

**iew** – Vacuum brazing unit  
VBM 150  
for brazing of diamond tools

# Operation of the vacuum unit

- Automated vacuum brazing system for brazing of PCD, PCBN, MCD, CVD and ceramics
- Reliable brazing of batches, PLC controlled and easy to operate
- Up to 200 inserts brazeable per batch, up to **2400** per shift
- Up to 200 round cutters brazeable per batch, up to **960** per shift
- Vacuum up to  $4 \times 10^{-3}$  Pa /  $3 \times 10^{-5}$  torr

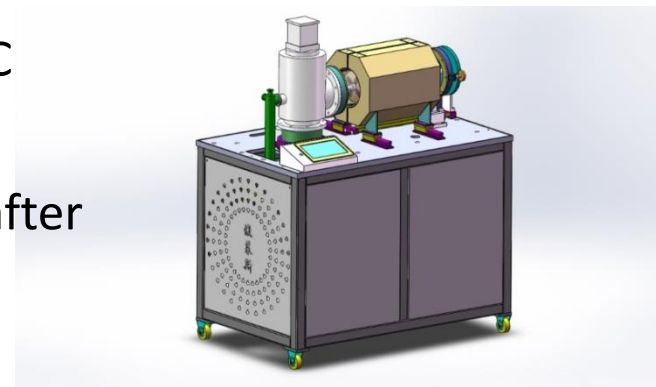
## Brazing in 5 steps:

1. Cleaning of parts with Aceton or ultra sonic bath
2. Apply brazing paste or foil
3. Apply cutting edge onto the tool
4. Drying in oven or in the vacuum brazing unit (approx. 10-15 minutes)
5. Brazing (process time approx. 45 minutes)

