TOP PERFORMANCE.
NON-STOP.

The 5-axis milling machine with blank changer
for dry and wet machining.

S5

5 Axes

8 Discs

24 Blocks

16 Tools

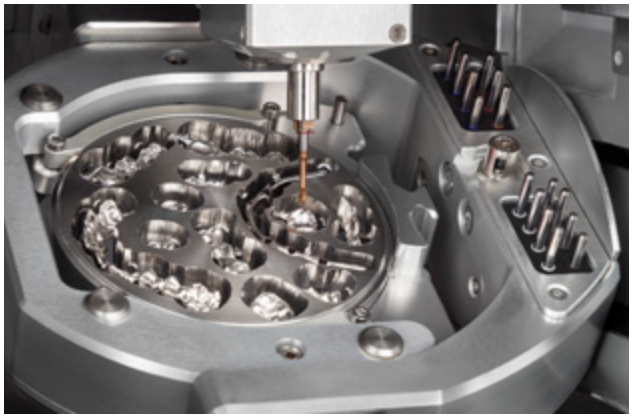
Dry / Wet

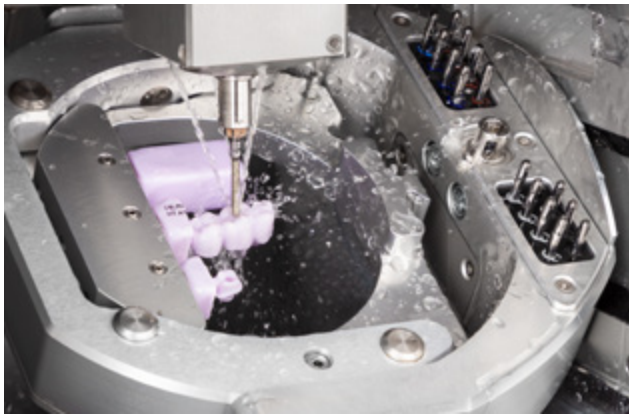
Mill / Grind

CAM Software incl.

vhf
CREATING PERFECTION

MILLING AND GRINDING, DUSK TILL DAWN. AND EVEN LONGER.





Comfortable fabrication around the clock

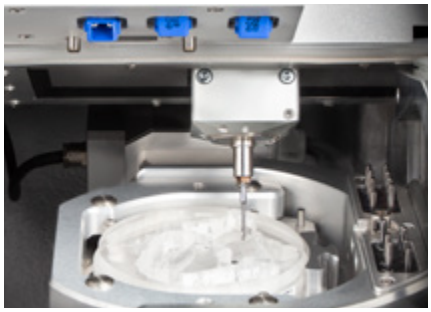
With the S5, you get a highly automated milling and grinding machine. Thanks to an 8-station blank changer and a 16-position tool changer, you benefit from non-stop performance. The repetition accuracy of 3 µm ensures first-class results for every workpiece, and the second rotary axis (B axis) with its tilt angle of up to ± 30 degrees also enables the precise milling of undercuts.

Variety that pays off

Thanks to the high machine rigidity as well as the powerful spindle, you can process metals. With the wet grinding option, the S5 is also suitable for wet machining of glass ceramics or titanium. Due to its many innovative features, it works extremely economically and efficiently. Your advantage: maximum variety of indications at a fair price.

Wet grinding option

The S5 is prepared for the connection to an external wet grinding module. For this purpose, liquid nozzles are already attached to the spindle to cool the tool during grinding. In the separate module, a patented air circulation system separates the mixture of air and liquid into two circuits. Therefore, the wet grinding option can be operated with a dry suction unit.



The three integrated ionizers considerably reduce the cleaning effort of the S5, as they neutralize the static charge of acrylic chips such as PMMA to the greatest possible extent.
This is supported by air nozzles which distribute the ionized air in the working chamber.

QuickFrame magnetic holder for easy, tool-free clamping of discs.

