

ACHEMA 2009

THE ART OF ENGINEERING



Take your chance

In a changed economic environment the industry has to quickly react to new conditions and adjust its production plants accordingly. The Pörner Group is the flexible engineering partner just when it comes to optimizations and revamps of process plants: due to high process expertise and efficient plant implementation solutions with that 'decisive extra' of innovation and productivity are generated.

Anticyclic investing proves to be rewarding

In recent years the global economy boomed due to a quick growth, high crude oil and raw materials prices as well as a permanent globalization. This boom, however, abruptly

crease can be corrected, overloads experienced during the boom decline and companies have again capacities available. In the last years, the Pörner Group had a workload of more than 100 %, orders had to be rejected and the staff worked to the hilt.

Flexible for smaller projects
Most recently a lot of large-scale plant engineering projects were postponed or totally given up. Instead of them an increasing number of smaller, alternative project measures need to be implemented now. Compared to big plant engineering companies the Pörner Group has an ideal structure to handle small and medium-sized projects particularly cost-efficiently: anticyclic investments that are worthwhile.

Small investment sum – Great effect

The efficiency of existing plants can be increased by relatively little spending e. g. by specific technological refurbishments and revamps, thus enormously enhancing the product quality.

Equipped with the most advanced simulation and software tools our strong and experienced process division converts our customers' requirements into flow diagrams and specifications: quickly and properly.

Good price-performance ratio

In recent years the Pörner Group's entities could repeatedly prove that they were able to provide engineering services with a decisive extra portion of innovation and efficiency to the industry at an average price level.

Getting back into shallow waters has also certain advantages: vendors better adhere to delivery dates, capacity utilization normalizes and equipment prices go down. After a wave of heavy sellings we count on 5 to 10 % decrease in equipment prices. Thus, conservative projects become more feasible.

Outlook

We focus on our strengths: proprietary technologies and constant technology development, strong process engineering and intensified internationalization. The Pörner Group with its experience gained in more than 2,000 projects is fit for the future.

With this in mind we wish all our customers and business partners to take advantage of the crisis as well as have a successful AICHEMA 2009!

Yours sincerely,

Andreas Pörner
Peter Schlossnikel

Welcome to AICHEMA 2009!

Dear AICHEMA visitors, dear business partners, dear friends,

We are more than happy to repeatedly participate in the most important exhibition of the process industry. After having received a good feedback of the 2006's exhibition we have again arranged our „Engineering Café“ for you. Here you can relax during a busy exhibition day

ry. Have you ever tried Dobos Torta? Well, you do not necessarily have to go to Hungary to enjoy this delicacy.

As in a typical café, you can read international newspapers and, of course, our „Engineering Times“ specially-issued for AICHEMA. Read what has happened for the last three years, what the Pörner Group does today and how we manage the current economic situation.

Even in turbulent times as



Booth of Pörner Group in hall 9.1, K14-K17

and discuss with our engineers about new projects in a pleasant ambience.

Our café shows the cultural connection between our eight Pörner locations in five countries. Our engineers are familiar with the cultural particularities and also know what tastes nice. Therefore, we would like to invite you to have a taste of pastries from Germany, Austria, the Ukraine, Romania and Hunga-

just now AICHEMA where we are going to discuss many a project idea to be then implemented will surely become a great success both for the Pörner Group and our customers and business partners.

We wish you an inspiring visit to AICHEMA!



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Pörner Group: 37 years of expertise

Plant Engineering. Confidence is and will remain the basis

Vienna (Andreas Pörner). When in 1972 Kurt Thomas Pörner ventured a brave step and established his „Technical office“ with three fellow engineers he scarcely knew that 37 years later the same company could look back as Pörner Group to roughly 2,000 projects realized and a staff of around 450 engineers and specialists.

Meanwhile being represented by subsidiaries in Vienna, Linz, Kundl, Leipzig, Grimma, Budapest, Kiev and Ploiești, Pörner has set up an eminent and efficient engineering network in Central Europe: the Pörner Group.

