Wet or dry: block milling for everyone.

For an easy start in chairside fabrication.

EASE CLASS

vhf
CREATING PERFECTION

The innovative chairside milling machine.

Make your patients smile: dental restorations in just one treatment session.

The all-rounder for blocks

The E4 from the vhf **EASE** CLASS makes it easy for you to get started with chairside fabrication of dental restorations. Score points with a fast and pleasant treatment and manufacture perfect restorations – easily and in just one session. Your patients will be doubly grateful to you.

With the E4 you get a true all-rounder to work with you in your practice. Wet grind glass ceramics or composites with a ceramic component and dry mill materials such as zirconia and PMMA.

Make a small change for a big effect

You benefit from ultra-easy switching: just insert the tank for wet processing or the optional container for dry processing and you can start processing your restorations. A special filter mat in the liquid tank ensures that the tank is free of chips.

The freedom to combine everything

Your E4 gives you the ultimate in freedom. Combine the E4 with your preferred intraoral scanner, any CAD software and the materials appropriate for your individual patient case.

The E4 becomes the centerpiece of your digital workflow, fabricating precision restorations that you can place in your patients during the same session as the intraoral scan. No more complicated rework.

Reliability meets precision

100% developed and manufactured in Germany, the E4 delivers impressive optimum results and maximum durability. Despite its compact design, only high-quality industrial components are inside.

Weighing a mere 28 kg, the E4 uses no compressed air at all and offers maximum flexibility in terms of installation. You can install the E4 anywhere. True to the motto: unpack, switch on, start milling.

Service made easy

If a service case occurs, central components such as the spindle are easy to replace – if you wish, you can even do it yourself in just a few flicks of the wrist.

No compressed air thanks to clever technology.

The vhf air**tool**: cost-saving and sustainable.

One unique innovation is that the E4 does not use compressed air: There is no external compressed air connection or any built-in compressor. This is made possible by our patent-pending air**tool** for dry processing. Its turbine blades use the speed of the high-frequency spindle to generate a powerful air flow. This keeps the blank free from dust and chips. The extraction system removes them downstream.

Unleashed advantages for application

This freedom from compressed air gives you multiple benefits: Work in your practice is much more cost-effective and sustainable because it avoids the highly energy-intensive medium of compressed air. Moreover, you can set up the E4 anywhere in your practice since you no longer depend on a compressed air connection.

I would never have thought that same-day dentistry could be so easy.

Dr. Ingo Baresel
President of the German Society for Digital Oral Impressions (DGDOA)

Wet grinding made so easy: thanks to pure**water** Technology, no grinding additives are required. This means that you benefit from problem-free disposal and even lower running costs.

Compelling arguments? Lots of them!

The key features of the E4.

Fast & precise

Grinding and milling in Ultra HD

800 W spindle with 60,000 RPM

3 µm repetition accuracy

Sturdy aluminum-welded construction

Optimum manufacturing results and high durability thanks to the exclusive use of high-quality industrial components

100% developed and manufactured in Germany

Independent

Freedom from compressed air thanks to the patent-pending air**tool**

Virtually any intraoral scanner can be used

Grinds and mills almost all block materials up to 45 mm in length

Full range of materials for glass ceramics, composites, zirconia and plastics

Modular machine design to optimize servicing and maintenance

Cost-effective

The excellent price-performance ratio ensures a cost-effective entry into chairside fabrication

pure**water** Technology: no grinding additives required

Optional dry milling possible

Sustainable and cost-effective operation thanks to freedom from compressed air

Ultra-easy operation with dental**cam** and its open interface to CAD software and materials

Expand your range of indications by exchanging the liquid tank with the optional dry tank ...

... and turn your talented E4 into a dry milling machine you can use to process materials such as zirconia, PMMA and various composites.

Material, manufacturer, indication.

Enjoy the freedom of choice.*

Crown | Bridge	Inlay | Onlay	Veneer
Occlusal splint	Full denture	Denture-framework
Implant bar	Abutment	Screw-retained crown
Screw-retained bridge	Surgery guide	Primary crown
Secondary crown	Model plate	Model tooth die

- Composites
- Plastics Wax
- Glass ceramics
- Zirconia
- Titanium
- CoCr

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

The path to digital dentistry.

"I'm totally won over by the vhf dental milling machines!"

The decision to invest in the E4 and E5 dental milling machines was not a difficult one for Dr. Tim Wiesner. Since his purchase, the two vhf **EASE** CLASS machines have been in operation almost every day. In our conversation, he explains why he opted for the two vhf machines and outlines his journey to digital chairside fabrication.

Read the full interview with Dr. Tim Wiesner here

Dr. Tim Wiesner
Dentist, Tübingen, Germany

The turbine blades of the patent-pending air**tool** keep the blank free of chips, thus enabling dry milling without compressed air.

