

## Who is vhf?

- Since 1988, vhf camufacture AG has been manufacturing CNC machining systems for milling, engraving, drilling, cutting and embossing. Additionally, vhf produces a wide range of tools. The scope of machine sizes – from the application area of micro processing up to mould making – extends up to a positioning range of several meters. One variant of the Impression line has been successfully used in the dental technology for years
- We would be glad to answer your questions concerning our CNC machining systems or tools at several trade fairs where we exhibit. Please ask for our trade fair schedule.
- You can directly test us and visit us. On this occasion we can show you the way from designing a piece of jewellery with the CAD software up to a perfectly finished model or object. You will be surely surprised how fast you can get your ideas into shape.



*It would be a pleasure for us to send you detailed catalogues with further CNC machining systems or carbide and diamond tools. There you will find extensive technical data of all components and tools*

# FOR AN ELEGANT APPEARANCE.



**Easy operability,  
technical perfection  
and a fantastic price.**



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# CAM 4-02 IMPRESSION



## From the CAD draft...

Using a CAD program you design a new piece of jewellery and process this data with the CAM software for the output. Then you just import the created file into the provided control software.

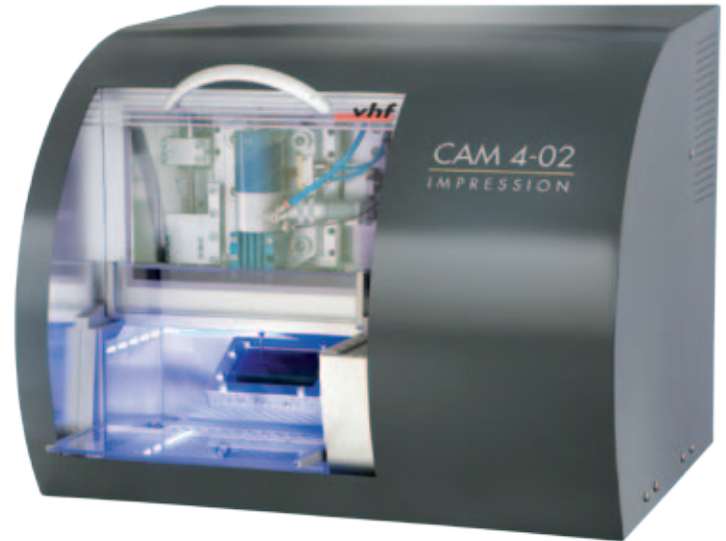
## ... over the wax model...

The CNC machining system CAM 4-02 Impression produces a highly precise wax model at high speed. Of course you can also directly process different sorts of metal and other materials.



## ... to a perfect piece of jewellery!

Utilizing the lost wax technique you will finally cast your piece of jewellery. It will need – due to its perfect surface – nearly no finishing with the file except at the sprues where the molten material is introduced.



€ 25,000.–\*

## 4 Axis Machining System CAM 4-02 Impression

ready for use including high frequency spindle with automatic tool change, 4 clamping devices and control software.

\* price without VAT

Enter into the world of **computer-aided manufacturing** of jewellery. So you will increase the **machining speed, reproducibility** and the **surface quality** at the same time. The CAM 4-02 Impression either produces perfect **wax models** of your pieces of jewellery or you directly process materials like **wood, plastics or metal**.

Before you start machining, you choose from the provided **set of four fixing devices** the proper one for your work-piece. It can be exchanged with just one turn of the hand by a pneumatic collet chuck. The rotary axis will be **measured automatically** and determined tolerances will be compen-

sated automatically. Thus a **constantly high level of precision** is ensured. And if it becomes for instance necessary to exchange the fixing device during the production of rings in order to process them with a special fixing device on their full circumference, the system supports you with an automatic measurement.

The **automatic tool change** reduces your set-up times and you can design new models already while the machine is still running. By **varying** the existing data, you easily can complete single pieces of jewellery to full collections or individualize them.

## Your Advantages

- **universally applicable** for producing different kinds of jewellery – **rings, bracelets, medals, pendants, accessories** and much more...
- producing **wax models for casting or direct processing of objects** made of wood, plastics or metals
- the **shapely table-housing** finds place everywhere – the **closed casing** prevents dust particles and noise from spreading outside during the machining process
- the integrated high frequency spindle is very silent and enables **high rates of feed** – the precision bearing of the spindle axis ensures a **top surface-quality** of the treated workpieces
- high-grade automatism due to **automatic tool change** – the whole machining process from the initial rough machining up to the final finishing will be performed **without intervention** of the operator
- ready-to-use set of four provided **fixing devices** for fixing plates, rods and rings
- highest accuracy due to **automatic axis measurement and axis compensation**
- the working area can be kept free from chips through **suction holes** in the bottom plate of the machine which can be connected to an optional industrial vacuum cleaner which will be switched automatically by the controller
- **very easy operation** through provided control software – no previous knowledge in engraving or milling necessary