According to the available specializations individual Group companies have been developed into competence centers for refinery process plants, steel mills, bitumen technology, synthetic resins and derivatives,

pharmaceutical plants and gas processing.

As process-oriented plant engineering company with a huge pool of experts and a high en-



EDL office building in Lindenthaler Hauptstraße in Leipzig

gineering capacity for the implementation of process plants the Group has enjoyed the confidence of high-class customers from the refinery, petrochemical, chemical, gas and energy industries for many years.

Eastern Europe

Over the last 15 years Pörner has expanded its business activities particularly to the upcom-

ing neighbouring countries and countries of the former Soviet Union. Bitumen and chemical plants were realized in Poland, the Czech Republic, Hungary, Russia, Azerbaijan and Turkmenistan.

In 2006 Pörner bought 100% of the shares in Gazintek, which performs high-quality engineering services for leading western gas companies. Due to its specialization in 3D piping Gazintek supports other Group members and plays a decisive role in delivery transactions Russian-speaking regions.

The latest commitment of Pörner in Eastern Europe referred to Romania, a country where many German and Austrian companies have engaged in recent years, such as the OMV Group by taking over PETROM. In Ploiești a Pörner engineering office was established where from the very beginning attention was paid to a high process competence. By transferring Pörner's time-tested culture of reliable project implementation this new company could very quickly get a foothold in the market for refinery services and has employed around 20 specialists by now.

Interesting projects

The general planning of the 240,000 m³ bioethanol plant for the Agrana Group in Pischelsdorf, located directly by the Danube, was the largest project in Austria in the last years. This grass-roots plant was engineered with all off-sites and infrastructure by Pörner Vienna based on customer's specifications. In 2007 the project worth a EUR 125 million was handed over in time and on budget.

In 2007/2008 a globally unique catalyst plant for Süd Chemie AG was realized by Pörner Linz in Qatar. Among others it provides GTL process plants in the Gulf region with advanced catalysts. The catalyst plant was built up without having a pilot plant as intermediate step, i.e. the pre-basic engineering was directly transferred into a large-scale industrial plant that was put into operation in June 2008.

For refinery and chemical industries...

The two German companies EDL Anlagenbau Gesellschaft and Pörner Grimma have successfully developed in their special fields of activity. EDL in Leipzig has become a reliable engineering partner in many German refineries and chemical companies and has continu-

ously executed orders e. g. for PCK, TOTAL, Puralube and Leuna-Harze. The customers, without exception first-class multivariate enterprises and companies, especially appreciate the process competence and the proverbial German quality of all engineering services made in Leipzig: when it comes to optimizations in the course of plant revamps, but also if new technologies and process lines have to be implemented, such as the first plant to produce Sun-Diesel from renewable resources at CHOREN, EDL could always justify the customers' confidence.

Pörner Grimma - competence center for formaldehyde and its derivatives - has engineered and supplied complete chemical plants mainly to Eastern Europe. Contracts for a bakelite/novolac plant and another formaldehyde plant as well as downstream units for this product family are being completed in Russia. Thus, Pörner Grimma has strengthened its position as German plant engineering company in this interesting niche market.

What is next?

15 years ago K. Th. Pörner, the company founder said: "If we were not a good engineering office, we would have been blown off by the heavy wind of this market long ago."

Since that time Pörner has developed into a powerful company. The booming economy of the last years was used to line up well in the plant engineering sector: new technologies and technology areas have been opened up, new markets have been targeted and new customers have been attracted.

It is a fact that the global financial crisis has a negative impact on plant engineering. Nowadays and in the next years there will be fewer and smaller projects, more revamps instead of newly built plants. But just in this situation the Pörner Group has advantage over the competition due to its medium size, capability and flexibility as well as its long-term vendors. It is known that you get good service from Pörner at a reasonable price.

