



CAROBA[®] Balancer Laser

Balancing: reliable, force-free and chip-free

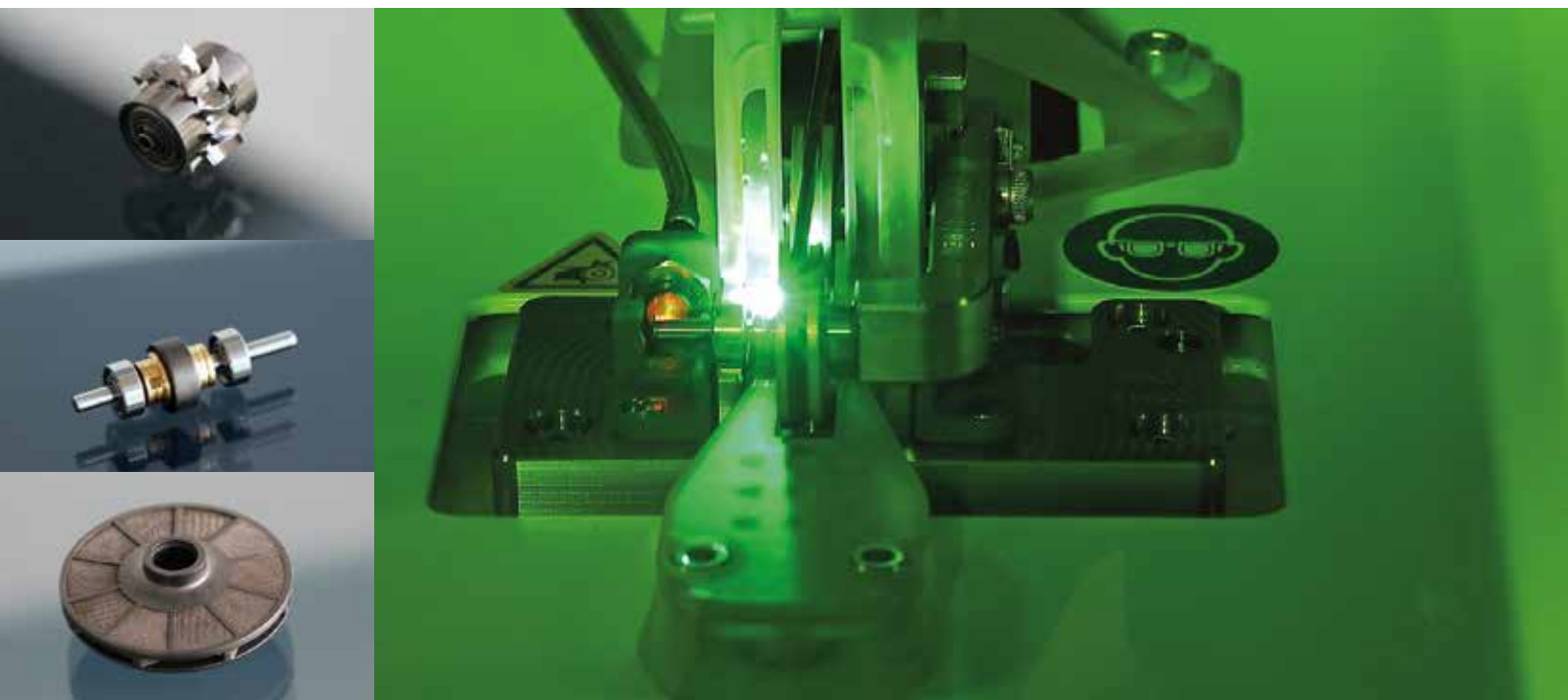
High-precision balancing with laser. Process reliable and automatic.

Many rotating components such as the rotors of electric motors, small fans, compressor wheels, micro-turbines and dental turbines are subjected to high stresses during operation at speeds of up to 500,000 rpm. Reliably good balancing even with the smallest permissible residual unbalance is particularly important here. Especially for the balancing of rotors or assemblies with mounted bearings, 2 points have become increasingly important in addition to high balancing accuracy and process reliability:

Free of force: The bearings and the component must be balanced as gently as possible.

Chip-free: Under no circumstances should chips be allowed to enter the bearings or electronics of already mounted boards.

PMB solves these requirements with the CAROBA® Balancer Laser balancing machine, which is available as a standard product with individually adapted built-in components.



