

Evolving the well-established

vdz

Service Offer

Process and
Product Optimisation,
Environmental Services

High-quality services from a single source

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Independent. Customer-oriented.
Highly professional. Fast.

Since 1877 VDZ has enjoyed an international reputation based on its technical and scientific expertise. VDZ cooperates with leading cement organisations and research institutes throughout the world and has numerous international cement producers as clients.

VDZ supports the cement industry with its know-how on competitive and environmentally compatible cement production. It is an internationally acknowledged scientific institution and offers its services founded on long-term experience, scientific research results and highly skilled personnel.

From raw material extraction through to grinding raw meal, burning clinker and cement grinding, VDZ uses its extensive knowledge to facilitate the optimisation of all production stages. The customer receives recommendations for improvement and, if requested, an additional benchmark classification which VDZ can provide due to its global activities.

Process optimisation and energy efficiency

In addition to the everyday challenges of plant operation, the production process has to be constantly checked with regard to economy of operation, competitiveness and energy efficiency. If necessary, the equipment has to be upgraded to be compatible for the future by incorporating the latest technological developments. On the basis of its comprehensive know-how, VDZ specialists identify weak points in plant operation, offer solutions and assist in the elimination of problems.

VDZ energy efficiency analysis services are designed to identify potential energy savings in the cement production process and to improve the energy efficiency of the whole production line. Gained plant energy data can be benchmarked against the VDZ data base and BAT, allowing a fair and neutral assessment of fuel and electric energy efficiency. The scope of energy efficiency analysis is tailored to each customer's specific requirements.

Services

- Technical analysis of the complete cement production process from quarry to dispatch
- Optimisation of the kiln and mill operations
- High temperature gas- and volume flow- measurements
- Bottleneck analysis
- Chemical and physical analysis of all input and output materials
- Optimisation of cement quality and uniformity
- VDZ-process modeling for the assessment of new designs and materials
- Consulting for the implementation and use of alternative raw materials and fuels
- Analysis of energy demand of plant-specific manufacturing processes
- Benchmarking against VDZ database / BAT

Digital Process Support

VDZ's digital process support team offers a variety of digital solutions ranging from the methods of conventional simulation technology through to Artificial Intelligence (AI) and virtual remote audits. But VDZ can not only help to solve process-related issues. It can also support the digital transformation in cement plants.

VDZ's well established process models are able to determine the energy demand and product quality for kiln and mill systems. They can be used to calculate the impact of process changes or for design studies on new plant technology. Even complex layouts like the oxyfuel process for carbon capture can be fully modelled. VDZ also uses new approaches for remote collaboration to bring classical process expertise to plant sites in the best possible way.

On numerous levels VDZ works on the creation of prerequisites for efficient and successful digitalisation in the cement industry. In concrete terms this means understanding the robustness of AI application and standardising data structures and interfaces to effectively streamline the process of data integration. Data quality and structured storage are further crucial aspects. Thanks to their sound scientific expertise, VDZ's digitalisation specialists can offer support on all matters relating to data-driven solutions.

Services

- Process optimisation and design studies for new plant layouts by process modelling (determination of energy demand and impact on product quality)
- Data analysis
- Assessment of solutions for data storage and data structures
- Optimisation of data quality
- Support during design and application of data-driven solutions for process and quality optimisation or process control
- Support of digital transformation by consultancy and training
- Remote plant assessment using tools for remote collaboration
- Simulator training for operators and engineers

Maintenance

Preventive maintenance keeps production processes in operation. It requires regular, diligent inspections and measurement of rotary kilns and ball mills – the hearts of the plant. From its extensive portfolio of maintenance services, VDZ can offer a complete package of tailor-made solutions. In particular, our maintenance specialists carry out the inspection and measurement of rotary kilns, rotary driers, rotary coolers and ball mills, or expert assessments of the mechanical systems of rotary equipment. VDZ works for all kinds of industries using rotary equipment. These include for example the following sectors: cement, lime, gypsum, chemical, fertilizer, wood, paper, food and refinery.

Services

- Individual survey of rotary kilns, rotary driers and rotary coolers
- Extensive inspections as part of the regular inspection for the mechanical system of rotary equipment
- Detailed alignment analysis and adjustments of rotary equipment by VDZs knowledgeable experts with tried and tested know-how
- Resurfacing of tyres and rollers
- Lateral grinding of tyres and thrust rollers
- Accompanying supervision and commissioning of new installation or after repair
- Fabrication approval according to OEM or customer specification
- Technical preparation of customised service checklists
- Education and training courses

Technical audits

VDZ customers benefit from many years of international experience in thermal and mechanical process technology. VDZ has developed innovative ways of reducing emissions and operating specific plant equipment. The technical audits offer an independent assessment of the whole production process “from mining to dispatch”. VDZ offers a range of tailor-made audit packages.

Services

- A-level-audit:
Assessment based on information available in the plant
- B-level-audit:
Based on available plant information and on-site visit
- C-level-audit:
Comprehensive measurements on-site and analysis
(e.g. mass and airflows, heat and energy balances)
- R-level- audit:
Remote audit using remote collaboration tools
- Focused audits with special emphasis on environment and climate protection, product quality, production rate, energy, costs or safety
- Verification versus design capacity
- Bottleneck analysis
- Benchmarking
- Energy balances according to VDZ Leaflet “VT 10 Kiln and energy balances”

Environmental services

Each project requires the determination and assessment of possible environmental impacts. VDZ's long and extensive experience in numerous projects can provide support in permit management, environmental expert reports, compatibility studies, and measures for the reduction of emissions from one source.

Particular features include the selection and optimisation of exhaust gas reduction systems, primary abatement measures and the assessment of process steps. Furthermore, VDZ can make use of its environmental scientific research on many emission abatement projects in the cement industry.

Services

- Environmental impact assessment and audit
- Consulting for integrated or secondary emission abatement
- Optimisation of abatement installations
- Optimise dispersion conditions for emissions / stack height calculation
- Emission and product prognoses and evaluation
- Modeling and abatement of mercury emissions
- Environmental compatibility investigations and studies

Climate protection

As an internationally renowned technical and scientific centre of expertise for the cement industry, VDZ has a long history of working on the many different aspects of environmental and climate protection and has acquired extensive experience in performing analytical measurements for the cement industry and associated sectors. With extensive research activities and many years of work on industrial technical committees, VDZ can help to advance the environmental analysis sector and directly implement new developments in its laboratories.

Services

- Strategic advice on CO₂ reduction
- Analysis of options for CO₂ capture, transport, utilisation and storage
- Site-specific evaluation of CO₂ reduction technologies
- Mass and energy balance evaluation of CO₂ separation technologies by means of process simulation

Contact



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Imprint

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Design:

arndtttheunissen GmbH, Duesseldorf

Layout:

Verlag Bau+Technik GmbH, Erkrath

Print:

SGV Reprstudio GmbH, Hilden

Photo credits:

Julia Vogel

Duesseldorf, September 2020

VDZ Technology gGmbH

Toulouser Allee 71
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www.vdz-online.de