated Automation

Do you want to automate your processes?

Buderus Schleiftechnik offers highly flexible and customer-specific automation solutions that integrate downstream processes, such as measuring, marking, cleaning, etc. into your production process.



Pick-up solution at front



Pick-up solution on side

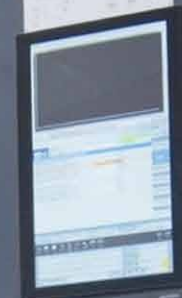
Technical Data

	iCompact 1–2	iCompact 1–3		iCompact 1–2	iCompact 1–3
WORKPIECE			GRINDING SPINDLE		
Swing diameter (mm)	340		External grinding spindle speed (rpm)	6000	
Workpiece diameter max. (mm)	150		Internal grinding spindle speed (rpm)	30000 to 90000	
Workpiece length max. (mm)	100		Other options on request		
Additional workpiece dimensions subject to technical clarification					
COMPOUND SLIDES			TOOL TURRET OPTIONS		
X-axis travel (mm)	710	940	Available tool spaces (standard)	8x	
Y-axis travel (mm) (WKZ option)	25 to 75		Available tool spaces	12x	
Z-axis travel (mm)	290		Powered tools	Optional	
WORKPIECE SPINDLE			DIMENSIONS / WEIGHT		
Drive power 40% / 100% ED (kW)	17 / 15		Width (mm)	2800	3450
Torque 40% / 100% ED (Nm)	130 / 98		Depth (mm)	2760	
Max. speed (rpm /)	4500		Height (mm)	2550	
			Total net weight (kg)	7000	10000
			AUTOMATION	Manual loading	
				Circular loader with oval band (standard)	
				Loading shuttle	
				Robot loading	



SPC

iCompact



Integrated automation

From manual loading to integration in complex automation systems

Ergonomic 22" operation panel

Intuitive operation, individually configurable and excellent haptics

Treatment system with integrated cooling lubricant

Enables a closed circuit of the cooling lubricant without requiring more space for the machine