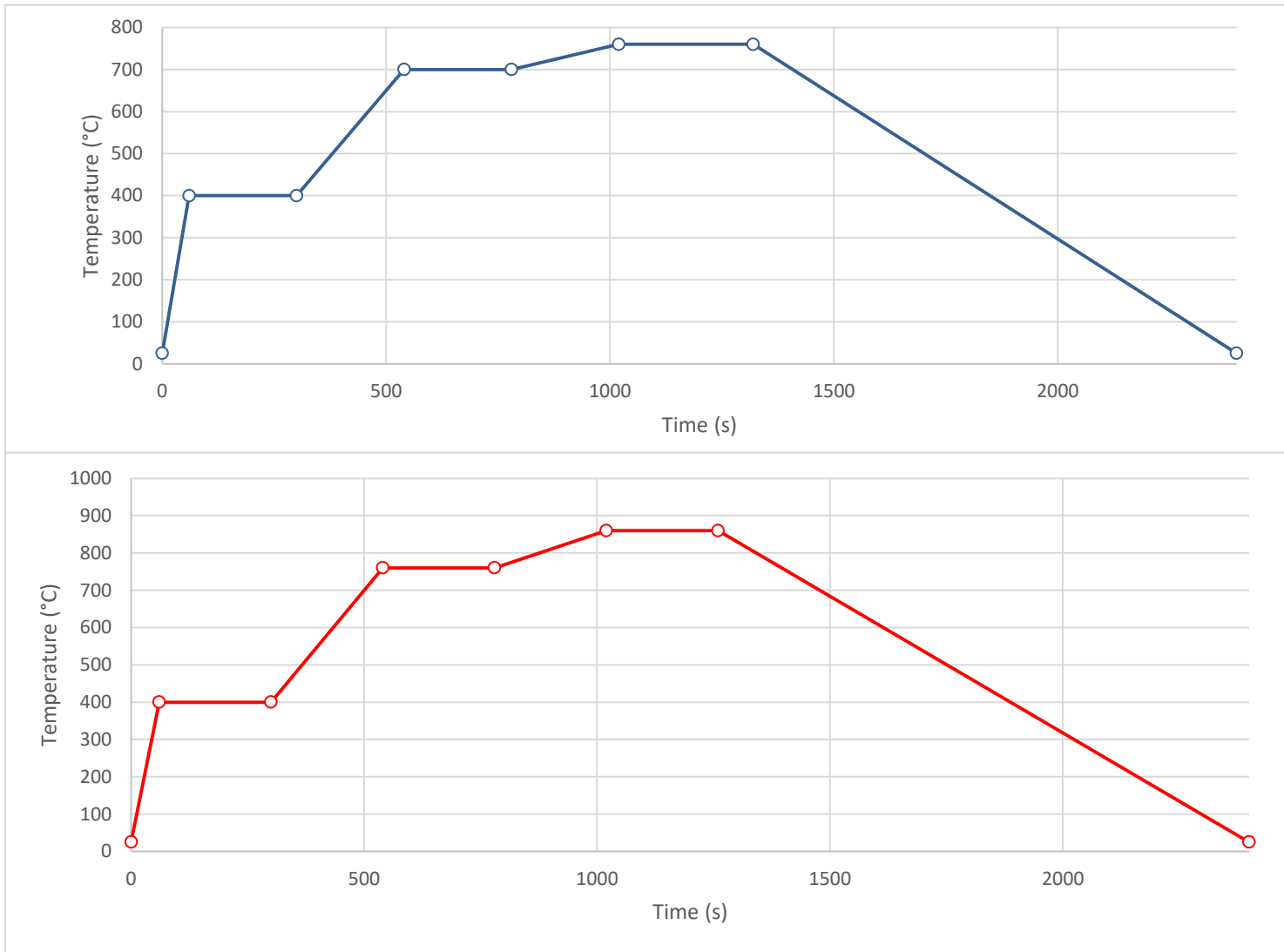


# Dimensions of the vacuum brazing system

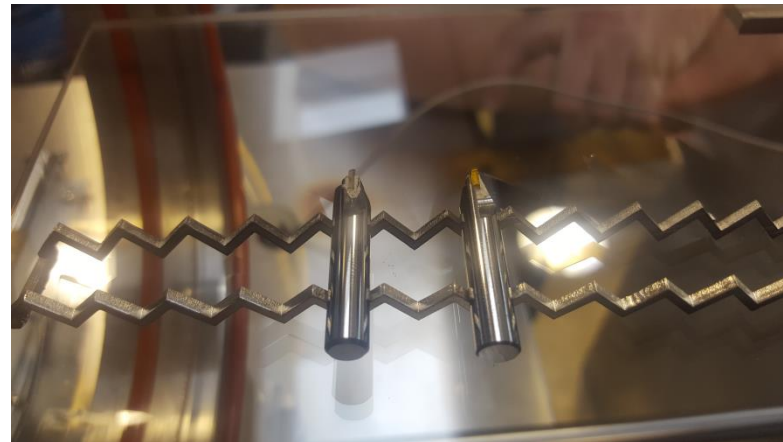
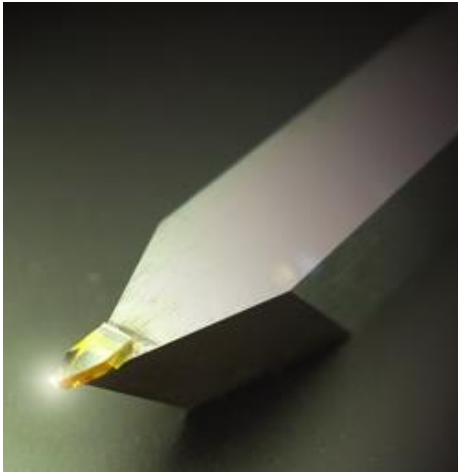
SIZE:	1200 x 750 x 1600mm
WEIGHT:	450kg
POWER INPUT:	3x 400V AC 63A
POWER:	18kW
VACUUM CHAMBER:	D160mm x L500mm
WORK AREA:	D210mm x L130mm x H60xxmm or D210mm x L60mm x H120xxmm
MAX. VACUUM:	4 x 10 <sup>-3</sup> Pa / 3x 10 <sup>-5</sup> Torr
MAX. TEMP:	approx. 1.100 °C
COOLING:	Cooling water
HEATING-UP TIME:	ready to braze after 15 min.



