Maerz lime kilns are extremely efficient in every climate. For decades.
Is it a bit dry where you are? No problem: maerz.com
Dry and Hot

We selected the subject of this Insight Lime’s title page for a very good reason: Maerz successfully completed two projects in regions known for their deserts: the new lime plant for Astra Mining Company south of Riyadh in Saudi Arabia and a new kiln for Baslimane Chaux Berriane in central Algeria. We further received an order for a kiln located at the eastern end of the Thar Desert in Rajasthan in India. Maerz also has a lime kiln project for Uni Lime in El Mohandessin in Giza close to Cairo in Egypt (unfortunately without a direct view of the pyramids). Dry and hot? No problem.

Projects in areas with a moderate climate can also be challenging. The new kiln at voestalpine’s Steyrling lime plant in Austria will replace an older Maerz kiln. This means dismantling the old kiln and building up the new one in a very constrained space – and with an extremely tight time schedule: the new kiln has to be in operation before one of the blast furnaces in voestalpine’s steel plant in Linz goes back online after a major revamping. Speed and precision are the keys to success here.

Since October this year Maerz is able to offer a completely new product line: with the integration of Elex CemCat AG we supply in our new business unit “CemCat” Selective Catalytic Reduction (SCR) plants to the cement industry. A major turnkey SCR-installation for Schwenk Zement KG’s plant in Karlstadt, Germany, is currently in progress and will go into operation in early 2019.

Everything of the best for 2018!

Stephan Lechner
HIGH GRADE DOLOMITE IN ALGERIA - BCB BASLIMANE CHAUX BERRIANE

As reported in our April 2016 issue of Insight Lime, the Algerian company BCB Baslimane Chaux Berriane placed an order with Maerz for a 300 tons per day natural gas fired Maerz PFR kiln of type E5, including the up- and downstream plant equipment. The dolomite plant is located in Berriane, just north of the city Ghardaïa, which is the capital of the same-named province in central Algeria. This area features one of the world’s top class dolomite deposits, which is the reason why BCB decided to modernise its existing plant featuring a small rotary kiln.

The family of the owner, Mr Hamid Baslimane, has strong links with this area: the raw material for the new kiln comes from the quarry already owned by Mr Baslimane’s father. Furthermore the family runs a battery recycling plant in Berriane.

One of the technical challenges of building a kiln in the centre of the desert is the extremely high temperature in the Algerian summer. The mercury may rise well above 40°C in the shade, which translates to a maximum air temperature of 50°C in the kiln’s blower house. This has to be considered when designing the kiln process.

The kiln was lit up in September this year and is now in full industrial operation. The burnt dolomite is sold to various industrial customers and, with several steel plants currently under construction in Algeria, Baslimane Chaux faces a growing market in the future.

| 03 |
This Latin saying literally means “through endeavour to the stars” – a pre-requisite for all team members working on setting up an entire new lime plant. The stock listed Saudi-Arabian Astra Industrial Group (AIG), a leading industrial conglomerate, which is active in the key industrial segments of pharmaceuticals, specialty chemicals, power & steel and mining, decided some years ago to extend its product portfolio by products related to limestone and burnt lime as well as hydrated lime. Hence Astra Mining Company Ltd LLC was founded in 2011 as a joint venture between AIG and Tharawat Mining, to set up a completely new lime plant in the aspiring Al Kharj Industrial Zone, approximately 100 kilometres southeast of Riyadh.

Soon thereafter an intense planning phase started, to design the “optimum” lime plant from scratch, giving Astra Mining the full flexibility to produce a wide variety of products as well as taking a possible future expansion of the lime plant into account. Hence it was all about logistics and arrangement of the limestone stockpile, the kiln, the battery of product silos, as well as the hydration and packing plants. The plant is laid out nearly in a single line to allow a cookie-print-like repetition of this design for future kiln lines.

First an order was placed with Maerz for the supply of engineering, know-how and design as well as for key equipment for a 300 ton per day Maerz PFR kiln of type R1P fired with natural gas. In addition, Maerz supplied engineering and key equipment for a 12 ton per hour hydration plant. Maerz also developed the basic layout of the lime plant together with Astra.

