



A case for good sustainable solutions in plant engineering.

What ultimately matters is superior quality



The Romanesco [lat. *Brassica oleracea convar. botrytis* var. *botrytis*]:
As in nature it is essential in plant engineering to implement optimal solutions in all fractals of the planning and execution process.

The refinery, petrochemical and chemical industries are living through a change: they have to adjust to the change of the markets and the requirements of climate protection by converting their production plants. Over the last ten years the Pörner Group has therefore implemented more than 300 projects for renowned clients of the refinery, petrochemical and manufacturing sectors. In addition to new plants, such as bioethanol, numerous revamps of complex process plants have been done, such as FCC, distillation and hydrogenation plants.

Andreas Pörner,
Managing Director & Shareholder



With “REVAMPED by Pörner” under the leadership of our Leipzig-based EDL Anlagenbau, we have done jobs for all German refineries and many industrial enterprises at home and abroad. A great amount of expertise has been gained from all areas our clients can now benefit from with their industrial projects.

Uncompromisingly competitive

The producer needs a plant that is optimally and uncompromisingly tailored to its needs to have the edge over its competitors. Our guiding concept „Plant Engineering 4.0” stands for the ambition to build the best possible plant as we know it today in close cooperation with the employer. It is achieved by using optimal means both in project management and planning across all areas of plant engineering and construction and using state-of-the-art processes, methods, systems, equipment and

instrumentation – fully integrated by cutting-edge digital automation.

Because of its unique structure and working methodology the Pörner Group is capable of performing this task with high process competence and all engineering disciplines from a single source.

The human factor

For a project to be successful it is necessary above all to execute it expeditiously and safely. When it comes to large-scale projects our

team building and personal responsibility.

Only the best is good enough

Needless to say that costs play a major role in every investment. There are the investments once made on one side and many years of efficient production on the other. We, the Pörner team, want to provide the best plant configuration for our customers by consistently applying the best bidder principle.

To determine the best process or the best bid for a piece of equipment, however, requires engineering and commercial expertise to be able to assess them by all major criteria.

Over decades we have built a close-meshed network with leading licensors and vendors from the world of plant engineering. We act worldwide working on different standards and use integrated state-of-the-art software. It constitutes the basis of our broad experience.

It is our ambition as engineer-

ing firm to be the best bidder on the market by a good price-performance ratio. It is possible because we have reference knowledge from hundreds of projects implemented in four decades in different sectors of industry.

Conclusion

Building the “Plant 4.0” means for us and our customers to provide products of high availability, minimize energy consumption, implement humane automation with up-to-date instrumentation features and in this process comply with applicable laws and latest environmental standards.

In brief: the best solutions in all fractals of our work – for a plant that is productive and thus competitive in the long run.

It ends up with the highest quality of execution and thus the investment results in the maximum added value for the project owner for many years or even decades.

Sincerely yours, Andreas Pörner

ANLAGENBAU 4.0
we create productivity

project engineers have the social skills to manage and coordinate several hundred people closely working together in planning, production and at the site. The corporate culture of Pörner has always been based on a win-win approach,

Roads being built everywhere

Biturox®. The bitumen world in transition.

BY ANDREAS PÖRNER

VIENNA. Bitumen, the most important building material apart from cement, is the first choice when it comes to binder for road construction. It is obtained from heavy residues at the end of the production chain of a refinery. The trend towards higher cut points in the vacuum unit has caused the product yield to shift from distillates to white products, however, thus substantially reducing the quantity and quality of the remaining

residues.

Due to the lower profitability quite a number of refineries have already cut back or even given up their bitumen production. Therefore the bitumen production is on the decrease worldwide whereas the demand for high-quality bitumen is increasing.

The Pörner Biturox® technology is capable of producing high-quality road bitumen from less suitable residues. A number of refineries have been making use of this advantage already. Since the

construction of the first Biturox® plant Pörner has been granting more than 50 Biturox® licences. About 10 % of the global bitumen demand is meanwhile produced at Biturox® plants.

Currently Pörner is building the 10th Biturox® plant on the Indian subcontinent. As many as 31 Biturox® plants have been built in Asia. It is hardly surprising that Asia ranks first among bitumen exporters.

In Europe a total of 16 Biturox® licences have been granted. In 2015 the largest ever Biturox® plant including two reactors was put into operation in Novoshakhtinsk (Russia) with a designed annual capacity of 700,000 tons of bitumen. Because of refinery closures Europe cannot meet its own demand and is net importer.

America banks on conventional bitumen production, and therefore only two Biturox® licences have been granted to the USA so far.

Two Biturox® licences have also been granted to Australia. It was one of the essentials for the development of the viscosity standard later taken over by India. But the domestic bitumen production ceased in 2016.

On the African continent one single Biturox® plant has been installed – in Morocco.



PÖRNER GROUP

ON OUR OWN BEHALF BY LYDIA BRANDTNER

The Pörner brands



The **Pörner logo** featuring six symmetrical, rounded letters black on white in a square appears on all documents, letters and printed matter of our engineering company. Almost unchanged for over 42 years it symbolizes the continuity and strength of our company with all its experience, relations and references.



Biturox® is the name and thus the brand for the worldwide recognized process of bitumen upgrading at refineries which was originally invented by ÖMV and implemented by Pörner in over 50 plants across the globe.

We can proudly say: We have two real global brands. It is proof that our customers, among them a large number of major brands of the international industry, rely on our performance.

Apart from those mentioned above other brands have been introduced in the last few years representing our technology portfolio and engineering service packages:

FORMALDEHYDE + DERIVATIVES

Formaldehyd and Derivates is the brand represented by Pörner Grimma for a large product group of chemicals from this

ANLAGENBAU 4.0

we create productivity

important base material.

This Pörner brand stands for plant engineering at its best. Our experienced engineers and specialists with profound knowledge of the industry use cutting-edge digital database techniques to combine the latest technologies and best equip-

ment components with high-grade automation for optimal plant configuration closely networking with vendors and contractors and in close cooperation with the investor.



SDA Solvent Deasphalting stands for EDL's competence to obtain valuable components from vacuum residues, e.g. for the production of lube oils.

With Pörner's know-how the pitch produced in this process can be used as feedstock for Biturox®. And so the Pörner Group is capable of providing solutions for complete residue utilization at refineries.

REVAMPED

BY PÖRNER GROUP

REVAMPED by Pörner stands for the core competence of EDL and Pörner to revamp entire plants and builds on the Plant Engineering 4.0 concept. In 2016 seven large-scale revamp projects were handled at about the same time and completed by the Pörner Group successfully and within the agreed time (more details on page 6/7).

Our brands are also an expression of our corporate culture: Pörner has always put great emphasis on personal responsibility and giving its employees room for design flexibility. Personal initiative, team spirit and open communication are an optimal foundation for innovation and the development of new initiatives which may soon become valuable brand offerings.

BRAND

The English word "brand" reminds of the practice when products were branded with personal signs. For centuries artists have been signing their works. Think of Albrecht Dürer's characteristic seal.

Bitumen trade is booming

Most recently the bitumen trade saw a boom on the African continent. In all over Africa roads are in poor condition and an obstacle to economic development. That is why South Africa, Tanzania, Kenya, Nigeria and Egypt in particular have been investing on large scale in road networks.

Most of the bitumen needs to be imported. But there are not enough storage facilities for the product mostly coming from the Persian Gulf region or Venezuela, and local logistics is difficult especially in the landlocked countries

and therefore expensive.

Another problem is the often poor quality of the imported bitumen mostly delivered in drums and often thinned down by dubious producers with low-grade oils. It reduces the durability of the pavement surface with negative consequences for the national economy. Pörner has been doing a lot for the improvement of this situation by providing training and presentations at bitumen conferences as well as by delivering high-grade bitumen from Biturox® plants of its licensees.

WWW.BITUROX.COM

Pörner Biturox® know-how for Oman

New construction. Bitumen plant to complement refinery upgrade with 70 % capacity increase.

BY WOLFGANG HEGER

SOHAR. As part of the ongoing upgrade of the Sohar refinery the Oman Oil Refineries and Petroleum Industries (ORPIC) decided to build a bitumen plant and opted for the Biturox® technology.

Back in July 2015 the Pörner Group was commissioned with the full-scale planning of the Biturox®

The 1.8 bn dollar modernization project of the Sohar refinery

The Sohar refinery is located in the industrial zone of the Sohar Port and produces diesel, gasoline, kerosene, liquefied petroleum gas, naphtha and propylene. At a cost of 1.8 billion dollar the refinery is currently upgraded and extended.



The main equipment is currently shipped to the Port of Sohar.



plant. The package includes the licence, pilot tests, basic engineering, detail engineering and the supply of core components, commissioning support, documentation and training of plant operatives.

The Sultanate will now be able for the first time to produce its own bitumen and satisfy the country's need in this respect. So far bitumen has been imported from Iran and the United Arab Emirates exclusively.

A new complex covering five process plants - Vacuum Distillation, Hydrocracker, Delayed Coker, Isomerization and Biturox® Bitumen plant – is to be completed in 2017. The 82,000 barrels from these new plants will increase the refinery's daily processing capacity by more than 70 % to 198,000 barrels. ORPIC, considered Oman's flagship of the refinery and petrochemical sector, will thus be put in the position to meet the growing domestic demand for gasoline, now and in near future.

SOHAR

The Sohar Port, built in 2004 as a 50/50 Joint Venture with the Port of Rotterdam, provides new trade opportunities for Oman. Apart from the port and the refinery the premises also accommodate several power stations and a methane plant.

Technical acceptance of the core equipment at vendors' sites.



Pörner grants its 50th Biturox® license

Jubilee. Already 10th license for India.



BY CHRISTIAN FILZ

BATHINDA. In December 2015 the Pörner Group was awarded the contract for the planning and delivery of a Biturox® bitumen plant by HPCL-Mittal Energy Limited (H MEL) of India.

