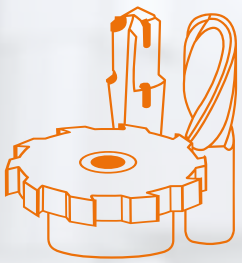
VOLLMER



V*Hybrid* 360

//////////ROTARY TOOLS//

Machine for grinding and eroding rotationally symmetric tools

TWO TECHNOLOGIES. ONE MACHINE.

DO YOU WANT TO GRIND CARBIDE TOOLS AND ERODE PCD TOOLS WITH HIGH PRODUCTIVITY? YOU CAN NOW DO BOTH, WITH MORE FLEXIBILITY THAN EVER BEFORE – IN ONE MACHINE!

THE NEW **V***Hybrid* 360 COMBINES THE STRENGTHS OF AN INNOVATIVE GRINDING MACHINE AND A PROVEN POWERFUL EROSION MACHINE. ALLOWING YOU TO SWITCH BETWEEN THE TWO FUNCTIONS IN NO TIME!

ALTOGETHER THAT MAKES FOR TWO HUNDRED PER CENT VOLLMER EFFICIENCY AND PROFITABILITY.

V*Hybrid* 360.
COMBINES GRINDING AND ERODING.

V*Hybrid* 360 – TWO BECOME ONE.

//// 1 **WALL CONCEPT**

Very rigid, compact construction with optimal accessibility and overview for the operator.

//// 2 **MULTI-LAYER MACHINING**

Grinding spindle and eroding spindle (bottom) are positioned vertically in the pivot point of the C axis. The result: Reduced machining times thanks to shorter linear-axis travel distances.

//// 3 **MODERN CONTROL-DESK CONCEPT**

Height-adjustable, with touchscreen, 19" diagonal screen size and optimum view into the machining chambers.

//// 4 **SOFTWARE**

ExLevel Pro and VStandard for a comprehensive range of tools for drills and milling cutters. For greater flexibility and variety.

//// 5 **8-WAY CHANGER**

Even greater flexibility for your production processes. Space for eight HSK 50 grinding and eroding wheel sets.