Multifunctional head

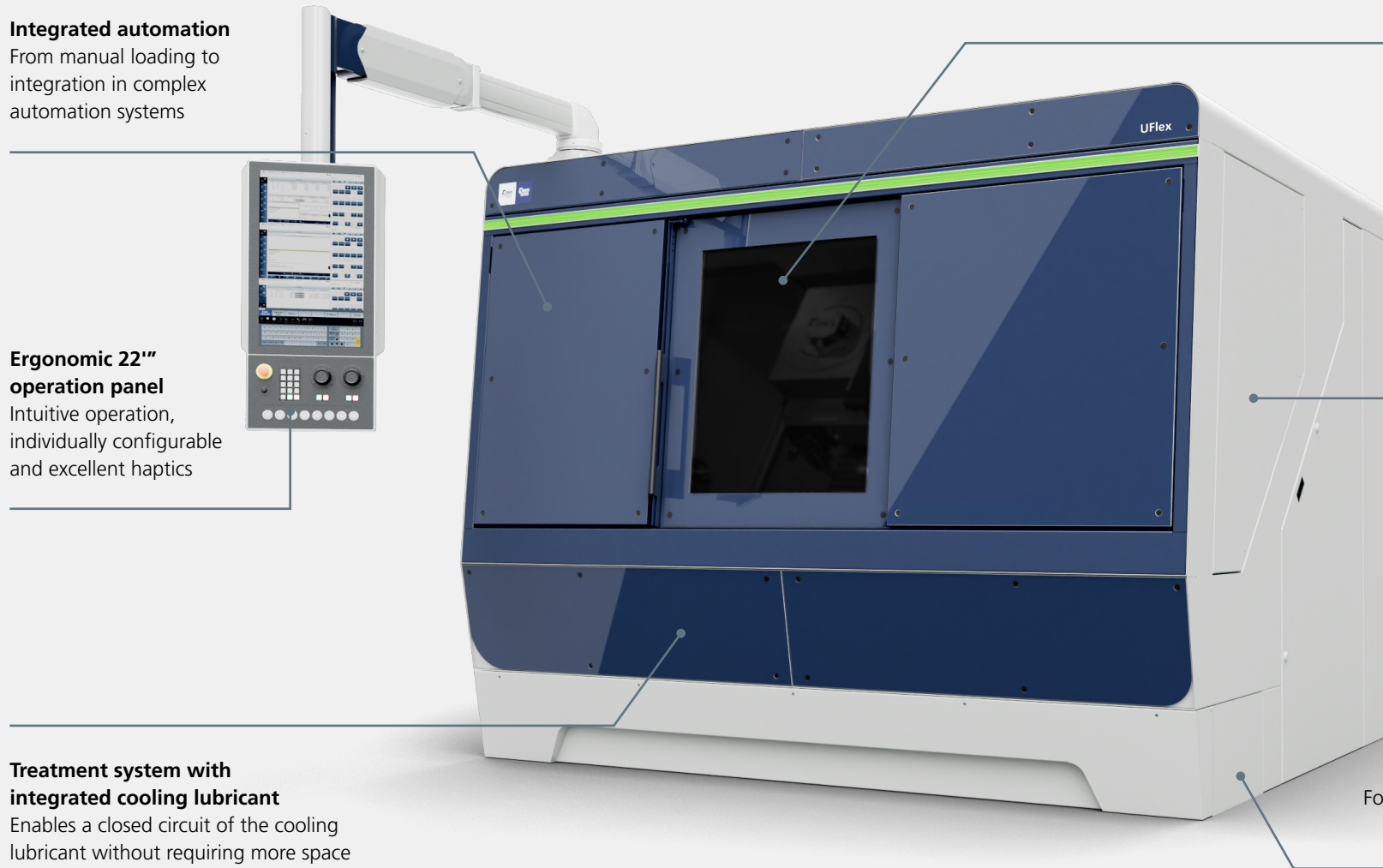
Use of up to five tools

Compact machine design

Maximum productivity on a small footprint

Machine base made of natural granite

For high rigidity, vibration damping and optimal thermal properties

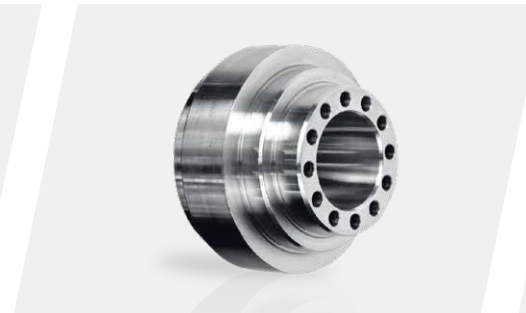


uFlex 800 / 1500

All-rounder for Hard-fine Machining

The uFlex combines complete hard-fine machining in a single machine. It enables turning, measuring, and grinding processes for external and internal grinding in a single clamping. The possible combination options minimize set-up times.

MAXIMUM FLEXIBILITY FROM MEDIUM TO LARGE BATCH SIZES





Machining Scope

Maximum flexibility on smallest footprint

The uFlex offers an optimized construction in a modern design for efficient hard-fine machining.

Two variants of the uFlex are available depending on the workpiece length: workpieces up to a length of 650 mm can be machined on the uFlex 800, while the uFlex 1500 can process components with a length of up to 1,000 mm.

Multifunctional Head

Find out more about the advantages of the multifunctional head on page 27.



YOUR ADVANTAGE

- Reduced set-up times due to complete hard-fine machining
- Flexible use of machine for greater return on investment
- Maximum productivity on smallest footprint



Workpiece	uFlex 800	uFlex 1500
Swing diameter (mm)	340	
Workpiece diameter max. (mm)	250	
Workpiece length max. (mm)	650	1000

Technical Data

	uFlex 800	uFlex 1500		uFlex 800	uFlex 1500
WORKPIECE			EXTERIOR MACHINING		
Swing diameter (mm)	350		Max. machining length (mm)	500	1000
Workpiece diameter max. (mm)	250		Peripheral speed (m / s)	50 corundum / 80 CBN	
Workpiece length max. (mm)	650	1000	Drive power (kW)	20	
Additional workpiece dimensions subject to technical clarification			Max. disc dimension (mm)	Ø 400x100	
COMPOUND SLIDES			Max. speed (rpm)	6000	
X-axis travel (mm)	500				
Z-axis travel (mm)	800	1,500	INTERNAL MACHINING		
			Max. bore diameter (mm)	250	
MULTIFUNCTIONAL HEAD			Max. drilling depth	250	
Swivel range (°)	from -45° to 225°		Drive power 100% ED (kw)	3 to 23	
Positioning accuracy (°)	0.003		Max. disc dimension (mm)	Ø 10 to Ø 150	
Repeatability (´´)	<11		Internal grinding spindle speed (rpm)	30000 to 90000	
Resolution (°)	0.001		Other options on request		

	uFlex 800	uFlex 1500		iCompact 1-2	iCompact 1-3
WORKPIECE SPINDLE: C-AXIS			CONNECTION VALUES		
Max. speed (rpm)	5000		Total connected load (kW) (depending on equipment)	40 to 60	
Drive power (kW)	24		Air pressure (bar)	5 to 6	
Torque (Nm)	50				
Roundness accuracy (µm)	<1.5		DIMENSIONS/WEIGHT		
SLEEVE (TAILSTOCK)			Width (mm)	2800	3450
Sleeve stroke (mm)	80		Depth (mm)	2760	
Sleeve diameter (mm)	80		Height (mm)	2550	
Bearing (-)	roller bearing		Total net weight (kg)	7000	10000
Fine adjustment for cylindricity corrections (µm)	±25		AUTOMATION	Manual loading (with optional automatic door opening) Shaft loader Gantry loader Robot loading	
Actuation	pneumatic/ hydraulic				
3-POINT BEZEL (ROTATING/GRINDING BEZEL)					
Clamping range (mm)	Ø 20 to Ø 150				
Feedability	0, stepless				

Versatile machining

Thanks to two powerful workpiece spindle, almost cycle time neutral loading / unloading

