EN

SAME-DAY DENTISTRY. UNPARALLELED PERFECTION.

The 4-axis milling machine for wet machining for restorations in mere minutes.

Z4

4 Axes

1 Block

6 Tools

Wet

Mill / Grind

CAM Software incl.

vhf

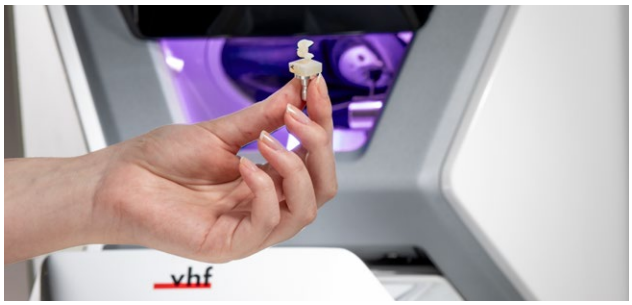
CREATING PERFECTION

TOMORROW'S LEADING TECHNOLOGY. AVAILABLE TODAY.

The Z4: More than state of the art. Groundbreaking.

The digital workflow makes it happen: you and your patients can benefit from more relaxed treatments with first-class restorations in just one session. The Z4 is an investment that will pay off for you: high-quality restorations with maximum independence. The number of machinable block materials constantly increases as well as the number of scanners and CAD software packages that are validated with the Z4.

Toolless block clamping in just two seconds. It couldn't be easier.

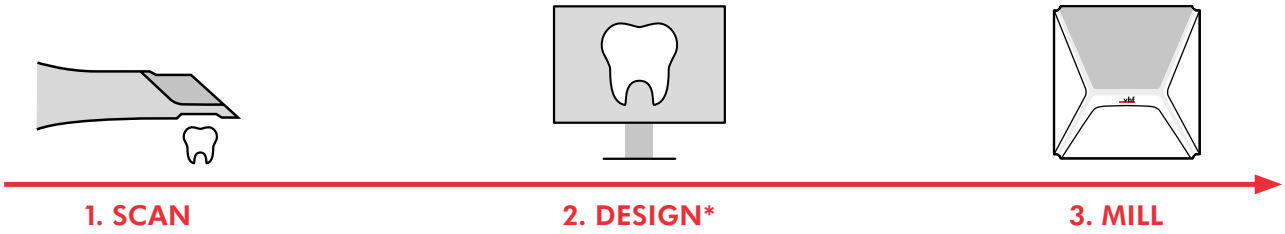


Perfect results. Mill and grind reliably with the Z4 in Ultra-HD.

EITHER WAY: THE Z4 FITS PERFECTLY INTO YOUR DIGITAL WORKFLOW.

Integrated workflow with 3Shape and exocad

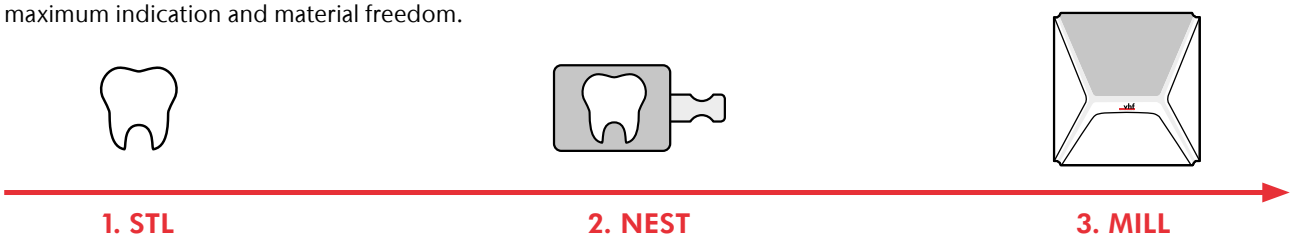
Everything in your practice: scanning, designing, milling in one smooth workflow.



* In the 3Shape Produce workflow, nesting takes place in vhf CHAIRSIDE**CAM**, thus extending the range of functions and materials.