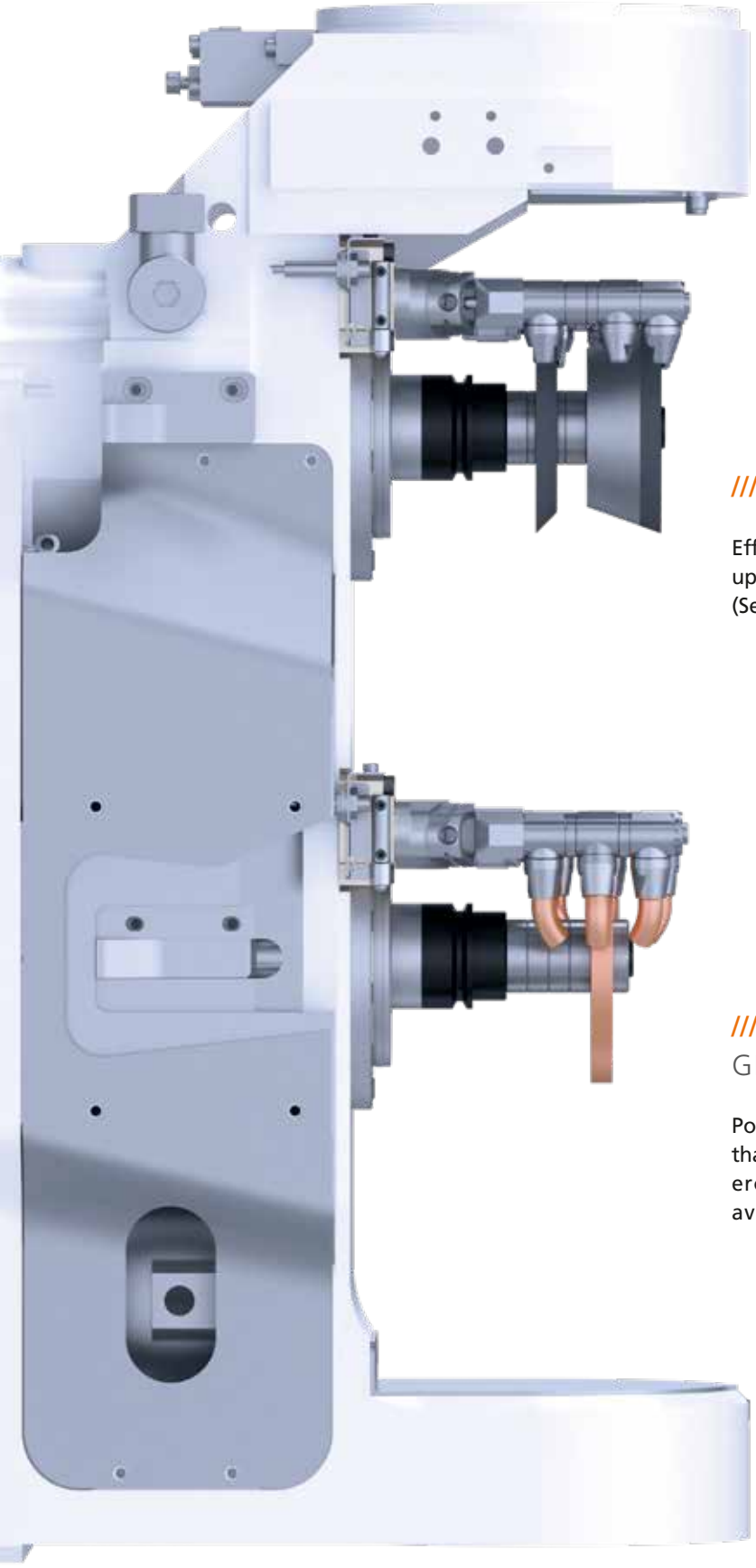
//// 6 **HC4 CHAIN MAGAZINE**

Up to 39 HSK 63 Tapers can be in a accommodated in a compact design.

/// GRINDING AND ERODING ON A DIFFERENT LEVEL.

Innovative VOLLMER multi-layer machining with two spindles, automatic grinding and eroding wheel replacement is the key to the complete integration of two important tool machining processes. The ingenious arrangement of the grinding and electrode wheel sets precisely in the pivot point of the C axis ensuring you always achieve perfect results.

The use of the **V***Hybrid* 360 offers complete flexibility as a fully-fledged grinding or erosion machine. Or combine both processes, depending on the tool requirements, to create one highly efficient complete machining process. Good to know: The double spindle functions are always fully usable regardless of the respective automation setting. You really can have it all.



/// TOP SPINDLE: GRINDING

Efficient processing of carbide tools with diameters of up to 50 mm*. Different automation options are available. (See page 11)

/// BOTTOM SPINDLE: GRINDING AND ERODING

Powerful machining of carbide* or PCD tools up to 50 mm* thanks to the high-performance and finely tuned **V***pulse* EDM erosion generator. A range of automation options are available here too.

*For more information on the specifications, see page 15

/// THE MACHINE CONCEPT

For perfect grinding processes, the **V***Hybrid* 360 uses the innovative and proven principles of the successful **V***Grind* 360, the world's first grinding machine with two vertically arranged grinding spindles.

