

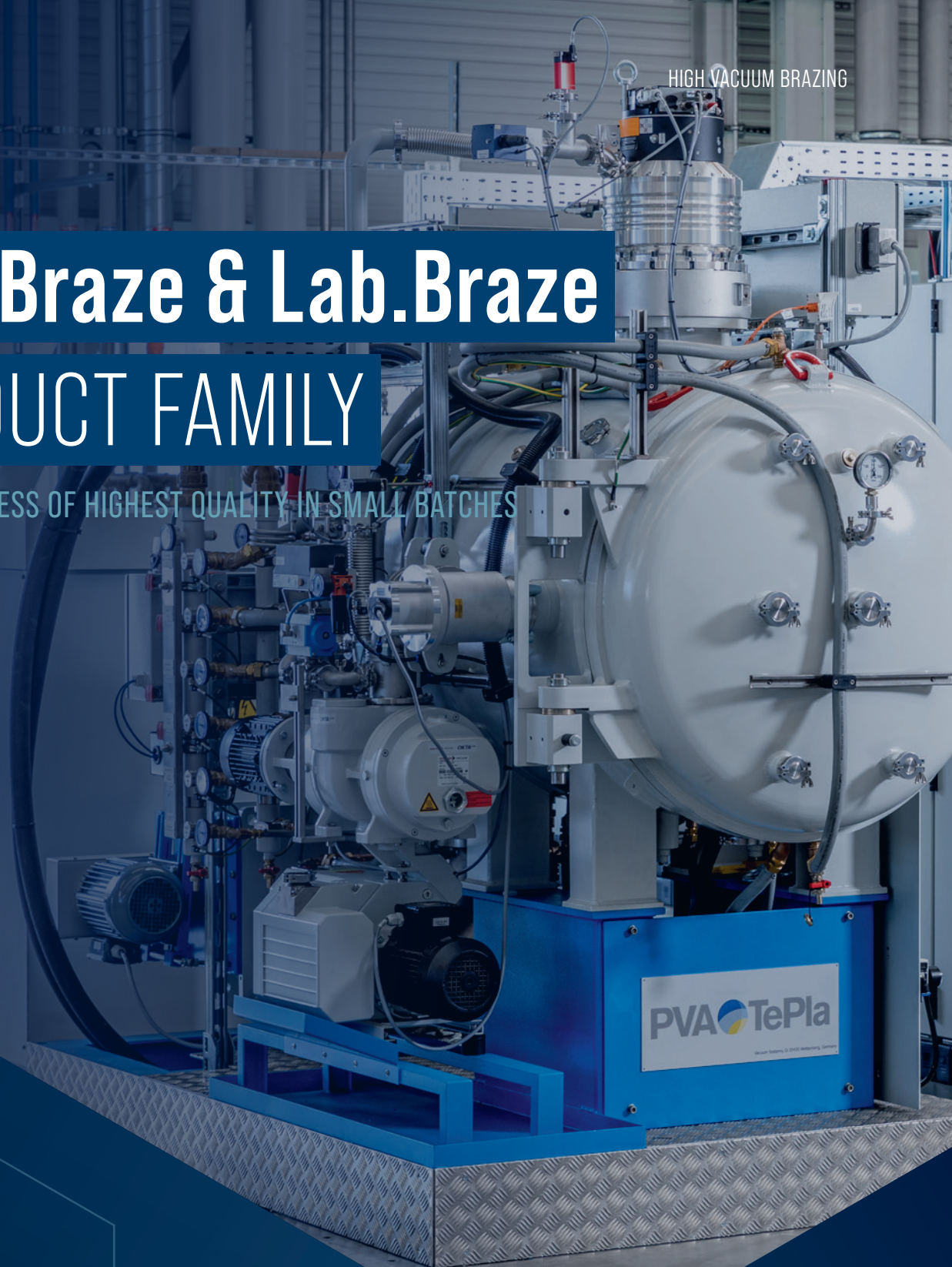
MATERIAL SOLUTIONS

HIGH VACUUM BRAZING

Flex.Braze & Lab.Braze

PRODUCT FAMILY

JOINING PROCESS OF HIGHEST QUALITY IN SMALL BATCHES



High-vacuum brazing, scaled down without compromise. Lab.Braze and Flex.Braze bring VI.Braze-grade vacuum quality into the lab and pilot line — for R&D teams, universities and small-batch manufacturers qualifying new materials before scaling to full production. Compact. Precise. Made in Germany.

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THE SYSTEM

Lab.Braze & Flex.Braze

COMPACT. FLEXIBLE. CLEAN.

Testing new braze alloys on a full-scale furnace wastes budget, energy and floor space. Flex.Braze and Lab.Braze deliver the same vacuum-tight quality at bench-top scale – no compromise.