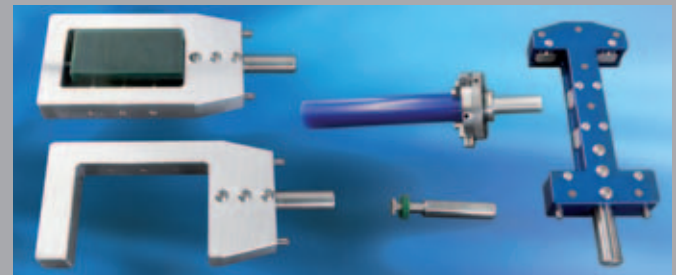
## Technical Data: CNC Machining

- **Four-axis Machining System CAM 4-02 Impression**  
positioning range (x/y/z): 120 x 90 x 70 mm · 4<sup>th</sup> axis: rotary axis free from backlash with pneumatic collet chuck · precise ball screw spindles for the 3 linear axes with 2.5 mm lead, motor resolution < 1 µm · repetition accuracy +/- 0.003 mm · ground steel precision guide rails · very low noise-level · complete encapsulation of working area with closable front cover · additional encapsulation of spindle and tool change during the machining process, thus high level of operating safety · working area illumination · little required space – dimensions approximately 620 x 530 x 515 mm (width/depth/height) · weight approximately 80 kg
- **Rotary Axis with Collet Chuck**  
rotary axis with highest true running accuracy for processing workpieces on their full circumference of 360 degrees · harmonic drive free from backlash · automatic measurement of rotary axis and automatic axis compensation for absolutely exact results · pneumatic collet chuck for exchanging the fixing devices within seconds
- **Controller and Control Software**  
great smoothness of running, powerful and accurate due to microstep operation · high processing speed due to exponential acceleration ramps and automatic change-over to full step mode · simultaneous interpolation of 4 axes · provided control software for a comfortable output of the data which has been generated by the post processor



a finished ring which was processed by CAM 4-02 Impression as wax model before casting

with kind permission of Raif Munchow



different kinds of fixing devices: O, U and optional H fixing device, three jaw chuck for rods and fixing device for rings

## System CAM 4-02 Impression

### ■ High Frequency Spindle SF 170P

nominal power under constant load (S1): 170 W · maximum power output ( $P_{max}$ ): 240 W · rotational speed range up to 60,000 RPM · collet chuck 3 mm · precision shaft with double bearing: radial deviation at the internal cone < 1  $\mu$ m · automatic tool change station for 5 tools with automatic length detection · tool breakage monitoring · compressed air monitoring for automatic tool change · prepared for minimum quantity lubrication

### ■ Fixing Devices

4 provided fixing devices: O and U fixing device for holding one plate each, three-jaw chuck for holding round workpieces and a fixing device for rings · other fixing devices are optionally available

### ■ Dust Extraction

extensive hole plate in working area for an efficient dust extraction · connector for hose at the side of the housing · 230 Volt interval switching for an external suction unit · delivery optional with industrial vacuum cleaner

### ■ Service

favourable rates for delivery, assembly and introduction · 2 years warranty on all components of the system · free hot-line

## Do You Need Something More?

### CAD/CAM Software

For designing your jewellery, you can use any CAD program. For the subsequent preparation of the data for the machining process, there are several programs which have already been adapted to CAM 4-02 Impression. Some examples are SUM3D, RhinoCAM, ArtCAM JewelSmith, DeskProto or 3DESIGN. If you do not have an appropriate software package yet, we would be glad to provide you with further pieces of information.

### Minimum Quantity Lubrication

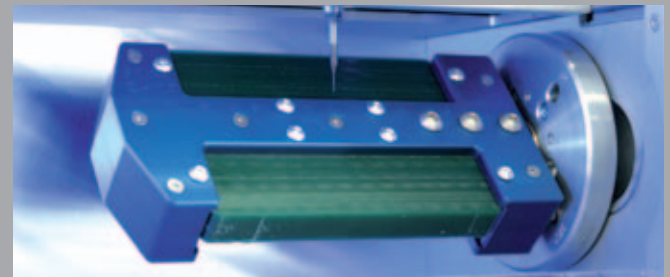
Using an electronically controlled minimum quantity lubrication, you can directly process harder sorts of metal. It creates finest liquid particles which reduce – due to their lubricating effect – the generation of heat during the machining process. This optional external unit with liquid tank and instruments is retrofittable as CAM 4-02 Impression is already internally equipped with all necessary pipes.

### Cabinet

On request, there is also a stable cabinet available which offers much space for your fixing devices, workpieces and accessories. Its massive granite plate underlines the high-value appearance of your system.



selection of different tools: some of them have an extra long free grinding which makes it easier to carve out finest details in the finishing pass



working space with optional H fixing device in which six rings can be milled at the same time