Therewith Pörner grants its 50th Biturox® license worldwide. This jubilee is a significant demonstration of the sophisticated technology and the reliable engineering services. Pörner provides licence, basic engineering including supply of key equipment, site supervision and commissioning support, as well as staff training and documentation.

Almost common is the tight schedule: Only 15 months after the contract signing the mechanical completion is scheduled. In order to meet the ambitious timeline, the kick-off meeting at the refinery already took place in January 2016.

The engineering has been largely completed. Currently the equipment is shipped.

Zero-residue strategy is achievable with Biturox®

The new Biturox® plant will be installed at the Guru Gobind Singh Refinery (GGSR) in Bathinda, in northwest India. GGSR is the fifth largest refinery in India and follows a zero-residue strategy. The new Biturox® plant fits in perfectly in this strategy since it is able to process even heavy vacuum residues, blended with HVGO and HCGO to quality bitumen. This is a decisive contribution to increase the refinery's value creation.

The plant is designed for an annual production of 500,000 tons bitumen of grade VG 10, 30 and 40 – high-quality road construction bitumen.

Jubilee: 10th license for India

The mutual trust is visible because Hindustan Petroleum Corporation Limited (HPCL), one of the joint venture partners in H MEL, has a long-term partnership with Pörner.

As early as 1998 a Biturox® plant was built for HPCL at the Visakh refinery in Visakhapatnam, which still reliably produces quality bitumen.

Managing Director Andreas Pörner says: *"This plant brings the number of Biturox® licenses we granted worldwide to 50. We are pleased that our engineering services are so appreciated and that we can celebrate this round anniversary together with an Indian refinery. Our business relations to India are very close and productive – this is meanwhile the 10th license for India."*



Project meeting in Vienna: f.l.t.r.: Mr. Wolfgang Heger (Sales Director Pörner), Mr. Prabh Das (CEO of H MEL), Mr. Peter Schlossnikel (CEO of Pörner), Mr. Prasant Saha (Project Management H MEL), Mr. Sameer Gupta (Project Management BECHTEL), Mr. Christian Filz (Project Manager Pörner), Mr. Peter Sonntag (International Sales EDL)

Now the plants built under Pörner license in India produce a total of more than three million tons of bitumen per year. That amounts to approximately 65 % of India's total production.

The commissioning is scheduled for May 2017. The Pörner engineers will again make use of their competence and experience to meet the tight deadline and to affirm the customer's confidence. ■



New Biturox® plant for Baku

Under construction. Ground breaking ceremony in the presence of Azerbaijan's President Aliyev.



BY ROLAND STICKLER

BAKU. In 2015 SOCAR (State Oil Company of Azerbaijan Republic) commissioned the Pörner Group with the design and supply of a Biturox® plant for the Heydar Aliyev Refinery in Azerbaijan.

President Ilham Aliyev attended the ground breaking ceremony in person thus underlining the great importance of this project for the country.

The Biturox® plant for the production of high-quality bitumen is part of a large-scale modernization project of the Heydar Aliyev Refinery and replaces the Biturox® plant supplied by Pörner to the Azereftjag Refinery back in 1995 which has been producing road bitumen for 20 years.

The closure of the refinery right in the middle of Baku was the reason for building a new plant at the Heydar Aliyev Refinery outside the city boundaries. Equipped with a most advanced waste gas cleaning system and designed for an annual production capacity of 400,000 tons of road paving bitumen grade 40/60 this plant will cover the high demand of quality bitumen for the further expansion of the road network in Azerbaijan.

The comprehensive modernization of the refinery is to raise the annual processing capacity from six to seven and a half million tons. All types of gasoline will meet the Euro 5 standard and

high-quality feedstock, such as ethylene, propylene and butylene, will be produced for the downstream Azerkimya plant.

Pörner Group signing the EPCM contract in Baku

On 2 August 2016 Elman Ismayilov, Director of the Heydar Aliyev Refinery and Andreas Pörner, CEO of the Pörner Group, signed the EPCM contract for the Biturox® plant.

The contract awarded to the Pörner Group comprises the licence, pilot tests at the Pörner research centre and the basic engineering, and in addition to that, the detail engineering, procurement and delivery of the key equipment, construction supervision through to the commissioning of the plant. Commissioning is due to take place in mid 2018.

At the signing ceremony SOCAR underlined the importance and the major advantages of the

new Biturox® plant. It is the first plant going into operation as part of the great modernization project of the Heydar Aliyev Refinery. At the same time this project is a key milestone when it comes to the decommissioning of the Azereftjag Refinery and it helps substantially to improve Baku's ecological situation. The production of high-quality bitumen also makes a major contribution to optimizing the operating costs of the Heydar Aliyev Refinery.

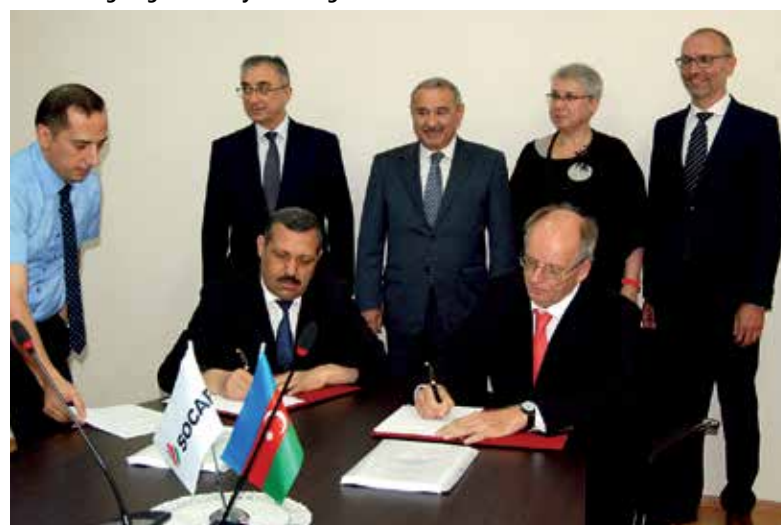
Andreas Pörner underlined the decades-long partnership of the two companies, expressed the pleasure that the Pörner Group had been chosen as EPCM contractor and pointed to the various opportunities of future cooperation.

The go-ahead for the project came in November 2015 already when the contract on licensing and the provision of the basic engineering was signed by the Pörner Group and SOCAR. ■



Ilham Aliyev, President of Azerbaijan, Andreas Pörner, CEO of the Pörner Group and Elman Ismayilov, Director of Heydar Aliyev Refinery (from right to left) at the ground breaking ceremony on 19 September 2016

Elman Ismayilov and Andreas Pörner at the contract signing ceremony on 2 August 2016



President Aliyev (middle) gives the symbolic go-ahead for the construction phase.



Technologies from Leipzig

Specialities. Efficient processes for high-quality products by EDL.



BY DR. MICHAEL HAID

LEIPZIG. For several years now EDL has been investing in the development of proprietary technologies for cutting-edge and custom-tailored solutions for premium products, such as aromatic compounds, base oils, waxes and lubricants.

Now, EDL can cover an entire processing chain for lubricant refineries from distillation through to the end product. A more detailed description of this technology can be gathered from the attached EDL magazine page 6 and the following ones.

Re-refining: cost-efficient and sustainable

The further development of technological know-how focuses on an improved and, most of all, sustainable processing of refinery residues and spent oils.

quality base oils in the spent oils collected permits the production of high-quality base oils that cannot directly be obtained from crude distillates. Because of the low sulphur content and the high viscosity index of the base oil components it is now possible to produce group III base oils from the previous API group I/II oils by way of hydrogenation, for example. These base oils can be sold on the market at a much higher price. It is therefore not only the economic efficiency of the plant that increases substantially but also the return on investment is achieved within a shorter time.

Growing markets expected

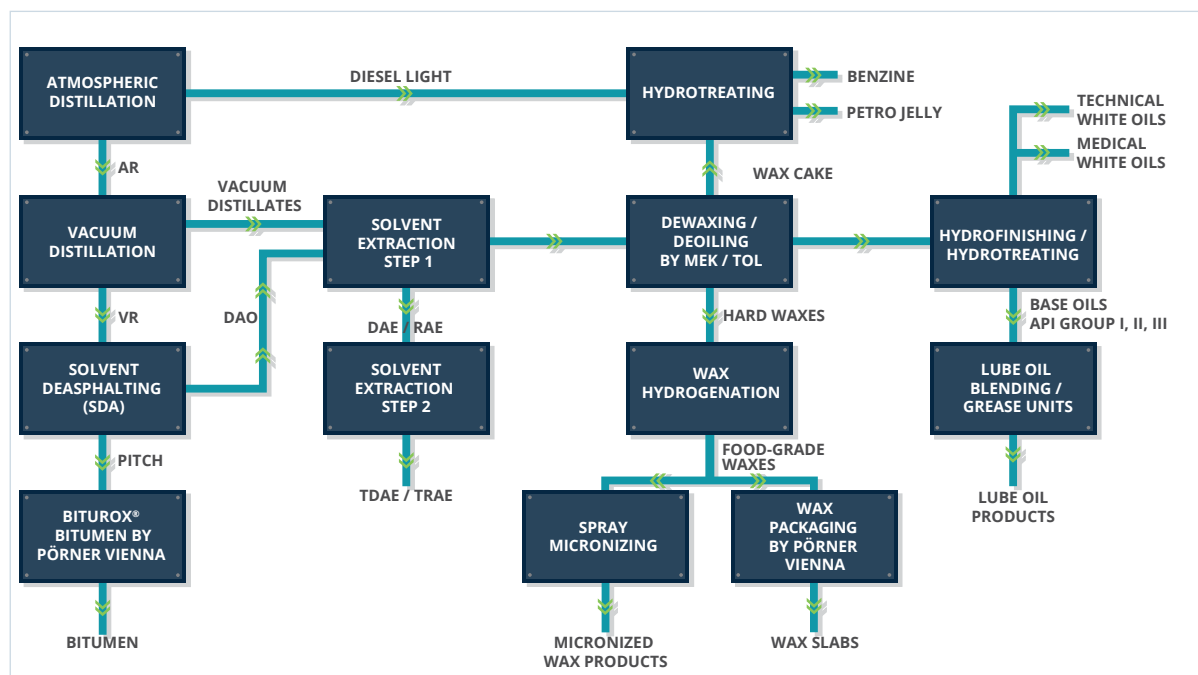
According to a recent study the prices of refinery products will rise again following the slump of the crude prices and the fall in lube oil product prices. This trend is reason for the lubricant manufacturers to push investments again after long years of stagnation.