The Pörner Group is going to stick to its dual strategy further on - to perform classic engineering services for the process in-



Hamburgerstraße 9 in Vienna - the headquarters of Pörner Group

dustry on the one hand, and on the other hand to deliver smaller plants based on proprietary niche technologies all over the world. Due to changed general conditions in refineries there is even an increased demand for the Biturox® technology.

Without advanced technologies, without process engineering there will not be any advanced materials and fuels, there will not be any advanced environmental technology that are an important basis for wealth and peace in the world.

The Pörner Group's engineers are prepared to justify the confidence gained over the last three decades again and again by their work and to create plants with the „decisive extra“ in innovation and productivity. ■

RELAUNCH: Pörner Group presents new homepage

Vienna (Lydia Barth). We are happy to present you the new Pörner Group homepage!

With a new the homepage has been extended, perfected, unified and enriched with diverse animations.

- The presentation of our technologies - ,the decisive extra' of a plant engineering company - has been made up contents wise and brought into focus under the menu item ,Technologies' on the Pörner Group page. Many technical details and downloads provide comprehensive information.
- Illustrated references can be accessed by one click, and the latest news are shown on the start page.
- Every Pörner location presents its specific services, references and contacts.
- All pages are available in German, English and Russian.
- The homepages of the subsidiaries EDL and Gazintek as well as the Biturox® homepage www.biturox.com have been redesigned, extended and better integrated into the Group's homepage.

It goes without saying that despite this relaunch the well-known internet addresses www.poerner.eu, www.edl.poerner.de and www.gazintek.com remain unchanged.

Test our new homepage! We look forward to receiving your feedback and wish you an enjoyable surfing. ■



Discover the Pörner world anew.

Entirely comfortable



Service

Procurement

- Preparation of bidder lists
- Auditing of vendors
- Ordering
- Expediting: execution of procurement procedures
- Logistics and transportation



Peter Mitterer



Dr. Klaus-Peter Merke

Project Management

- Project management
- Project controlling
- Commercial project execution
- Project scheduling
- Site management

EDL breaks new ground

Focus. *Plant engineering made in Germany*

Leipzig (Roland Ludwig). EDL Anlagenbau Gesellschaft mbH has evolved into a reliable partner of refineries and the chemical industry in the German-speaking region for almost 18 years of its existence. In the course of this a quantum leap has happened with respect to professional competence and working capacity. In May 2006 only 12 engineers worked in the process department whereas today there are nearly 30.

With efficient process engineering in all project stages, during planning and execution of refinery revamps and when it comes to the construction of new chemical plants - EDL has built up a good reputation in the market.

Fit for the future

Since July 2008 the new management has broken new ground, thus meeting the steadily increasing requirements and changing market conditions.

This shall be achieved based on a compact package of measures: part 1 of the package en-

compasses organizational measures. EDL premises have been prepared for a further growth of the staff, working conditions have been improved by rebuilding the premises and by modern office



Roland Ludwig, EDL's C.E.O. since July 2008 sees optimistically into the future

furnishings. Now the server systems are being modernized step by step to get more efficient, reliable and secure IT systems. EDL's organizational structure has been defined more precisely, further two management levels have been clearly set up. Last but not least the pay system has been modernized towards payment by results.

In a second and more important part the work itself was analyzed. In an executive meeting held in summer 2008 and from now on taking place twice

a year capacity reserves were revealed and new ideas presented. At a technology conference new fields of activity and their markets were elaborated, e. g. gas technology as EDL's new field of activity.

Crisis?

Due to the financial crisis that has escalated into a crisis of the world economy in the meantime, it was necessary to considerably intensify sales activities. Some of the expected projects were postponed by the customers, other projects were completely cancelled. All this requires to tap new markets and countries faster in order to hark back to a broader customer portfolio in the future.

Projects are being developed with high commitment in Russia, other CIS countries and the Middle East.

The present situation is not easy, but a strong EDL team with motivated and well-trained, young employees as well as with the experienced "old hands" is all geared up for hard times. Thus, EDL will be able to successfully make its contribution to plant engineering in Germany and foreign markets in the next years.