FEATURES AND BENEFITS? LOTS OF THEM!

Outstanding reliability

- Around the clock operation
- 100% engineered and manufactured in Germany
- 24 months warranty

Maximum variety

- Almost unlimited material variety in 98 mm disc format as well as around 40 block materials and > 800 prefabricated titanium and CoCr abutment blanks
- Large indication diversity due to a ± 30° rotation angle in the 5th axis, and up to 30 mm blanks
- Optional wet-grinding module converts the S5 into a wet-processing machine

Highest precision

- Restorations in Ultra HD
- Premium spindle with precision bearing, powerful 600 watts and 60,000 rpm
- 3 µm repetition accuracy

Tremendous stability

- Processes all types of materials, including CoCr, titanium and glass-ceramics
- Solid cast-body for minimum vibrations

Highly economical

- Milling and grinding around the clock due to automatic changer for 8 discs, 24 blocks or 48 prefabricated abutments
- Automatic changer for 16 tools
- 3 ionizers neutralize the static charge of acrylic chips – for a clean working chamber
- QuickFrame magnetic holder for easy, tool-free clamping of discs (1 piece already included)
- Very easy operation via DENTAL**CAM** software with DIRECT**MILL** Technology – included in scope of delivery and without license fees

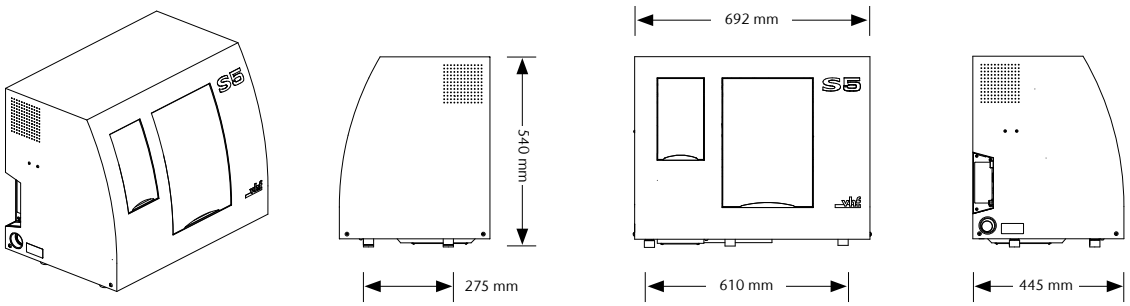
MATERIAL, MANUFACTURER, INDICATION. ENJOY THE FREEDOM OF CHOICE.

Anything goes: blanks, blocks and abutments

Composites	Plastics | Wax	Glass ceramics	Zirconia	Titanium	CoCr

Maximum freedom of indication

Crown | Bridge	Inlay | Onlay	Abutment	Telescopic crown	Model plate
Model cast	Occlusal splint	Model tooth	Implant bar	Veneer
Drilling template	Denture	Secondary crown	Screw-retained bridge	Protrusion splint