While the market share of base oils API group I will decrease by 2030 according to the study and the market share of bright stock increase moderately only, the market for base oils API group II/III will see an annual rise between 3.5 and 6.5 %. Lube oil specialties (waxes, petroleum jelly, tender oils) will also grow at rates between 2.2 and 3.0 % according to the forecast. The prices of the specialties will rise at the same level as the crude prices.

Because of the good margins of specialty products investments to optimize the lube oil refinery is becoming increasingly attractive.

Strong process engineering

To broaden the technology portfolio, especially the areas of lubri-



Overview of EDL's technologies.

cant refinery and spent oil treatment, the process engineering & technology unit has been consistently extended both in terms of human resources and technology by cutting-edge software and pilot plant capacities. It is currently the largest unit of EDL – by no means self-evident for a medium-sized

engineering contractor.

The technologies of EDL, such as

- solvent extraction
- crystallization, and
- hydrogenation

make it possible to produce a large number of high-quality products,

e.g. environmentally friendly tender oils (TDAE, TRAE) or de-oiled waxes.

With proprietary test facilities, process simulations and relevant planning, procurement and supervision services EDL provides complete solutions for optimized process plants. ■



EDL pilot plant for tender oils in Leipzig.

Therefore, re-refining of spent oils is not only interesting for reasons of resource utilization and protection of the environment but also under economic aspects.

The increasing share of higher

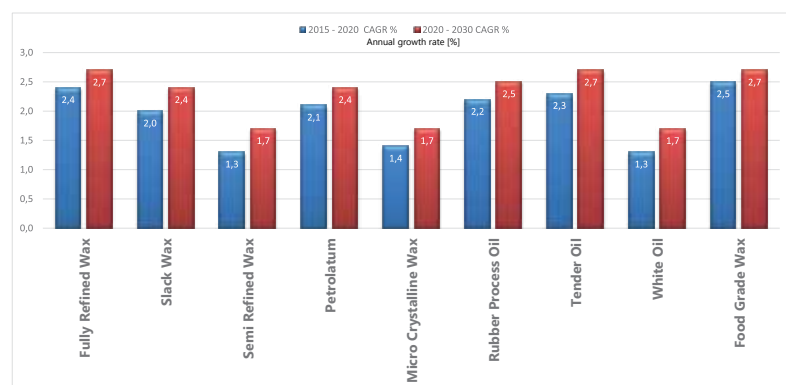


Diagram 1: Lube refinery specialties – Market size forecast

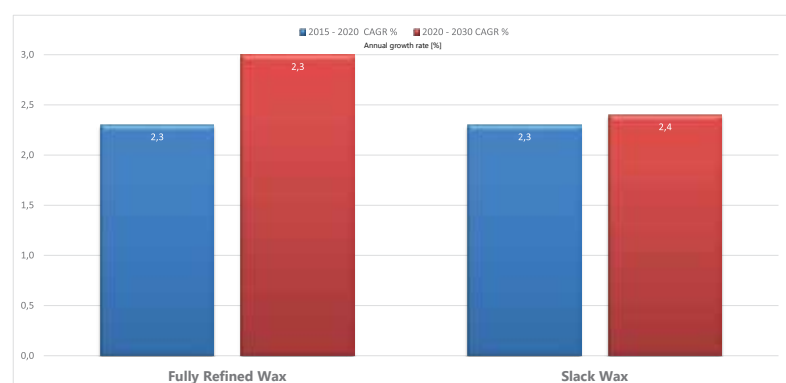


Diagram 2: Specialties TDAE/TRAE – Market size forecast

Upgrading of a PDA plant in Belarus

Optimization. EDL engineering for new extraction columns.

BY ANDREAS SCHWOPE

NOVOPOLZK. Its technological expertise in the field of efficient residue processing is currently demonstrated by EDL in Belarus where a propane deasphalting plant (PDA) is being upgraded for the OAO Naftan Refinery. The scope of work of the contract signed late in 2014 covers the technological design and delivery of two extraction columns for the PDA plant.

As a first step EDL did the necessary tests for the optimization of the deasphalting process at its own pilot plant in Leipzig. To this end the necessary process parameters, such as solvent ratio, process temperature and pressure, were examined and defined to obtain reliable information on product qualities and yields. By subsequent



Column components ready for dispatch to Belarus.

process simulation the information obtained was checked and confirmed. The entire technological design of the extraction column was done by EDL.

D-A-CH: Cross-border cooperation

In close cooperation with Sulzer Chemtech (Switzerland) supplying the column internals (distributors and packing) and Kremsmüller (Austria) making the columns for this application the project was executed based on EDL's technologi-

cal design.

In summer 2016 the two extraction columns were delivered at the agreed time to the customer in Belarus. During the next shutdown of the refinery they will be replaced and put into operation and thus be state-of-the-art. ■



SDA
BY PÖRNER GROUP



OAO „NAFTAN“

The OAO Naftan Refinery located at Novopolozk, in northern Belarus, has been operating since 1963 and in the last few years it has implemented a very ambitious modernization program. These upgrading measures were to increase the processing depth to about 90 %, increase production of high-octane gasoline and optimize the energy consumption to become more competitive on the market. ■

New Wax Production Plant

Chemistry. Pörner's full-service engineering starts out with process optimization.

BY GERHARD BACHER

GRIMMA. Mitteldeutsches Paraffinwerk Webau GmbH (MPW) entrusted Pörner Ingenieurgesellschaft in Grimma with the entire engineering package and project execution for the construction of a plant producing waxes from plastic materials. A new cutting-edge process is employed that has been developed with the strong participation of the Pörner Group. In July 2016 the foundation was laid for the advanced wax plant at Webau, Saxony-Anhalt.

The newly developed and future-oriented CATPOL process is applied to produce fully synthetic waxes from polyethylene and polypropylene by way of depolymerization. The plant has been designed so that very different wax products can be obtained.

Thanks to the properties the waxes have a wide range of applications in the industry, such as substrate material for automotive paints or as coating of food packaging.

The first line of the production plant is currently under construction featuring a capacity of 500 kg wax per hour. When running in three shifts as planned the plant is to produce 3,500 tons per year.

The wax production plant is being built at Köpsen near Webau where production has a long tradition. 15 new jobs will be created.

Pörner - the engineering partner

For this project the Pörner Group did the process optimization, revised the basic engineering, drew up a cost optimization plan, complemented the documents for public authorities, provided the complete detail engineering including a 3-D plant model and does the procurement on behalf and on account of customer, cost control and expediting as well as construction and erection supervision followed by plant commissioning.

Production is to start gradually

at the end of December 2016 and then ramped up to multiple-shift operation.

CATPOL process promises sustainability of products

Since 2008 MPW in cooperation with the Magdeburg Fraunhofer Institut, the Merseburg University of Applied Sciences, Martin Luther University in Halle had been working on the development of a new CATPOL process which is now patented.

The company laboratory of Paraffinwerk has got three test facilities for depolymerization, oxidation and micronization of waxes. Besides the great number of own tests practice-related tests were also run at several machine building companies on pilot plant scale. For the process development alone MPW invested over one million Euro. Now, the process is mature and is being transferred to large-scale production.

Tradition and cooperation on the basis of trust

The advanced wax plant breathes new life into a location that has a long industrial tradition. Industrial utilization of soft coal began as early as in 1860. This expertise soon extended to the production of waxes and remained an important commercial factor in the region. Waxes from Köpsen went to over 20 countries during GDR times.

Both companies have been partners for over a decade. Back in 2004 the Pörner Group built a bitumen production plant for the sister company MBW at Webau. Since then the plant has been producing high-quality bitumen for road construction based on the Pörner Biturox® process. Building on the innovations and investments done and combined with the experience from the successful projects of the past both parties are convinced to be able to also cope with future challenges. ■



The 1,440 m² shop floor in Webau was gutted to accommodate new production facilities.



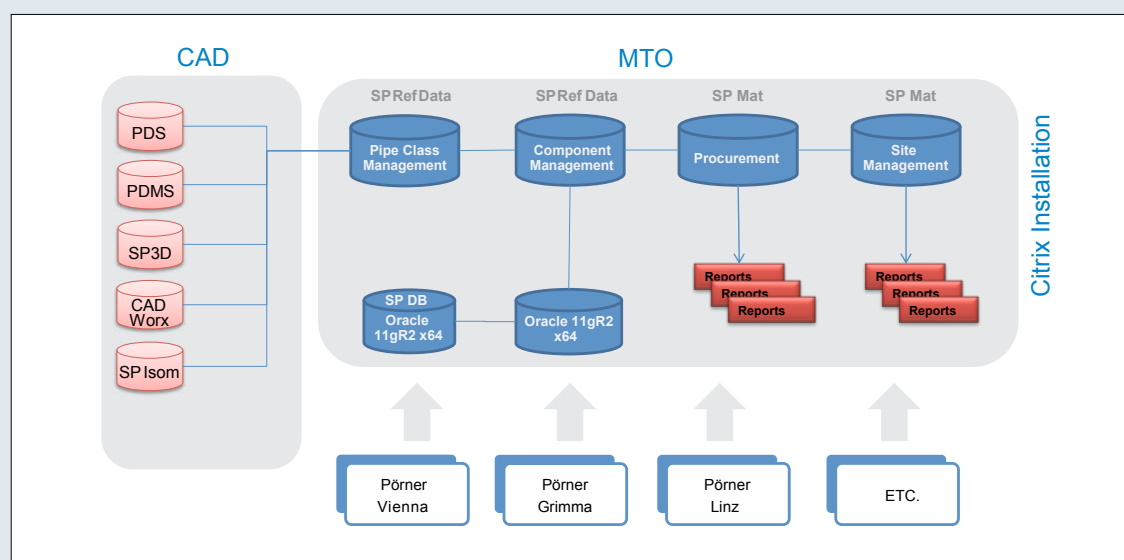
High-tech fitting into the historic brick building.