Despite all current challenges EDL's management optimistically sees into the future and looks forward to celebrating the company's 20th anniversary in September 2011.



EDL's executives meeting at Ramada Hotel in Leipzig in July 2008

Trends: Process Engineering of the future

Leipzig (Dr. Rolf Gambert). EDL has prepared itself in due time: customers' process requirements are getting higher and higher. Software products for more complex and in-stationary, dynamic simulations are required.

The IPS Process Engineering Forum held in Paris from January 26 to 28, 2009 clearly pointed out what the future trends and challenges of the process engineering would be like. E. g.

- A completely new orientation towards simulation of solid matters processes (e. g. coal or wood gasification) with programs such as PRO/II, DYNASIM etc. will be required.
- A virtual plant reality can result in considerable savings for OTS (Operating Training System) training in refineries.
- Dynamic simulation of industrial processes will make up a greater part of process engineering in the future since many special, process-related problems can practically be solved by a dynamic simulation only.



by means of software producers and virtual games and using photographs. The process is shown by a dynamic simulation. All modifications to the process are transferred to a process control system.

The operator training can completely be done with the help of this system in a virtual world. Using a game controller the operator can walk through the virtual plant and execute operator actions that are transferred via a process control system to the dynamic simulation of the plant so that a direct feedback as to the operator action can be given. Additionally connected with a sound system the operator gets a very realistic idea of the actual plant.

State of the art

The dynamic simulation of the C₃ splitter built up in 2007 was presented by EDL together with PCK Refinery Schwedt and IPS. In their speech they underlined the advantages of such simulations for plant commissioning, especially based on PID parameters determined with the help of the model. It could be

Cost savings by dynamic simulation

New and considerable cost and energy saving potentials can be revealed by dynamic process simulation. Dynamic plant simulation used to determine blow-off quantities of relief valves can be given as an example. Calculations show that the flare network loads could be reduced by 30

Dr. Rolf Gambert, Head of Process Department during his speech on dynamic simulations in Paris



to 40 %, i. e. existing flare networks can be further used to tie in new plants without additional investments, if proof of the actual loads can be furnished by dynamic simulation.

Virtual reality

Creating a virtual plant reality for OTS (Operating Training System) training in refineries is another trend in process engineering. Under the headline "IPS Immersive Training System" TOTAL offers a self-developed system of a virtual reality for the first time. The plant is transformed into a virtual world

clearly explained that, in fact, all relevant malfunctions as well as start-up and shutdown procedures can be simulated in an adequate process model.

The IPS Forum showed that EDL represented the state of the art at a very high level and actively participated in a further development of IPS software due to their commitment in the Advisory Board of DYNASIM. ■



Portable by complete project execution

Services. *Service offerings of Pörner Group*



Construction and Commissioning

- Construction management
- Local site supervision
- Expediting and cost controlling
- Commissioning or start-up assistance
- Documentation
- Training of operatives
- After-sales service

Project Development

- Project concept preparation
- Provision of technologies
- Selection of technologies
- Feasibility studies
- Environm. impact assessment
- Safety analyses
- Expert opinions

Basic Engineering

- Technology improvement
- Process simulation and process optimization
- Process engineering
- Authority engineering
- Budgeting

Detail Engineering

- Mechanical
- Piping
- Electrical and I/C
- Architectural
- Civil / Structural
- HVAC
- Safety



PÖRNER LINZ: GENERAL PLANNING CONTRACTOR

First catalyst plant in Qatar

+++ In March 2006 Pörner Linz was contract awarded by Süd-Chemie AG to engineer within ten months only a catalyst production plant that had never been realized before. The overall investment amounted to a EUR two-digit million sum. +++

Linz (Markus Obermayr). Süd-Chemie AG, an internationally leading manufacturer of catalysts for the chemical and petrochemical industries wanted to implement the project „Sindbad“ with the aim to build up an advanced industrial-catalyst

verted step by step into a wide range of fuels and chemicals in downstream processes using catalysts. Catalysts accelerate chemical reactions without spending themselves, thus allowing for a resource-saving and cost-efficient production of chemicals.