# Temperature profiles low- and high temperature

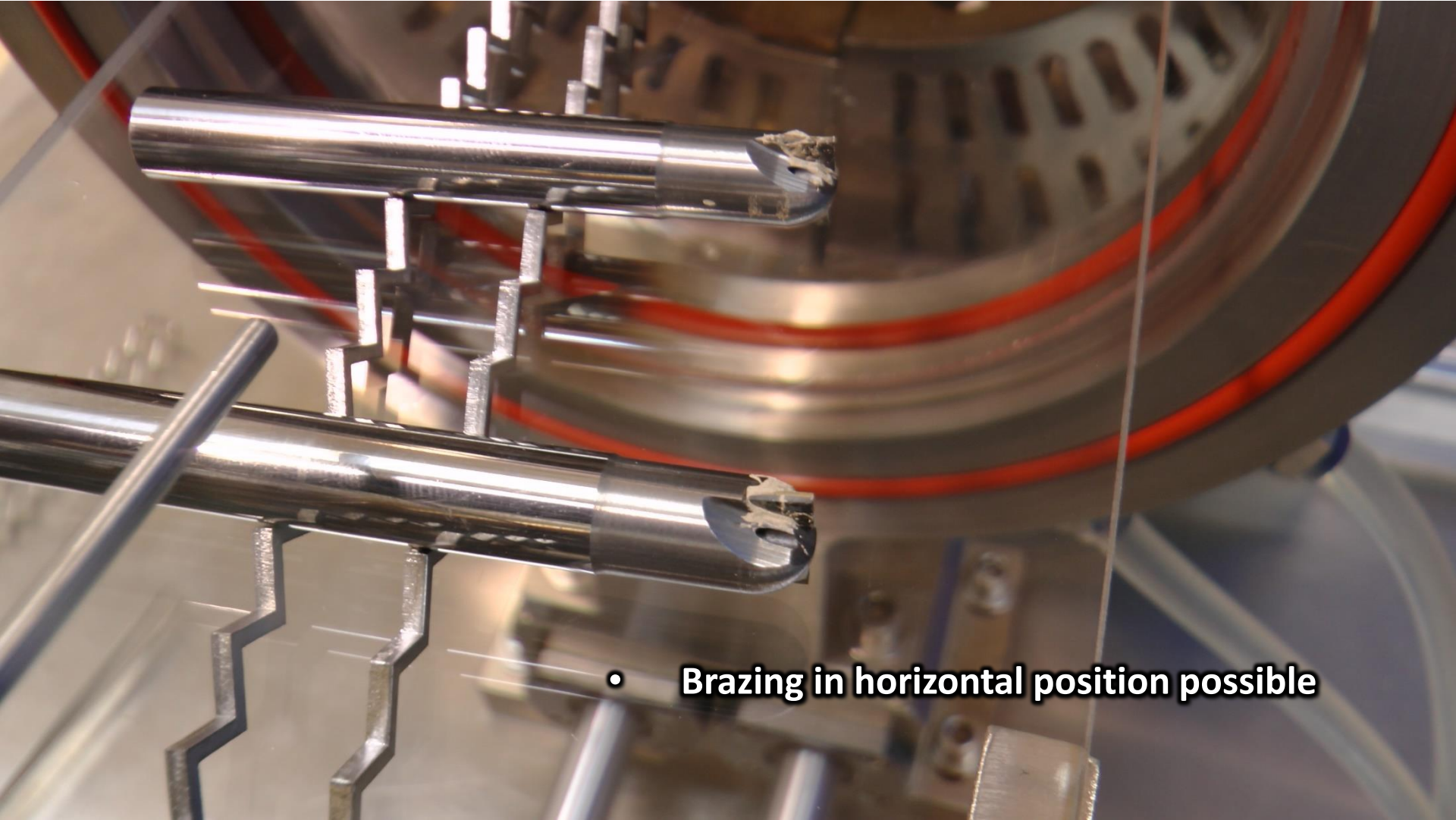


# Brazed samples

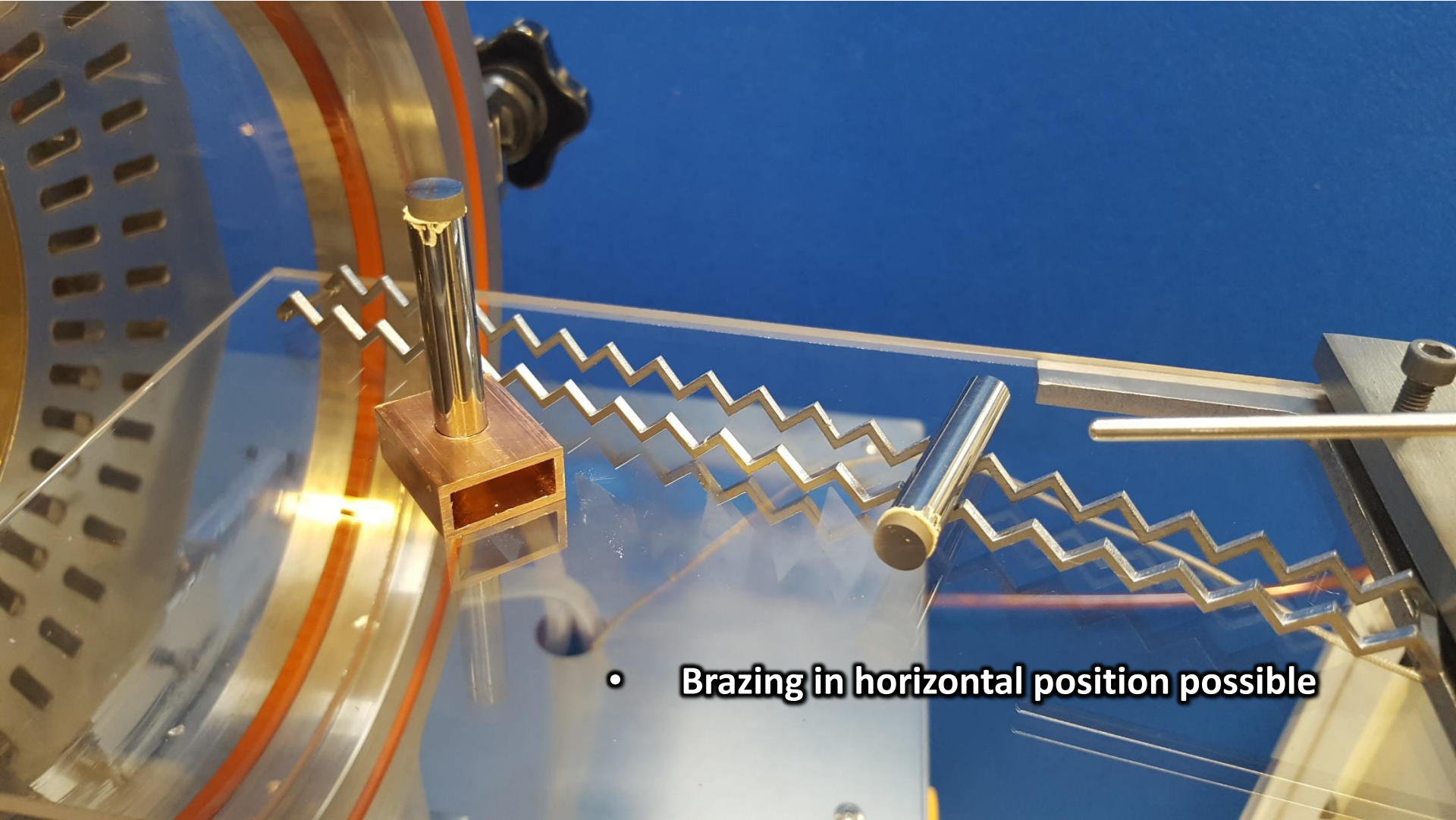




