



BUDERUS SCHLEIFTECHNIK GMBH

EFFICIENT AND PROFITABLE PRODUCTION

Grinding technology and automation



04

The company

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

06

iCompact

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



Contents

14

uFlex 800/1500

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



28

22" multitouch display

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



26

Multifunctional head

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



20

235 Serie

The 235 series (235 VH and 235 VM) combines various grinding applications for medium to large batch sizes.



29

rbc robotics

Your partner for high-efficiency automation systems.

30

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.

BUDERUS - A COMPANY IN THE DVS TECHNOLOGY GROUP

The DVS TECHNOLOGY GROUP is a group of experienced companies engaged in the machining technologies of turning, gear cutting, and grinding. The DVS TECHNOLOGY GROUP divisons more than 1400 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 is divided into the following divisions:

DVS Machine Tools & Automation:

Manufacture and sale of high-precision machine tools and automation systems as well as any related services.

DVS Production:

Series production of car and truck components on DVS machine tools.

DVS International Sales & Service:

DVS partners for sales and service in international markets.

DVS Tools & Components:

customer-specific development, manufacturing, and sale of machine components, tools, and abrasives.

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

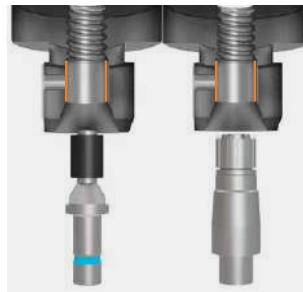
Simultaneous use of multiple technologies



HARD TURNING



PRE-TURNING/GRINDING



PRE-GRINDING/HONING

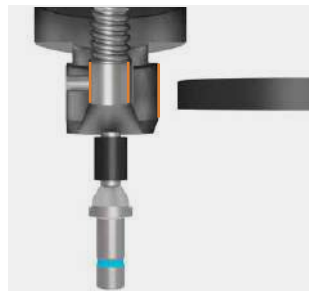


THREAD GRINDING

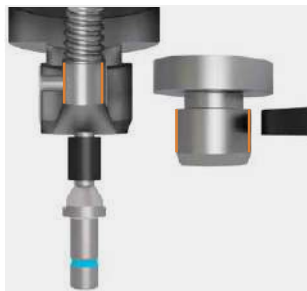
The iCompact is a machine that can be equipped with up to three technology units in a very small space. The processes can be carried out sequentially or concurrently. Flexible configuration enables the realization of different machining processes: internal and external grinding, turning (hard and soft),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