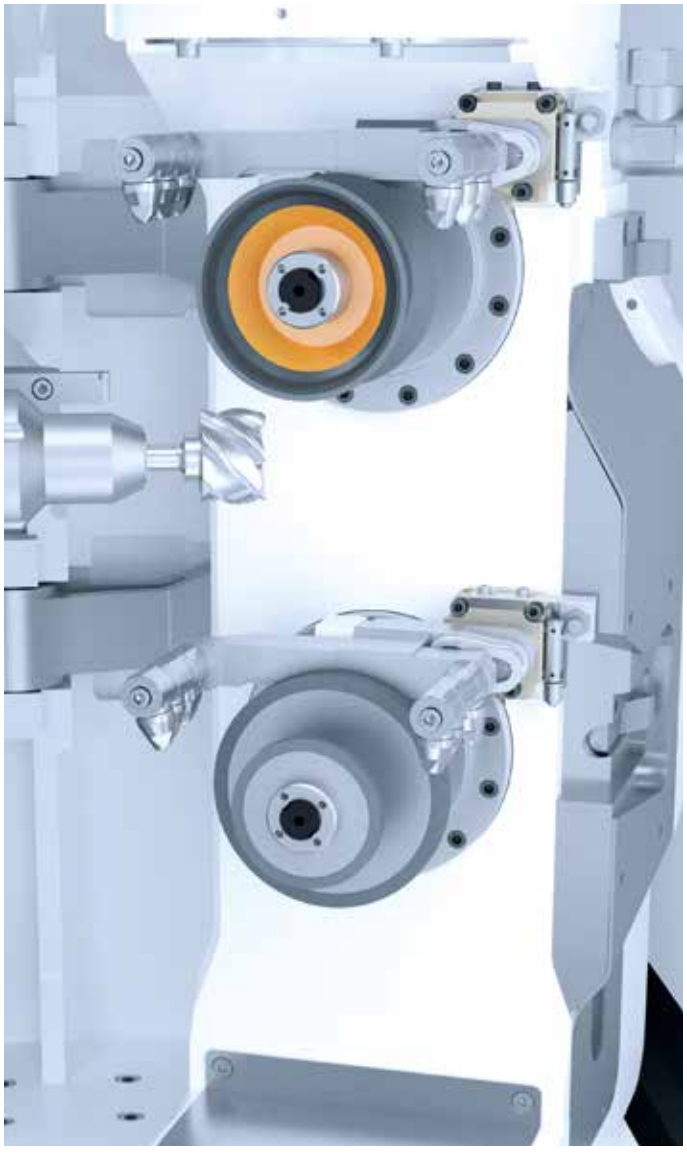
/// Five-axis CNC grinding machine with innovative kinematics. Short linear-axis travel distances and swivel ranges for increased efficiency and precision in production

/// The vertical spindle arrangement solves the well-known problems related to fixed and floating bearings

/// Grinding wheel in the pivot point of the C axis – for ultra-precise grinding results

/// Innovative wall concept with the highest possible rigidity and outstanding damping thanks to polymer concrete

/// Effective motor and spindle cooling concept for higher thermal stability and lasting power and precision



//// **V***Hybrid* 360
is a new and innovative machine concept

As a fully-fledged grinding machine, the **V***Hybrid* 360 can produce and sharpen carbide drills and milling cutters with a diameter range of up to 50 mm*.

/// High flexibility due to the option of automatic grinding wheel replacement with integrated calibration and wear control

/// Meaningful automation options for efficient and flexible production

//// MACHINING CARBIDE MILLING CUTTERS

//// MACHINING CARBIDE DRILLS

*For more information on the specifications, see page 15

/...// THE MACHINE CONCEPT

To avoid inefficient re-tooling processes, the bottom spindle of the **V***Hybrid* 360 has been equipped with a fully-fledged erosion unit. At its core is the **V***pulse* EDM erosion generator, which sets new benchmarks in terms of efficiency and surface quality.

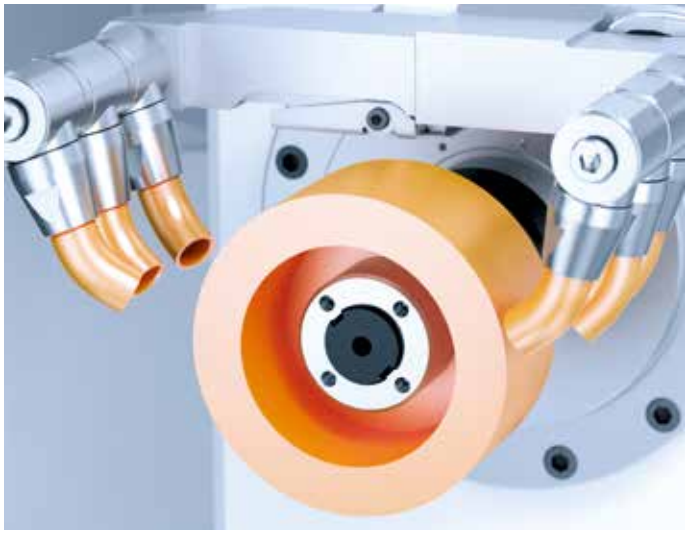
/// Maximum efficiency for reduced machining times

/// Best surface and cutting edge quality: Finest, ultra-precise erosion pulses enable surfaces up to a roughness of 0.1 µRa, depending on the tool type

