

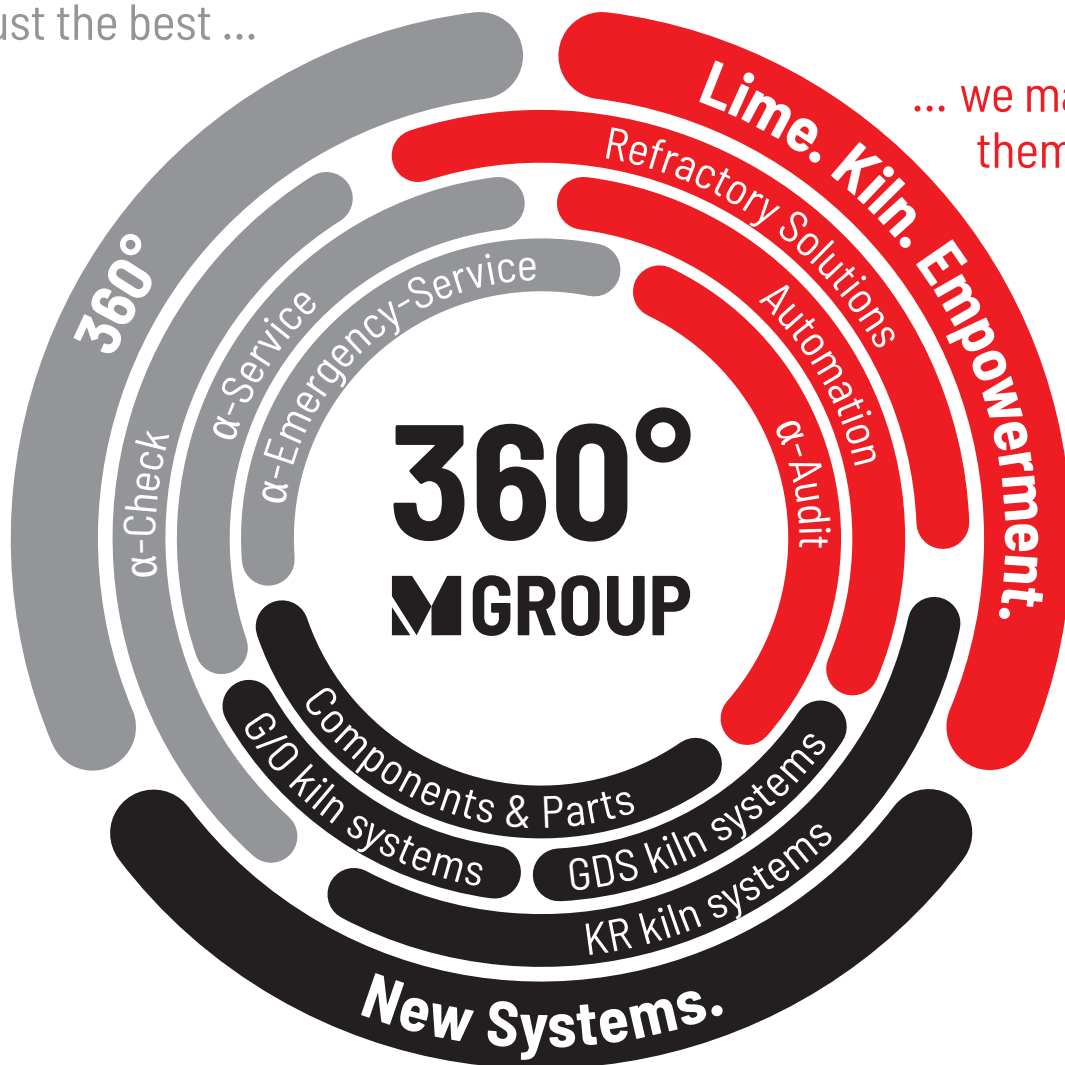
We. Are. Lime.

# 360° Eberhardt

# Success Management for Sugar.

All from one source –  
exclusively at the M-Group.