# PCD cutter double-edged prior to brazing



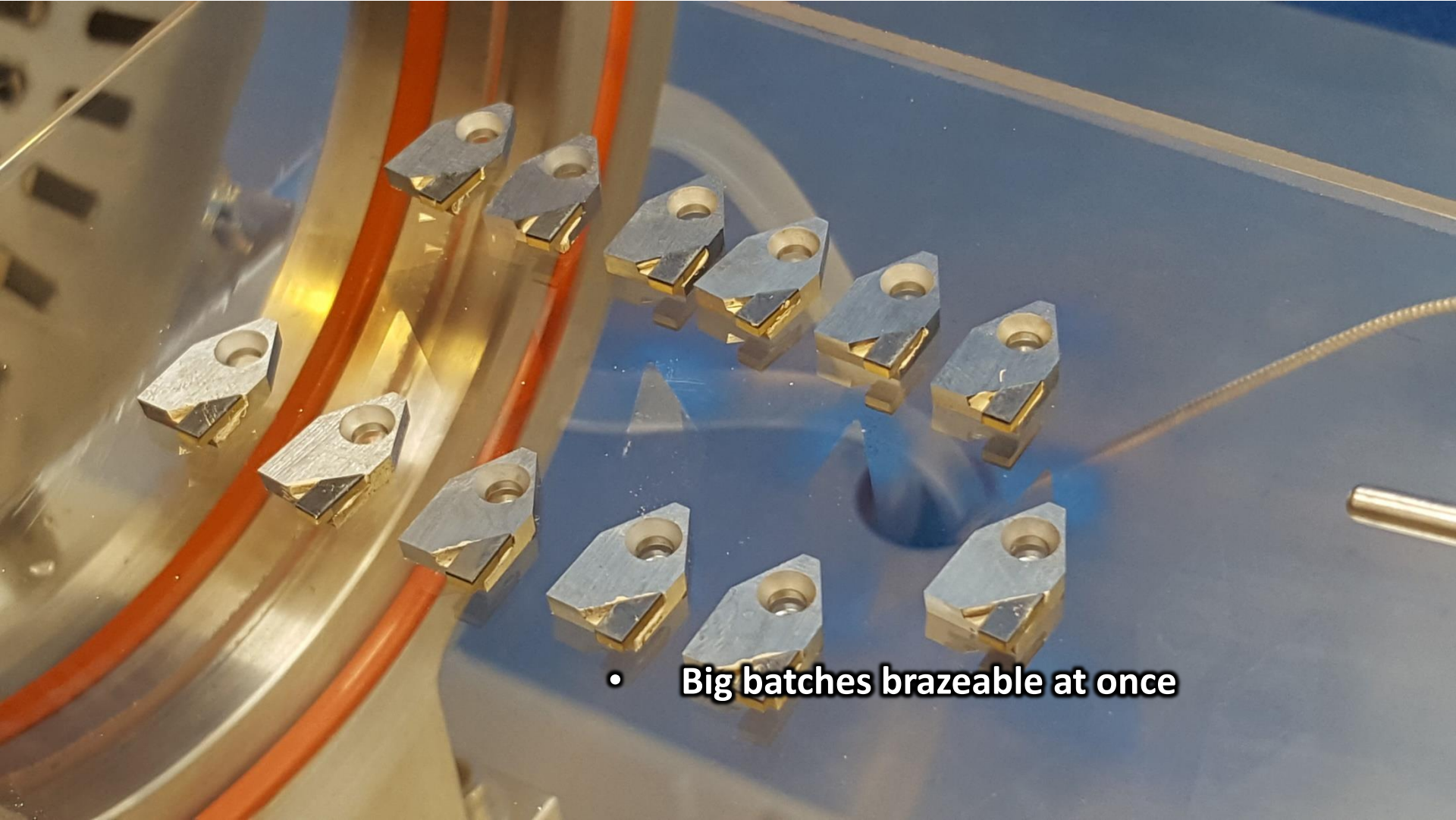
- **Brazing in horizontal position possible**