From zero to hundred

With the kick-off meeting in April 2006 Pörner started the general planning incl. detail engineering for mechanical, piping, electrical, I/C, preparation of tender documents, procurement of equipment, coordina-

engineering phase requirements to the equipment had to be assessed and compared to similar process stages. Since there was no equivalent process plant available, technical solutions had to be elaborated together with the process designers of Süd-Chemie.

After having determined all fundamentals, a process concept and subsequently the basic engineering were prepared. In close cooperation with the customer and the Qatari architects the detail engineering work as well as the authority approval procedure in Qatar started at one go.

Local legal regulations and laws had strictly to be adhered to. European safety and quality standards were considered minimum requirements.

Upon receipt of all local permits in October 2006 civil works at the access roads and the building could commence.

Software Application

By using project management tools for scheduling, expediting and reporting the state of work could be retrieved at any time. Thus, nuisance factors and occurrences could be identified in advance and counter-measures be taken.

the customer, adjustments and modifications could be considered and quickly be done.

In this way, modifications during installation were reduced to a minimum.

After only 10 months detail engineering was completed together with the specifications for installation work in February 2007.

Global Sourcing

The coordination of equipment and component dispatch from Europe within the prescribed time and sequence was a great challenge for the team of engineers. Although shipment of apparatuses and equipment commenced in August 2007 in due time, the start of installation was delayed by unpredictable constructional circumstances to October 2007. Nevertheless, site organisation incl. erection supervision was successfully done by two experienced Pörner employees within 10 months.

Due to optimal project organization across countries and companies and the application of advanced software the plant could finally be completed in time and on budget.

Milestones

With the project „Sindbad“ the first Qatar-based plant was implemented by Pörner. Thus, Süd-Chemie became the first western company that operates a catalyst production in Qatar. This is an important milestone in both companies' further development.

The cooperation with German process designers, operators

and specialists of Süd-Chemie, especially with Dr. Jürgen Koy, Marco Schuth and Herbert



Interior view of the plant



The project team headed by M. Obermayr (l.)

production plant.

Based on huge natural gas deposits and GTL plants being under construction, an approximately 10,000 m² large site in the industrial park „Messaieed Industrial City“, 35 km away from Qatar's capital, Doha was chosen as plant location.

Qatar, the Gulf Region and Asia can be provided with tailor-made catalysts very well from this strategic production site.

Gas to Liquid

The high-tech catalysts produced in the Qatar-based factory are used in so-called Gas-To-Liquid (GTL) processes and other petrochemical plants.

In GTL technologies natural gas is converted into synthesis gas (syngas) by using catalysts. This gas is a high-rich mixture of hydrogen and carbon monoxide and is con-

tion of architects, compilation of documentation, project management and commissioning.

Without having a pilot plant as intermediate stage, the full-scale plant for the production of several thousand tonnes catalyst per year was engineered



Official opening ceremony on July 2, 2008

just based on a pre-basic design by Süd-Chemie AG - engineering really from zero to hundred. As early as in the conceptual and basic

Furthermore, 3D planning in a PDS system allowed for a virtual check of the plant. In the course of regular design reviews with

Mayer as the persons in charge of the project, was exemplary, professional and characterized by confidence. Further orders placed by Süd-Chemie are being executed.

State Prize

After an exciting application for the Austrian State Prize for Consulting 2008 the team's performance was appreciated



State prize ceremony on November 24, 2008

with a nomination on November 24, 2008.