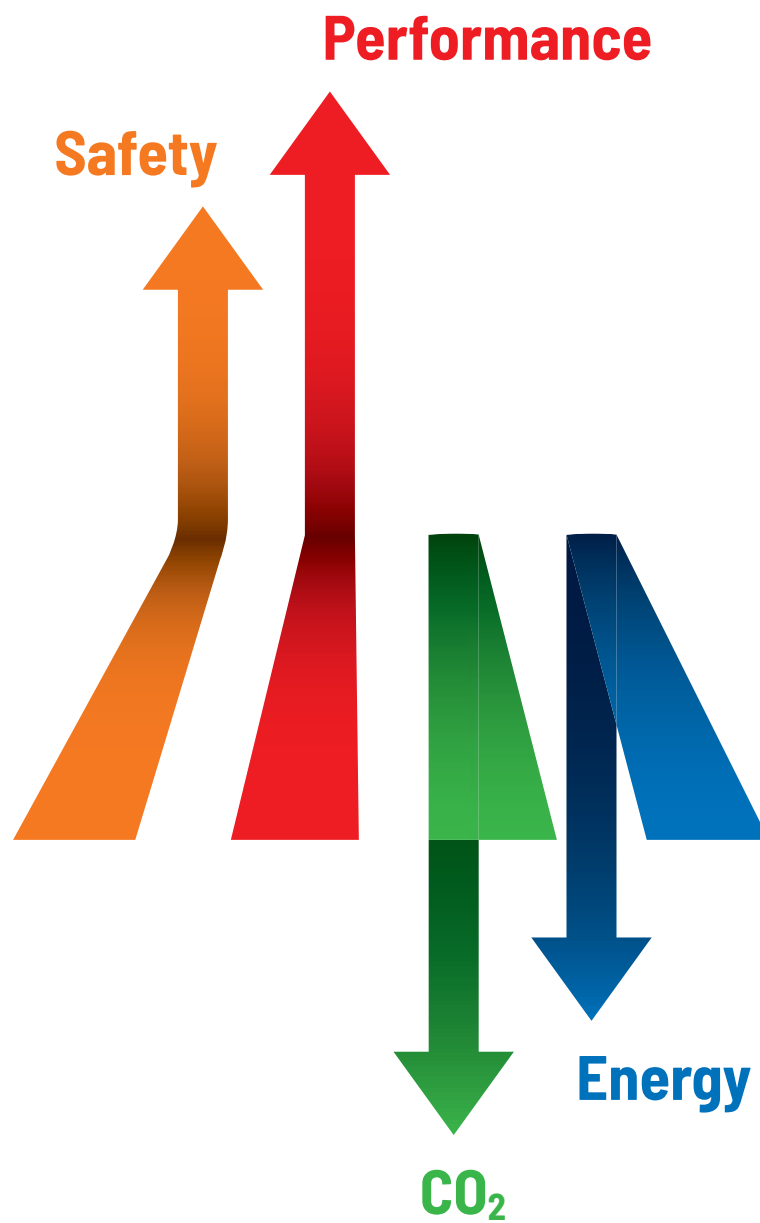
... trust the best ...



... we make  
them better ...

... we keep  
them running ...

# Solutions for you.



# 360° Services.

**High availability –  
of course!**

**α-Check.**

**α-Service.**

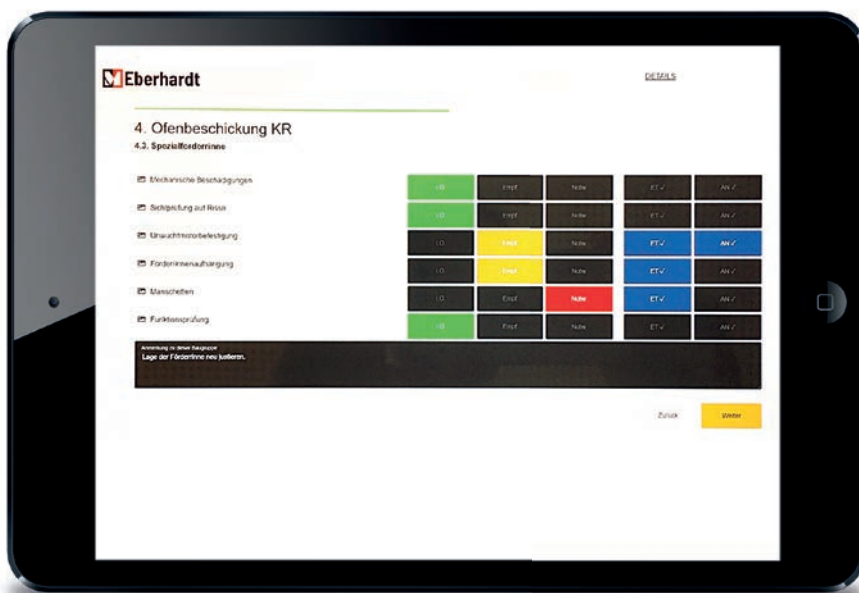
**α-Emergency-Service.**

Find out more!



**A campaign without technical disruptions?  
Not a problem!**

We are your competent partner for lime kiln and lime wash. Check-ups, maintenance and all matters concerning your kiln stop are being taken care of by us. Good for you, we are the only business to know a lime plant from A to Z. Gain the most from our global expertise in the areas mechanical engineering, process technology and refractory lining.