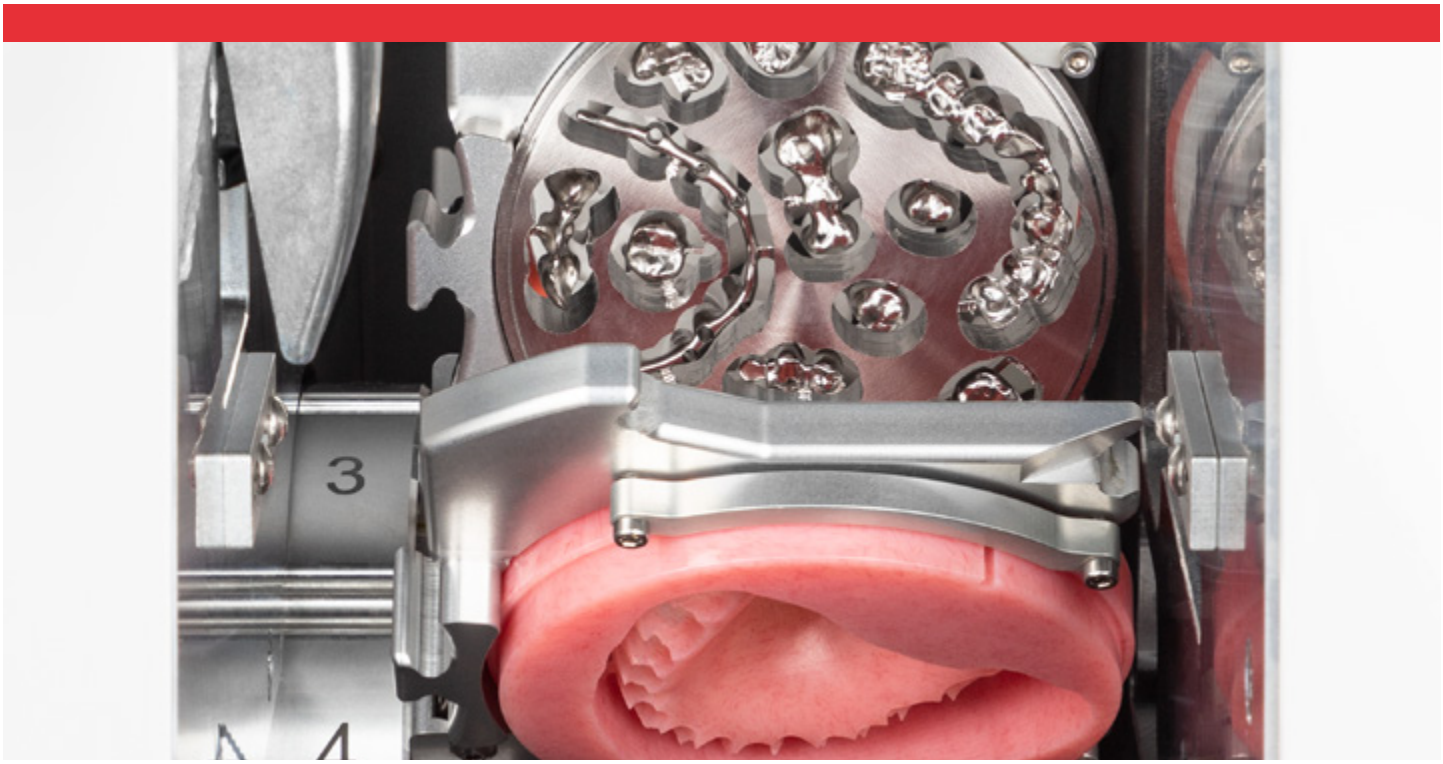
TECHNICAL DATA.