Mass correction by laser

Use the advantages of the CAROBA® Balancer Laser

The laser provides you with a tool for ablative (subtractive) mass correction that can keep up with our high-precision measurement.

Laser balancing brings important advantages for a stable process: highly accurate and reproducible ablation down to the smallest residual unbalance masses. During the material removal process, no forces or vibrations are generated that affect the component. The laser dust produced from very small particles is extracted and filtered directly at the point of origin. Bearings or other sensitive components remain clean. The ablation is non-cutting and therefore chip-free.

The geometry of the ablation can be chosen freely. Whether round, square, triangular, oval or... - You can therefore also adapt the material removal to complex workpieces. For example, you can make corrections between the blades of a fan.

Balancing is fully automated as standard. The loading/unloading of the machine is manual and can be additionally automated on request.

Automation, operation and maintenance of the CAROBA® Balancer

The Balancer Laser balances fully automatically and is operated via a touch monitor, keyboard and quick buttons. After inserting the workpiece into the machine, the operator starts the process by pressing a sensor button and the automatic door closes. The unbalance measurement and the actual ablation of material by laser are fully automatic. The intuitive, simple operation and the fast balancing process make the balancing machine very economical.

Changeover to other workpieces is done by adjusting settings or changing bearing modules; for larger changeovers, the balancing core is changed. The system thus remains future-proof even if your production program is changed or your products are developed further.

The entire machine requires almost no maintenance. Where regular maintenance is required, e.g. when replacing and checking the filters of the laser dust extraction system, it can be pulled out of the machine on rails for optimum accessibility.



Sensor button for system start



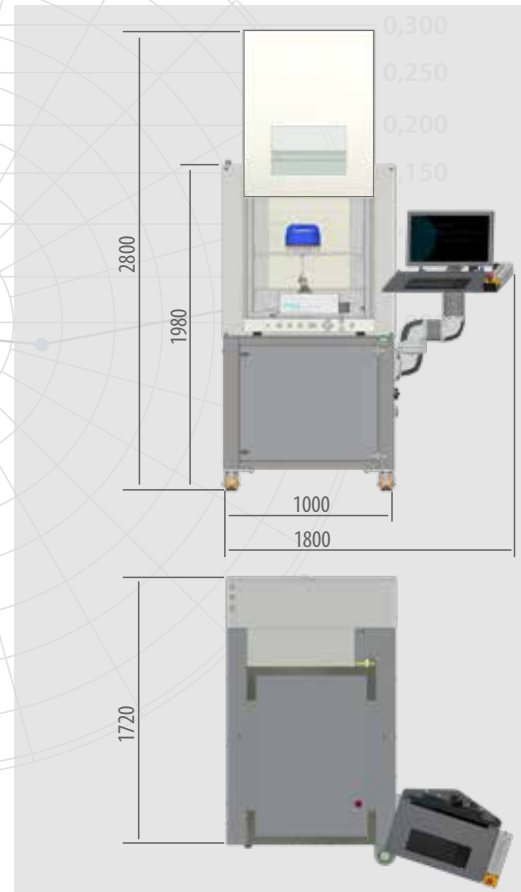
Balancing core pulled forward for changeover



Suction pulled out

Your advantages

- Process reliable with high repeatability
- Ablation of residual unbalances down to microgram range
- No force applied to the component
- Chipless mass correction. No damage to bearings or assembled electronics
- Semi-automated and fully automatable for industrial serial balancing
- Easy set-up for new components
- Almost maintenance-free





The Art of Balancing

The company PMB-Präzisionsmaschinenbau Bobertag GmbH was founded in 2008. Since then we have achieved a technological leadership in the field of ultra-precision balancing with our own measuring technology, software and complete balancing systems. From development and production to consulting, PMB stands for the highest quality in balancing technology. We work hand in hand with you. We are aware that we contribute an important part to the quality of your products. We support you in all aspects of your tasks and support you in planning and implementation with our know-how and our experience, which we have acquired in a wide field of applications. We are particularly proud of our balancing service - because our partners entrust us with their most important items: Their products!

We are certified according to DIN EN ISO 9001:2015

Services and solutions

- Balancing machines
- Balancing systems
- Balancing and analysing software
- Balancing service
- Operator training
- After Sales Service
- Research and development
- Consulting



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