Our digital checklist as well as our 3D LaserScan are the basis for the comprehensive α-check. Thereafter you get your customized recommendation based on the extensive experience of our specialists.

### **α-Check incl. 3D LaserScan.**

#### **The unique all-round-maintenance-package for lime kilns at sugar plants.**

Mechanical engineering, process technology and refractory lining – all from one source. Only at Eberhardt. We inspect every part of your lime burning plant from the mechanical and the steel works to the refractory lining. For this, our experts develop a risk and method evaluation based on a digital check-list for all operational, process and safety relevant components of your lime kiln. During the inspection, our 3D LaserScan will provide detailed images of the current condition of your refractory lining. You will receive a noncommittal risk assessment as well as a maintenance and repair recommendation for your next kiln stop. With continuous check-up and maintenance measures we are able to offer prognosis for future operational times for your budget planning.

**» Discover weaknesses to react in time.**

### **α-Emergency-Service.**

#### **We are available 24/7 for unusual circumstances, even during campaign.**

It rarely happens at the kilns built by us – but it happens. Hotspots, mechanical or product specific problems, whatever endangers your campaign, we are there for you. Even with excellent maintenance there are too many variables to exclude all disruptions. In these situations we prove to be your reliable business partner 24/7. So far our service team has always found a solution to prevent an extensive stop. Our warehouse holds enough spare parts and components to keep your plant running. During the campaign we are at your service day and night.

**» Make your problem ours.**

### **α-Service.**

#### **After the check-up is before the service.**

Our service does not end with recommendations, we are also able to put them into action. We offer high quality, tailored refractory material as well as up-to-date technically standardised mechanical single components. We possess a well sorted spare parts warehouse and our service-team is highly qualified in all disciplines around lime kiln and lime slaking system. If so desired, we support you from the start of your campaign and the process analysis of the operation – on-site or digital, however you prefer.

**» Be sure to increase availability!**



... trust the best ...



# Lime. Kiln. Empowerment. **Old. Better. New.**

Refractory solutions.

Automation.

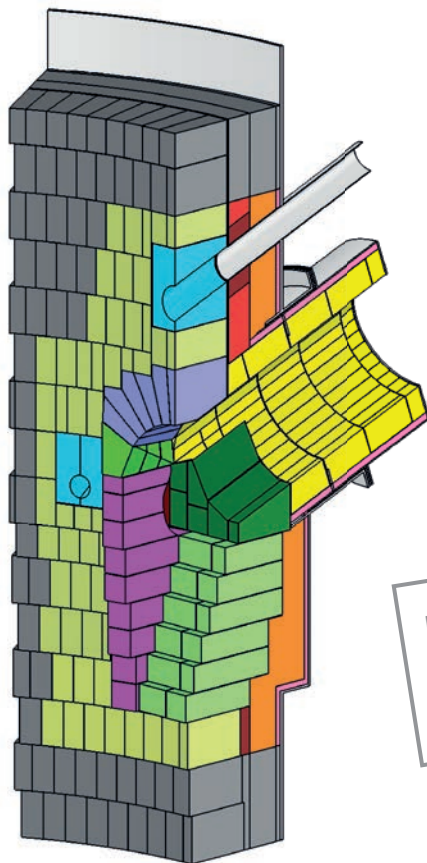
$\alpha$ -Audit.

**Your reliable lime kiln is outdated?**

**Yesterday's technology? Not enough capacity?**

**Change of fuels? High environmental demands?**

Rediscover your lime kiln and its unsuspected possibilities. To us Empowerment means to make your kiln fit for tomorrow's demands. Your old-one can do more than you think!



**Refractory solutions are our passion.**

**"Keep the heat inside!"**

System engineering alone is not enough for us because we see a key element in the refractory brickwork of your lime kiln. Improving the thermal insulation and mechanical durability you gain more than just stones. Sensible wall density and quality enhancement will extend your capacity to up to 20 %.

**» Cool solutions for the hot side of the kiln.**

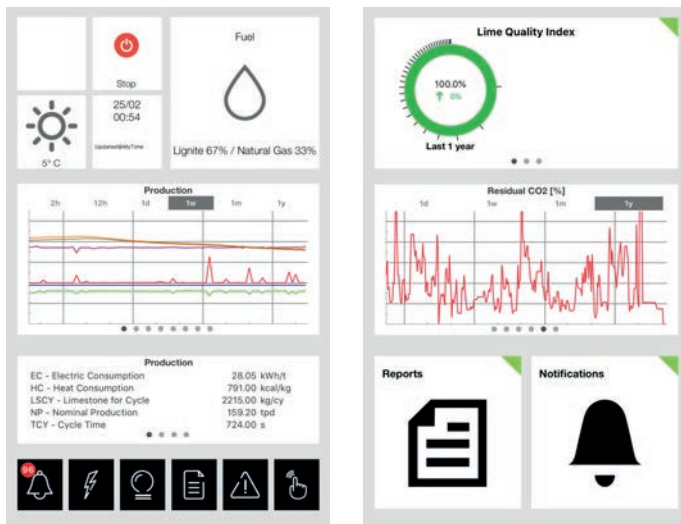
**For your benefit:  
We always keep over 1,000 t of refractory  
materials stored in our warehouses.**

