



GEBR. PFEIFFER



PFEIFFER SERVICE
RELIABLE. PERSONAL. WORLDWIDE.



Groundbreaking drive power 11,500 kW: MVR 6700 C-6 with **MultiDrive®** operating in Brazil



Passion for grinding

// Tradition since 1864

As a family-run business with its head office in Kaiserslautern, Germany, Gebr. Pfeiffer has pioneered the development of modern grinding, separating, drying, slaking, and calcining technologies for more than 150 years. Today, some 500 qualified employees are all united in the endeavor to carry on the passion of our founder Jacob Pfeiffer. Our motto: long-term development rather than short-lived success. The result: ever new impulses ensuring our top ranking among the leaders in the industry.

// Quality made in Germany

One of the cornerstones of our success is our high degree of vertical integration. In fact, almost all components of Pfeiffer machines are produced at our Kaiserslautern facility. Committed in providing the highest quality standards for our products and services, we are orientated entirely towards our customers' individual requirements. Reliability and efficiency without any unplanned downtime: this is what Gebr. Pfeiffer stands for.

// The world grinds with Pfeiffer

Customers all over the world rely upon Pfeiffer's innovative system solutions ensuring efficient production of cement, lime, gypsum, coal, raw material, clay and many other materials. Our clients profit from our global network of subsidiaries in India, Egypt, China, Brazil, and the United States along with an extensive network of cooperations, representations, and a selection of highly experienced service partners. So we are on the spot - worldwide.

Clear advantage: service from the manufacturer

// Service is what we consider the perfect complement to our products and system solutions: a well-conceived offer comprising individual services that help you achieve the best possible results with your mills. You may count on the support from our

highly skilled service team that knows exactly what has to be done, also taking in the manufacturer's profound technical know-how. After all, no one knows our mills better than we do, or how to ensure they provide maximum performance over the long term.



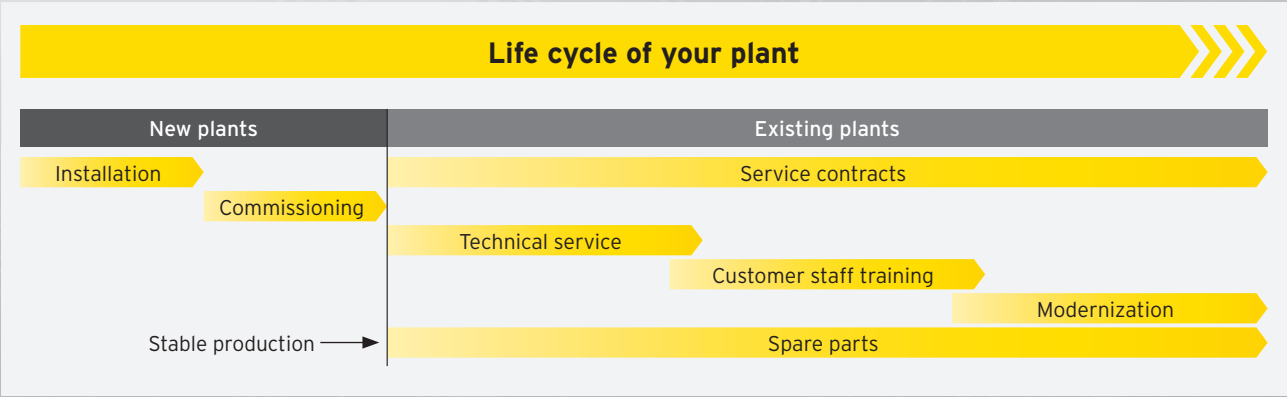
Our services at a glance

- » Installation and commissioning
- » Technical service
- » Test station / material analysis
- » Service contract, inspection and maintenance
- » Spare parts supply
- » Upgrading and modernization
- » Training sessions
- » Emergency assistance (e.g. in case of production outage)



“Good service has become more important than ever. This is the only way to guarantee that our customers’ mills work for as long and as efficiently as possible, without any trouble or unplanned downtime.”

Rainer Krüper, Director - After Sales Service







We stay on site until everything is perfect

// Whenever we supply a mill, our presence during installation and commissioning is guaranteed. No matter where in the world the mill is set up, our specialists not only provide on-site supervision and inspection but also help your staff get to know the mill inside out. What is more, we will not leave until it is running perfectly.

"Our experienced staff are always well prepared for your requests because they are specifically trained on our machines. Moreover, we take health and safety very seriously indeed, with all of our team taking part in HSE refresher courses every year. And of course their protective equipment complies with high European standards."