Very high torque

Grinding spindles, designed for machining hard coated brake disks

Tuned processes

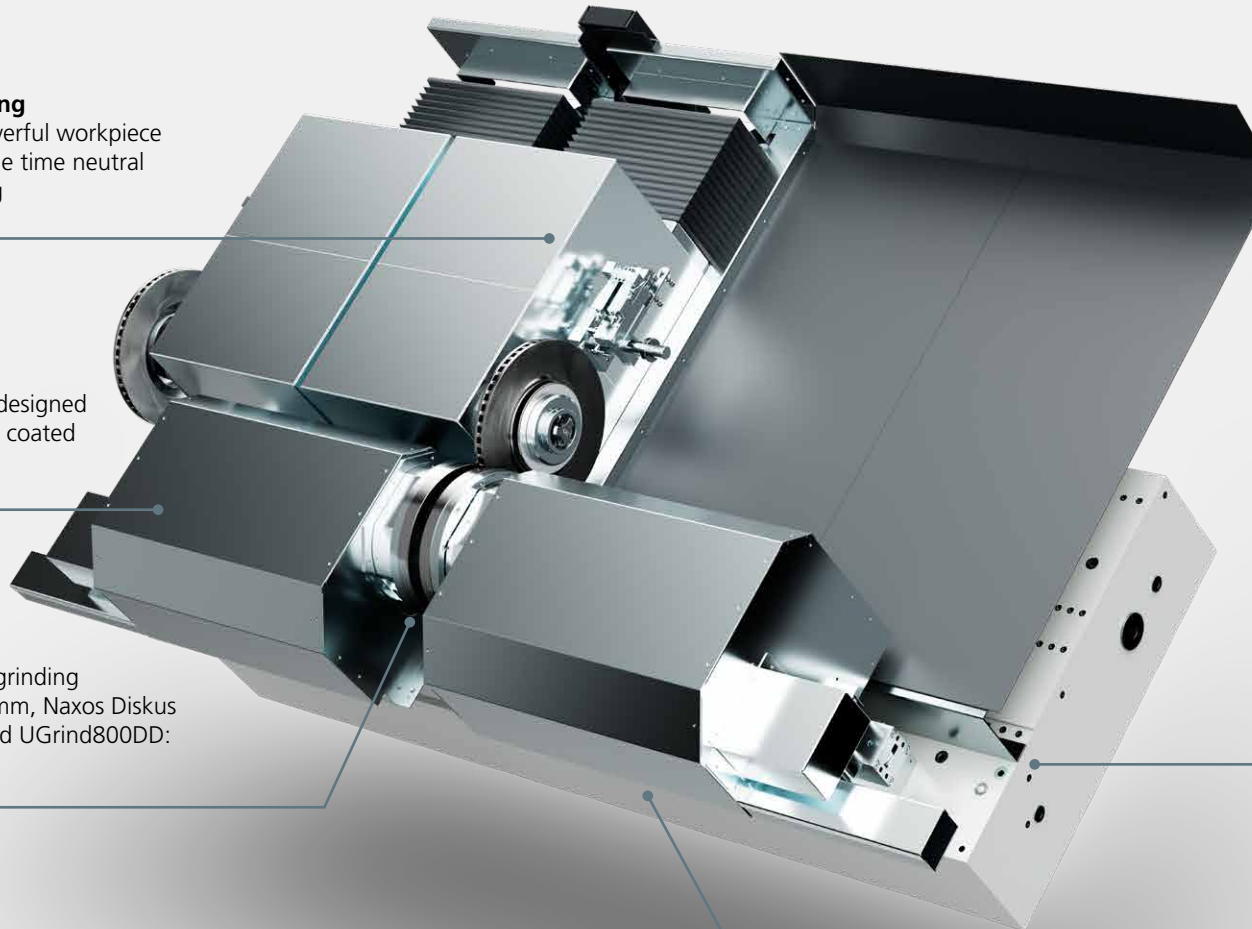
Possible thanks to grinding wheels up to 400 mm, Naxos Diskus grinding wheels and UGrind800DD: the perfect duo

High rigidity

Machine bed made of natural granite, vibration damping and optimal thermal properties

Specially designed guideways

Designed for the high torques of the machine

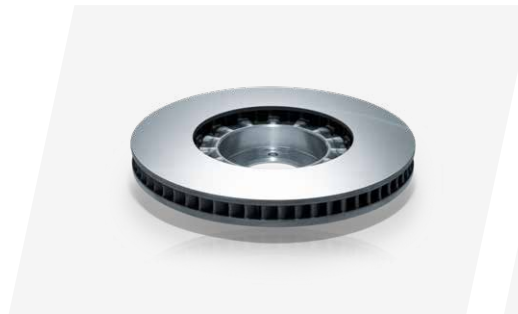


UGrind 800 DD

Two sides. One process. Zero compromises.

The UGrind 800 DD was specially developed for the double face grinding of brake discs. On the base of the standard machine are two grinding supports, which enable the simultaneously grinding of both friction ring surfaces. The grinding supports are equipped with CBN or diamond grinding wheels. The workpiece is clamped axially using a quick-change system. It moves along the axes between the two grinding wheels. The friction ring strength is checked and measured via the in-process measuring system.

Ideal for the efficient processing of different coatings



Machining Scope

Double Face Grinding

The UGrind 800 DD has been specially optimized for the machining of hard-coated brake discs. But the machine can also be used for the soft machining of standard grey cast iron brake discs. The UGrind 800 DD is designed for the horizontal machining of workpieces.

Depending on the requirements of the customer and project, various automation concepts for the entire production line (including SPC, measuring and cleaning station as well as cooling section) can be implemented by rbc robotics GmbH.