/// Simple dressing of the erosion electrodes thanks to dressing device

/// High process reliability across all grades of PCD

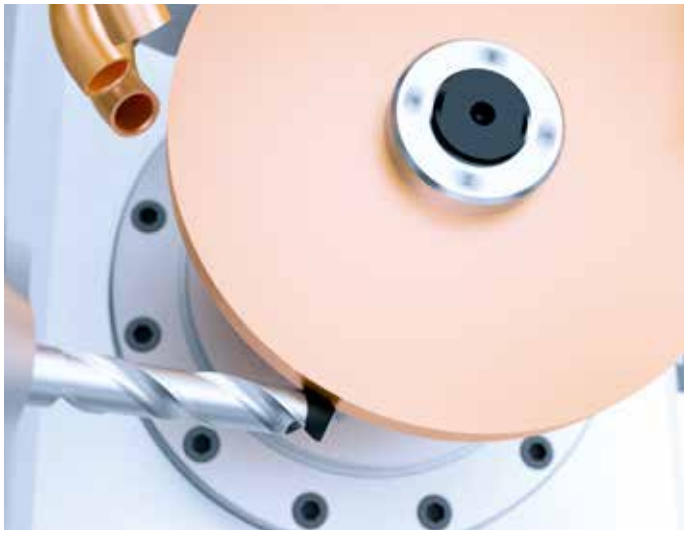
//// DRESSING DEVICE



//// EROSION UNIT

With its outstanding kinematics, the **V***Hybrid* 360 is ideal for machining rotationally symmetric tools with diameters of up to 50 mm*

/// Precise electrode calibration and wear control for perfect erosion results



//// MACHINING A PCD DRILL

//// MACHINING A PCD STEP DRILL

*For more information on the specifications, see page 15

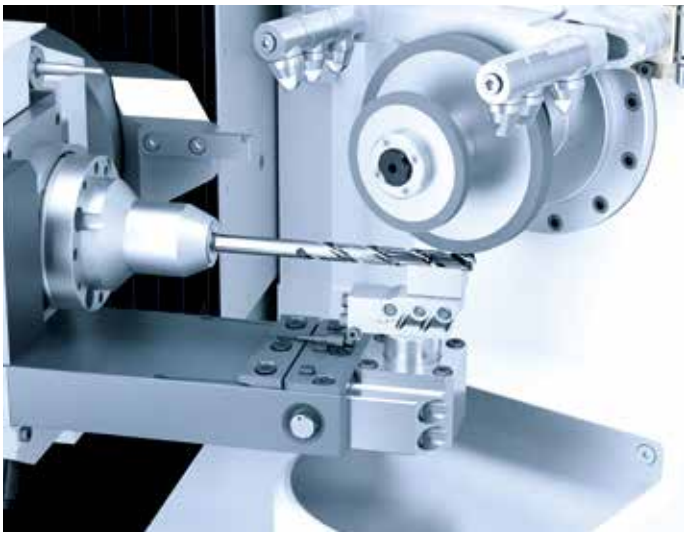
/// MORE OPTIONS

/// Linear scales: Even greater precision thanks to determining the position of the axes

/// Stable, flexibly adjustable steady rest with automatic stroke ensures optimal grinding results for longer tools

/// Automatic gripper compensation as in-process solution: Maximum precision when loading and unloading tools and reduction sleeves. For less wear and maximum stability

//// **8-WAY-CHANGER WITH COOLANT NOZZLES**



//// **REST WITH AUTOMATIC STROKE**
ensures optimal grinding result for longer tools

/// INCREASED PRODUCTIVITY

One of the key factors in modern tool production is automating the work processes. For the **V***Hybrid* 360 too, VOLLMER has meaningful equipment options with which you can make your production processes more precise, faster and more reliable.

/// The HC 4 chain magazine provides space for up to 39 HSK 63 tool holders in a compact design

/// Automatic replacement of up to eight grinding or eroding wheel sets, including coolant supply. Another contribution towards your efficient production productivity

//// HC 4 CHAIN MAGAZINE

//// HC 4 CHAIN MAGAZINE

/// OPERATING CONCEPT

A progressive machine demands an equally progressive operating concept. For the **V***Hybrid*, proven VOLLMER principles were combined with new features. Thanks to the clever positioning of the control desk, users always have a clear view of both the LCD display and the working area. Operation via the touchscreen or keyboard is simple, intuitive and precise as is typical of VOLLMER. The multifunction handwheel for adjusting a desired axis – independent of the control desk – provides even greater flexibility.