Axel Auerbach, Head of Installation and Commissioning



Installation and commissioning at a glance

- » Supervision of installation
- » Supervision of commissioning
- » Training of attendance personnel (training on the job)
- » Coordination by experienced project managers

Always available

// We make ourselves available also after commissioning of your plant, providing fast, straightforward assistance whenever damage occurs. In this case or if you wish to increase capacity, direct access to a worldwide network

of experienced specialists in mechanics, hydraulics, process and control systems is at your disposal. For convenience, in most cases help can be provided over the phone. Good advice, quick and easy: typically Pfeiffer.

"Rapid response must be available - in any scenario. Our experienced service experts are available any time you need them. By asking the right questions, they can analyze and solve the problem, remotely or on-site, and will offer the perfect solution to your problem."

Jan Richter, Head of Technical Service



Rapid expert advice on the phone from our Pfeiffer service center

- » First assessment and fault diagnosis with access to machine history, technical documents and support from expert colleagues
- » Coordination of further action such as recommending measures to be carried out by your staff or sending a quote for the delegation of a Pfeiffer service team
- » Coordination of any other measures (ordering spare parts, etc.) and planning their implementation
- » Delegation of service technicians to the site to solve the problem



Pfeiffer service contracts for regular inspections

// Any unplanned downtime means a loss of production. Therefore, it is of utmost importance to do regular inspections on your plant. Our experts will evaluate the state of the plant systematically and propose adequate measures. If you wish us to, we can also offer a service contract exactly conceived for your purposes. This would include

all services of regular inspections at agreed dates, individual advice on preventive maintenance as well as on-site training of your staff to improve their skills constantly. This is how you will increase output, availability, and energy efficiency of your plant with our professional help.

Central items of the Pfeiffer inspection at a glance

- » Collection of operating data and process analysis
- » Wear analysis with lifetime forecast
- » Critical/strategic spare parts lists
- » Final report giving all important results needed for further action
- » Lubricant analyses

Precise analysis for optimum results

// Detailed knowledge of material characteristics - this is what each individual plant solution is based on. Nothing is left to chance at Pfeiffer: we have a highly specialized test station for doing realistic testing and our own laboratories equipped with the latest analyzing equipment. Our experts develop processes and determine parameters that

are perfectly suited for the rating of your plant just the way you need it. Moreover, to increase the capacity of our machines, existing processes are optimized and modernized by our experts who are in close contact with universities and renowned research institutes.

"If you want to upgrade your machine or change the raw material, you need to know the individual characteristics of the material. The experts at our test station analyze the properties of the new material and - together with you - adapt your machine optimally to the new conditions."

Dr. Caroline Woywadt, Director - Process Technology



Excerpt from the range of services of the Pfeiffer test station

- » **Rating tests on pilot plants**
including determination of relevant parameters like throughput rate, power consumption, and wear rate for precise mill dimensioning as per customer's requirements
- » **Feasibility studies on pilot plants**
including evaluation of potential market segments by examining materials not usually ground in vertical mills
- » **Upgrading and optimizing tests on pilot plants**
including determination of the effects of modernizing and optimizing measures or the effects of changing the material to be ground
- » **R&D projects on pilot plants**
including testing of new wear materials or developing and optimizing new concepts or plant components
- » **Determination of grindability in the lab**
according to Zeisel or Hardgrove (DIN 51742), for example, or using our small-scale ball mill
- » **Physical and chemical material characterization**
including cement testing acc. to EN 196 and ASTM C 109, lime testing acc. to EN 459, gypsum testing acc. to EN 13279, coal analysis acc. to EN 51718, determination of specific surface acc. to Blaine and BET, sieve analysis on Alpine jet air sieve, determination of true density, moisture determination and moisture loss rates (drying curves), laser diffraction particle size analysis, X-ray fluorescence analysis, jet wear examinations, etc.



Upgrading your old mill

// When your application changes, we adapt your mill accordingly. No matter how old it is. We may also retrofit modern components specially selected for improved performance, higher production rates and better energy efficiency. Our experts help you find

the optimum solution, audit your plant with you and precisely indicate the results to be expected. For this purpose, we can also use the multiple options offered in our highly specialized test station. Just the way you need it.

