

AUTOMATED VACUUM BRAZING SYSTEM

VVBM 200

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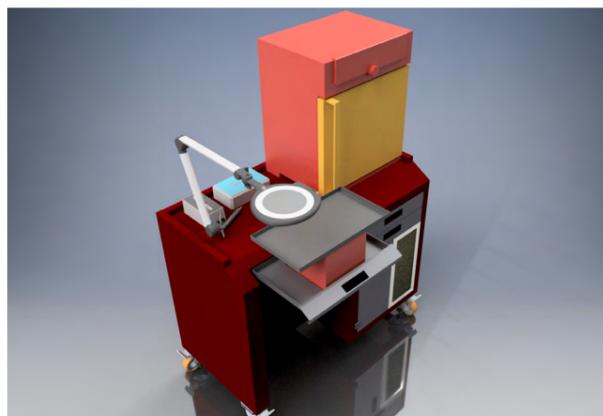
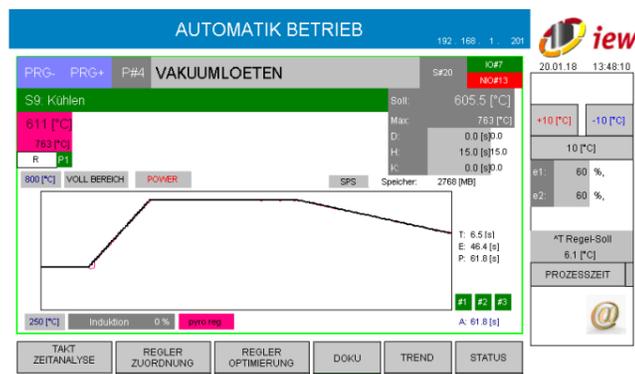
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The automated vacuum brazing system VVBM 200 (Vertical Vacuum Brazing Machine)

24/7 ready to use: For brazing of carbide, ceramic- and diamond tools, the VVBM 200 consists of a vertical vacuum chamber with a Pfeiffer Vacuum turbo pump incl. iew PLC unit for precise temperature control, ready for **industry 4.0**

The unit can be used for reliable brazing of batches, is easy to operate and the process itself is controlled via a 4 zone temperature control with the iew PLC.



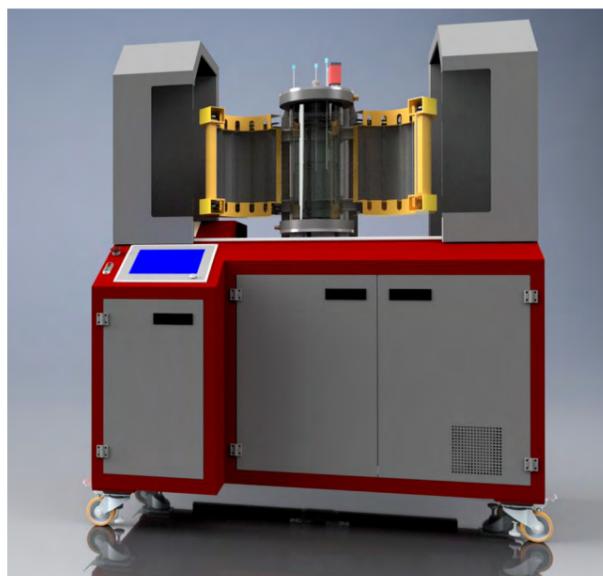
Work bench of the iew vacuum brazing system

- Brazing cycle: min. 45 minutes per cycle depending on the component size
- Round cutters: 30-80 pcs/cycle
360-969 pcs/shift
1080-2880 pcs/day
- Cutting inserts: 80-200 pcs/cycle
960-2400 pcs/shift
2880-7200 pcs/day

Process execution and output quantity

Technical data VVBM 200

Size:	1500 x 850 x 1800 mm
Weight:	450kg
Work area: up to	bis zu D 180 mm x L 350 mm
Mains supply:	3 x 400V/N + PE 40A 50Hz
Power consumption:	max. 28kW
Heating power:	24kW
Compressed air connection:	3-6 bar
Vacuum chamber:	D 188 mm x L x 550 mm
Max. vacuum:	10-7 mbar
Max. temperature:	approx. 1000°C
Cooling:	Cooling water
Preparation time:	ready for brazing within 5 minutes



iew vacuum brazing system VVBM 200

Brazing is a thermal process for joining of equal and composite base materials. In this regard, the vacuum brazing process is the ideal brazing method for high-strength joints for hard-to-wet materials such as tungsten carbide, ceramic or diamond materials such as solid PCD, MKD, CVD, etc. Since no flammable gas or flux is used, it is a very clean and environmentally friendly process, which doesn't harm the employees health.

Of course, the vacuum brazing process itself is a greater challenge than, for example, brazing with a gas flame, the process including the selection of the brazing filler metal applied must be selected individually for each material and carried out with different brazing parameters (ramp, holding time, cooling ramp, etc.).

By a vertical arrangement of the quartz glass as a vacuum chamber, we from iew have created the opportunity to use multiple levels of glass substrates to with equip with tools or place long components standing inside

the quartz glass. For optimal temperature distribution we have constructed a 4 zone vacuum chamber which can be controlled independently from one another to realize homogenous temperatures within the chamber.

The thermal distortion of the components to be brazed can be minimized as far as possible by means of the specifically adjustable temperature ramps, nevertheless, depending on the size of the component, it is urgently necessary to ensure an ideal temperature control. Once the optimum setting has been found for a group of components, the vacuum brazing process can be reproduced absolutely reliable.

Different products can also be processed within one brazing cycle, but it is important to ensure a similar component size, otherwise insufficient brazing results may occur.



1.

Cleaning of workpieces with acetone or ultrasonic bath



2.

Apply brazing paste or brazing foil



3.

Place the cutting edges of the tool



4.

Drying in oven (approx. 10-15 minutes)



5.

Process time minimum of 45 minutes depending on the workpieces, general process time rather 2-3 hours

Brazing in 5 steps