Unlimited possibilities with open STL workflow

Design in your practice or your favorite laboratory for maximum indication and material freedom.



University of Washington

Study confirms: Z4 drills screw-access channels in highest quality

A scientific study at the University of Washington proves that using the Z4, users can drill screw-access channels for hybrid implant restorations into ceramic blocks with no significant difference in flexural strength compared to factory-fabricated materials, known as "meso" blocks. These blocks are significantly more expensive, and the laboratory design method requires a more sophisticated CAD process. Thus, processing standard blocks with the Z4 means less cost for material, less material inventory necessary and easier nesting.

Jack M. Keesler, DDS, MSD. Effect of milling screw-access channels on flexural strength of CAD/CAM ceramic materials. MSD Master's Thesis, University of Washington, 2019.

FEATURES AND BENEFITS? LOTS OF THEM!

Highest precision

- Milling and grinding in Ultra HD
- Proven industrial quality
- 3 µm repetition accuracy

Fastest production

- Restorations in under 10 minutes
- 2-second block insertion
- 100,000 rpm electrical high frequency spindle

Absolute independence

- Around 40 block materials from a great variety of manufacturers
- 800+ prefab titanium abutment blanks from various manufacturers
- Validated with all established scanners and design software
- Integrated workflows bwith TRIOS Design Studio (3Shape) and exocad ChairsideCAD*
- Powerful control PC on the machine rear panel
- Integrated touchscreen and Wi-Fi module
- Built-in compressed air – no compressor needed

Highly economical

- PURE**WATER**: no grinding additives except for titanium processing
- Mill screw-access channels, to save costs for 'meso' blocks
- Automatic changer for 6 tools
- Self-opening working chamber door and drawer
- Easy to learn, easy to operate
- 24 months warranty
- Very easy operation via DENTAL**CAM** software with DIRECT**MILL** Technology – included in scope of delivery and without license fees
- Tool starter set included

* Material and indication availability may vary by CAD provider. Full range of indications and materials available in STL workflow.

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

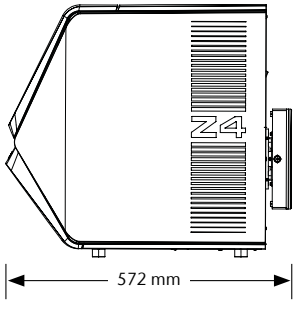
All common block materials up to 45 mm length and even abutments

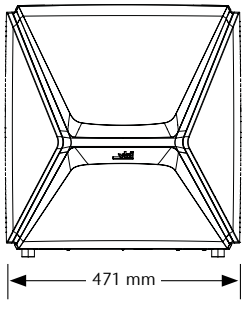
Composites	Plastics | Wax	Glass ceramics	Zirconia	Titanium	CoCr

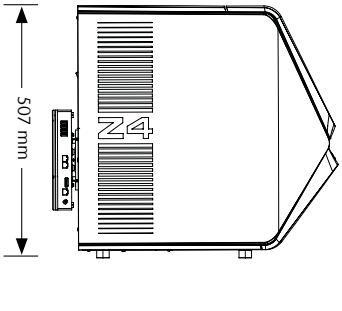
High-precision milling and grinding for all common indications

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

Be sure to review local and/or national regulations and/or regulations by other authorized organizations or entities (e.g. professional associations, health authorities).