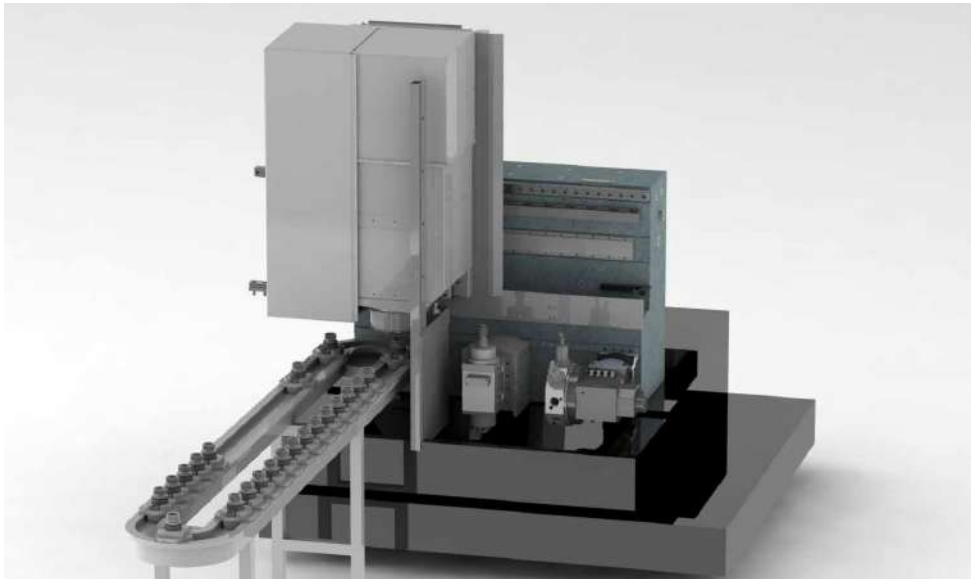
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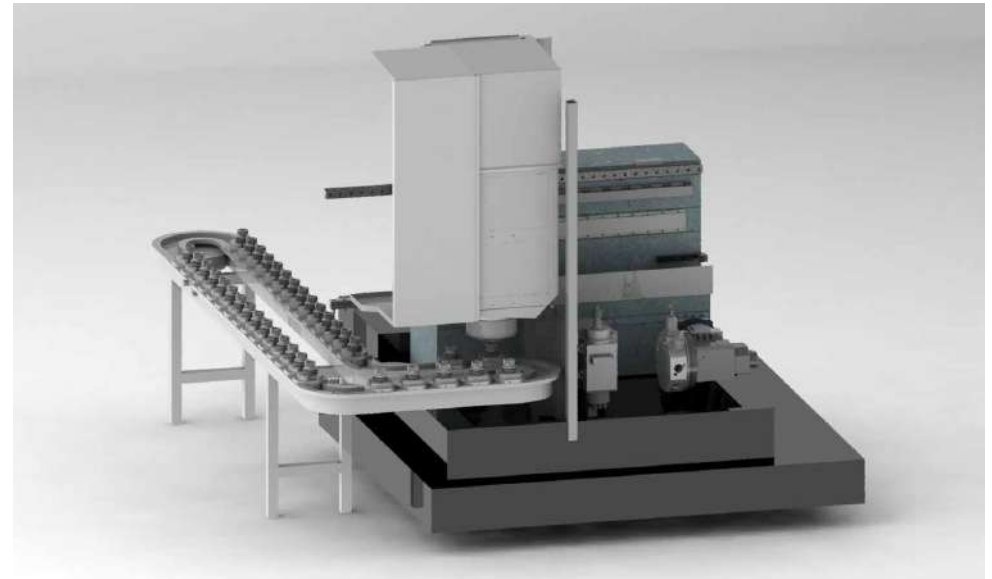
Integrated Automation