PROJECT MANAGEMENT

BY THOMAS HERMANN

Plant Engineering 4.0: From real life

Engineering across locations increases efficiency and quality.



Pörner increases project execution efficiency by centralized access to the engineering world.

VIENNA. Pörner engineers are active internationally, either at the nine Pörner offices or at the customer's directly. Since working on a decentralized level is so essential for the company, efforts have been made for the purpose of the Plant Engineering 4.0 concept to find ways how to optimize the project execution across locations.

The objective was to find a solution regardless of location to minimize the administrative costs on the one hand and improve the quality on the other.

To this end Pörner developed in 2016 at its headquarters a new material management program and a CITRIX server landscape for CAD software. All CAD tools are connected via cutting-edge interfaces. It is now possible to work within the Pörner Group and with the customers no matter where they are located.

Optimizing the material and specification management

The existing systems had been specifically developed further over the years and the different application versions adapted at each Pörner locations. Upgrades of operating systems and data-

bases, however, involved a great amount of manual labour.

The cutting-edge solution: The implementation of the new material management system (MTO) in a central Citrix environment. This allows a centralized specification management across locations that can be flexibly adapted to the relevant project specifications and engineering requirements and can also be used for the material management through to the site management.

The new MTO system features standardized interfaces with all CAD 3-D tools and the flow chart processing. In addition it can be used through CITRIX across locations and supports the automated transfer of information through workflows, systems and interfaces.

This kind of smart data transfer does not only reduce the number of manual entries but also error potentials.

For the first time developed for plant engineering

Intergraph supported Pörner in setting up the system, in particular reporting functions and interface configuration. When the MTO was introduced the data of

the Vienna legacy systems were edited for the transfer, among them 7,250 components, 325 pipe classes, 295 terms of delivery including 700 text blocks, 130 test classes incl. 450 text blocks.

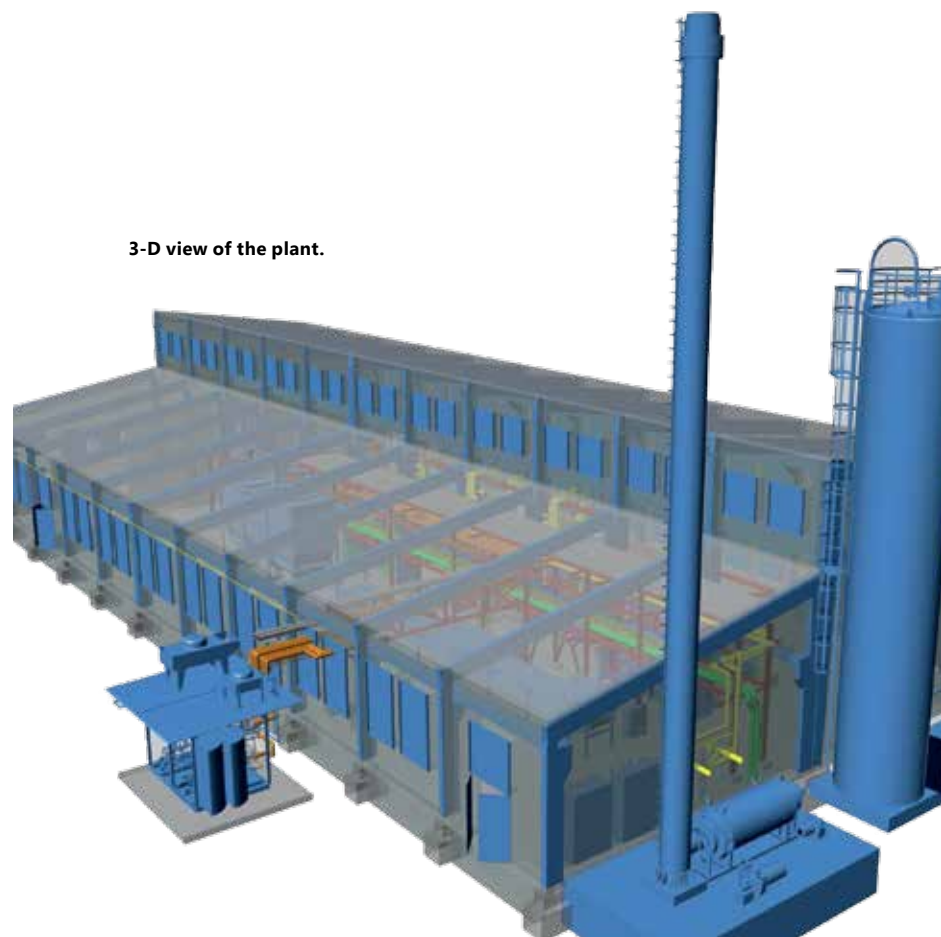
The quality of the entire implementation process was as good as expected but the quality of the data and workflows surpassed expectations by far.

In future the pipe classes are to be managed in a central database and piping specifications for all 3-D engineering systems, such as PDS, Smart 3D, SPPIDSP Isometric, CADWorx and PDMS provided through a central Citrix landscape.

Engineering across locations and its smart workflows and interfaces greatly boost the efficiency and quality when it comes to project execution for the purpose of the Pörner Plant Engineering 4.0.

The 'Pörner solution' also meets with great interest by Intergraph because it was the first time that own programs are used custom-tailored in such a comprehensive set-up. So, at Intergraph's request the 'Pörner solution' has already been presented at three international events and a relevant case study published. ■

3-D view of the plant.



Pörner Group completes three large-scale revamps in OMV turnaround 2016

“REVAMPED by Pörner”: An investment in the future.

VIENNA. In April 2016 during the OMV refinery stop at Schwechat the teams of Pörner Vienna and EDL Leipzig brought three revamp projects to mechanical completion:

1. Revamp HDS3: Reactor replacement at the desulphuriza-

tion plant;

2. Revamp DEA2: Higher product yield of DEA-2 and RD4 plants;

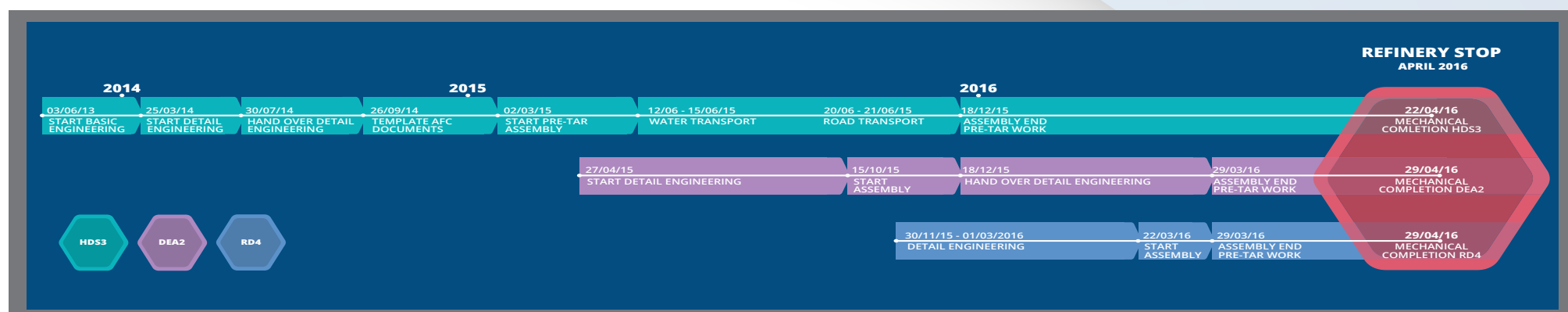
3. Revamp RD4: Production increase and optimized plant operation of crude distillation plant.

To finalize three large revamps at virtually the same time during this stop, constituted for the Pörner and EDL engineers a challenge in terms of engineering, process and above all planning. They drew on the experience gained in more

than 60 projects labelled “REVAMPED by Pörner” which were completed on schedule and within the agreed budget.

With the improvements and extensions in connection with the turnaround 2016 OMV considers

itself optimally equipped for future challenges. The Pörner Group in turn is pleased that another three reference projects could be successfully completed for plants optimized in every respect and is thankful for the trust placed in it. ■



1 Revamp of HDS3 plant: New reactor for desulphurization plant

SCHWECHAT. One reactor of the HDS3 hydrodesulfurization plant for the desulfurization and denitrification of vacuum gas oils reached the end of mechanical service life in mid-2016 and had to be replaced.

Back in June 2013 OMV entrusted the Pörner Group with the Extended Basic Engineering (FEED) and in March 2014 with the detail engineering, procurement, construction supervision and commissioning support. In close cooperation the teams in Leipzig and Vienna developed the FEED that was also used as the basis for a cost estimate and supplied

MANFRED SCHARNER, OMV PROJECT MANAGER



“The column was engineered and ordered on schedule, the project targets as to compliance with deadlines, quality and costs were reached thanks to consistent implementation”, as OMV Project Manager Manfred Scharner proudly stated when looking back to the HDS3 project and he thanks the entire project team for the professional support.

all essentials necessary for the implementation strategy. As part of the FEED the new reactor featuring a diameter of 5 m, a total height of about 25 m and a total weight of 382 MT and designed for 465 °C at 80 bar was ordered. After just four months the detail engineering was handed over to OMV.