The newly developed tool manager makes an important contribution to the overall concept, enabling particularly simple handling of grinding wheels and electrodes – and thus helping to further reduce non-productive times.

The result: Intuitive and precise operation in every phase of use.

/// ERGONOMIC OPERATION

/// Height-adjustable and tilting control desk

/// Optimal machine access

/// High-quality LCD display, optimal positioning

/// Simple touchscreen control

/// Multifunction handwheel for easy axis adjustment

/// Simple management of the grinding wheels and rotary electrodes with the VOLLMER tool manager

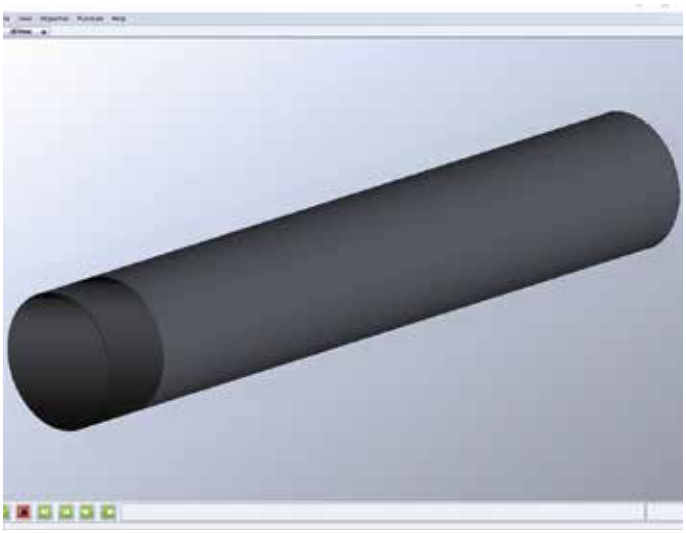
//// **CONTROL DESK**
High-quality LCD display with touchscreen and multifunction handwheel

//// **TOOL MANAGER**
Simple handling of the grinding and eroding sets with drag and drop

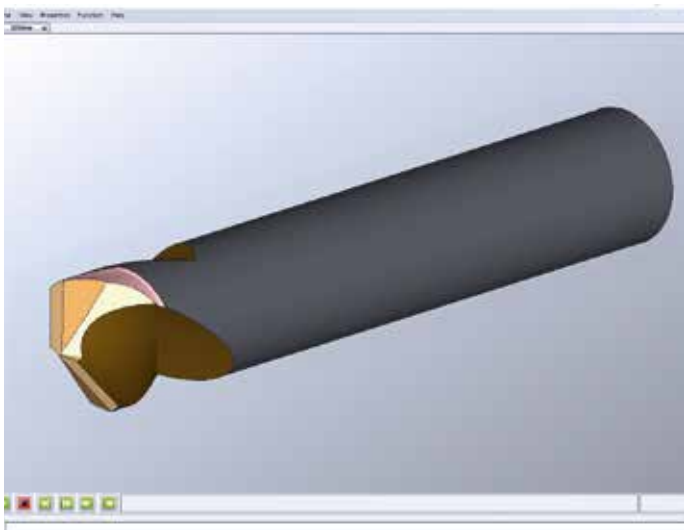
/// EXLEVEL PRO

The **V***Hybrid* 360 is perfectly equipped with the further developed and comprehensive ExLevel PRO software. The modular design enables efficient machining of a wide range of tools in both the grinding and eroding areas, and therefore guarantees quick and easy implementation of all service and production processes. The required simulation can be set up directly at the control desk or at an external programming place.