Lab.Braze and Flex.Braze share one high-vacuum brazing platform, built to two different scales of ambition. Lab.Braze 25 is the compact, benchtop-sized entry point – precisely why it carries the name "Lab": a chamber built for research desks and small rooms. Flex.Braze 60 and 420 take the same turbomolecular-pump technology and process control into a larger, flexible chamber that bridges lab testing and small-batch manufacturing. Both lines share the vacuum-tight design, precise temperature uniformity and process safety of our VI.Braze production furnaces – simply resized to fit R&D budgets and floor plans. Whichever size you start with, alloys, parts and processes qualified here transfer reliably to full VI.Braze production later.



Highest vacuum levels

For oxidation-free joints



Global service team

Support, upgrades worldwide



Lab-scale footprint

Ideal for teaching and R&D



Modular & flexible

Tailored to your own process



Compact investment

Lower cost entry point



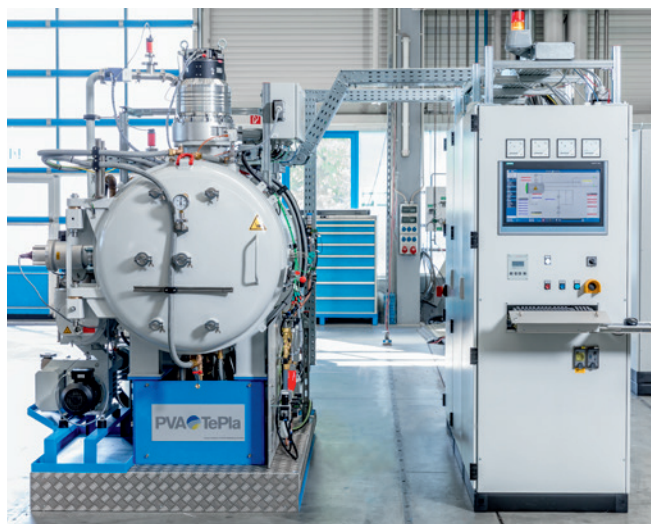
Flex.Braze 420 with 420 liters of usable volume.



Lab.Braze 25 with 25 liters of usable volume. Ideal for small labs and research.

CUSTOMIZATION MODULAR SYSTEM OPTIONS

- **Second gas line**
Ar/N₂ or H₂, stationary or streaming
- **Chiller for cooling water**
When no on-site supply is available
- **AMS 2750H trim**
For aerospace-grade documentation
- **High-efficiency package**
Lowers energy consumption and costs
- **External fast-cooling**
Shorten your process time
- **Oil-free evacuation pump for pre-vacuum**
Especially recommended when using Hydrogen
- **UL-ready version**
Built to UL standards for UL clearance



Flex.Braze 60 with 60 liters of usable volume. Ideal for small R&D setups.

TECHNICAL DATA

SPECIFICATIONS

SERIES	LAB.BRAZE 25	FLEX.BRAZE 60	FLEX.BRAZE 420
PERFORMANCE & OUTPUT			
Charge weight (max.)	80 kg	100 kg	800 kg
Workpiece dimensions (W x H x D)	250 x 250 x 400 mm	350 x 350 x 500 mm	700 x 600 x 1,000 mm
Usable volume	25 l	60 l	420 l
Process temperature (max.)	1,400 °C	1,350 °C	1,300 °C
Temperature uniformity	± 2 K	± 2 K	± 4 K
Ultimate vacuum	≤ 1 · 10 ⁻⁶ mbar		
Leak rate (max.)	≤ 5 · 10 ⁻⁴ mbar · l/s		
Max. pressure fast-cooling	not available	800 mbar	
Safety and Standards	CE		
DIMENSIONS			
Machine footprint (W x H x D)	3.4 x 2.2 x 3.9 m	3.3 x 2.6 x 4.9 m	6.5 x 2.5 x 5.3 m
Total space needed	13 m²	16 m²	34 m²
Loading height	+ 1,230 mm	+ 1,200 mm	+ 1,100 mm
Weight	~ 2 t	~ 5.3 t	~ 8 t
ENVIRONMENT			
Water (Size Flowrate Pressure)	G 1¼" 77 l/min 2–4 bar	G 2" 125 l/min 2–4 bar	G 2½" 170 l/min 2–4 bar
Process gas (Size Pressure)	½" 2 bar		
Pressurized air (Size Pressure)	½" 6–8 bar		
Rated power heater	50 kVA	90 kVA	237 kVA
Rated power total	60 kVA	100 kVA	280 kVA
COMMUNICATION			
Data connection	USB / VPN (Remote connection) / MES Interface OPC UA for machinery via PVA edge device		

TAILORED TO YOUR NEEDS

Standard sizes not quite right? Drawing on decades of custom furnace engineering, we adapt to your exact process, footprint and site requirements – talk to us.