Technical Data

UGrind 800 DD

WORKPIECE

Workpiece diameter min./max. (mm)	130/500
Workpiece thickness max. (mm)	50
Workpiece weight max. (kg)	40

AXLES

X-axis travel (mm)	250
Z-axis travel (mm)	1.200
travel grinding spindles (mm)	60

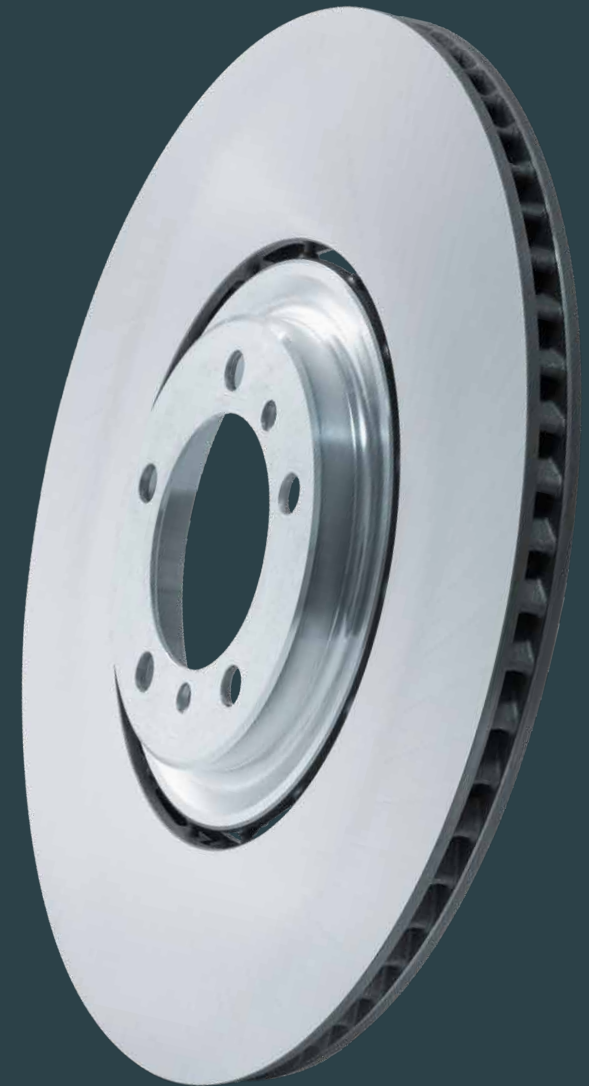
Control system	Siemens Sinumerik One
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Optional accessories	Custom automation solutions, external coolant treatment, chucks adapted to the specific brake disc type with quick-release system
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Technology	Double Face Grinding of brake discs: with hard coating (e.g., tungsten carbide, chromium carbide, aluminum oxide, silicon carbide)
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Machine concept / design	Inclined machine bed with two grinding spindles movable in the Z-direction, workpiece spindle movable in both Z- and X-directions
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Axes / Drives	Cross slide with X-axis (servo motor + ball screw) and Z1-axis (servo motor + ball screw), Z2 and Z3 axes (servo motor + ball screw), workpiece and tool spindles designed as motor spindles
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Cross slide and Y-axis

Up to four compound slides and one Y-axis can be flexibly configured

Ergonomic 22" operation panel

Intuitive operation, individually configurable and excellent haptics

Highly flexible configuration

Combination of grinding spindles, tool turret for turning and milling operations and multifunction head possible

Center drive of the 235 VM

Enables oder Allows simultaneous machining with up to four tools, machining of short components as well as hard turning and honing

Multifunctional head

Use of up to five tools

Integrated automation

Integration in complex automation systems

Machine base made of natural granite

For high rigidity, vibration damping and optimal thermal properties

235-Series

Productive and Flexible

235 VH with tailstock or counter spindle and 235 VM with center drive

The 235-series of machines delivers the best possible quality at the lowest cost per unit for turning, measuring and external and internal grinding applications. It enables concurrent and combined machining, thus significantly reducing the set-up and cycle times.

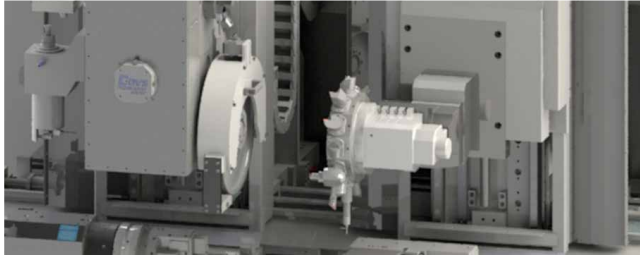
The innovative machine platform 235 VM is specially designed for the machining of rotationally symmetrical workpieces with a diameter of up to 80 mm and a length of up to 450 mm. The 235 VM enable both combined and simultaneous machining using a center drive.