- **Brazing in horizontal position possible**

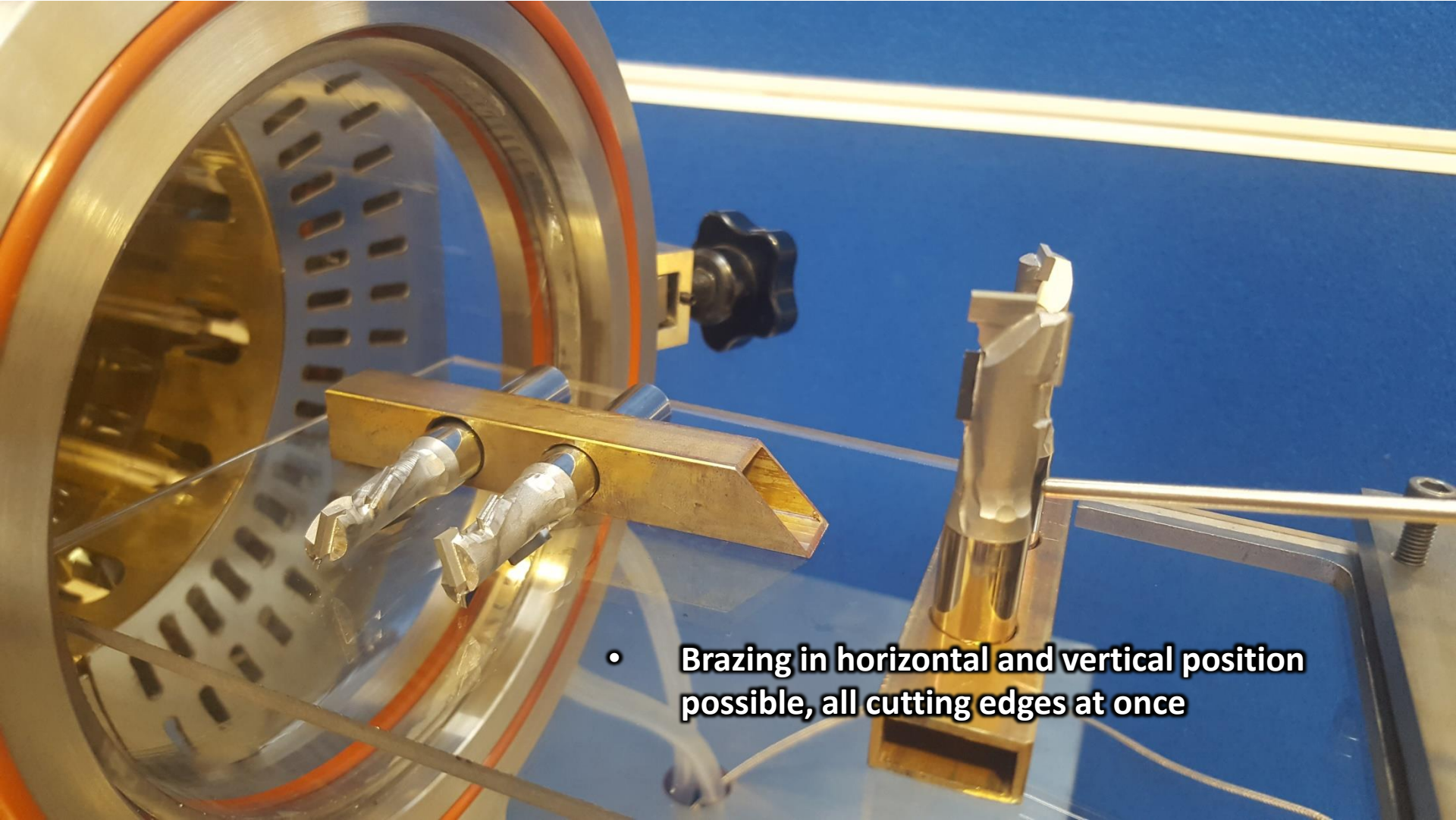


# PCD inserts prior