Technical data

General

Fields of application: Wet/dry machining

Materials: Composites, plastics/wax, glass ceramics, zirconia
• Blocks up to 45 × 20 × 20 mm

Indications: Crowns, bridges, inlays, onlays, veneers, zirconia abutments, Screw-retained crowns

Holder systems: Integrated block holder

Warranty: 24 months/2,000 hours of operation (whichever comes first)

Base system

Construction: Sturdy aluminum welded structure

Housing: White high-gloss lacquer finish · upward opening lift door to the workroom

Number of axes: 4

Linear axes (X-/Y-/Z-axis): Precision ball screws · motors with resolution < 1 µm · ground precision guides made of high-alloyed steel · repetition accuracy ± 0.003 mm

Rotary axis (A-axis): Rotation angle: +190° to –10°

Control unit: Control electronics with continuous path progression and dynamic pre-calculation · hardware-based real-time operating system with standardized instruction set · FPGA-integrated processor · updateable hardware · real-time path and ramp calculation via dedicated hardware engines in the FPGA · four-quadrant control of the motors for particularly smooth running · multiple digital I/Os for controlling the peripherals · integrated inverter for synchronous and asynchronous motors, electronic gate detection · Ethernet and USB interface

Lighting: Backlit workspace through RGB LED lighting with status indication

Spindle

General: High-frequency spindle with electromechanical tool change

Speed: Up to 60,000 rpm

Power: Peak power (P_{max}): 800 watts · nominal power (S6): 400 watts · continuous power (S1): 300 watts

Bearing: 2-fold hybrid ceramic ball bearing

Collet: For tools with 3 mm shank diameter and max. 40 mm total length

Automation

Tool change: Removable tool magazine for 6 tools with additional space for one air**tool** · length measurement and tool breakage monitoring via precision measuring key · access via working chamber flap, safety-locked

Access combination compartment: Direct insertion of the coolant tank or (optional) dry container in compartment directly under the working chamber

Processing modes

Wet: 2 fluid nozzles on the spindle · integrated cooling liquid tank · pure**water** Technology: no grinding additives required

Dry: Compressed air-free operation through use of air**tools** · hose connection for external suction unit on the back of the housing · 24 V switch output for controlling suction units · optional dry container required

Connection requirements

Compressed air: no compressed air required

Power supply: 100–240 volts · 50/60 Hz, 500 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 61010-1, CAN/CSA C22.2 No. 61010-1

Dimensions & weights

Dimensions (W/D/H): 360 × 370 × 490 mm · 360 × 420 × 490 mm with open door

Footprint (W/D): 270 × 268 mm

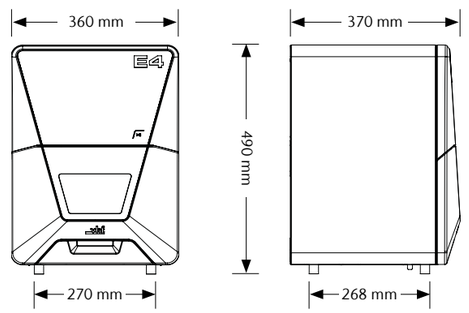
Weight: 28 kg

Scope of delivery

CAM software: vhf dental**cam**

Accessories: Spindle service set · calibration set incl. stirrup measuring screw · tool magazine inserts (1 piece) · Torx wrench set · torque driver 1.5 Nm · air**tool** for wax and plastics · drill bit (tool positions) · cleaning brush and microfiber cloth · TecPowder (3) · foam filter · power cable · Ethernet network cable

Subject to changes and errors.



The **EASE** CLASS at a glance.

Premium dental restorations made easy.

The **EASE** CLASS machines are notable for their ability to operate without compressed air, their compact design at a low weight and a service-friendly concept: Premium dental restorations made easy.

The **E3** is our specialized machine for the efficient trimming of thermoformed dental splints. It delivers first-class results in the shortest time – without complicated reworking.

The **E4** was specially developed for an easy entry into chairside production. As a wet grinding machine with a dry milling option, it enables the precise grinding and milling of blocks.

With the **E5**, our dry milling machine for discs and blocks, you can achieve milling results at the highest level and do so with extreme easy of use.

CREATING PERFECTION.

vhf – synonymous with innovation and perfection since 1988.

With over 35 years of experience in mechanical engineering, vhf is one of the leading manufacturers of dental milling machines. As a full-service CAM provider, vhf carefully develops and produces every single milling machine as well as the perfectly matched tools and software completely in-house. Everything from a single source. Made in Germany.

Service. A matter close to our hearts.

Despite their short maintenance intervals and particularly long service lives, servicing your machines is very important to us. We support you with our user-friendly dental**portal**, numerous online tutorials and personal support through our international service network.

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