Extraordinary haulage and erection



High & Heavy: Haulage of the reactor being 25 m long and weighing 382 MT on the A4 motorway near Vienna. The distance was 14 km and was overcome within five hours. The planning of it took over 24 months.

On 20 and 21 June 2015 the reactor was hauled from the Albern port to the close-by refinery premises. This event something not done every day presented a number of logistic challenges, such as bridge reinforcement, closure of the A4 motorway and providing a temporary exit. The logistic planning and authority permits alone took two

years.

Upon arrival at the refinery the reactor was reloaded to a special-purpose self-propelled modular transporter (SPMT). To slide the reactor under the pipe bridge with a remaining clearance of just 8 cm the reactor had to be reloaded again on a special hydraulic displacement facility.

The 25 m reactor was erected by a purpose-made gantry crane the temporary foundations and erection and dismantling of which was a separate project with a large number of requirements.

The weather had to play along, too: the safe erection required a stable weather condition, no wind and no rain. One thing to be kept in mind was the shutdown of the neighbouring units to the warm standby for safety reasons that required a lead time of three days.

Finally, the reactor was lifted by the gantry crane to vertical position, rotated in the right position, placed onto the foundation and bolted.

Exact preparation minimizing TAR work

Because of the necessity of optimized shutdown times an exact preparation of the construction and installation is essential. Installation planning starts in the early engineering phase already. Because of the carefully prepared pre-TAR activities, the activities during shutdown could be reduced to a minimum and the reactor quickly incorporated during the stoppage.

The daily stop coordination headed by OMV ensured a smooth project workflow.

„On 22 April 2016 we notified the mechanical completion of the HDS3 plant and it did not take long before the plant started producing “on spec”. We remained accident-free and could fully satisfy the customer, TUEV and health and safety inspectors.” rejoiced Managing Director of Pörner, Peter Schlossnikel, and the entire team. ■



With a clearance of just 8 cm the reactor was shoved through under the pipe bridge on a special hydraulic unit.

An uplifting experience: the new HDS3 reactor is erected and can be placed onto the foundation with no re-adjustment.



WHAT MEANS „REVAMPED BY PÖRNER“?

REVAMPED BY PÖRNER GROUP

“REVAMPED by Pörner” means a clearly defined package of services offered by the Pörner Group to upgrade process plants and make it state-of-the-art.

“REVAMPED by Pörner” stands for triple optimization:

1. Optimal engineering: Pörner provides all engineering services from one source as a complete package for the customer.
2. Optimal implementation: Based on a precisely structured time schedule Pörner makes sure that the period of plant shutdown is as short as possible.
3. Optimal productivity: The aim is a completely upgraded plant where all production processes are geared to each other.

Revamps increase the efficiency of the entire plant much faster and are budget-friendlier than a new plant. ■

2 DEA2 and RD4 plant upgrade

SCHWECHAT. For the upgrading of the DEA2 plant and parts of the RD4 plant the engineers of the two Pörner offices in Vienna and Leipzig were in charge of the engineering, procurement of equipment, construction supervision as well as inspections and expediting.

The DEA2 plant uses regenerated diglycolamine (DGA) and the liquefied petroleum gas of the RD4 plant and the naphtha hydrotreater (NHT) to produce purified liquefied petroleum gas (LPG).

Back in 2012 the engineers of EDL and Pörner developed a FEED for the upgrading of the DEA2

plant as part of the RD4 program which was now implemented. The objective of the project was a higher product yield and better mode of operation. To this end the column, pre-filter and filter water separator were replaced, an additional fresh amine cooler installed in the DEA2 plant and additional control valves in the steam lines.

"Years of planning proved to be successful to the day. And so two plants ready for operation could be handed over to OMV on schedule", stated Thomas Rieder, overall project manager of Pörner, with pleasure. ■



Acceptance team.

3 RD4: Rise in output of crude distillation plant

SCHWECHAT. Once more the engineers of the Pörner Group showed off their ability to handle projects of a short lead time when asked by OMV late in November 2015 to implement further parts of the FEED developed in 2012 in addition to the 2016 turnaround. At this time the turnaround planning was well advanced.

The RD4 plant, the core of the refinery, was to be upgraded within the frame of the "Opportunity Crudes" project insofar that all gasoline from the main column and the pre-flasher was stabilized, the yield improved and the plant's mode of operation optimized and an operation at partial load facilitated.



Thomas Rieder,
Overall
Project Manager,
Pörner Vienna

The challenge with the RD4-OC project was on the one hand the very short period for planning and supply and, on the other, the requirement that the process engineers had to check all projects initiated so far, the resultant changes and their impact on the RD4 plant and design the plant units accordingly. This is where the Pörner engineers' experience, commitment and knowledge of the site pay off.

Once again the Pörner Group was in charge of the entire engineering package, procurement, construction supervision as well

as inspections and expediting. During the stop 2016 the systems were integrated in the existing plant before the mechanical completion was notified to OMV on 29 April 2016. ■

HEINZ KIRSCHBICHLER, OMV SENIOR PROJECT MANAGER



"We work in a project environment where best practice for safety and quality is a must and highest demands are placed on people and material. To successfully meet these necessary tough framework conditions under utmost pressure of cost and time, and lead the projects from planning to operation, we need reliable and flexible partners acting in conformity with the contract. With EDL/Pörner and their committed, solution-oriented staff we most certainly have won such a partner for sure."

I would like to thank them for the excellent performance in all projects (RD4 program, RD4-OC and DEA2 revamp) and the professional interpersonal cooperation accompanying our joint revamp projects through to the successful completion."

EDL upgrades Crude1 and FCC plant for PCK

Refinery. Second large-scale revamp in April 2016.

SCHWEDT. Virtually at the same time as the revamps for OMV at Schwechat EDL finalized four revamps at PCK Schwedt in April 2016.

The planning for crude and FCC plants of the PCK Raffinerie GmbH started out in spring 2015 and was finalized during the "kleiner 16" shutdown in April 2016. The technologically far-reaching activities of EDL included for the Crude1 plant, for example, the replacement of the vacuum column and stripper column and for the FCC plant the replacement of the regenerator.

Planning, procurement and pre-assembly including all construction work plus the assembly at site of all large pieces of equipment had to be done within a very short span of time. As usual the time schedule for the shutdowns was tight, i.e. 21 and 23 days resp.

Everything went according to plan: Late in April the revamp



Mechanical completion of the vacuum column according schedule as part of the shutdown "kleiner 16", with 71 m in height and a total weight of 760 MT.

specialist, EDL, heralded the mechanical completion of all projects within the agreed time.

Transport and erection of superlatives

Huge dimensions are not uncommon in plant construction. More than once EDL has given proof of its competence when it comes to the transport and erection of such kind of parts. And so it did with the delivery of equipment components for the new FCC regenerator.

Along the refinery roads several pipe bridges had to be crossed but turned out to be too low for the huge regenerator parts (16 m in length and up to 9.5 m in diameter). Without further ado they were overbuilt. After two months of construction the four regenerator components each weighing up to 270 MT were moved over the temporary drive-over bridges (16 and 25m long) that were removed afterwards. ■

Revamps during refinery shutdowns – a particular challenge

Interview with one who should know.



Christian Birgfellner,
Head of Project
Management,
Pörner Vienna

A refinery shutdown usually takes four weeks and is an ideal opportunity to integrate new units and finalize revamp projects in addition to inspections and maintenance.

The challenge at this is the management of the complex interplay of inspection and maintenance on one side and the installation activities of the project on the other. The activities of several hundred people in day and night shifts under often cramped conditions have to be coordinated to safely complete the work within the specified timeframe and meet the high quality requirements.

Any deviation from the time schedule would have an impact on the logic chain of activities and jeopardize the targets as to deadlines and cost.

Controlling the complexity

Plant revamps have been the Pörner Group's business for decades. On that point Christian Birgfellner, Head of Project Operations in Vienna was interviewed by the editor.

Ed.: Most recently Pörner finalized seven large-scale revamps as part of the OMV and PCK turnarounds at almost the same time. How is it possible to finish such large projects synchronously?

CB: All planning work even if it extends over years has to have the shutdown in mind. To ensure a

smooth construction/installation, the following is essential:

1. Doing the maximum of what can be installed prior to the stop. On a case-to-case basis temporary measures may be appropriate. The plant components to be installed should be pre-assembled to a maximum extent without losing sight of the manoeuvrability. Where necessary entire plant modules are set up at the pre-assembly yard which can then be put in place within a minimum of time during the shutdown.
2. In the run-up to the plant stop the project activities have to be

ules. In case of imminent deviations immediate response is required. Therefore and to counter potential risks scenarios and alternative schedules are developed in advance which are applied if it comes to the worst.

4. Fine tuning of the activities of the next two or three shifts takes place at the daily coordination meetings of the stop management, such as the coordination of so-called X-ray windows or short-time safety-related stoppages of work for crane lifts.

What does it need to control this complexity?



The refinery shutdown required a high level of coordination of different projects at the same time.

strictly coordinated with the stop management of the refinery. Such discussions usually commence 10 to 12 months prior to the stop. The result is an integrated time schedule of maintenance and project activities.

3. The scheduled workflow has to be strictly observed. To this end the progress of work of each individual shift is evaluated and compared with the time sched-

CB.: To hand over to the customer properly operating plants on schedule and on budget, it needs not only engineering expertise and the use of up-to-date planning software but most of all an experienced site team and a good-fellowship cooperation of the teams of all companies involved in the stop.