OPTIMIZED FOR MEDIUM TO LARGE BATCH SIZES

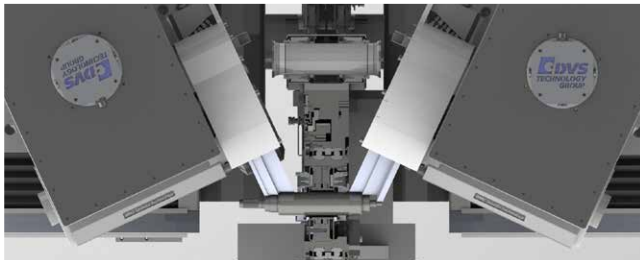


Machining Scope

The next generation of hard-fine machining equipment



The **235 VH** enables both combined and concurrent machining processes. The flexible configuration options allow for a wide variety of machining processes from internal and external cylindrical grinding, hard turning, and honing to the use of powered tools. This results in shortest cycle times with best quality.



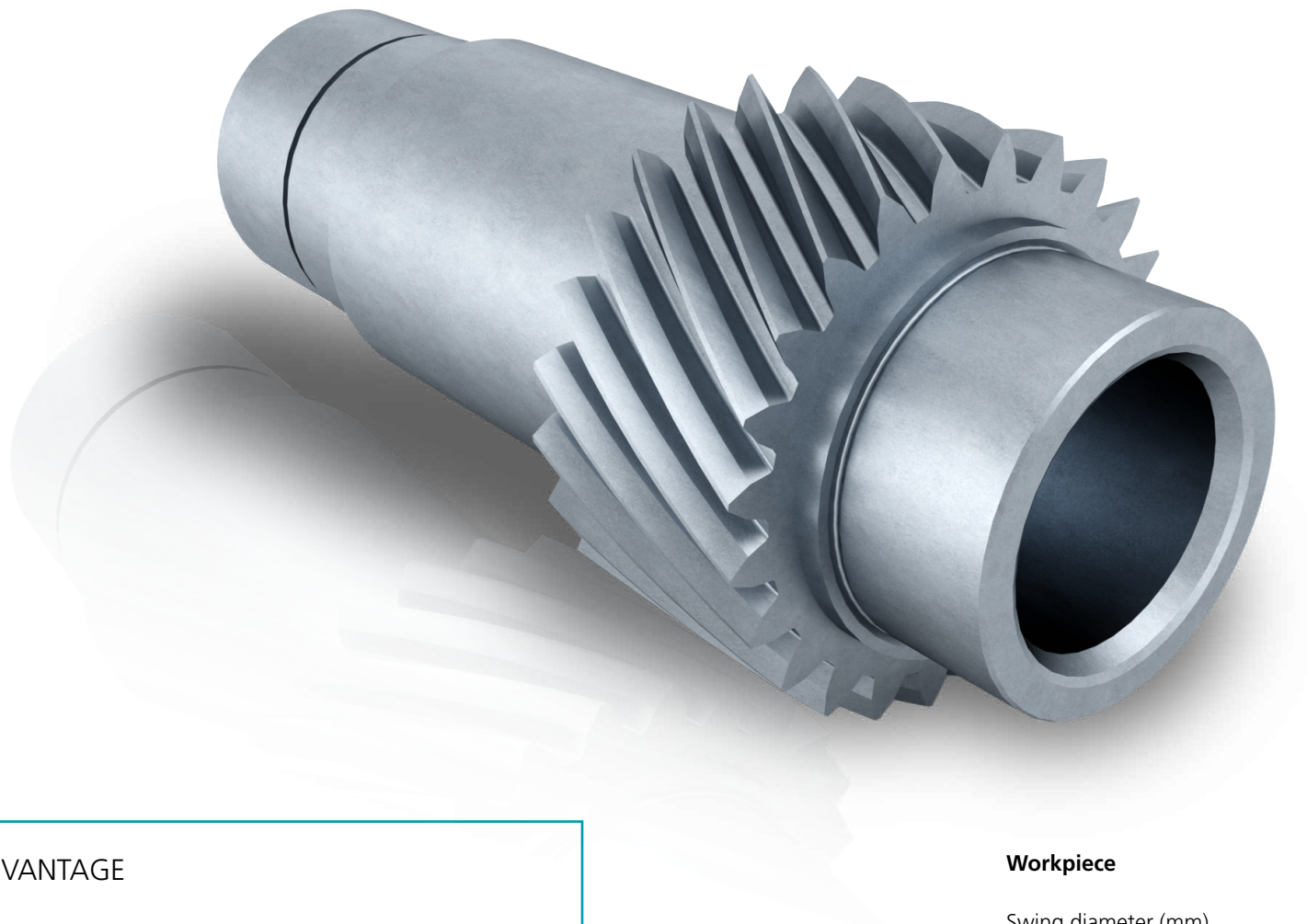
The major technological advantage of the **235 VM** is the machining of internal and external diameters in one clamping (e.g., hollow shafts) as well as the high-precision concentricity of these diameters.

Both combination processing and concurrent processing are possible on the 235 VM. The flexible configuration options enable various machining processes to be carried out, such as internal and external grinding, hard turning, and honing through to the use of powered tools. This enables the 235 VM to achieve shortest possible cycle times with best quality.

Multifunctional Head

Find out more about the advantages of the multifunctional head on page 27.