## Automation means digitalisation!

### Always part of it.

We make the performance data of your kiln transparent and automatise the processes as well as identifying changes in the kiln operation before extensive damage can occur. If so desired, we support operational maintenance through remote condition monitoring. We offer these systems to make your campaign and the kiln operation even more reliable and transparent. Predictive Maintenance is the key.

» Your lime kiln is more than 0 and 1.



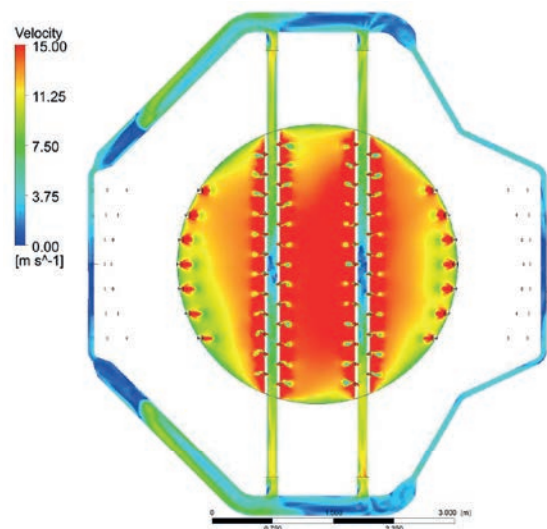
## α-Audit: Green kiln.

### The Eberhardt-environment-program for lime kilns.

You are planning an increase of capacity or change of fuels? You have ambitious goals with safety and environmental regulations?

We check your lime burning and slaking system with our α-Audit-Service. We identify the existing possibilities to optimize your kiln operation and to align it with new frame conditions. Whether severe problems or strategic enhancement, you gain from our expertise in thermal process technology and milk of lime production. Our experts quickly identify optimizing potentials and develop a tailored solution.

» Our expertise for your goals.



... we make  
them better ...



# New Systems.

**Reliable. Durable.  
Modern.**

KR kiln systems.

G/O kiln systems.

GDS kiln systems.

Components.

**More than half of all of the world's lime kilns used at sugar plants are Eberhardt kilns.**

We know the challenges and requirements in a sugar factory all too well. We know how a reliable lime kiln has to work, because it is the basis for successful sugar production. We at Eberhardt build, improve and support your kilns for a lifetime. We know what we talk about!