Ed.: Mr. Birgfellner, we thank you for the interview. ■



Read more about the PCK revamp, the logistic challenge and the turn-around in the enclosed magazine „25 years EDL“ on pages 12/13.

A safe covering for Chernobyl

New construction. The Pörner subsidiary Gazintek supports engineering activities for the confinement shelter.



BY CLAUDINE RIOU

KIEV. Gazintek, the Ukrainian subsidiary of the Pörner Group provides engineering services for the New Safe Confinement (NSC) – the new gigantic roofing of parts of the damaged nuclear power station at Chernobyl.

Supported on two reinforced concrete beams the arch is mounted on the west side of the damaged reactor and when completed it is moved into position over the sarcophagus. With a life of 20 to 30 years the sarcophagus built in 1986 immediately after the accident has lost its protective function.

The new arch confines the radioactive material, protects the environment against radioactivity and saves the existing protective structure from damage due to weather.

Gazintek's cooperation

The project owner, French consortium NOVARKA, established specifically for this project in 2007, commissioned Gazintek as local sub-contractor with the rendering of specific engineering services. According to NOVARKA the investments for the shelter amount to EUR 1.5 bn.



The work on the roofing over the damaged reactor in progress.

Since 2011 the Kiev-based subsidiary has been doing the detailed planning for support systems of ventilation ducts, cable routes, lifting systems and platforms of the NSC.

Gazintek positioned the support systems, performed stress calculations for ducts using CAESAR software and the loads on the support systems (operating loads, fire, earthquake). In addition Gazintek defined and designed the required bearings using the SUCAD software and generated

2-D KM drawings for every support system. To optimize the design, several iterations were necessary. Gazintek also investigated the behaviour of the arch under earthquake conditions.

This unique project constituted an outstanding challenge to the Gazintek engineers: on the one hand it was the huge size with endless kilometers of piping and, on the other, the complexity of the individual support systems and, as a third point, the confined spaces available for the installations.

Gigantic dimensions

The NSC, a 25,000 ton steel structure is as tall as a 30-storey building. At a height of 108 m, length of 162 m and a span of 257 m it is large enough to roof the French national stadium, the Statue of Liberty or the base of the Eiffel Tower. In 2017 the NSC is to be moved to its final destination, over the damaged reactor block.

Never before a huge structure like this had been built under comparable conditions in the immedi-

ate vicinity of a radioactively heavily contaminated area.

Gazintek is proud to assist a project that is of major importance not only for the region but also for the whole of Europe. ■



Gazintek engineers at the Chernobyl site.



Foundation of „Pörner Group Russia“ in Moscow

BY ALBERT TRAXLER

MOSCOW. In March 2016 the Pörner Group established the OOO „Pörner Group Russia“ in Moscow, Russia thus expanding its network of independent subsidiaries.

Since the transformation of the representative office in Moscow which opened in 2014 the branch has now been legally authorized to enter into contracts and manage projects independently.

Combined strength for the benefit of our customers

With the OOO „Pörner Group Russia“ on board the CIS activities of all Pörner companies and their broad technology portfolios are pooled. All CIS projects can be efficiently executed in direct communication with the Russian customers and authorities.

The highly qualified Russian-speaking team provides a multitude of advantages for the CIS industry:

- As a Russian company engineering services are offered on regional level;
- Projects are executed locally;
- Most advanced tools are used for engineering;
- The team has relevant expertise and all services – from the very concept to production – are provided from a single

source.

- The team is familiar with Russian regulations and standards and experienced in working with local subcontractors.

30 years of experience in Russia and the CIS

For three decades the Pörner Group has been managing proj-

ects in Russia and the CIS. Just recently one of the largest ever projects in the company's history – Norilsk Nickel – was completed (for more see page 9). The category

of superlatives also includes the Biturox® Bitumen plant for NZNP in Novoshakhtinsk in 2014. It is the largest Biturox® plant ever built. Equally extensive was the planning of two hydro-desulphurization plants for diesel and kerosene for Tatneft in Nizhnekamsk, Tatarstan (see EDL magazine page 15). In addition three plants from our formalin and derivatives tech-



The Pörner staff in Russia offers engineering services for the region and efficiently executes projects in the CIS.

nology family (to produce formaldehyde, hexamine and novolacs) were successfully engineered, delivered and put into operation in the years before. ■

later put in place again and the flue gases pneumatically tied into the existing flue gas duct in cramped conditions.

+5 MW for Salzburg

Long-distance heating.

Extension of natural gas plant.

BY EUGEN GOTTER

LINZ. Pörner Linz was awarded the contract by Salzburg AG to add a 5 MW steam boiler to the existing heat and power station Nord of the Salzburg long-distance heating system. The boiler steps in for the existing 30 MW steam boiler at lower heat load, e.g. during the transitional heating period at midsummer thus increasing the profitability and efficiency of the plant.

including control concept, layout and piping, procurement support, scheduling, construction supervision and commissioning support.

To maintain the architecturally valuable glass facade, it was necessary to move the 30 MT steam boiler through the three meter high workshop door making sure that it is not damaged. The Pörner engineers prepared this precision job by simulations and lifting studies. Eventually all attachments and insulations were removed and



There needs to be ideas: Lift accurate to the millimeter was prepared by simulations and studies.

The upgrading project started with a feasibility study for the integration of an additional used steam boiler. The positive economic forecast convinced the customer. Pörner Linz was then commissioned with the detail engineering

After less than five months of construction the boiler was commissioned in February 2016. ■

Clean air for Siberia

Environment. The Pörner Group plans desulfurization plant for Norilsk Nickel in Russia.

BY GERHARD BACHER

NORILSK. The Pörner Group was in charge of the planning of a desulfurization plant for a nickel factory in Russia. In December 2015 the project was approved by the authorities which constituted a milestone in the execution of this huge project.

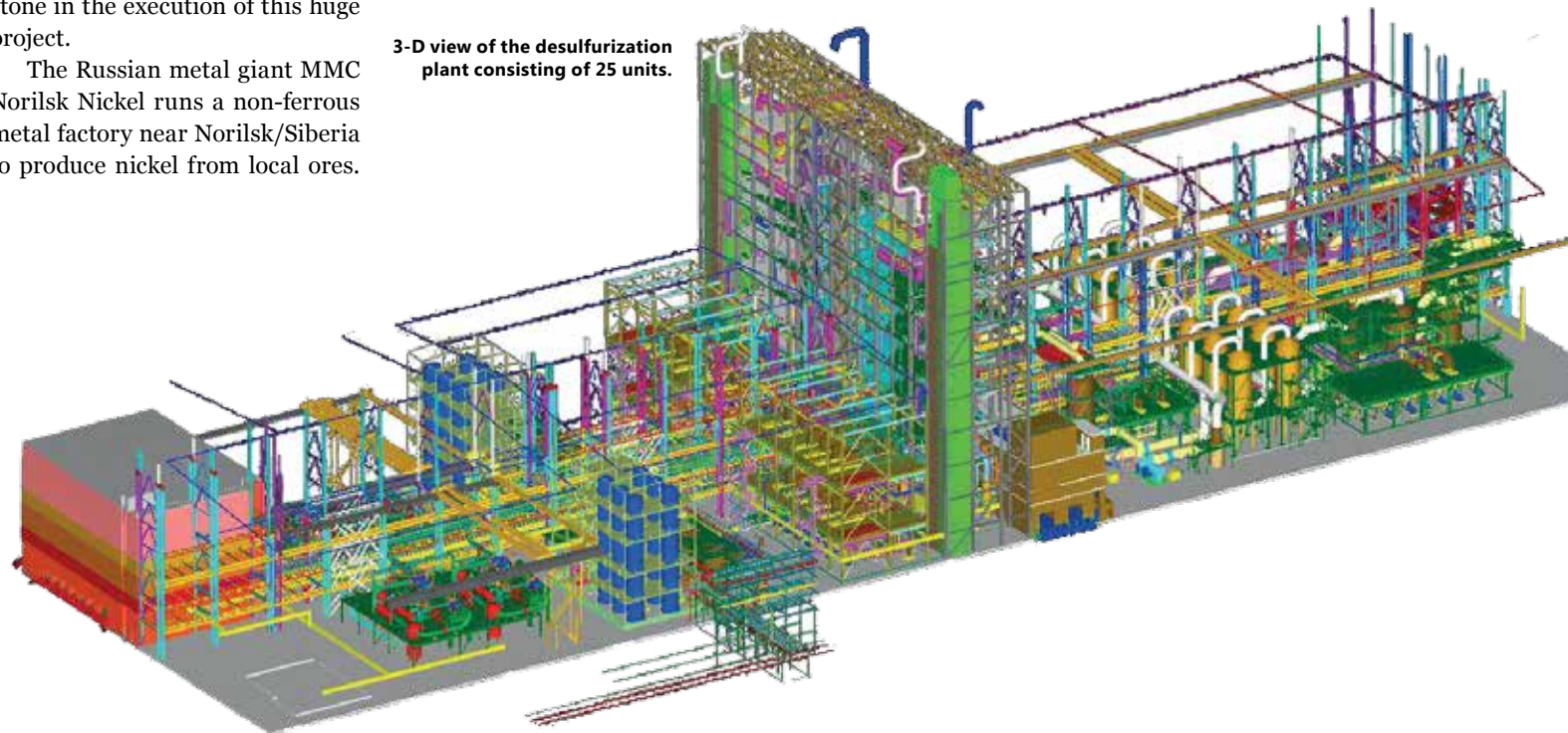
The Russian metal giant MMC Norilsk Nickel runs a non-ferrous metal factory near Norilsk/Siberia to produce nickel from local ores.

tail engineering, survey, extensive geological, topographic and environmental analyses at site, an in-depth environmental impact

planning and detailed planning (authority engineering according to Russian law partially requires complete detailed planning), had

and Le Gaz Integral came out as winner. The total contract value (turnkey) for the two plant complexes put out for tender – one

3-D view of the desulfurization plant consisting of 25 units.