YOUR ADVANTAGE

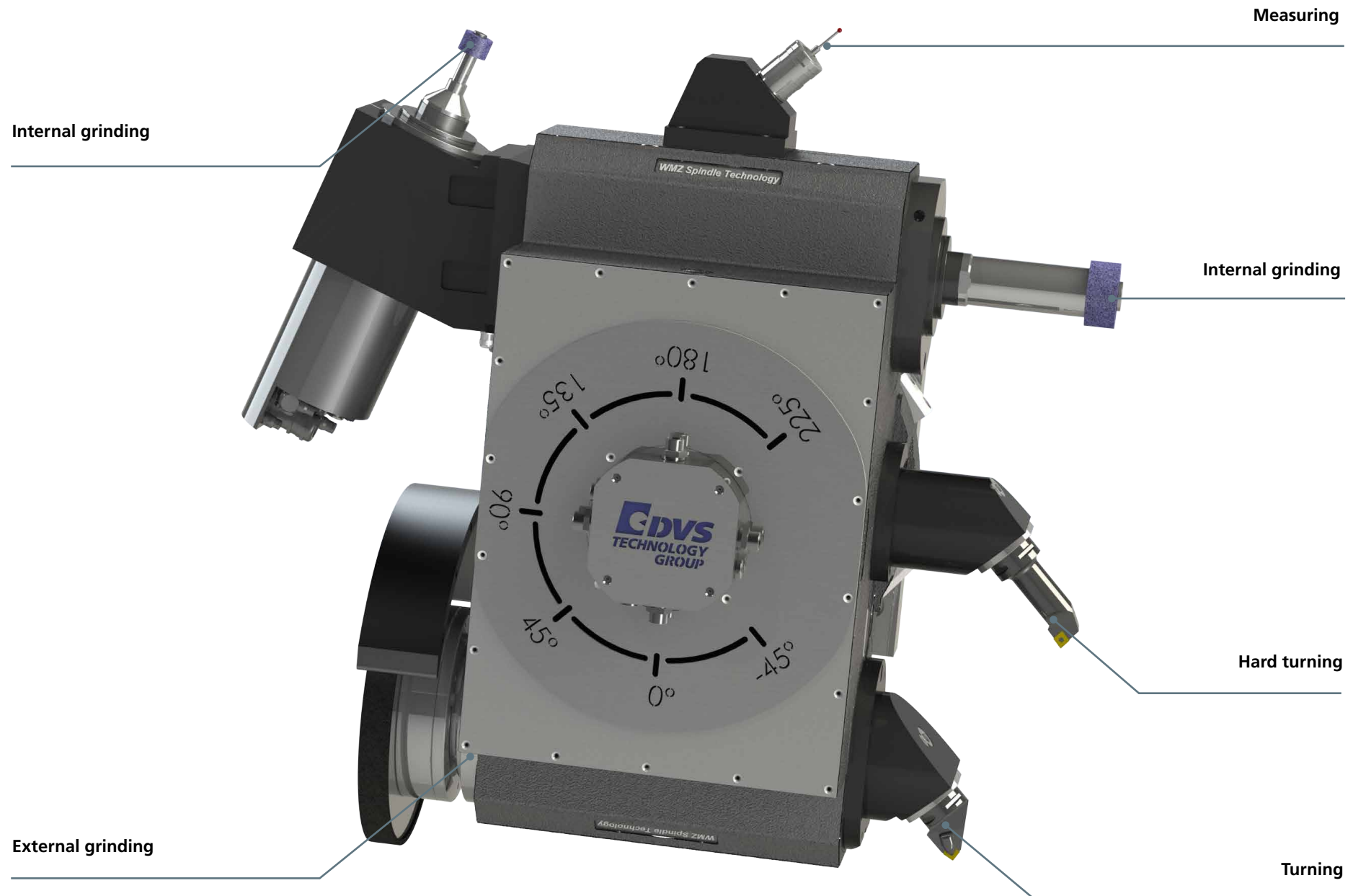
- Reduced set-up times due to complete hard-fine machining
- Concurrent machining with up to four tools: optimized cycle times
- Machining in one clamping: highest precision

Workpiece	235 VH	235 VM
Swing diameter (mm)	340	
Workpiece diameter max. (mm)	250	80
Workpiece length max. (mm)	700	450

Technical Data

	235VH	235VM		235VH	235VM
WORKPIECE			MAIN SPINDLE C-AXIS		
Swing diameter (mm)		340	Max. speed (rpm /)	5000	3500
Workpiece diameter max. (mm)	250	80	Drive power (kW)	24	39
Workpiece length max. (mm)	700	450	Torque (Nm)	50	160
Additional workpiece dimensions subject to technical clarification			Roundness accuracy (µm)	<1.5	
COMPOUND SLIDES			SLEEVE (TAILSTOCK)		
X-axis travel (upper carriage) (mm)		500	Sleeve stroke (mm)	80	
X-axis travel (lower carriage) (mm)		200	Sleeve diameter (mm)	80	
Y-axis travel (mm) (WKZ option)		200	Bearing (-)	roller bearing	
Z-axis travel (two carriages) (mm)	1,260	500	Fine adjustment for cylindricity corrections (µm)	±200	
MULTIFUNCTIONAL HEAD			Actuation	pneumatic/ hydraulic	
Swivel range (°)	from -45° to 225°		COUNTER SPINDLE C-AXIS		
Positioning accuracy (°)		0.003	Max. speed (rpm /)	5000	
Repeatability (")		<11	Drive power (kW)	7.5	
Resolution (°)		0.001	Torque (Nm)	10	
			Roundness accuracy (µm)	<1.5	

	235VH	235VM
3-POINT BEZEL (ROTATING / GRINDING BEZEL)	optional	
Clamping range (mm)	Ø 20 to Ø 150	
Feedability	stepless	
CONNECTION VALUES		
Total connected load (kW) (depending on equipment)	up to 100	
Air pressure (bar)	5 to 6	
DIMENSIONS/WEIGHT		
Width (mm)	3600	
Depth (mm)	2650	
Height (mm)	2680	
Total net weight (kg)	12000	16000
AUTOMATION	Manual loading (with optional automatic door opening) Shaft loader Gantry loader Robot loading	



Multifunctional head

For YOUR highly flexible production

The multifunctional tool turret guarantees maximum flexibility during the machining process.

