

Hofmann.

Intelligent Balancing Solutions



Smooth running brought to the point.

Measuring and Balancing Technologies from Hofmann

In every vehicle – on the road, on rails, in the air, and on water – a large number of rotating components are in use for which perfect smooth running is essential. Other rotors such as ventilating fans, centrifuges, turbines, or hard-disk drives also need to be balanced optimally in order to work flawlessly. Hofmann measures vibrations, calculates the unbalance, and corrects it, thus resulting in smooth running of the spinning rotors. We combine years of experience with intelligent and innovative solutions. Our continuous research and development provides new momentum and keeps us at the forefront of the marketplace.

When ideas turn into solutions.

Intelligent Balancing Solutions

The demands on the balance quality of engines, machines, and other rotary components are increasing constantly. Equipment gains more complexity, and service and maintenance become increasingly demanding. Additionally, time and cost pressures are growing.

With *Intelligent Balancing Solutions*, Hofmann has the right answer to these rapidly changing demands. Through our machine concepts, which we develop individually for a multitude of applications, we are able to increase our customers' success. For rotors varying from 1 gram to more than 100 tons, from manually operated machines to fully automatic installations – we have the right solution.

An intelligent solution is always as simple as possible – and as individual as necessary. We achieve maximum efficiency through two complementing approaches:

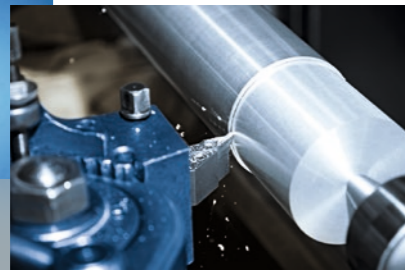
- **Standardized products**
for flexible and economic use
- **Individually conceptualized special solutions**
based on modular components

This way we achieve optimum operational availability, keep schedules and cost under control, and guarantee high efficiency, as well as economic success. *Intelligent Balancing Solutions* from Hofmann accomplish even more: Where everything "runs smoothly", energy is saved automatically. Thus not just the customer, but also the environment benefits.

This mixture of experience, innovative strength, and tradition accounts for the success of Hofmann. As an established family-owned company, we have extensive expertise. As a leader in the field of measuring and balancing techniques, we research for the future, influence the market, and convince through efficiency, inventiveness, and enduring concepts.

Main industries served

- Automotive Industry and Their Suppliers
- Aviation & Aerospace Industry
- Turbomachinery
- Power Generation
- Electrical Industry
- Machine Tool Industry
- General Machine Building Industry
- Medical Equipment





Efficiency that pays.

On the Value of Balancing

Since the invention of the wheel, engineers are motivated by one pivotal thought: How can motion be created most efficiently?

We are driven to achieve the greatest possible efficiency – in mechanics, as well as economics. By optimizing the balance quality of rotors, we gain maximum efficiency for our customers, and high quality for the products they manufacture. Fortunately, our environment benefits too: Balanced rotors produce less emissions and last longer – thus saving natural resources.

Productivity and automation.

Customized Solutions for Mass Production

We complement the extensive manufacturing processes of our customers with individually conceptualized solutions for all methods of automatic unbalance correction.

Modular solutions for serial production

All current correction processes such as milling, drilling, punching, welding of weights, or riveting can be combined modularly for fully automatic machine solutions. Our highest machine manufacturing standards guarantee operational availability and high reliability, as well as durability.

Automation of balancing processes

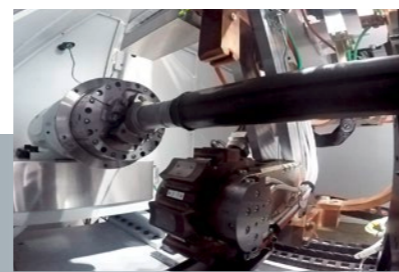
Specially designed machine tool modules, such as machining units, slide units, tool spindles, and measuring spindles, provide high reliability and long spare part availability. Precise and fast-running rotary indexing systems connect individual workstations to a perfectly tuned system. Even if the demands for the balancing process are changed retrospectively by our customers, our modular system is adaptable at any time.

Measuring and testing

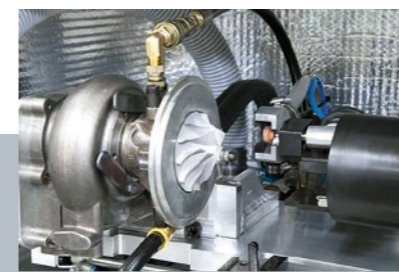
Ventilation fans and air conditioning units cool both man and machine. Hofmann not only checks for and corrects unbalance vibrations in these complex assemblies, but also tests their entire electrical functionality. With compact machine concepts, we provide trouble-free operation for any variety of fan construction – without delays or extensive installation work.



Single-station balancing machine for crankshafts



Balancing machine for drive shafts



Balancing machine for turbochargers



Balancing and testing machine for blowers



Balancing machine for railway wheels

Reliability and precision.