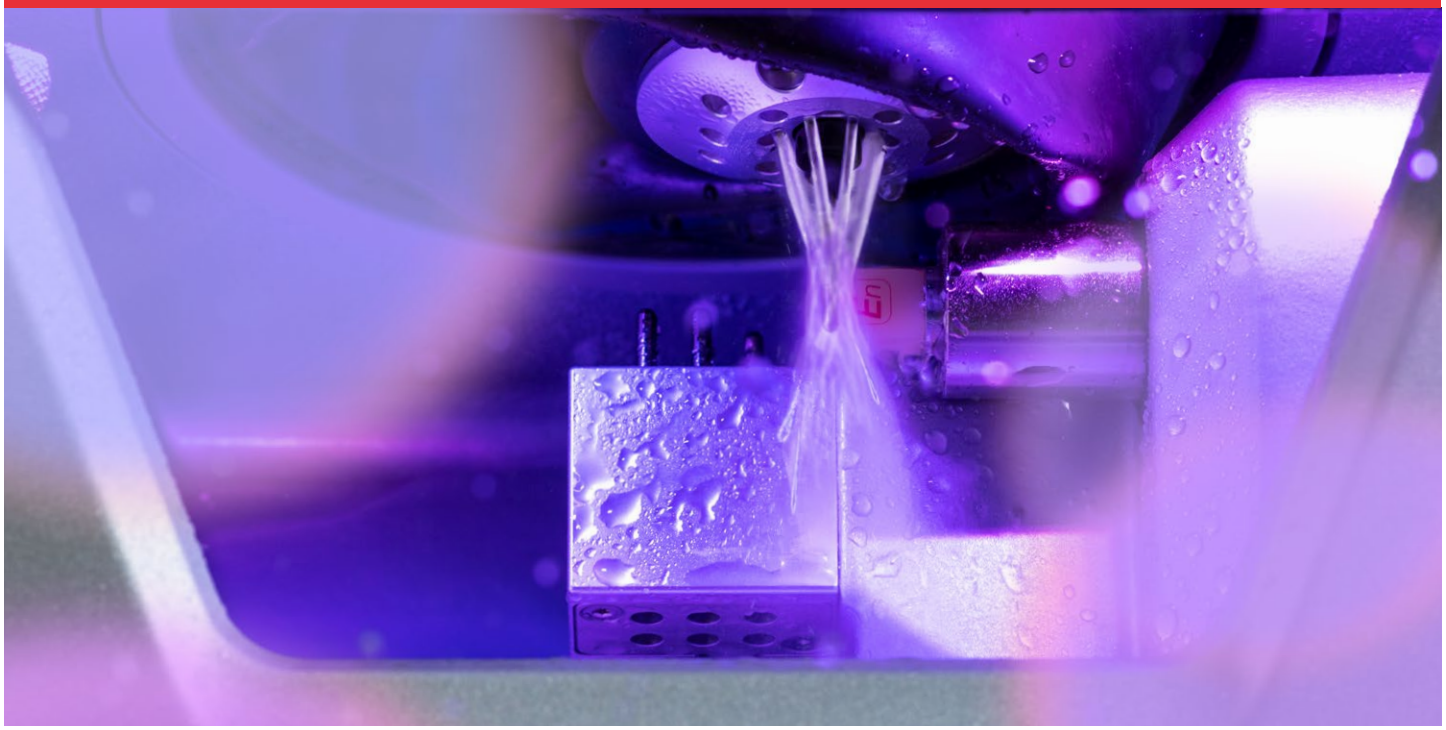
TECHNICAL DATA.