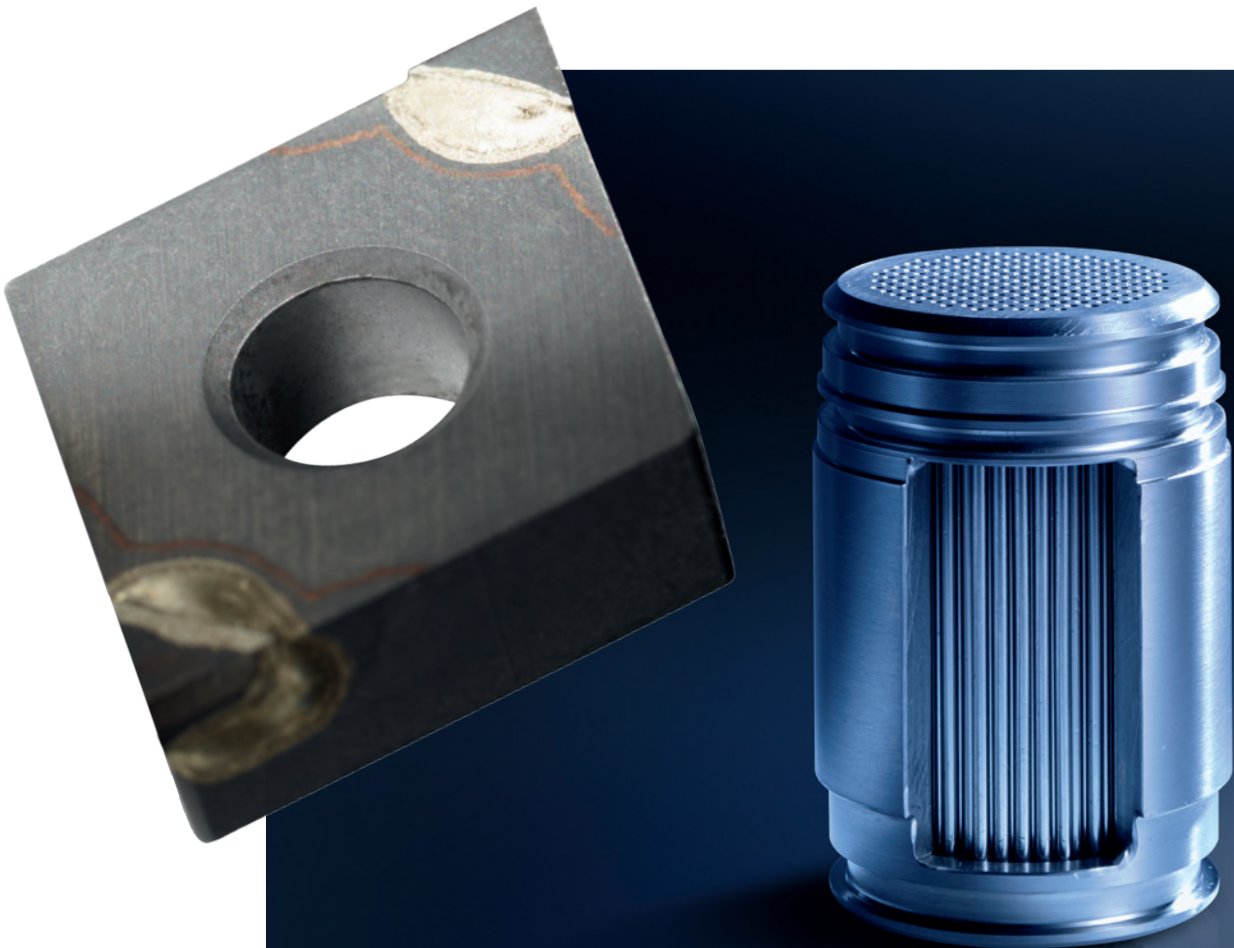
- Custom chamber dimensions and individual process parameters
- Frame, pipes, and vessel in customer color

TECHNOLOGY & APPLICATIONS

HIGH VACUUM BRAZING WHERE RELIABILITY MATTERS.

High-vacuum brazing is a diffusion-driven process: two materials are joined by a braze alloy – typically copper- or silver-based, often with a small amount of a reactive element such as titanium or zirconium – that reacts on both surfaces and flows into the joint by capillary action. With no oxygen in the chamber, the alloy cannot oxidize, so the bond stays low in porosity, free of discoloration and precise – critical wherever leak-tightness and long-term reliability matter. It is also safe for people and the environment, as no flux or reactive gas escapes.

Lab.Braze and Flex.Braze turn this science into practice at lab and pilot scale: turbomolecular pumps pull the chamber below $1 \cdot 10^{-6}$ mbar to remove residual oxygen, and precise heating delivers up to 1,400 °C with uniformity as tight as ± 2 K – even sharper than our large VI.Braze production furnaces. The compact, double-walled vessel keeps operators safe while protecting the process from contamination. This lets R&D teams and small manufacturers braze hard metals, superalloys, titanium and ceramics with the same repeatability that carries through when the process scales up to VI.Braze.





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