GENERAL	
Fields of application	Dry and wet machining
Materials	Plastic materials, wax, zirconia, composites, CoCr, model plaster, glass ceramics, titanium - Discs, height 10-30 mm, diameter 98.5 mm - Blocks up to 45 × 20 × 20 mm
Indications	Crowns, bridges, fully anatomical crowns and bridges, inlays, onlays, abutments, telescopic crowns, models, model castings, bite splints, implant bars, veneers, drilling templates, dentures, table tops etc.
BASE SYSTEM	
Construction	Machine bed made of solid cast aluminum body
Housing	Sheet steel housing, white high-gloss lacquer finish with working chamber flap and material changer flap
Number of axes	5
Linear axes X-/Y-/Z-axis	Precision ball screws, rolled version · motors with resolution < 1 µm · ground precision guides made of high-alloyed steel · repetition accuracy ± 0.003 mm
Rotary axis A-axis	Backlash-free Harmonic-Drive® with highest concentricity · rotation angle: 360°, infinite
Rotary axis B-axis	Backlash-free Harmonic-Drive® with highest concentricity · angle of rotation: ± 35° · axis arrangement in the workpiece
Control unit	5-axis simultaneous control electronics with continuous path progression and dynamic pre-calculation · hardware-based real-time operating system with standardized command set · FPGA-integrated processor · updateable hardware · real-time path calculation via hardware engines in the FPGA · four-quadrant control of the motors for particularly smooth running · multiple analogue and digital I/Os for controlling the peripherals · integrated inverter for synchronous and asynchronous motors, gate detection · Ethernet and USB interface
Lighting	RGB LED lighting with status display in the working chamber and in the blank changer
Camera system	Integrated in the working chamber for easy remote support and possibility of internal recording
SPINDLE	
General	High-frequency spindle, synchronous with pneumatic tool clamping · sealing air to prevent debris from entering · automatic cone cleaning
Speed	Up to 60,000 rpm
Power	Peak power (Pmax): 600 watts · nominal power (S6): 450 watts · continuous power (S1): 300 watts
Bearing	4-fold hybrid ceramic ball bearing · concentricity deviation at inner cone < 3 µm
Collet	Stainless steel collet for tools with 3 mm shank diameter and max. 40 mm total length
AUTOMATION	
Tool change	Tool magazine for 16 tools · length measurement and tool breakage monitoring via precision measuring key · access via working chamber flap, safety-locked
Workpiece change	Material changer for up to 8 blanks, block holders or abutment holders · robot slide with pneumatic gripper · monitored end positions · access via separate material change flap, monitored
PROCESSING MODES	
Dry	Air nozzles on the spindle · hose connection for external suction unit on the side of the housing · vacuum sensor for monitoring the suction unit · 24 V switching output for controlling suction units · Ioniser with 3 ion nozzles
Wet	Liquid nozzles on the spindle · flow-sensor for monitoring the liquid supply · optional wet grinding module with optical level indication by permanent, non-contact ultrasonic measurement and patented air circulation system is not included and is required
CONNECTION REQUIREMENTS	
Compressed air	6 bar: 60 l/min up to 8 bar: 73 l/min · air purity according to ISO 8573-1:2010
Power	100-240 volts · 50/60 Hz, 850 wattss
Extraction system	Filter class M, 3000 l/min extraction capacity at 220 hPA
Data	USB connection
ENVIRONMENTAL CONDITIONS	
Operating temperature	Between 10 °C and 35 °C
Air moisture	Max. 80 % (relative), non-condensing
APPROVALS	
All models	CE, VDE
North America model	UL, FCC (according to ANSI/UL 61010-1)
DIMENSIONS & WEIGHTS	
Dimensions (W/D/H)	692 × 445 × 540 mm with closed flaps 692 × 670 × 550 mm with open flaps
Footprint (W/D)	610 × 275 mm
Weight	106 kg
SCOPE OF DELIVERY	
CAM Software	DENTAL**CAM** software included
Holder systems	Disc holders (8 pieces) · Quick-Frame holder · 3-fold block holders · abutment holders for various systems (optional)
Accessories	Spindle service set · calibration set incl. stirrup measuring screw · working chamber crevice nozzle · tool magazine inserts (2 pieces) · spare screws for blank holder and tool magazine cover · Torx and Allen wrenches · emergency release key · drill bit (tool positions) · measuring pin · compressed air hose with pressure reducer · power cable · USB cable · carrying aid for transporting the machine · operating instructions

Subject to changes and errors.

“VERY ACCURATE AND SUPER FAST – THE RESULTS ARE LOOKING ALMOST POLISHED.”

Kris Schermerhorn
Northern Virginia Dental Lab



The automatic 8-fold blank changer allows reliable production around the clock, even overnight.

CREATING PERFECTION.

For more than 30 years.

As CAM solution provider, vhf thoroughly develops and produces every single milling machine and the perfectly matching tools and CAM software. Everything from one source. Made in Germany.

Support. A topic close to our hearts.

The service of your machine is important to us: We train our sales partners according to the highest requirements – so you receive first-class support for your S5.

GET IN TOUCH.

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