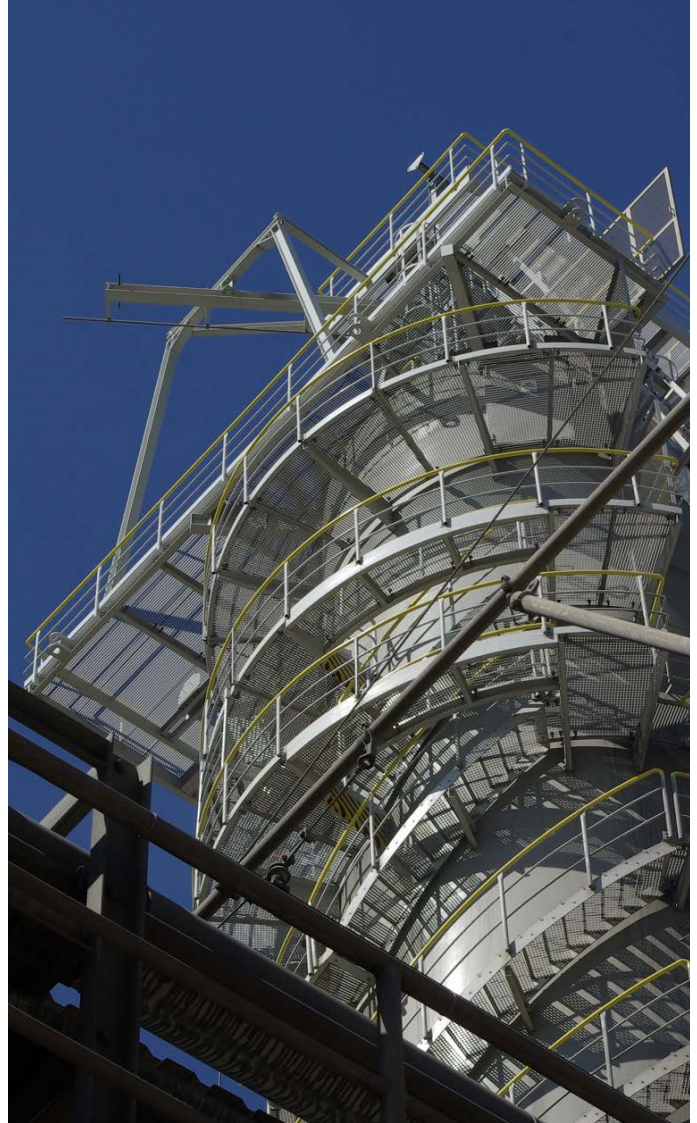


### **The Eberhardt KR kiln systems.**

#### **A masterpiece of reliability.**

The Eberhardt KR mixed feed kiln is the first choice for high efficiency with coke or anthracite solid fuels. We combine our 150 years of experience with today's and future requirements. Coke and rotating feed, that is the patented Eberhardt system with a vibrating feeder optimized for the shaft diameter. This allows for a uniquely flat and even limestone-coke distribution to be fed through the entire kiln cross section. Depending on the design, KR mixed feed kiln reach peak daily output of over 400 t CaO for your process. The forced draft kiln can be used with both coke and anthracite and operates with a CO<sub>2</sub> value of over 40 % by volume dry. In terms of energy, a KR mixing kiln is operated close to the optimum.

**» Performance and efficiency –  
more than just a workhorse.**



### **The proven G/O kiln systems.**

#### **Natural gas, light and heavy oil.**

The G/O kiln is a proven Eberhardt system with peripherally arranged combustion chambers. Ideally suited in regions where no solid fuels such as coke or anthracite are available. In addition, a change of fuel is possible with this system at short notice and also during ongoing operations. It also enables one optimal material flow control through the burners. The CO<sub>2</sub> concentration is 26–30 vol.-% dry and is for standard carbonation vessels perfectly suitable.

**» Tried and up to date –  
your alternative to solid fuels.**



# GDS-System.

## GDS

### The patented conversion system on gas operation!

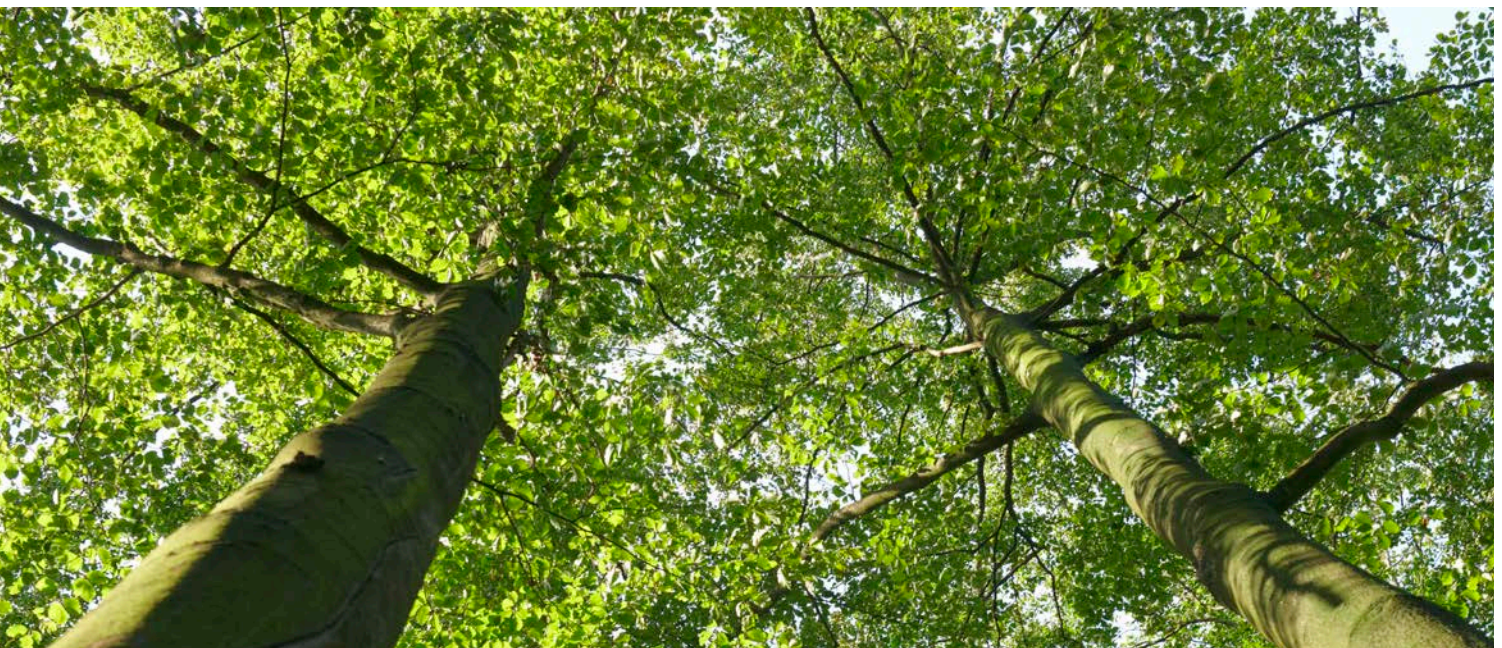
Less CO<sub>2</sub> emissions, sustainable energy sources, more capacity - the future of your lime kiln is already a reality.