Balancing with the Highest Accuracy

Balancing machines for exact manual unbalance compensation must support the operator optimally during balancing, and need to be easy to use. Hofmann supplies a complete line of horizontal and vertical universal balancing machines.

Solutions for jet engine manufacturers and overhaul facilities

Rotors of aircraft engines are balanced very precisely and according to defined procedures. Universal balancing machines from Hofmann offer excellent provisions to accomplish this: Precise unbalance measurement, special balancing software, and a wide range of applications. From the investigation of the unbalance impact of a single turbine blade, through the balancing of a single rotor disk, up to the finished turbine or compressor rotor – Hofmann provides safety in the air by offering a complete solution.

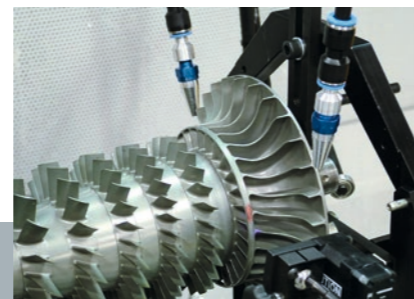
Balancing machines and testing equipment for turbo rotors

If the running performance of machines such as gas and steam turbines, turbo generators, or turbo compressors is influenced by several critical speeds during operation, the rotors must commonly be balanced as flexible rotors. Hofmann provides the system required for such operation: High-speed balancing and over-speed machines in which bladed rotors are balanced under operating conditions in a vacuum. The safety and protective features of these machines are designed to withstand even the destruction of a rotor during an over-speed test.

The vibrations of these turbo rotors, which run almost entirely in friction bearings, are monitored during operation by means of eddy current sensors. The precision of such scanned rotor surfaces is verified through run-out inspection following predefined procedures.



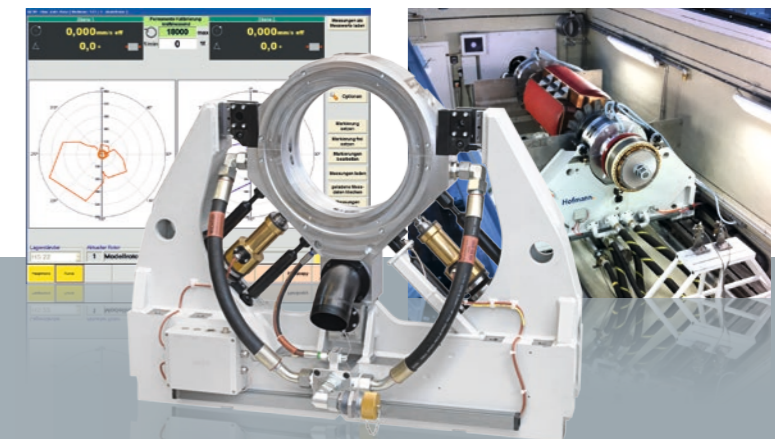
Balancing machine with journal bearings for gas turbine rotors up to 100 tons



Balancing of an engine rotor using a pneumatic drive system



Runout inspection of turbo compressor



High-speed balancing and over-speed machines require special bearing and measuring technology



Everything in view.

Measuring Vibrations and Balancing

Measuring is of very high importance in our world. Important decisions are made solely on the basis of precise measurements. This is especially true for vibration analysis and balancing technology. Therefore we take this very seriously. Hofmann measures and analyzes vibrations with high requirements on precision, to provide perfectly running machines – with minimum unbalance.

A matter of sensibility.

Tracing Vibrations

Measuring and analyzing vibrations, as well as balancing, become one entity at Hofmann. This is not only true for our stationary balancing machines, but also if rotors of completely installed machines are to be balanced on-site. As diverse as the measuring and balancing tasks may be, our customer can always depend on our keen sense for tracing vibrations.

Making vibration tangible: Measurement of vibrations

Precise measurement and evaluation of vibrations in the nanometer scale is the basis for a good balancing result. Just like the heartbeat of a human being, the analysis of vibrations enables an operator to draw conclusions about the overall state of a machine – not only in the sense of unbalance. Our equipment to measure and analyze vibrations, as well as to balance machines under installed operating conditions, measures with high accuracy and is easy to operate.

Observing vibrations: Machine monitoring

High-quality machines need to be constantly monitored to prevent failures, to recognize defects early, and to schedule maintenance. Here, vibration is the central indicator. Hofmann offers equipment for off-line monitoring, following defined time intervals, and permanently installed on-line monitoring systems.

To govern vibration: Active balancing systems

Where precision and efficiency come first, Hofmann uses active balancing systems. These systems balance rotors automatically during operation, as soon as preset vibration limits are exceeded. The production process continues uninterrupted – no stoppage and no loss in sales.