Capacity increase and modernization at a glance

- » Extending existing plants with changing requirements like environmental specifications, changes in raw materials and sales products
- » Improvement of performance and energy consumption by retrofitting modern components
- » Pointing out ways of modernization like gypsum precalcining for cement mills, conversion to coal firing or replacement of classifier with the high-efficiency version




Example: upgrade of an MPS mill in Poland

MPS 4150, GóraŹdŹe

	Before upgrade	After upgrade (35 years later)
Throughput rate	300 t/h	500 t/h
Residue on 0.090 mm	18%	15.8%
Energy consumption	4.5 kWh/t	4.5 kWh/t



A photograph of two men in a warehouse setting. The man on the left, Christian Burkhardt, is wearing a light blue button-down shirt and dark trousers, leaning over a large industrial motor. The man on the right is wearing a white hard hat, safety glasses, and a dark grey work jacket, also looking at the equipment. In the background, there are blue metal shelving units filled with various industrial components and parts.

"Original spare parts and proper maintenance are the basis of high availability and economy of your machines. Our decade-long delivery guarantee makes planning easy, with high quality standards ensuring long lifetimes. The technical innovations are incorporated into each and every part. Good reasons to buy spare parts from the manufacturer."

Christian Burkhardt, Head of Spare Parts Service

Clear advantage: original spare parts

// The Pfeiffer Spare Parts Service supplies original equipment manufacture parts with the same quality as the parts originally built in and as needed by your mill for optimum performance. Even 50 years after commissioning. Additionally, we procure parts from

renowned partners in whose quality we have absolute trust. Drawing on both sources, we assemble tailor-made packages of equipment needed for commissioning and ongoing operation. So you always have the most common spare parts at hand.



Pfeiffer Spare Parts Service

- » Original spare parts of high quality from the mill manufacturer
- » Expert advice when selecting spare parts
- » Continuous development work on spare parts
- » Renowned and audited sub-suppliers
- » Innovative component manufacturers as partners
- » Access to their worldwide networks
- » Short-term delivery worldwide
- » Spare parts availability guaranteed for decades
- » Tailor-made packages of spare parts for commissioning and ongoing operation
- » Stock keeping of special spare parts

Upskilling your staff

// Well-trained employees know how to get the best out of your mill and to avoid mistakes. Therefore, any investment in training is also an investment in your productivity. The advantage of training sessions held by the manufacturer is self-evident: we know exactly what we are talking

about, we know each and every detail and share our decade-long experience with you. Practical knowledge, well-structured and comprehensible to the learner, for utmost learning results. At your premises or ours, in Germany or elsewhere.



Pfeiffer training at a glance

- » Mechanical training for maintenance staff
- » Process training for attendance staff – also taking shift schedules into consideration
- » Separate training for beginners, advanced learners and professionals
- » Standard training packages: well-structured for ease of learning
- » Tailor-made training sessions with detailed planning



Training modules

	Beginners	Advanced	Professionals
Process technology and plant operation	Basics of the grinding process, product quality, control systems	Heat balances, interlockings, mill operation, trend analysis	Changes in material and optimization based on the topics from earlier training sessions
Mechanics	Design basics of mill and related components	Repair work, removal of plant parts, Lift-and-Swing System, replacement of wear parts of grinding rollers and grinding table	Replacement of bearing parts (of classifier and grinding rollers), mechanical preparation and supervision of operation with n-1 rollers (on MVR mills) and n-1 drive units (only with MultiDrive®), return to normal operation
Troubleshooting	Identifying typical faults and taking countermeasures	Analyzing cross-system error messages and dysfunctions, taking countermeasures	Trend analysis, checking interlockings, software adaptations
Hydraulics and lubricants	Design and function of hydraulic units and lubrication systems, maintenance basics, change intervals, oil purity and oil filtration, lists of lubricants and lubrication points, safety aspects	Troubleshooting and remedy, handling of hydraulic control system with its parameters (automatic mode/local control), oil analysis and oil parameters	-
Machines from sub-suppliers	Presentation of machines from sub-suppliers, function, maintenance and operation	Upon request (in cooperation with sub-suppliers)	-
Spare parts	Instructions for using our spare parts documentation: identify the spare part, find it in the documentation, prepare and send information	Strategic spare parts, stock keeping of spare parts, spare parts for troubleshooting	-

Pfeiffer service: available worldwide

// With the Pfeiffer service, you profit from a worldwide network of subsidiaries and experienced service partners who speak your language and will be on site rapidly. Our service team comprises skilled

experts who are dedicated to using their knowledge and expertise for the sake of your productivity. No matter where your production site is: **we will be there.**

"By constantly expanding our operating area, we are in a position to make you profit from our services directly at your end, anytime and anywhere you need us, quickly and at low cost. You can count on us."

Rainer Krüper, Director - After Sales Service

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