During the course of the project Astra also invited Maerz to support its team by providing manpower for project management to check drawings and engineering interfaces for completeness as well as providing field services to assist Astra in successfully completing this huge lime plant project.

As soon as a single section of the lime plant was completely erected and electrified, this specific section was cold commissioned in order to save time and to prevent unforeseen obstacles during the hot commissioning phase of the kiln. The kiln was lit for the first time in May 2017 and has constantly been producing high quality quicklime since then. The official inauguration ceremony was held in the presence of Mr. Mohammed Al Hagbani, the president of Astra Industrial Group.

We are proud that the dedication of Maerz’s project team successfully supported Astra; as Astra’s CEO Mr Ali Al Jabrah points out in a message to his customers, in accomplishing “what makes Astra stand out to achieve sustainable success, growth and winning customers’ appreciation which is the biggest of awards to Astra Mining.” Per aspera ad astra.
all photos courtesy of Astra Mining
India, with its large industry has a huge demand for lime. Whereas in the steel industry the required lime is mostly produced in modern captive lime plants, the major part of India’s commercial lime is still produced in small traditional field kilns. The limited availability of limestone suitable for calcination leads to a concentration of the industry in two major regions: Central India and Rajasthan.

Subaan Lime is changing the game now in northern Rajasthan, where it entrusted thyssenkrupp Industries India Pvt. Ltd. from Pune, Maharashtra, together with Maerz Ofenbau AG with setting up an entire new lime plant with a production capacity of 300 tons per day of quicklime. The plant is located in the vicinity of Khinvsar, a historical village featuring the 16th century Khimsar Fort, north of the famous city of Jodhpur and at the eastern end of the Thar Desert.

Subaan Lime already operates a quarry, supplying limestone to smaller lime producers in the area. By investing in the new plant, Subaan Lime is not only increasing the overall lime production capacity in the area, but is also taking environmental responsibility by reducing emissions using state-of-the-art production technology. Furthermore, Subaan Lime has underlined its responsibility for the environment by planting numerous trees on the new factory site.

With Maerz contributing the technology and design of the 300 tons per day petcoke-dust-fired Maerz PFR lime kiln of type E5, thyssenkrupp Industries India will design the entire greenfield lime plant and will also supply the equipment to Subaan Lime and perform the erection of the new facility.

The plant is scheduled to become productive in late 2018 and will set a new benchmark in the commercial lime industry.
Chememan Co., Ltd. of Thailand and Maerz Ofenbau AG signed a contract for the installation of another Maerz lime kiln.

Chememan, a mineral and chemical company, with its headquarters in Bangkok, Thailand, was founded in 2003 and is now a recognized leader in the Asian lime industry. As a fully integrated producer of lime and lime-related products, Chememan aims to reach an annual production capacity of 1 million tons by 2020, which would place it among the top 10 lime producers in the world. At present, Chememan operates four Maerz lime kilns in the Saraburi area. The recently ordered new kiln of the rectangular PFR type E5 has a nominal production capacity of 300 tons per day of burnt lime and will be fired with coal and/or lignite dust. The kiln will process limestone from Chememan’s Tubkwang/Saraburi quarry with varying stone gradings between 20 and 120 mm and relevant kiln outputs from 220 up to 300 tons of lime per day.

For the new kiln, Maerz will supply engineering, license and know-how as well as the following materials and equipment:

- Process air blowers with motors
- Firing equipment for coal dust (hard coal and lignite)
- Hydraulic equipment
- Electric, measuring and control equipment
- Limestone skip hoist winch.

Maerz will furthermore supply technical advice and assistance services for commissioning and start-up of the lime kiln plant, which is due for commissioning during the first quarter of 2018.
The kick-off meeting for this project took place in November this year. Time is of the essence and the project team members are diligently working on the electrical and mechanical planning.

At the beginning of June 2018 Maerz Ofenbau AG will deliver and assemble the steel components on the kiln foundation, which the customer will have aligned and reinforced. A heavy crane will lift the components into position with millimetre precision. Once the kiln shafts have been erected, the refractory material will be installed and at the same time the remaining equipment, accessible only from the outside of the kiln, will be attached.