GENERAL	
Fields of application	Wet machining
Materials	Glass ceramics, titanium, zirconia, composites, plastic materials • Blocks up to 45 × 20 × 20 mm
Indications	Crowns, bridges, fully anatomical crowns and bridges, inlays, onlays, abutments, veneers, table tops
BASE SYSTEM	
Construction	Machine bed made of solid cast aluminum body
Housing	Thick-walled TSG injection molding, white high-gloss lacquer finish with workspace flap and combined drawer for cooling liquid/tool inserts
Number of axes	4
Linear axes X-/Y-/Z-axis	Precision ball screws · motors with resolution < 1 µm · ground precision steel guides · repetition accuracy ± 0.003 mm
Rotary axis A-axis	Rotary axis with high concentricity · rotation angle: 200°
Control unit	4-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 dedicated 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, electronic gate detection · Ethernet and USB interface
Compressed air generation	Internal compressed air supply with integrated sound insulation
Lighting	RGB LED lighting with status display
Camera system	Integrated in the working chamber for easy remote support and possibility of internal recording
Display	Capacitive 5-inch touchscreen display fully integrated into the front flap for local operation of the machine.
SPINDLE	
General	High-frequency spindle, asynchronous with pneumatic tool clamping · sealing air to prevent debris from entering · automatic cone cleaning
Speed	Up to 100,000 rpm
Power	Peak power (P_{max}): 340 watts · nominal power (S6): 220 watts · continuous power (S1): 170 watts
Bearing	Hybrid ceramic ball bearing · concentricity deviation at inner cone < 2 µm
Collet	Stainless steel collet with ceramic coating for tools with a shank diameter of 3 mm and max. 35 mm total length
AUTOMATION	
Tool change	Tool magazine for 6 tools, removable and material-coded · Length measurement and tool monitoring control via precision measuring key
Workpiece change	The integrated DIRECT**BLOCK** Technology automatically takes over the clamping and releasing of the block or abutment holder to be machined
Access to the working chamber	Motorized opening and closing of the work chamber flap, movement parallel to the chassis
Access to combined drawer	Electric ejector for tool and cooling liquid tank drawer
PROCESSING MODES	
Wet	Multiple liquid nozzles on the spindle · Integrated cooling liquid (2 liters) with active carbon filter system · flow-sensor for monitoring the liquid supply · PURE**WATER** Technology: no grinding additives except for titanium processing
CONNECTION REQUIREMENTS	
Compressed air	No compressed air required
Power	100 – 240 volts · 50/60 Hz, 750 watts
Data	10/100/1000 MBit/s BaseT port (auto-sensing) Ethernet via RJ-45 socket
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)	471 × 572 × 507 mm with closed flap and drawer 471 × 787 × 608 mm with open flap and drawer
Footprint (W/D)	400 × 305 mm
Weight	66 kg
SCOPE OF DELIVERY	
CAM Software	DENTAL**CAM** software included
Holder systems	Abutment holder devices for various systems (optional)
Accessories	Control PC with mounting material for machine rear panel · spindle service set · calibration set incl. micrometer · brush for nozzle plate · cleaning brush · microfiber cloth · spare fine filter · active carbon pellets · Tec Powder (3 bags) · spare wiper for viewing window · tool magazine inserts (5 pieces) · torque wrench · 2 Allen wrenches · drill bit (tool positions) · measuring pin · power cable · Ethernet network cable · carrying aid for transporting the machine · operating instructions

Subject to changes and errors.

"THE Z4 GIVES ME THE ACCURACY AND FLEXIBILITY IN MATERIALS I NEED."

Alan Jurim, DDS
Director for Digital Dentistry at Touro Dental College, New York



*Thanks to PURE**WATER** no grinding additives are needed, except for titanium processing.*

CREATING PERFECTION.

With 35 years of experience, vhf is a leading manufacturer of dental milling machines. As a CAM full-service provider, vhf meticulously develops and produces each individual milling machine and the perfectly matched tools and software all in-house. Everything from a single source. Made in Germany.

Service. We are passionate about what we do.

Our products are extremely low-maintenance and highly durable, but the servicing of your machine is important to us. We provide customer support with our user-friendly DentalPortal, numerous online tutorials and personal assistance through our international service network.

GET IN TOUCH.

Headquarters

vhf camfacture AG
Lettenstraße 10
72119 Ammerbuch, Germany
+49 7032 97097 000
info@vhf.de | vhf.com

North America

vhf Inc.
80 Davids Drive, Suite 5
Hauppauge, NY 11788, USA
+1 631 524 5252
info@vhf.com | vhf.com

Asia

vhf Trading (Shanghai) Co., Ltd.
Room 2902, Building T1, Tianshan SOHO,
No. 421 Ziyun Road, Changning District,
Shanghai, China
asia@vhf.de | vhf.com

as of: 09/2023

vhf.com/Z4

vhf
CREATING PERFECTION