With a large radius of action, processes such as internal and external grinding, surface grinding, cone grinding or various turning and milling operations can be carried out efficiently and with maximum precision.

An optional measuring probe integrated into the multifunctional head controls the processing until the final dimension is achieved. Time-consuming manual work such as re-measuring or multiple feeds is no longer necessary. This significantly reduces the overall processing time.



YOUR ADVANTAGE

- Individually configurable multifunctional head in a single machine
- Optional version with measuring sensor for verification of allowance and finished dimensions
- Can be equipped with up to five different tools
- Individual internal grinding spindle, speed configuration up to 105000 rpm
- Application-specific spindle and tool design
- External grinding spindle – drive power up to 20 kW, max. diameter 400 x 100 mm



New 22" Multitouch Display with Siemens control



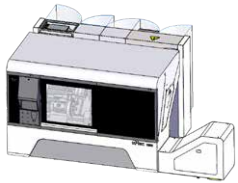
YOUR ADVANTAGE

- Intuitive and easy to use
- No additional display required for peripheral systems
- Full integration of measuring and balancing systems as well as instructions
- Direct access to user manuals
- Individually configurable and expandable via buttons (e.g., remote maintenance system)
- Simultaneous display of 2 different programs/pages/process parameters
- The familiar Siemens control panel is still below the display

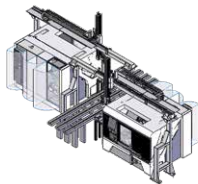
Your Partner for Highly Efficient Automation Systems

Variable down to the last detail are the various automation concepts from Buderus Schleiftechnik together with our sister company rbc robotics.

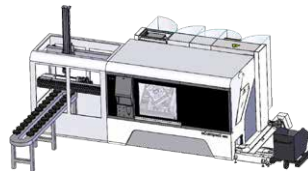
rbc robotics, a subsidiary of the DVS TECHNOLOGY GROUP, has been a global solution provider for camera-guided robot systems for two decades. Thanks to the company's extensive experience in many key industries, rbc robotics can offer intelligent, automated robotic solution for almost all manual feeding processes for all Buderus Schleiftechnik machines.



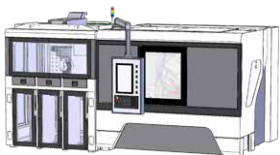
Manual loading



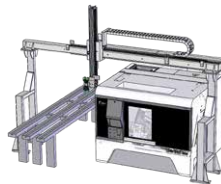
Highway connection with gantry loader



Lateral automation



rbc robot cell



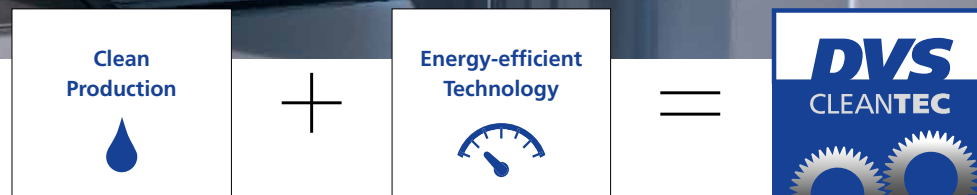
Gantry loader



Contact the application engineers at
rbc robotics:



Phone: +49 6074 304060
E-mail: info@rbc-robotics.de
Website: dvs-technology.com/rbc-robotics



DVS CleanTec®

The sustainability label for BUDERUS machines

The availability of raw materials as well as the switch to renewable energy sources is forcing energy prices up and requiring industry to use resources more responsibly and economically. This is exactly the intention behind the pioneering concept for machine tools from the DVS TECHNOLOGY GROUP known as "DVS CleanTec®". This concept will enable the future challenges of sustainability to be mastered through reduced emissions and the efficient use of energy.

CLEAN PRODUCTION

The first pillar of the "DVS CleanTec®" label which must be considered is the factor "reduced emissions". In order to minimise downtimes during maintenance or cleaning work, the machine is designed with easy cleaning in mind. Cleaning intervals can be specified and documented through the machine control with the aid of the planned DVS CleanTec® additional software.

The leak-tightness of the machine is also guaranteed, particularly with a view to wet machining. Efficient work space extraction combined with encapsulated automation solutions make a further decisive contribution to reducing emissions. Liquids or chip residue carry-over is prevented with the aid of efficient cleaning stations.



Spring clamping system

The concept does without hydraulic components throughout – even for the clamping systems, where energy-efficient spring-loaded clamping systems are used instead.



Encapsulated work space

The encapsulated machine technology prevents emulsions or chip residue being carried over. This means that even gaseous emissions are retained within the machine.