Cold commissioning will take place in exactly one year from now and the kiln will be lit before Christmas 2018.

We look forward to taking on this challenge and successfully completing this project.

The R1P Maerz PFR lime kiln, named K06, with a natural gas firing system will process limestone from the native quarry with a grading of 30 to 80 mm, to produce 300 to 375 tons of lime per day.

Maerz’s equipment supply comprises:

- Kiln charging system
- All components for the kiln steel structure
- Refractory lining
- Process air blowers with motors
- Firing system for natural gas
- Hydraulic equipment
- Waste gas dust cleaning system
- Lime discharging system
- Electrical, measuring, control and visualisation systems
- Spare parts for commissioning and two years operation

voestalpine Stahl GmbH, domiciled in Linz, Austria, operates a lime plant with four Maerz PFR kilns in Steyrling, some 60 km south of Linz. The lime produced in Steyrling is used for voestalpine’s own steel plant in Linz. voestalpine signed a contract with Maerz Ofenbau AG for a turnkey project for a 300 tpd natural gas fired R1P Maerz PFR lime kiln. The new kiln is going to replace an obsolete kiln, which went into operation in the early seventies.

Each and every project we undertake is unique and we often face many challenges on the path to successful completion. In this specific case we face two main challenges, namely the tight time schedule from start to finish and the very confined space between the existing kilns in which to erect the new kiln. The restricted space can be seen on the 3D diagrams depicted on the opposite page at the bottom. To counter these challenges we are going to plan, manufacture and pre-assemble all the components to the largest possible size which the available driveway and lifting area will allow.

The small kiln in the center will be replaced by the new kiln. Photos courtesy of voestalpine Stahl GmbH.
SELECTION OF RECENT ORDERS

DAESUNG MDI – YEONGWOL-GUN, GANGWON-DO, KOREA

After ordering their first Maerz PFR lime kiln in 2014, DAESUNG MDI (Mining Development Inc.), Yeongwol-gun, Gangwon-do, Korea, placed an order with Maerz Ofenbau AG for the installation of a second Maerz PFR kiln. Within the scope of the new contract Maerz will supply engineering, license, know-how, material and equipment as well as technical assistance services during erection, commissioning and start-up for the 300 tpd solid fuel fired E5 Maerz lime shaft kiln.

The new kiln will process limestone with variable limestone gradings, such as 25 to 55 mm, 40 to 80 mm or 55 to 100 mm and will produce between 200 and 300 tons of lime per day. A solid fuel mixture, consisting of bituminous coal and anthracite will be used as fuel.

The customer will engage local contractors for the erection of the kiln and the lime plant with all related auxiliary equipment. Maerz will provide technical assistance services during start-up and commissioning of the kiln plant, scheduled for the second half of 2018.

CEFAS S.A., ARGENTINA

CEFAS S.A., domiciled in Buenos Aires, Argentina, and associated with Grupo Calidra from Mexico, placed an order with Maerz Ofenbau AG for the second PFR kiln to be installed in its Padre Bueno Plant, Cienaguita, San Juan Province, Argentina.

According to the terms and conditions of the contract, Maerz will supply engineering, license, know-how, material and equipment and provide technical assistance services.

The new Maerz kiln of the rectangular type E5 has a nominal capacity of 300 tons of burnt lime per day, its actual production capacity will depend on the limestone grading processed – 20 to 100 and 50 to 100 mm resp. – and range between 250 and 300 tons per day.

The kiln will be equipped with a natural gas and petcoke firing system and will operate either with 100 % natural gas or 100 % petcoke or with a mixture of both fuels.

Maerz will furthermore delegate experienced personnel for technical assistance during erection and commissioning of the new kiln plant due for start-up in mid-2018.

FUJIAN JINGFU MINING CO., LTD., CHINA

Shanghai DIBO Engineering Technology Co., Ltd., domiciled in Shanghai, China, as the Buyer, placed an order for a Maerz PFR Lime Kiln to be installed in Yong An City, Fujian Province, for Fujian Jingfu Mining Co., Ltd., as the end-user.

Within the scope of the contract, Maerz – in co-operation with thyssenkrupp Industrial Solutions (China) Co., Ltd., Shanghai, – will supply engineering, license, know-how as well as technical assistance services for commissioning and start-up of the new lime kiln plant, together with on-site training of the end-user’s operating personnel.