to brazing



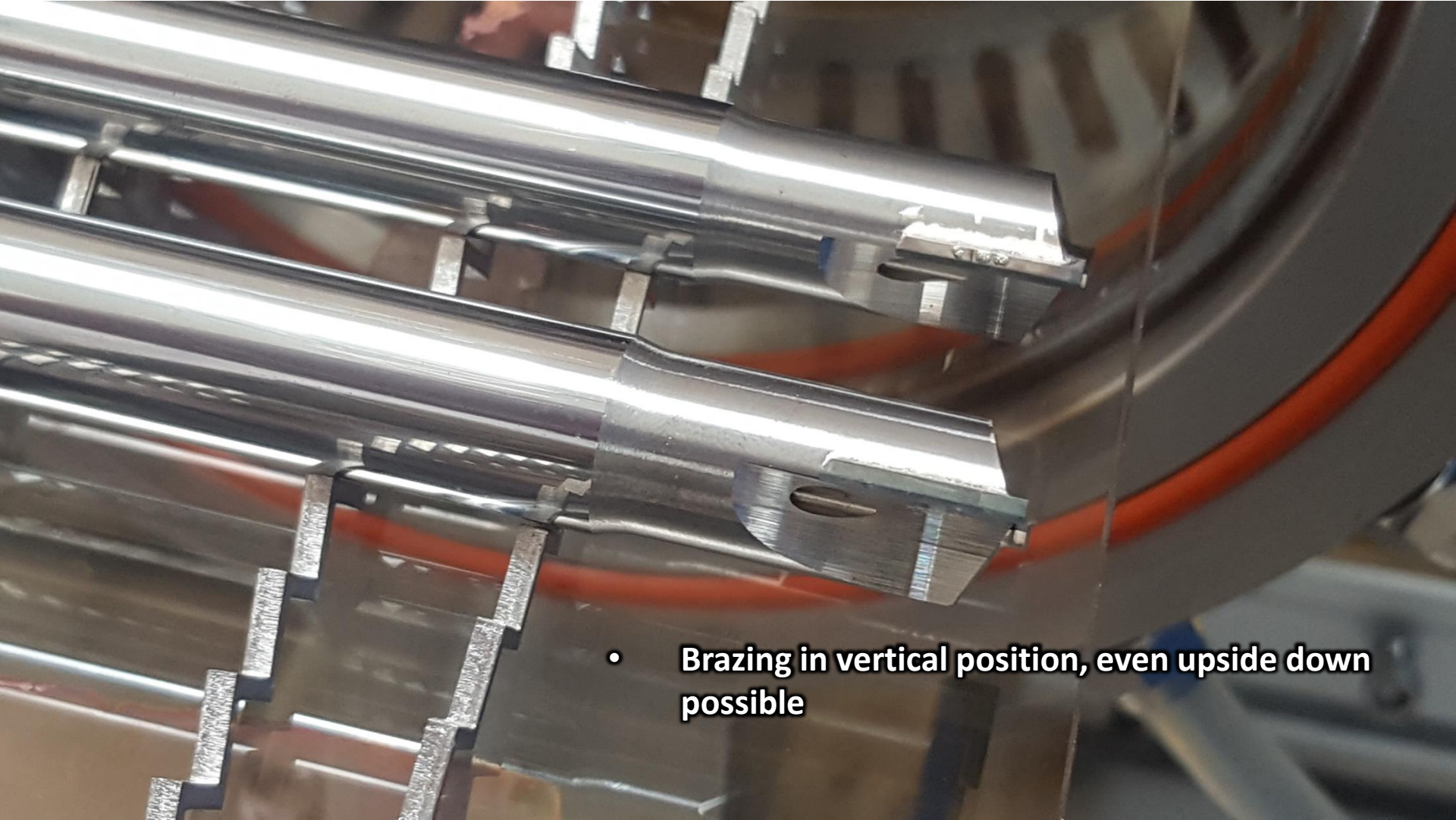
- **Big batches brazeable at once**