Both engineering services and the ecological contribution met with the jury's approval. In view of decreasing oil reserves the „Sindbad“ project has also contributed in global terms to a reasonable use of fossil resources when producing liquid fuels. ■

Pharma. Pörner Kundl hands over Mini-fermentation units



Kundl (Patrick Kometer). In February 2009 10 new mini-fermentation units and a new sterilizer (autoclave) were handed over by Pörner Kundl to its regular Tyrolean customer Sandoz GmbH. As early as 2007 Pörner Kundl received a contract to engineer and implement an extension of the laboratory experimental plant in building 107 - the mini-fermentation project.

Due to a capacity increase in certain production units and research laboratories the experimental plants (mini-fer-

mentation units) very soon hit the wall of their application. For this reason the first four mini-fermentation units were put into operation for experimental purposes in October 2008.

Mini-fermentation units

The biggest challenge in the mini-fermentation project was its realization in time since the start of production of these experimental units was due in early January 2009. The project was divided into several implementation stages whereas the first one encompassed instal-

lation, mechanical piping and erection of the first four mini-fermentation units as well as the new sterilizer (autoclave). In this phase the entire layout planning of the units (arrangement of all components) and substructures was done by Pörner Kundl.

In the second phase the remaining six units were ordered and installed. The third phase will be implemented in 2010 and includes an extension of the range of functions of all units.

The high commitment of all specialists and disciplines in-

involved in the project facilitated commissioning in time and on budget in February 2009.

Experimental plant-production

In the laboratory experimental plant in building 107 substrates and solutions are fed into the mini-fermentation units. An increase

of the „product concentration“ inside the vessel is monitored and documented. Only successfully scrutinized procedures are transferred into production. ■



Mini-fermentation units for experimental purposes

SUCCESSFUL COOPERATION DYNEA - PÖRNER GRIMMA

New formaldehyde plant

Grimma (Gerhard Bacher). The cooperation between Dynea and the Pörner Group started with the construction of the FA4 formalin plant in Krems/Austria in 1987 and has lasted for more than twenty years. Now the joint work is successfully continued with the construction of the latest Dynea formalin plant based on the permanently enhanced and optimized Dynea silver process.

The new plant in Krems/Austria to produce around 70,000 t/a highly concentrated formalin with a very low content of residual methanol will be put into operation in the second quarter 2009. These concentrated and at the same time low-methanol formalin solutions are excellently suitable for an efficient

and ecofriendly production of high-quality industrial resins at Dynea Austria and will mainly be processed in Krems.

Efficient planning

The Pörner Group was entrusted with the preparation of a 3D Intergraph PDS plant model for this project. The model is a 100 % geometric and computed picture of the entire plant based on which the layout, pipe routing, positioning of all valves and field instruments as well as cable ways were jointly optimized with respect to ideal service and maintenance of the plant. Great importance was attached to highest efficiency, even during engineering. Only two meetings were required for the whole project implementation,

in other respects project details were intensively agreed upon by e-mail and phone as well as by exchanging the current 3D model. At regular intervals internal design review meetings were held in Krems where owner and future plant operators could already put forward their experience and wishes for the project.

This efficient cooperation was possible due to the Dynea and Pörner project teams have been jointly working on formalin plants (*plants 4, 5 and 6 in Krems - Austria, Kazincbarcika - Hungary, Schwarze Pumpe - Germany, Moncure - USA, Sexsmith - Canada, Bakelite Duisburg Meiderich - Germany and Metafrax Gubakha - Russia*) for many years and have, therefore, developed both an intensive personal relationship and a common understanding for special issues when implementing formalin plants.

Technological edge

The Pörner Group feels confident that the Dynea silver formalin technology is a leading formalin technology all over the world. It shows excellent commercial efficiency combined with many technical advantages, such as best ecological pro-

Customer-Statement: Dynea about Pörner



We have asked engineer *Josef Schreiber* (Operations Manager - Formalin & Energy at Dynea Austria in Krems) to briefly outline from his point of view reasons and advantages of a cooperation with the Pörner Group.

The cooperation with Pörner was again exemplary in the current project. Based on the long-term partnership, personal contacts and joint experience in designing, engineering, erecting and commissioning of formalin plants the 3D planning could be quickly and professionally performed in excellent quality.