The factory is to be equipped with a new desulfurization plant downstream of the production line that will use 95 % or more of the sulfur dioxide emission to produce 600,000 MT sulfur per year. It will thus be possible to better the environmental situation in the industrial region around Norilsk and make a vital contribution to protect the environment of the entire Arctic Circle.

International project execution

Pörner's engineering job lasting over three years comprised the overall coordination and management of the entire work package. Pörner's work package comprised in addition to the overall coordination the FEED design, authority engineering according to Russian law including the necessary de-

analysis with public participation, dismantling plans for existing facilities, planning and design of new plant units on the premises, RFQs for process equipment as well as cost planning and scheduling.

The project also included all necessary ancillary facilities (cooling towers, fire fighting system, water and wastewater treatment, instrument air, nitrogen and power supply facilities) and the relevant integration into the existing networks. The area consists of a total of 25 plant units.

For this large-scale project an international project team was formed headed by Pörner Grimma with team members from Vienna, Grimma, Kiev, Severodonetsk, and Moscow.

A large number of international partners, among them also Russian partners, who could be won for local stocktaking, surveys, special

to be coordinated and guided.

Contract awarded to Pörner Group

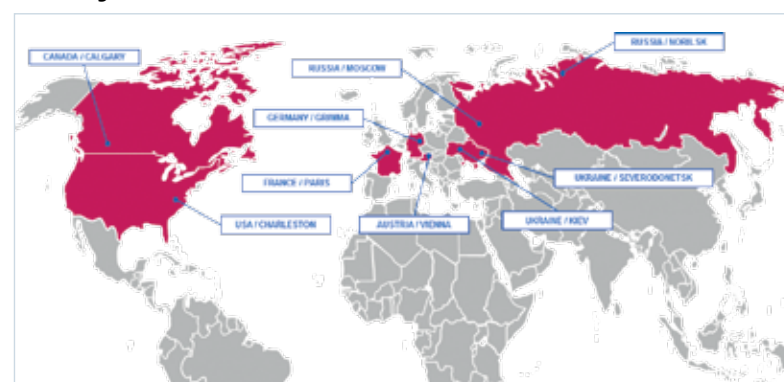
The efforts by Norilsk Nickel have received strong support by the Russian government and the local authorities since the start of the project in 2011. Back then an international invitation to tender was started with the aim to upgrade the plants in Norilsk and thus improve the environmental protection in accordance with European standards.

The Pörner Group participated in the tender together with the general contractor Techint (Milan/Italy) and technology partners from Belgium and France. After a months-long selection process in which 27 international consortia took part the team comprising Pörner, Techint, DuPont MECS

off-gas cleaning for a nickel and a copper factory – amounted to USD 1.6 bn.

In 2014 Techint withdrew from Russia for reasons of corporate policy. As a result Pörner Ingenieurgesellschaft was entrusted in summer 2014 with the continuation of the FEED design and authority engineering services for

Global cooperation of the partners under the management of Pörner Grimma.



The sulfur filtered from off-gas can be stacked.

the nickel factory.

Peter Schlossnikel, Managing Director of the Pörner Group stated in this connection: *"In close cooperation with the process licensors and local partners all necessary documents could be handed over on time to Norilsk Nickel in August 2015 for preliminary examination. Following a positive completion of the pre-examination the documents were officially submitted to the authorities in late September 2015. After this important hurdle had been taken successfully the prospects for the continuation of the project look good."*

Advanced technology convinces

Most advanced technology is used for this plant which initially pretreats and concentrates the sulfur-containing gases. In the downstream catalytic conversion unit the gases are concentrated and granulated on the Claus principle to become liquid, elementary sulfur which makes it possible to transport and store the sulfur. This technology chain convinced the customer.

A renowned project

State Award. Pörner Group with Norilsk project nominated for State Award for Consulting.

BY LYDIA BRANDTNER

VIENNA. The dimensions of the Norilsk project and the services performed to cope with the tasks also convinced Austrian jurors. So the Pörner Group was for the project 'Clean air for Siberia' honoured with the nomination to the Austrian State Award for Consulting in November 2015.

The jury motivation for the award was, *"...that such a highly*

technical mega project has never been undertaken under such difficult conditions with nearly continuous permafrost, temperatures up to -57 °C, transports only by seaway or river."

The Managing Partners Andreas Pörner and Peter Schlossnikel as well as Gerhard Bacher, Managing Director of Pörner Grimma, and Albert Traxler, Head of CIS Sales, accepted the nomination certificate and rejoiced at the

appreciation of the performance of the whole team.

Consistent excellence by Pörner

Hardly any other Austrian engineering company has repeatedly been awarded like Pörner has. After winning the State Award for Consulting in 1991 for the design and construction of a wastewater treatment plant and in 2005

for the invention of the Bitumen Packing System for transporting cold bitumen in bags, Pörner was also honored with nominations for the State Award in 1997, 2007 and 2008 for successful execution of turn-key projects. Now the leading independent engineering company in Austria was asked again to take the stage.

Handing over the certificate at the award-winning-ceremony.



25 years EDL Anlagenbau

Anniversary. Celebration and a noble outing to Freiberg.

BY ULRIKE FISCHER

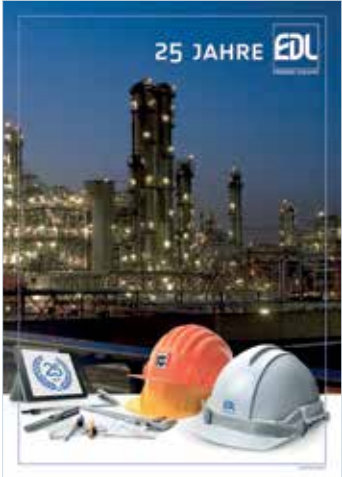
LEIPZIG. In September not only the meeting of the Pörrer Group representatives was held, this time in Leipzig again, where the latest projects were discussed and coordinated but it was also the time to celebrate the 25th anniversary of EDL Anlagenbau Gesellschaft.

Reason enough to take out the guests from four countries and all staff members of EDL to one of Saxony's pearls – the University and Mining Town of Freiberg. In the historic centre of the town the world-famous cathedral with its Silbermann organ and quaint medieval sculptures was visited. With competent guidance the group then headed to the marvelous world of minerals "terra mineralia" with the most staggering creations of nature.

Looking back to a quarter of a century

The day was brought to perfection at the "Salles de Pologne" baroque halls in Leipzig.

In their speeches the shareholders and managing directors recalled the past 25 years of corporate history and expressed their



The brochure "25 years EDL" is attached to this publication.



thanks for the personal commitment. The impressive track record of the projects completed – the most recent project highlights are described in detail in the anniversary brochure attached – and the great number of satisfied customers is proof of EDL's performance. It was not always easy but today we can be very proud of what we have achieved. The development of the company after German reunification as an engineering contractor recognized in Germany and beyond as well as the permanent extension of the technology portfolio open up numerous opportunities for the future.

Without the expertise and the high personal commitment of the employees all that could not have been achieved.

The management used the event as an opportunity to honour 25 employees for their long-standing loyalty. After the official part partying as is right and proper for engineers was the order of the day.



Honoring ceremony for employees for long-standing loyalty.



Rare minerals at „terra mineralia“.



Meeting of the managers and executives of the Pörrer Group locations in Leipzig. Optimal utilization of resources across locations is coordinated, especially for the execution of international projects.

The project with guaranteed customer satisfaction

Company outing. Pörrer employees for four days in Malta.

BY MARGOT SIMONIS

VALLETTA. The Pörrer company outing for the Austrian employees and their partners led to the beautiful island of Malta for four days in May 2016.

Accommodated at the 5-star Hotel Excelsior with its spa, indoor swimming pools, outdoor pools, landscaped gardens, a private beach on the Mediterranean and within a walking distance from the capital Valetta, the island was explored.

Il-gurnata it-Tajba! (Good day),

as the locals greet each other in Malta. Not only the language, the whole island with its international flair is very diverse in many ways and worth a visit.

Malta showed the 134 Pörrer excursionists its most beautiful side with glorious weather and pre-season relaxation.

5,000 year old megalithic tem-

ples, picturesque bays and fishing villages, medieval palaces, the sister island Gozo – Malta offers something for everyone.

One highlight was the exquisite gala dinner that all Pörrer fellow travelers enjoyed together with wonderful weather and high spirits.

Once again our thanks to the management! It was beautiful, we enjoyed the trip to the fullest and we have come to know each other better. All of us wished we could have stayed a bit longer.



EXTENSION

BY PETER SCHLOSSNIKEL

Floor added to Vienna HQ

Since June 2016 there has been scaffolding in front of the whole building at Hamburgerstraße 9. The attic floor of the Pörrer headquarters in Vienna will be extended by another three

floors. Used to execute revamp projects during running operation the Pörrer Group will complete this project on schedule in spring 2017.



Site at Hamburgerstraße in Vienna.



Rendering of the planned expansion.

Highly refined starches and more baby food

Pörner plans expansion. Wet derivative and dry mixing plant for Agrana.

BY PETER HARTBERGER

GMÜND. Since the 1980s Pörner has repeatedly been commissioned by Agrana with a variety of projects such as the general planning of the bioethanol plant, the construction of a new administration building and a ship loading station in Pischelsdorf, and most recently with the revamp of the wet derivative plant and the construction of a dry mixing plant to extend the baby food production line at the Gmünd site.

Revamp of wet derivative plant and new storage silos

In recent years, Agrana has invested some million Euros in the modernization and expansion of its production plants to achieve better refinement at the starches production.