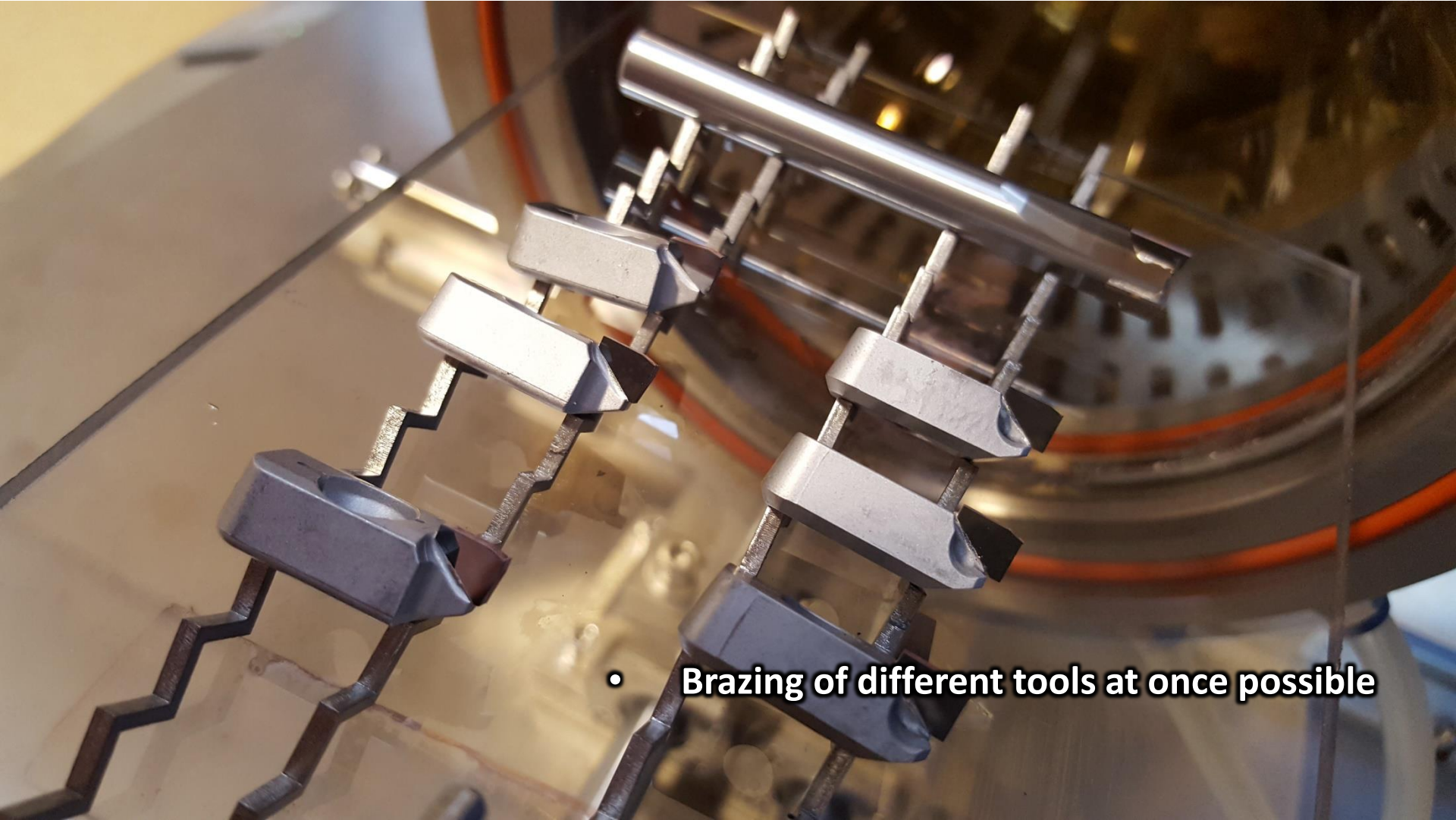
- **Brazing in horizontal and vertical position possible, all cutting edges at once**