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

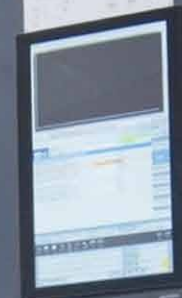
Technical Data

| | 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

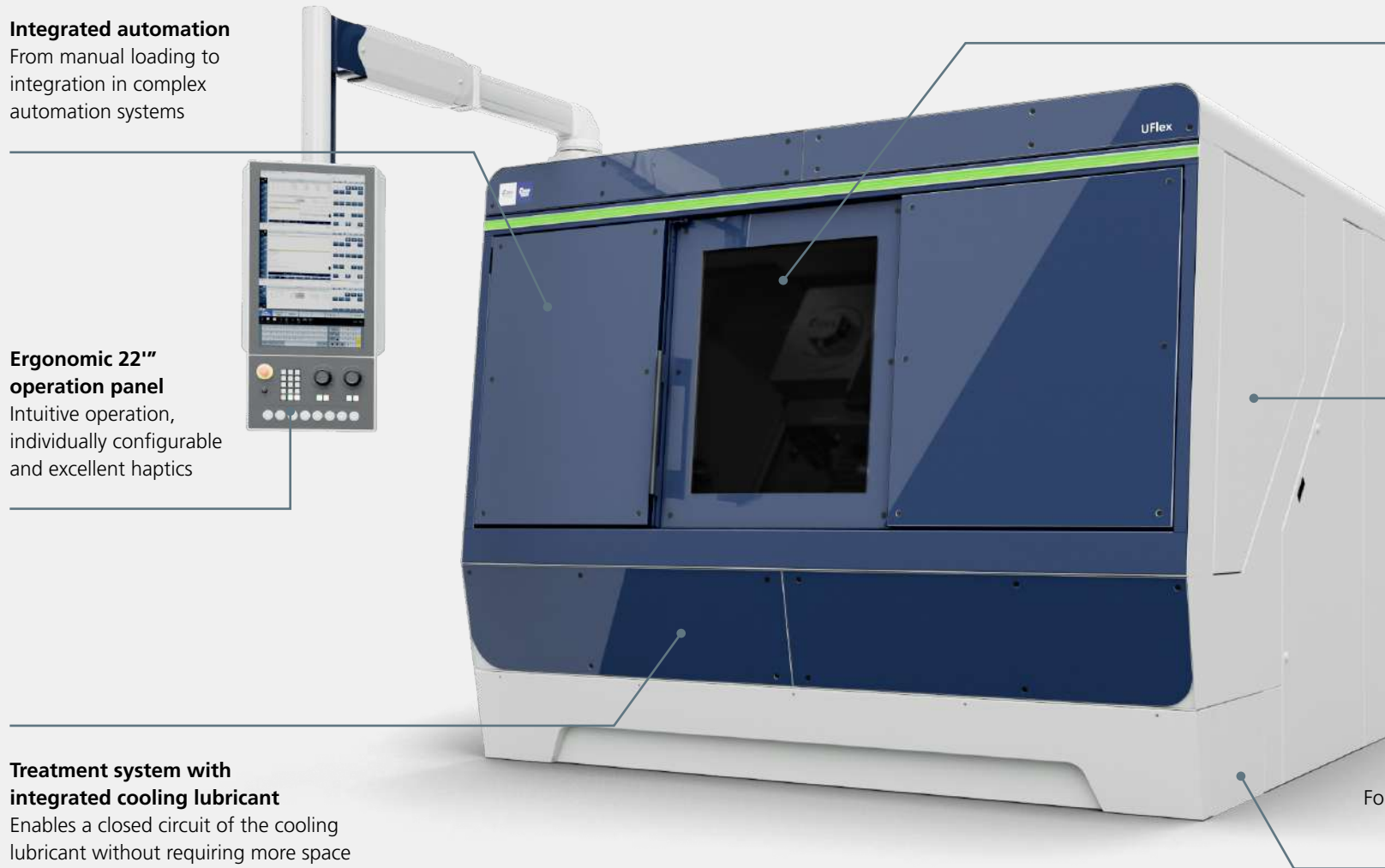
Use of up to five tools

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 | | | | |



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

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

Multifunctional head

Use of up to five tools

Integrated automation

Integration in complex automation systems

Highly flexible configuration

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

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.

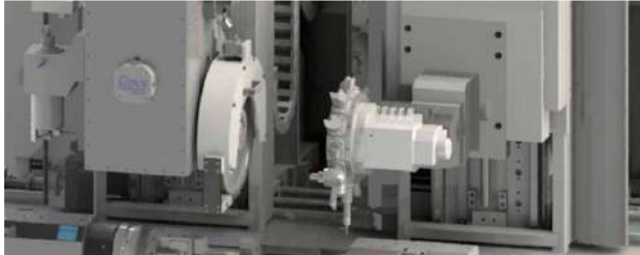
The innovative machine platform 235 VM is specially designed for the machining of rotationally symmetrical workpieces with a diameter of up to 80 mm and a length of up to 450 mm. The 235 VM enable both combined and simultaneous machining using a center drive.

OPTIMIZED FOR MEDIUM TO LARGE BATCH SIZES

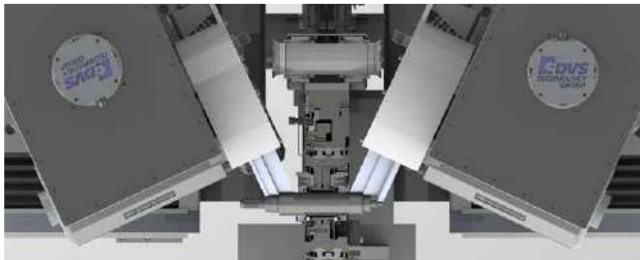


Machining Scope

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.