Our Gas Distribution System is a unique combustion system for lime and process gas production, which is state of the art. Convert your existing vertical shaft kiln today with natural gas for modern combustion. This will soon also be possible with biofuels. Take the next step with us into a green future - tailor-made for your process requirements.

» Let's go green.



Watch our  
video!



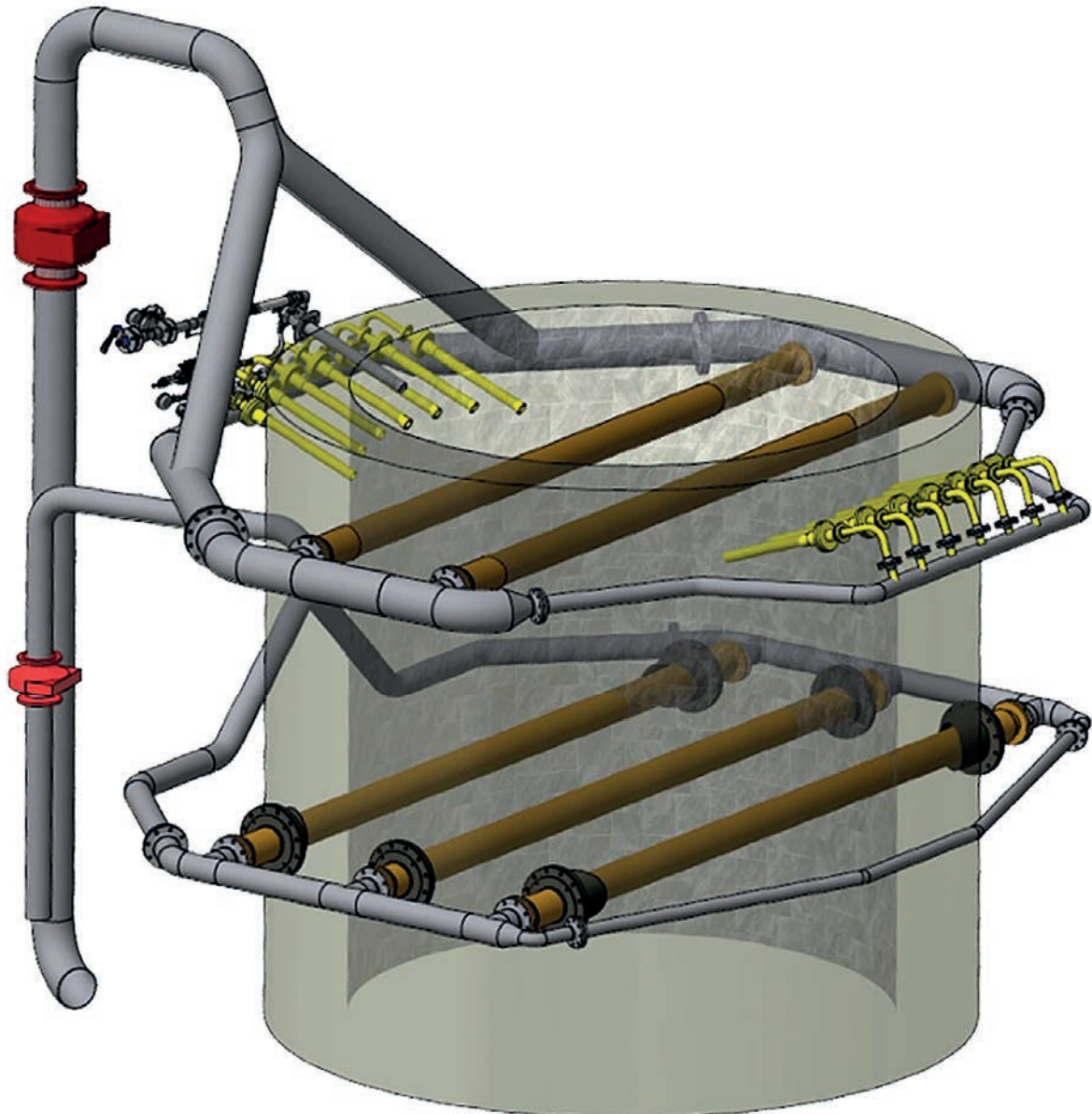
**We transform your kiln.**

**The GDS system is ideally suited for existing kilns to convert to gas operation.**

The GDS system is a specially developed conversion system which is particularly suitable for existing kiln systems (mixed feed kilns) of solid fuels converting to gas operation. The GDS process is patented and is distributed exclusively by us. It is already successfully in use worldwide.

We create a conversion analysis, adapted to the local raw materials and the available fuels. We are able to substitute the fuels coke, anthracite, light oil and heavy oil to natural gas. We are also currently developing a pioneering solution for the use of biogas.