In Gmünd, mainly potato starch has been processed to technical starch so far. For expanding the production to corn starch derivatives, Pörner completed the authority engineering, detail engineering, project management, site and construction supervision as well as commissioning support within nine months.

With the experience and expertise of numerous completed revamps and modernization projects Pörner solved the complex challenges:

- To avoid loss of production the plant was refurbished during operation. Old equipment was replaced by new one step by step, thus reducing the actual downtime to a minimum.
- Reusable parts of the plant were dismantled and installed elsewhere.
- Because of insufficient soil strength Pörner's civil engineers had to recalculate the base plate and foundations and develop another assembly concept.

Follow-up order: New dry mixing plant for baby food production

Subsequently Pörner was commissioned in March 2015 with the planning for the expansion of the baby food production. By construction of a new compounding facility, the production capacity of baby food should be doubled.

Pörner performed the civil en-



It took six months to erect the building of the new mixing plant incl. truck loading station.

gineering of the building and the truck loading bays, the site and construction supervision. The project team succeeded in reducing the mixing tower construction time per floor to a week - a veritable record. So the project was completed within six months.

A successful project

„Stay in-quality, in-time, in-cost“, that means for Pörner not only effective management in terms of technology, time and cost, but also customer-oriented consulting and reliability from a single source. The wide range of in-house specialists enables Pörner to find innovative solutions even for unusual problems. ■

AGRANA AG

The Austrian AGRANA AG is world market leader in fruit preparation business, leading provider of sugar and starch products in Europe as well as Austria's largest supplier of bioethanol. ■



Pörner on site

OMV. New container office at Schwechat.

BY MARGOT SIMONIS

SCHWECHAT. OMV is one of Pörner's key customers for whom engineering services are regularly provided at the production site of Schwechat. Besides the large-scale projects, such as the most recent shutdown, smaller projects are implemented constantly under the framework contract.

Especially for this kind of work it is essential to be readily available, which is why eight years ago own site offices were put up at the refinery premises. These offices were now renovated and extended in September 2016 to improve the

working environment for the employees and to pool all Pörner capacities and organize work even more efficiently.

The new two-floor office is a container building and provides more workplaces, a kitchen and amenity room for the staff and a new meeting room for customers and partners. The IT infrastructure was brought up to date running with the latest software.

Thus, the Pörner team is well equipped for upcoming projects to implement the same fast, flexibly and reliably in close cooperation with the client with only one thing in mind: customer satisfaction. ■



ABOUT THE PERSON



Petja Fiebinger has been working for Pörner for 25 years and on OMV projects at the Schwechat site since 2008. In July 2016 he undertook the management of the Pörner task force 'OMV Refinery' in Schwechat. ■



Cramped conditions in the wet derivative plant.

Pharma plant engineering from Tyrol

Pörner Kundl. Pharma specialist

under new management.

BY LYDIA BRANDTNER

KUNDL. Pharmaceutical plant engineering and construction follows special requirements: Quality assurance is crucial since any quality deviation in pharmaceutical production may have a direct impact on the health of consumers. This is why processes for the production of pharmaceuticals and active ingredients have to be validated and equipment items qualified.

The difference between the engineering for pharmaceutical plants and that for refineries and the chemical industry lies mainly in the GMP (Good Manufacturing Practice) guidelines. A GMP-compliant quality management system (QMS) ensures the production quality namely both the processes and the environment, and is indispensable in order to meet the regulatory requirements. ■

tation and maintenance: from conceptual design, basic and detail engineering through to project management, validation/qualification and local construction supervision including commissioning support, accounting control and documentation.

To keep abreast with the latest developments, the Kundl team gets regular training. Attending specialist seminars and courses once or several times a year is mandatory because profound knowledge of the field, absolute quality and a proactive approach are what counts in this branch of industry.

The lure of the challenge has not gone away, even not after 20 years – every project is unique – it is that what unites the Kundl pharma specialist and all engineers of the Pörner Group. ■

From real life

Here are two small examples to illustrate this particular nature: When pharmaceutical cleanrooms are planned horizontal surfaces are avoided wherever possible to prevent dust from depositing. And quite often pharmaceutical engineers have to overcome a double-door system to get to their workplaces and wear a protective cover-all to avoid contamination.

Full service offerings:

The Pörner engineers have been tackling the challenges of pharmaceutical plant engineering at the Kundl location since 1992.

On offer are the entire package of planning and execution of pharmaceutical projects and all services related to plant engineering and construction, HVAC and sanitary systems, electrical and instrumen-

ABOUT THE PERSON



Since 1997 Stefan Meixner has been working for the Pörner Group and is thus considered an "old hand". During this time he has specialized in the design and validation/qualification of pharmaceutical plants. In April 2016 he took over as managing director of the Kundl office.

In his function as conductor and leader of the band of his hometown Stans 70 musicians follow his beat – whereas there are 17 at the Pörner office in Kundl with more to expect. ■

The Pörner Kundl team. Good prospects for further growth.



THE PERFECT PROJECT

The engineering office: your technical counsellor

BY PETER SCHLOSSNIKEL

What is an ideal project in process plant engineering? Its first-class execution and completion within the budget and time and smooth commissioning and excellent operation.

How do we manage it to implement such a project? As experience teaches us - mainly by harmonious collaboration of customer, engineering partner and contractors.

Regrettably it is cost pressure that primarily rules business at the present time. Production plants see one cost-cutting program after the other. In times of low oil prices this pressure is especially obvious in the oil industry.

But are we following the right

track? Economizing is good but not at any cost.

Best bidder vs. lowest bidder

Once you have found a counsellor whom you trust, will you replace him if you have to handle multiple similar cases? Hardly likely because you know that he knows your requirements and your way of working very well, he knows which you place value on, and how you decided in difficult situations. You are glad to have found the ideal representative of your own interests. Because you can rely on him the fee of the "right" counsellor is fair and reasonable. A chief executive will certainly not look for a new counsellor with every merger, disposal or dispute.

Is this situation not similar when it comes to the engineering contractor whom you trust, where large investment sums and decisions effective in the long run are at stake? And yet, there are companies buying "engineering hours" like screws under the slogan: as cheap as one can get. But the right engineering partner acts in the long run as technical counsellor for the implementation of projects. He knows how you approach projects, how your organization works and how to achieve the project targets in close cooperation. Therefore, the employer should take the trouble to evaluate its most important partner for the construction of a process plant and choose the most suitable one, i.e. best bidder, rather than the cheapest one.

Pretty much as we at Pörner's assess and determine it for every process, piece of equipment, construction service on the basis of our in-depth market knowledge, exclusively on the best bidder principle.

Lowest price certainly not better

If you strictly go according to the lowest bid, consequential costs, delays or useless documentation usually follow in the wake because the so-called "cheapest" bidder can also not perform miracles. It is highly probable that it hopes to get its money through supplements.

There is hardly any difference when it comes to personnel expenses in Central Europe; ISO certified companies have to make the same efforts to a large extent. Otherwise they could not be market players. So, the question arises: Who makes it better? Who has got the more committed, motivated staff? Who has got the experience? Who knows its stuff and determines and controls the vendors?

Quality bidders such as the Pörner Group:

- have more expertise gained from high-calibre projects over many years and extended by ongoing training and qualification;
- provide the services of all disciplines for the construction or revamp of a process plant from a single source (including CSA by Pörner) with no interdisciplinary interfaces;
- have the right mix of specialists and all-rounders, experienced staff and young and upcoming talents;
- can draw on a large pool of experts (500 within the Pörner Group) to build a team based on the specific project requirements;
- have a great stock of data mate-

- rial, benchmarks etc. available; are equipped with the latest software for design, calculation, simulation

mercial terms for the execution of small-scale and medium-sized projects and standardizes them to the extent possible. It is thus possible to commission and carry out all work that becomes necessary in an unbureaucratic manner without friction losses. One call suffices and the partner can start working. The same applies, of course, to the commissioning of qualified construction contractors implementing projects routinely.

It makes good sense to define a joint work program at the beginning of a year to plan ahead the necessary capacities or deployment of specialists because one thing should be kept in mind: The creative work is done by human beings rather than by machines, both at the office and the construction site, therefore their deployment needs to be coordinated as best as one can. An engineering partner with a sense of responsibility will give a warning if he notices that the scope of work will exceed the envisaged one.

It is preliminary work of a project that can be handled particularly well through framework contracts. All clarifications in advance (internally by customer and with authorities) can thus be made efficiently. If the project owner arrives at the conclusion that the size of the project requires a separate invitation to bid, all major data will be available and all requested engineering contractors get a clear-cut definition of tasks so that they can submit technically comparable bids.

The continuous cooperation of the networked teams on the side of the customer, the engineering firm and the contractors constantly improves the knowledge as to the operating conditions, the state of the plant, the requirements for the future, and improvements can be made in all areas.

The Pörner Group sees oneself as long-term trustworthy partner to find and put into practice the optimal solution for every project.

For the sake of the perfect project.



ON OUR OWN BEHALF BY MARGOT SIMONIS



Austrian Leading Company

On 20 October 2016, within the Hermes.Wirtschafts.Gala at the Hofburg in Vienna, the Pörner Group was again awarded the certificate 'Leading Company of Austria'. The Pörner Group has been one of the exemplary Austrian companies for years.

"Leitbetriebe Austria" is an independent business network that spans across all industries. It distinguishes and connects

best-practice companies within the Austrian economy. Sustainable corporate success, innovation and social accountability have top priority when it comes to certification.

Managing Director Peter Schlossnikel accepted the award together with the Head of Marketing Lydia Brandtner in a festive ambiance.

[HTTP://WWW.LEITBETRIEBE.AT](http://www.leitbetriebe.at)



In the Vienna Hofburg: Peter Schlossnikel, Managing Director of Leitbetriebe Austria Monica Rintersbacher, Head of Pörner Marketing Lydia Brandtner at the award-giving ceremony.