# PCD cutter with 2 cutting edges



- **Brazing in vertical position, even upside down possible**





- **Brazing of different tools at once possible**

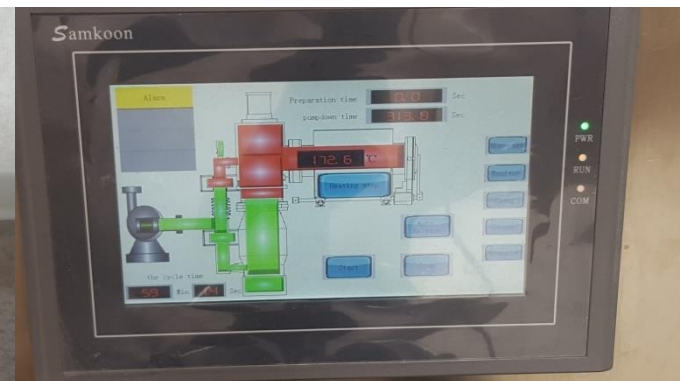
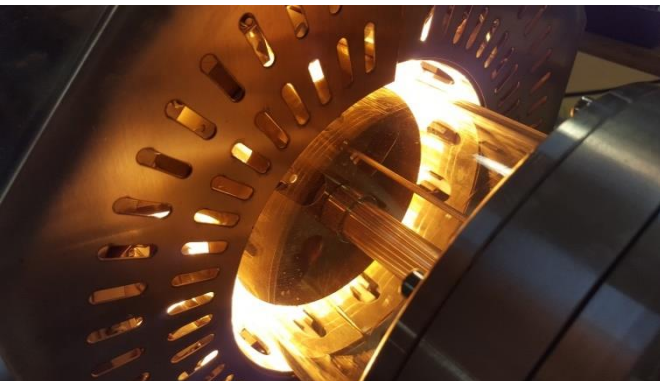


# PCD drills



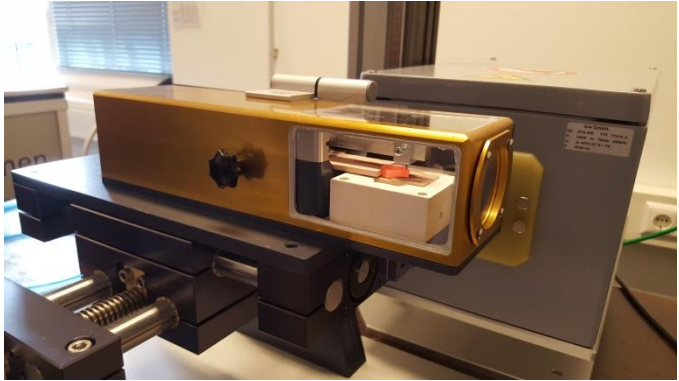
# Advantages of the vacuum brazing process

- Tools of different sizes can be brazed in one batch
- While brazing batches of inserts, the exact positioning on the carrier plate is not necessary
- No cleaning of the parts necessary after brazing
- Best brazing joint – no residual oxygen in the brazing seam
- Pore-free brazing, optimal gap filling
- It is possible to braze many cutting edges at once, even upside down
- No trained employees necessary for the brazing process itself, only for assembling the parts → Brazing process fully automated
- Brazing filler metals with 2 different liquidus temperatures can be used with 2 subsequent brazing sequences

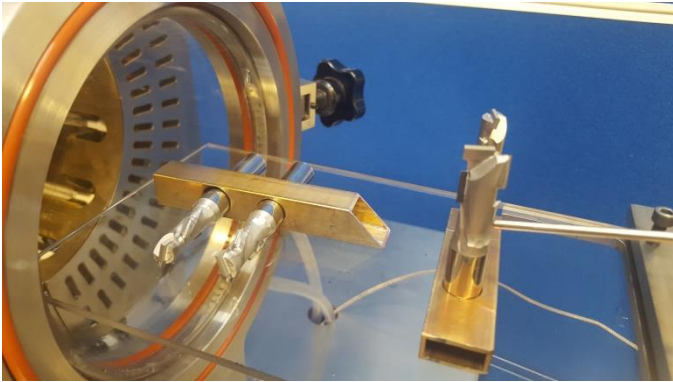




Brazing at atmosphere



Protection gas brazing



Vacuum brazing





**We are staying at your disposal for any questions on this subject at any time and would be happy to prepare a few test tools for you in a free first try! We are looking forward to hear from you soon!**

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