**» Your kiln in green - better CO<sub>2</sub> balance without coke or anthracite.**





# Components.

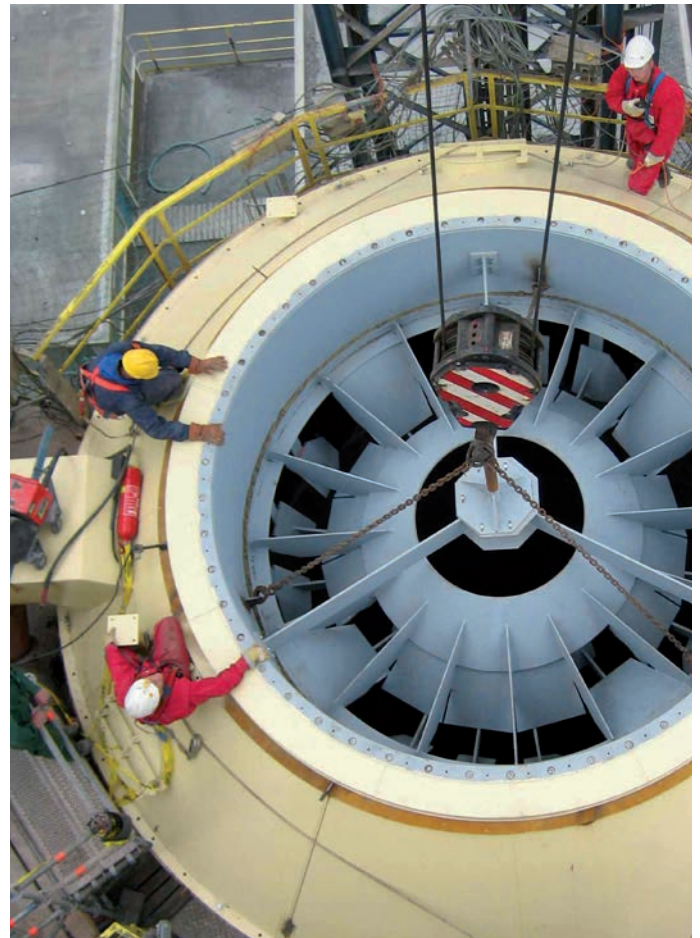
## **Components with a lasting impact.**

### **Discharge, loading, lime wash plant ...**

We offer tailor-made modernization solutions to increase efficiency, availability and safety to optimize your kiln system.

The discharge determines the material movement of your kiln. Our hydraulically driven discharge and air-lock systems ensure maximum uniformity and product quality. They are dustproof and low-maintenance. There is a huge capability in optimizing the charging system. We thus achieve an increase in efficiency through improved limestone and fuel distribution. The heavy duty design and reliable components (material elevator, entry locks, distributors etc.) will provide a high level of production safety. The high availability and the safety-oriented design make it possible to avoid failures and minimize dangers.