Cleaning station

A cleaning station at the end of the process chain guarantees drip-free output of the workpieces and, together with the dry gripper used in the feed chamber, effectively prevents emulsions being transferred.

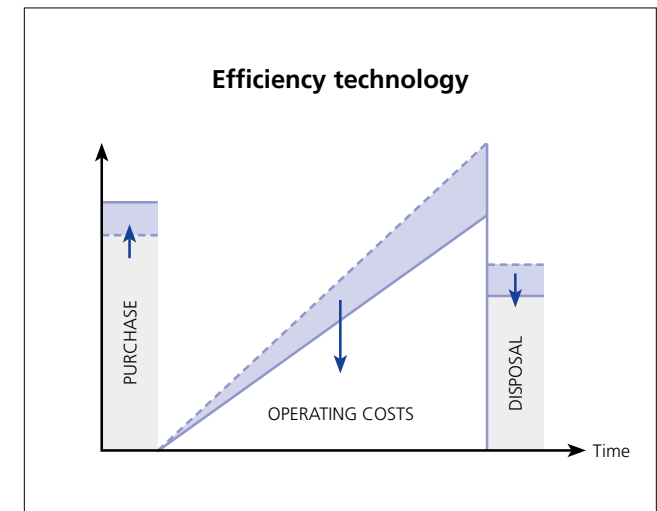
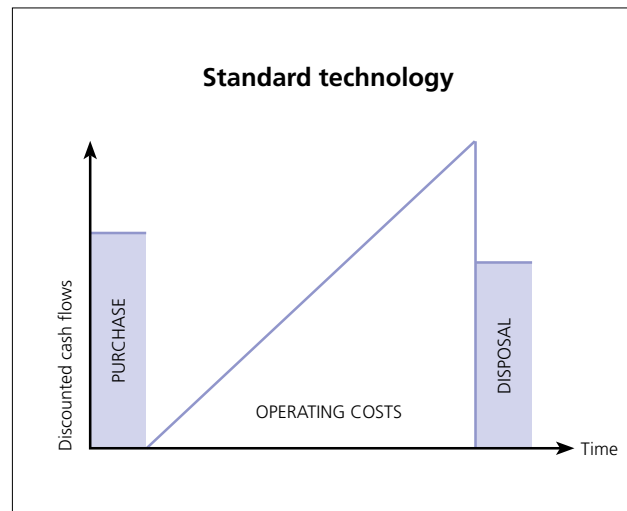
- Simple cleaning of the machine housing
- Encapsulated machine technology
- Sealed housing - no emissions escape
- Efficient work space extraction
- Cleaning station for workpieces
- Software-controlled documentation of cleaning intervals

ENERGY-EFFICIENT TECHNOLOGY

Scientific studies show that the costs for energy, compressed air as well as cooling agents and lubricants can account for up to 40% of the operating costs for machine tools. In some cases this even exceeds the purchasing price, which is still considered the main argument for investment decisions.

If the entire life cycle of a machine is considered, however, it is worth taking a closer look at the machine's energy efficiency, not least in view of the continued steady increases in the cost of electricity. DVS CleanTec® certified machines have been designed to keep operating costs low without accepting any compromise as far as quality or cycle times are concerned.

- Hydraulic-free machine design
- Reduction of pneumatic components
- Cooling systems and motors designed tailored to the application
- Use of motors with the highest efficiency classes
- Consistent use of synchronous drive technology
- Automatic standby mode



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Members of the DVS TECHNOLOGY GROUP

DVS MACHINE



BUDERUS Schleiftechnik GmbH | dvs-technology.com/buderus-schleiftechnik
I.D. grinding – O.D. grinding – Bore honing – Hard turning



PITTLER T&S GmbH | dvs-technology.com/pittler
Vertical turning center and Pick systems – Gear cutting for complete machining



PRÄWEMA Antriebstechnik GmbH | dvs-technology.com/praewema-antriebstechnik
Gear honing – Gear grinding – Hobbing/Fly-cutting – Chamfering



rbc robotics GmbH | dvs-technology.com/rbc-robotics
Camera-guided robot automation systems

DVS INTERNATIONAL SALES & SERVICE



DVS Technology America, Inc. | dvs-technology.com
DVS Sales & Service in USA, Canada & Mexico



DVS Technology (Taicang) Co., Ltd. | dvs-technology.com
DVS Sales & Service in China

DVS SERVICES & TOOLS



DVS TOOLING GmbH | dvs-technology.com/dvs-tooling
Tool solutions and technology support for PRÄWEMA gear honing



NAXOS-DISKUS Schleifmittelwerke GmbH | dvs-technology.com/naxos-diskus
Conventional grinding tools – CBN and diamond tools



Werkzeugmaschinenbau Ziegenhain GmbH | dvs-technology.com/wmz
Motorspindles & Components



DVS Service GmbH | dvs-technology.com/dvs-service
Maintenance – Complete overhauls – Repairs



DISKUS WERKE Schleiftechnik GmbH | diskus-werke.dvs-gruppe.com
Face grinding – Double face grinding – Special machining

DVS PRODUCTION



DVS Precision Components (Taicang) Co. Ltd.
Precision powertrain components in series production for passenger cars and trucks on DVS machines