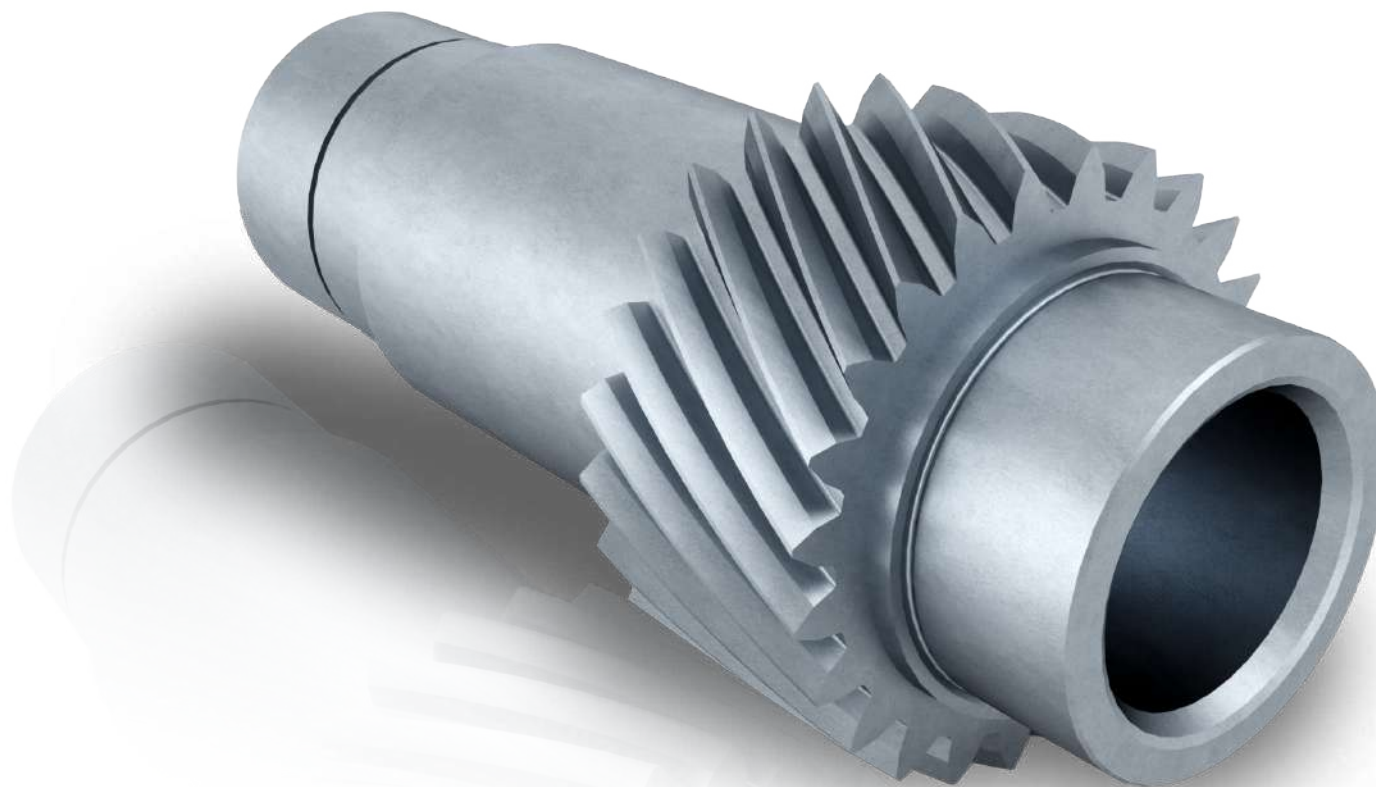
The major technological advantage of the **235 VM** is the machining of internal and external diameters in one clamping (e.g., hollow shafts) as well as the high-precision concentricity of these diameters.