**» Start a new dimension.**



# Milk of lime.

## **Eberhardt lime slaking systems**

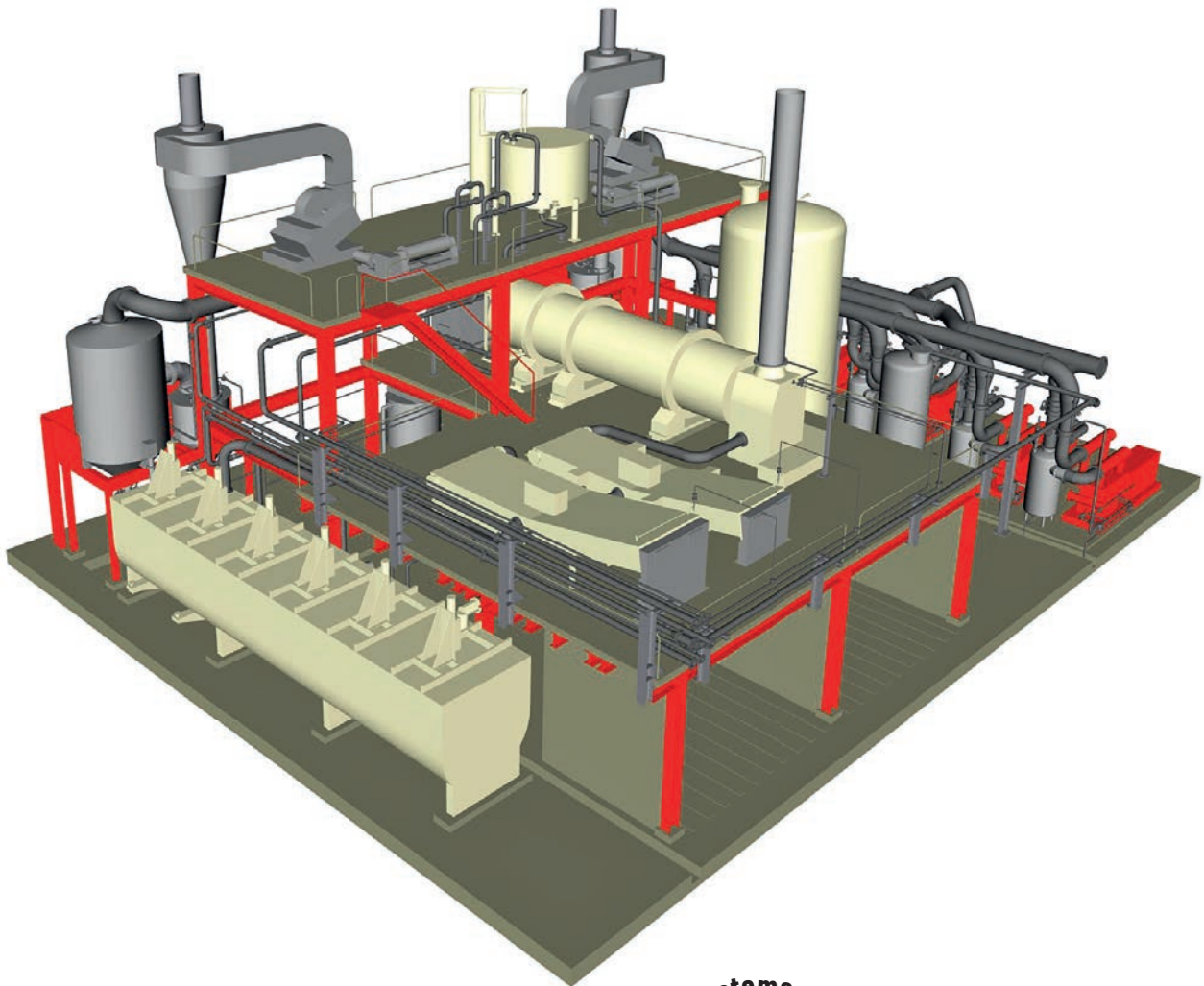
### **Modern components that keep their promises.**

Not only for your kiln but also for the downstream lime slaking system.

You need a high quality milk of lime with a constant density for your juice purification. Use our reliable slaking components for your goals. Low-maintenance like all Eberhardt equipment. Whether it is about lime

slaking, degritting or the correct maturing and storage of milk of lime, we can enhance your plant with state of the art solutions for a higher availability and best process results.

**» Milk of lime is the key - the best quality for your process.**



... we keep  
them running ...



# Your experts.



**Johannes Meilenbrock**  
**Sales Director**

Tel.: +49 5261 2507 - 854  
Johannes.Meilenbrock@M-Group.team



Dipl.-Ing. (FH)  
**Nils Engelhardt**  
**Senior Sales Engineer**

Tel.: +49 5261 2507 - 704  
Nils.Engelhardt@M-Group.team



**Markus Piplies**  
**Head of Mechanical Engineering**

Tel.: +49 5261 2507 - 712  
Markus.Piplies@M-Group.team



 **Eberhardt**

We. Are. Lime.

# 360° Eberhardt

Member of the  
 **GROUP**

**Eberhardt GmbH** | Am Bauhof 17 - 21 | 32657 Lemgo | GERMANY

Tel.: +49 5261 2507 - 700 | Fax: +49 5261 2507 - 23 | [Eberhardt@the-M-Group.com](mailto:Eberhardt@the-M-Group.com) | [www.the-M-Group.com](http://www.the-M-Group.com)