To feel vibrations: Vibration sensors

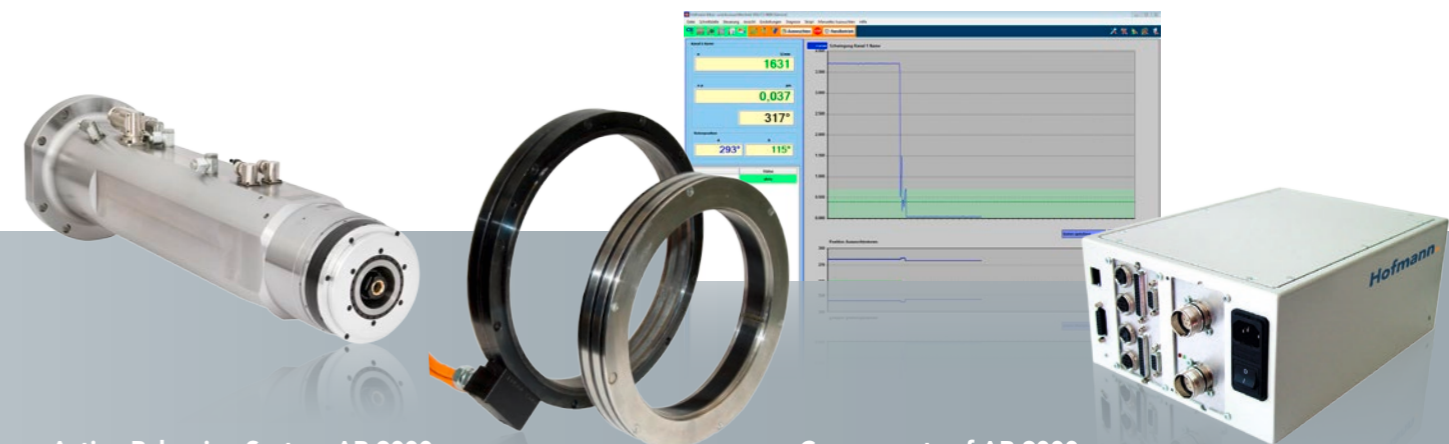
Every measuring system has a sensor that transforms the variable to be measured into an electrical signal. The highly accurate Hofmann vibration sensors are designed for a multitude of measuring tasks, and combined with our measuring hardware, form a perfectly tuned link of measuring tools.



Equipment for on-site balancing and vibration analysis VL 8000 and MI 2100



VL 8000 in operation



Active Balancing System AB 9000
Installation in a grinding machine spindle
design type Heinz Fiege GmbH / Röllbach / Germany

Components of AB 9000

Real customer benefit.

Hofmann Value-Added Service

With our broad range of services we offer a suitable solution for almost any demand. The members of our service staff look after the operational readiness of your machine worldwide. They share their know-how, provide comprehensive advice, and alert you to potential for improvement. No matter which challenges arise: You can always count on the precise analysis and fast assistance of Hofmann.

From balancing service to certification.

Expert Services for Every Demand

Hofmann Machine and Equipment Service

Qualified service staff guarantee the precision and reliability of your Hofmann product:

- Maintenance
- Adjustment
- Repairs

Hofmann Balancing Service

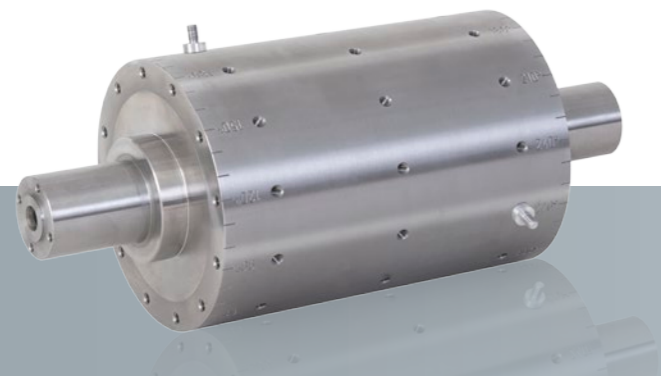
At your facility on-site, or at Hofmann in-house:

- Contract balancing
- Field balancing
- Vibration analysis
- Consulting

Hofmann Quality Assurance

With our traceable measuring equipment, we prove the measuring capability of your balancing machine, and issue a document that certifies the capability:

- Certification
- Test rotors and master rotors



Calibration rotor to verify the accuracy of a balancing machine

Hofmann parts and components service

We always assure the operational availability of your Hofmann balancing machine, and we keep you abreast of the current technology:

- Spare parts
- Upgrades
- Modifications

Hofmann seminars

New developments in balancing and vibration analysis technology help to optimize processes, to avoid mistakes and therefore save time and costs. Through our seminars, we communicate the current technology, and support the competitiveness of your company:

- Training in balancing technology
- Training in vibration analysis technology
- Specific customer oriented seminars



Balancing of a customer rotor at Hofmann



Hofmann seminars deliver expert training



We are at your service.

Hofmann Sales and Service Worldwide

We are continuously expanding our local sales and service companies. Therefore, we can provide the best possible services to our customers on-site, and we are able to implement profitable and at the same time, enduring solutions on their behalf. For the benefit of man and the environment. In many locations around the world.

Personal proximity – direct contact.

How to Find Us

What can we do for you? Please call us or send your request by email. We are looking forward to hearing from you, and we would be pleased to personally be at your service.

Manufacturing locations

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Our product range

Balancing machines

Vibration analysis equipment

Active balancing systems