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

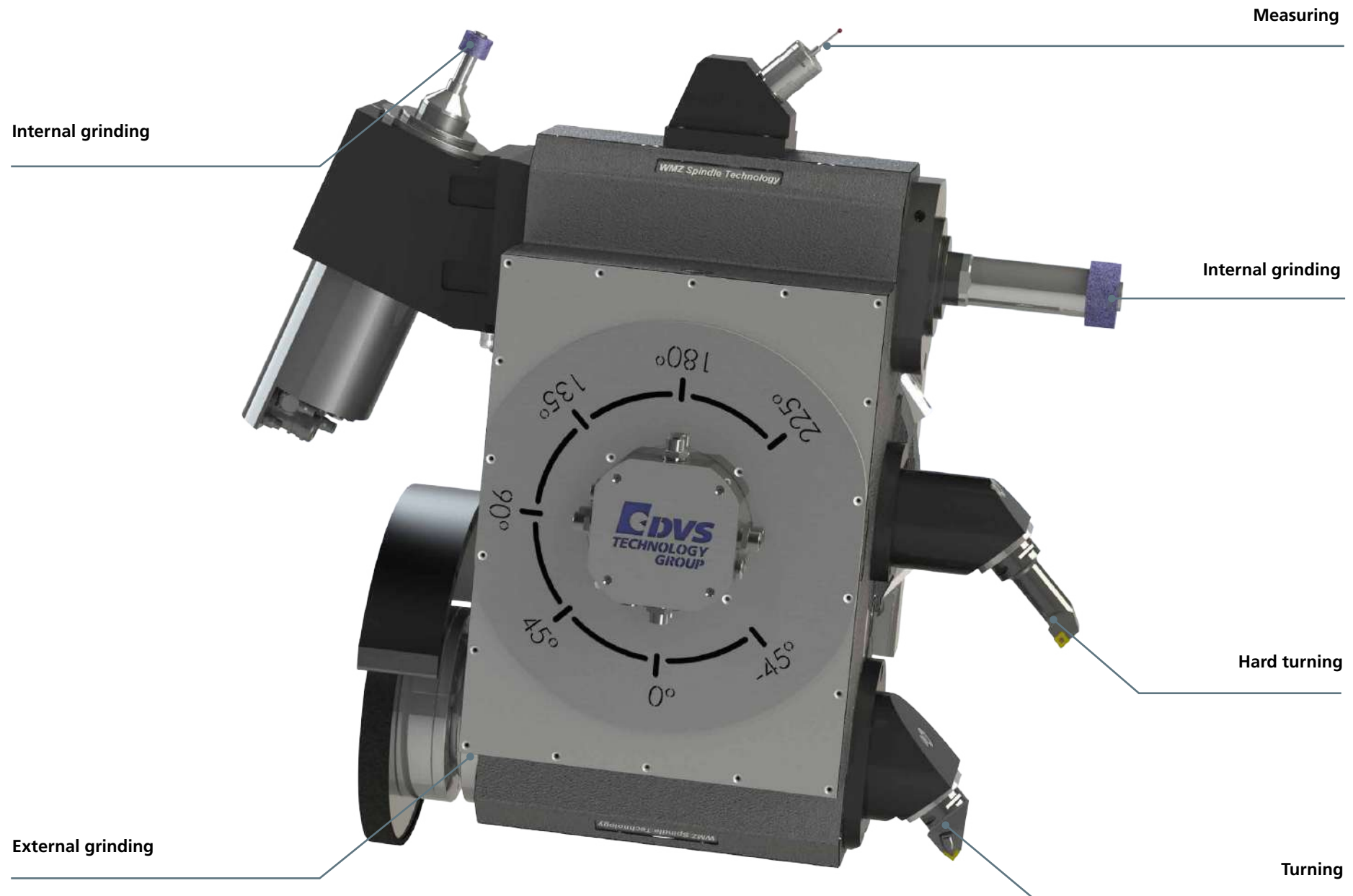
- Reduced set-up times due to complete hard-fine machining
- Concurrent machining with up to four tools: optimized cycle times
- Machining in one clamping: highest precision

| 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



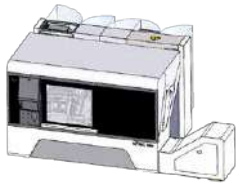
YOUR ADVANTAGE

- 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

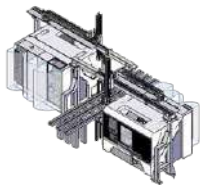
Your Partner for Highly Efficient Automation Systems