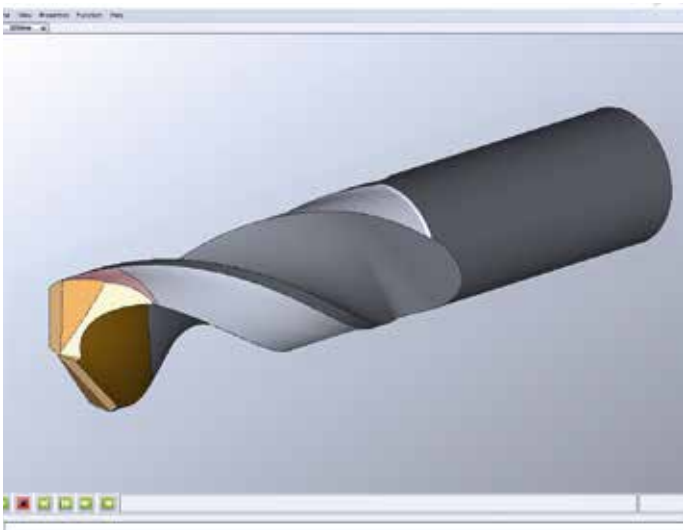
/// Modular design for individual geometry machining
/// Simple input and programming
/// Quick programme generation through default function
/// Simple handling within the tool manager
/// Tool simulation in 2D/3D
/// Optimal machine monitoring



//// **SIMULATION OF PCD BLANK**



//// **SIMULATION OF ERODING OPERATION**
Eroding PCD



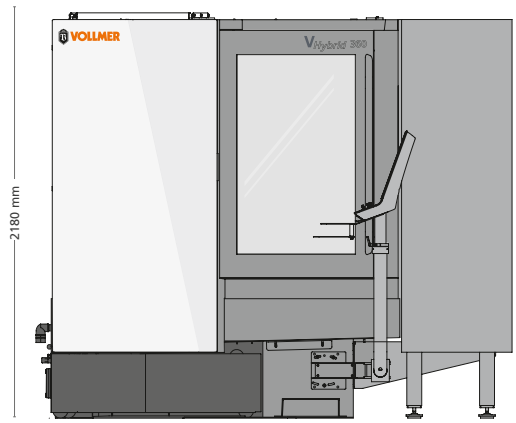
//// **SIMULATION OF ERODING AND GRINDING OPERATION**
Eroding PCD and grinding carbide

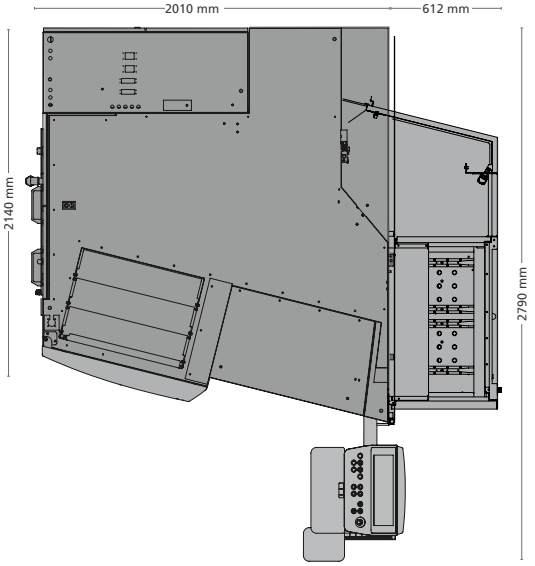
/// SPECIFICATIONS

Tool	
Outside diameter	up to 50 mm*
Tool length	up to 360 mm**
Grinding and eroding wheel	
Diameter	max. 150 mm***
Grinding spindles (belt spindles)	
Speed	8500 rpm
Drive output 100% ED (S1)	11 kW
Maximum output	23 kW
Spindle adaption	HSK50****

Traverse ranges	
X1 axis	350 mm
Y1 axis	450 mm
Z1 axis	500 mm
A1 axis	SK50 360°, 450 rpm optional 1000 rpm
C1 axis	+15° to -200°
Connected load	approx. 18 kVA
Weight	approx. 4900 kg net

*Depending on the tipping, the machine kinematics also allow for larger diameters.
**From the front edge of the workpiece carrier without measuring the cooling channel.
***Max. 125 mm with supporting device.
****Up to three grinding wheels per spindle end.