Customer's wishes were considered by Pörner in every phase of the project without any administrative barriers. This flexibility combined with competence and professional project execution at a fair price were Dynea's reasons for placing order for 3D planning with the Pörner Group.

The following project services were performed by Dynea:

authority engineering, layout and structural design, the complete process design, compilation of specifications and procurement of sensor technology, electrical components, instrumentation as well as process control engineering incl. programming, safety engineering acc. to IEC61511 etc.. The plant was erected and will also be put into operation under the direction of experienced Dynea specialists.

Dynea in brief

Dynea is a leading provider of adhesion and surfacing solutions with a turnover of € 888.0 million in 2007. Dynea has operations in 24 countries in Europe, the Asia Pacific region and South America. With some 40 production units, Dynea employs 2,300 persons. Dynea is controlled by the European private equity firm IK Investment Partners' 1997 and 2000 funds.



Dynea formalin plant in Krems

tection, highest safety precautions, optimal user-friendly and maintenance-friendly, fully automated operation acc. to the state of the art. We look

forward to continuing our successful cooperation with Dynea both when it comes to Dynea plants and granting licenses to third parties.

GENERAL ENGINEERING CONTRACTOR FOR BOREALIS

Commissioning of polyethylene black coloring

Vienna (K.H. Kerling.) Just in time, at the turn of the year 2009 Pörner Vienna handed over a polyethylene (PE) black coloring unit to its customer Borealis Polyolefine GmbH. By extending the PE plant in Schwechat/Austria by a black coloring unit, Borealis reacted to the market demand for light-resistant black plastics for further processing, e.g. to pipes. The preliminary product, natural-colored PE granulated material, originates from the PE plant co-engineered and implemented by Pörner Group already in 2005.

General Planning

In May 2007 Pörner Group was awarded the contract for general planning of the „Black Pipe“ unit. The scope of services included authority engineering, basic and detail engineering in all disciplines such as civil and structural, mechanical, piping, electrical, instrumentation and control as well as site supervision and commissioning support. The investment value amounted to approx. EUR 28 million.

In December 2008 the plant was handed over within time and budget. Based on a Borealis technology, black PE granulated material are produced in the compounder by adding carbon black master batch.

Succeeded Start-up

The plant was extended during running operation. Therefore, both flexible and exact execution was required. After having cooperated excellently, Borealis and Pörner are now pleased about in-time completion, an accident-free site and a successful start-up of the unit.

Vienna (Gerhard Preisel). Pörner Vienna as engineering partner to the principals' community of OMV-AUT and OMV-GAS was contract awarded through the German PLEcon Pipeline Engineering Consulting GmbH to revamp part of Austria's largest gas storage in Schönkirchen-Reyersdorf.

Pörner Vienna participated in the basic engineering of the electrical and I/C scope as well as the associated detail engineering, preparation of tender documents and giving technical assistance during placing of orders. In 2008 the revamped plant could successfully be commissioned.

New control system

The main focus during the gas storage revamp was put to a continuous availability of the plant to fulfil all obligations as to natural gas deliveries. Partial shut-offs required by the revamp activities were compensated by the near gas storage Auersthal or internal switching of operation modes.

The most challenging

Gas technology. Revamp of Austria's largest gas storage



task was the changeover from the old control system to the new one during plant operation. Due to the high commitment and the expert knowledge of the owner's specialists and the experience of the engineers in the Pörner team and PLEcon this task could successfully be fulfilled.

Without interrupting

The revamp was executed in many little steps in close cooperation with the plant owner and could be completed without interrupting gas input and output due to the efforts of all employees involved.

The modernized gas storage

successfully stood the proof during the gas delivery stop in January 2009. The gas storage Schönkirchen-Reyersdorf "went like clockwork" and reliably provided Austrian households and the industry with natural gas.