Furthermore, the Buyer has ordered key equipment for the lime kiln such as the Maerz coal dust firing system, hydraulic equipment and electrical & control equipment.

The new kiln of the circular type R4P will process limestone with a grading from 50 to 100 mm, producing 600 tons of burnt lime per day. Pulverized hard coal will be used as fuel.
Shanghai DIBO Engineering Technology Co., Ltd., domiciled in Shanghai, China, as the Buyer, placed an order for a Maerz PFR lime kiln to be installed in Wenshan City, Yunnan Province, for Wen Shan Hesheng Industry Co. Ltd., as the end-user.

Within the scope of the contract, Maerz – in cooperation with thyssenkrupp Industrial Solutions (China) Co., Ltd., Shanghai, – will supply engineering, license, know-how as well as technical assistance services for commissioning and start-up of the new lime kiln plant, together with on-site training of the end-user’s operating personnel.

The new kiln of the circular type R4P will process limestone with a grading from 50 to 100 mm, producing 600 tons of burnt lime per day. Pulverized hard coal will be used as fuel.

Uni Lime for Lime Production, from El Mohandessien, Egypt, placed an order with Maerz Ofenbau AG for the supply of engineering, license, know-how, equipment and technical assistance services during commissioning and start-up for one 100 tpd natural gas fired E2 Maerz PFR lime and dolomite shaft kiln. Both burnt lime and burnt dolomite will be supplied to El Marakby Steel in Giza, a sister company of Uni Lime and also a member of the MKS Group, headed by Mr. Hassan El Marakby.

According to the terms of the contract Maerz will provide engineering, license and know-how, material and equipment as well as technical assistance services during hot commissioning and the acceptance test run.

The new kiln will process limestone and dolomite with a grading of 40 to 80 mm to produce 100 tons of lime or dolime per day. Natural gas will be used as fuel.

Uni Lime will complete the erection of the plant with local contractors. Commissioning of the kiln plant and start of commercial quality lime and dolime production is scheduled for the second half of 2018.

EASTERNBULK LIME PRODUCTS PRIVATE LIMITED, with its registered office in Chennai, Tamil Nadu, India, signed a contract with Maerz Ofenbau AG for the supply of materials and equipment for a Maerz 2-shaft lime kiln to be built in their Tuticorin Plant, Tamil Nadu.

The new kiln of the rectangular type E2 will process limestone from the Middle East, with different gradings – 35 to 50 mm, 50 to 90 mm and 30 to 60 mm – to produce 150 tons of lime per day. Hard coal dust will be used as fuel.

EASTERNBULK LIME will complete erection of the plant with local contractors. Maerz will delegate experienced personnel to accompany the start-up and commissioning of the kiln plant and to train the EASTERNBULK LIME's operating and maintenance personnel on site.
Sinosteel Co., Ltd., domiciled in Beijing, China, as the Buyer, placed an order for 6 Maerz PFR lime kilns to be installed in Liuzhou City, Guanxi Province, for Liuzhou I&S Co., Ltd., as the end-user. With Liuzhou Iron & Steel’s already existing five 600 tpd Maerz PFR kilns, this lime plant is going to be the largest Maerz plant in the world. We are very proud indeed of our long-standing partnership!

Within the scope of the contract, Maerz – in cooperation with thyssenkrupp Industrial Solutions (China) Co., Ltd., Shanghai, – will supply engineering, license, know-how as well as technical assistance services for commissioning and start-up of the new lime kiln plant together with on-site training of the end-user’s operating personnel.

Furthermore, the Buyer has ordered the following key equipment for the lime kilns:

- Maerz coal dust firing system
- Special process equipment such as flaps, air traps and the suspended cylinder
- Coal dust piping incl. lance connections
- Lance cooling equipment
- Air blowers and motors
- Rotary drive gear set
- Hydraulic system
- Electrical, MCC, PLC, measuring and control equipment.

The new kilns of the circular type R4S will process limestone with a grading from 40 to 80 mm, producing 600 tons of burnt lime per day. Pulverized hard coal will be used as fuel.