//// **MACHINE DIMENSIONS**
V*Hybrid* 360 with HC 4

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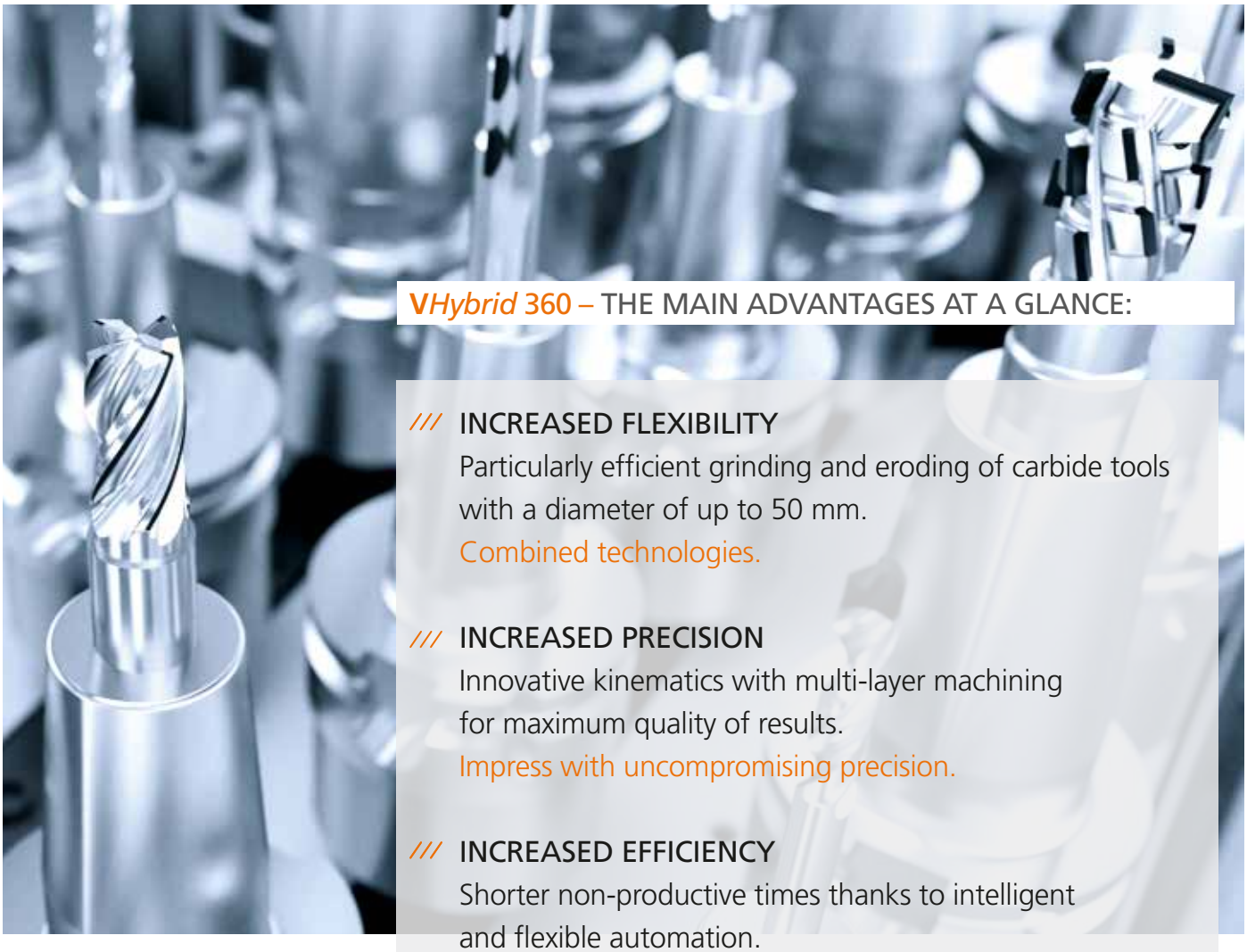

V*Hybrid* 360 – THE MAIN ADVANTAGES AT A GLANCE:

/// INCREASED FLEXIBILITY
Particularly efficient grinding and eroding of carbide tools with a diameter of up to 50 mm.
Combined technologies.

/// INCREASED PRECISION
Innovative kinematics with multi-layer machining for maximum quality of results.
Impress with uncompromising precision.

/// INCREASED EFFICIENCY
Shorter non-productive times thanks to intelligent and flexible automation.
Experience productivity on a new level.

/// INCREASED USER COMFORT
Good accessibility, ergonomic, intuitively operated control desk and comprehensive software.
Make your work easier.

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