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

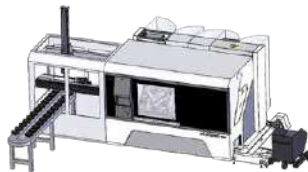
rbc robotics, a subsidiary of the DVS TECHNOLOGY GROUP, has been a global solution provider for camera-guided robot systems for two decades. Thanks to the company's extensive experience in many key industries, rbc robotics can offer intelligent, automated robotic solution for almost all manual feeding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



Manual loading



Highway connection with gantry loader



Lateral automation



rbc robot cell



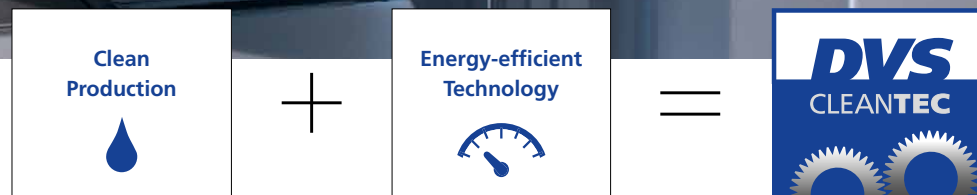
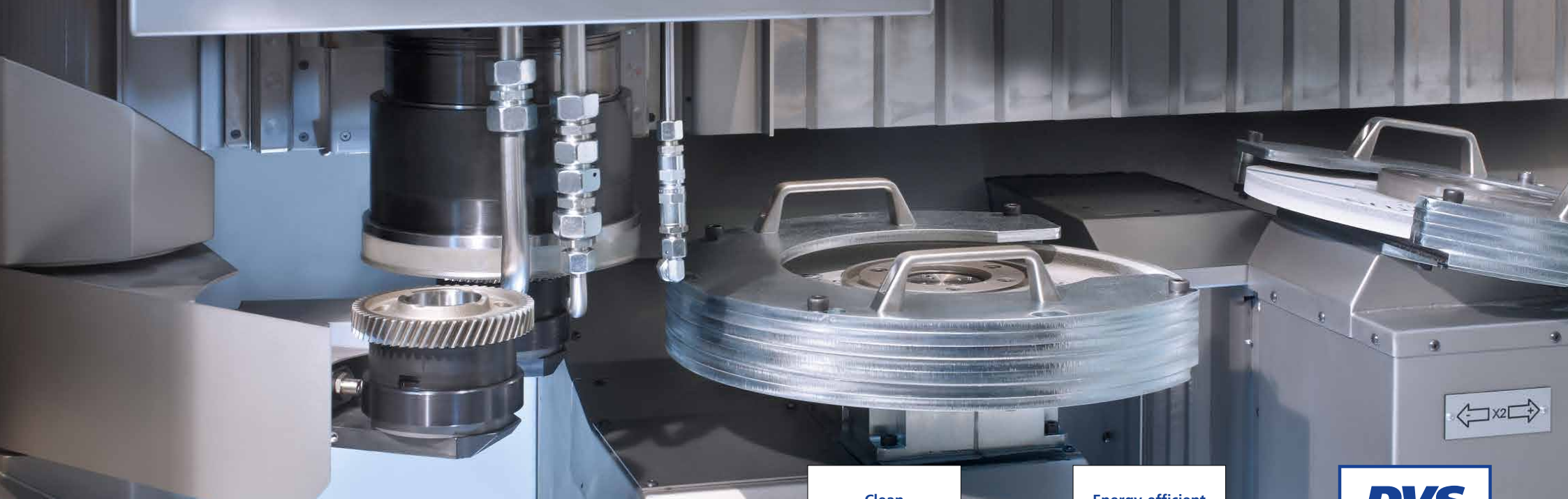
Gantry loader



**Contact the application engineers at
rbc robotics:**



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E-mail: info@rbc-robotics.de
Website: dvs-technology.com/rbc-robotics



DVS CleanTec®

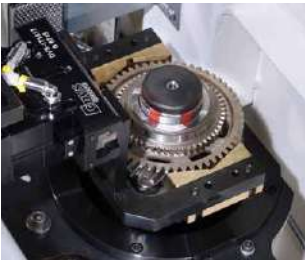
The sustainability label for BUDERUS machines

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.

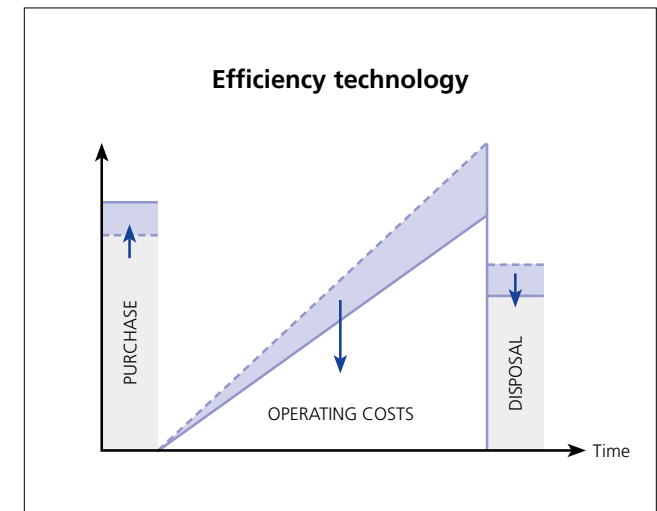
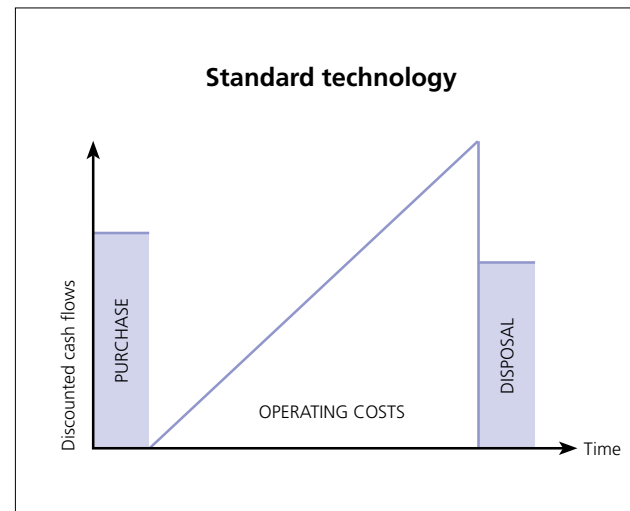
- Simple cleaning of the machine housing
- Encapsulated machine technology
- Sealed housing - no emissions escape
- Efficient work space extraction
- Cleaning station for workpieces
- Software-controlled documentation of cleaning intervals

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 TOOLS & AUTOMATION



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



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



DVS Universal Grinding GmbH | dvs-technology.com/dvs-universal-grinding
Combined hard-fine machining for small and medium size batches



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



Werkzeugmaschinenbau Ziegenhain GmbH | dvs-technology.com/wmz
Turning & Combined machining of shafts – Motor spindles

DVS TOOLS & COMPONENTS



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

DVS Production



DVS Production GmbH | dvs-technology.com/production
DVS Technologies in mass production for passenger car components



DVS Production South GmbH | dvs-technology.com/dvs-production-south
DVS Technologies in mass production for commercial vehicle components



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

DVS INTERNATIONAL SALES & SERVICE



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



DVS Technology Europe GmbH | dvs-technology.com
DVS Sales & Service in South Europe