Automation engineers Preisel and Fazekas busy at work



Black pipe plant in Schwechat



Gas storage station Schönkirchen-Reyersdorf

Biturox[®] technology throughout the world

License. High-quality bitumen for long-lasting roads

There is a paradoxical consequence of the financial crisis: To produce bitumen is more attractive than ever. In the last six months prices for crude oil and, in particular, the consumption of heavy, sulfur-containing marine Diesel fuel have dropped, while at the same time the need for bitumen has gone up all over the world due to government infrastructure investment programs. For this reason, the demand for Biturox[®] plants to produce road bitumen in an economical manner is increasing.

The world's leader in bitumen oxidation

Pörrer offers a bitumen oxidation technology - the so-called Biturox[®] process - that chemically changes crude oil residues and other refinery feedstock so that finally good bitumen can be produced.

Since its foundation in 1972 Pörrer has built up more than 30 Biturox[®] plants around the world - thus being the world's leader in the niche of bitumen oxidation. Today approx. five percent of the world's road bitumen production amounting to 100 million tonnes per year

are produced by the Biturox[®] process, the remaining part is produced by direct distillation of heavy oils.

Pros of the technology

A high quantity of good bitumen can be yielded by chemical conversion of middle crude oils that are preferably used at refineries to produce fuels. That's why fully automated Biturox[®] plants have successfully been implemented in advanced European refineries over the last years.

The high benefit of this continuous process is based on the unique internal loop reactor with a multistage agitator and pressure maintaining. The efficient and yet gentle feed-in of atmospheric oxygen as well as exact temperature control allow for short blowing times and a precise control of the chemical reaction. The result: high

flow rates with constant product quality.

Technological research

Since bitumen is very complex from the chemical point of view, broad practical experience is required to specifically apply oxidation by air. Pörrer has gained knowledge in several hundred blowing test runs using crude oils from all over the world and thereby has one of the best databases in this field. Above all else, the selection of the right raw materials, their mixture and processing is based on the know-how in the bitumen chemistry to produce bitumen cost-efficiently.

The Biturox[®] process has been developing until now. The bitumen laboratory has been complemented by a continuously operating lab unit and research work extended to untypical residues from refineries around the world.

Environmental impact

In order to minimize emissions in the reaction off-gas Pörrer has developed efficient removal strategies for different fields of application.

In a basic variant approx. 80% of the hydrocarbons contained in the off-gas are condensed and directed back to the refinery. The residu-

al gas is burnt in an incinerator at 850 °C. Sulfur emissions are removed in a caustic scrubber and thus reduced to a minimum. Flue gases from the thermal post-treatment are also treated by installing the scrubber downstream the incinerator and heat recovery unit.

Functionality of this new concept is confirmed by the customers' positive feedback. The high standard that we set ourselves to build not only the most productive, but also most eco-friendly bitumen plants of the world has been reached.

Complete supply

Biturox[®] plants are mostly erected at refineries or (less often) as separate stand-alone units. The plants have throughputs of 40,000 to 250,000 tpa (with one reactor) and up to 1,000,000 tpa (with 2 reactors) resp. The plants consist of reactor(s), air compressors, pumps, heat exchangers for pre-heating and cooling, an off-gas treatment system with off-gas incineration as well as piping, steel construction, electrical equipment, instrumentation and process control system.

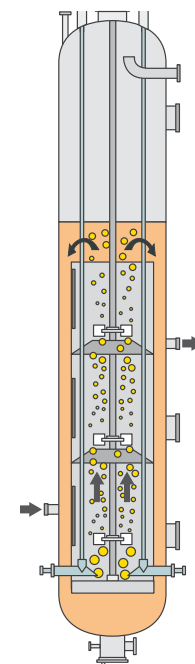
Pörrer offers complete engineering services and supply of equipment to erect Biturox[®] plants. This includes license, basic and detail engineering, equipment supply, site management, commissioning and training. Depending on local conditions a plant can be engineered and implemented within 14 to 18 months.

That decisive Plus

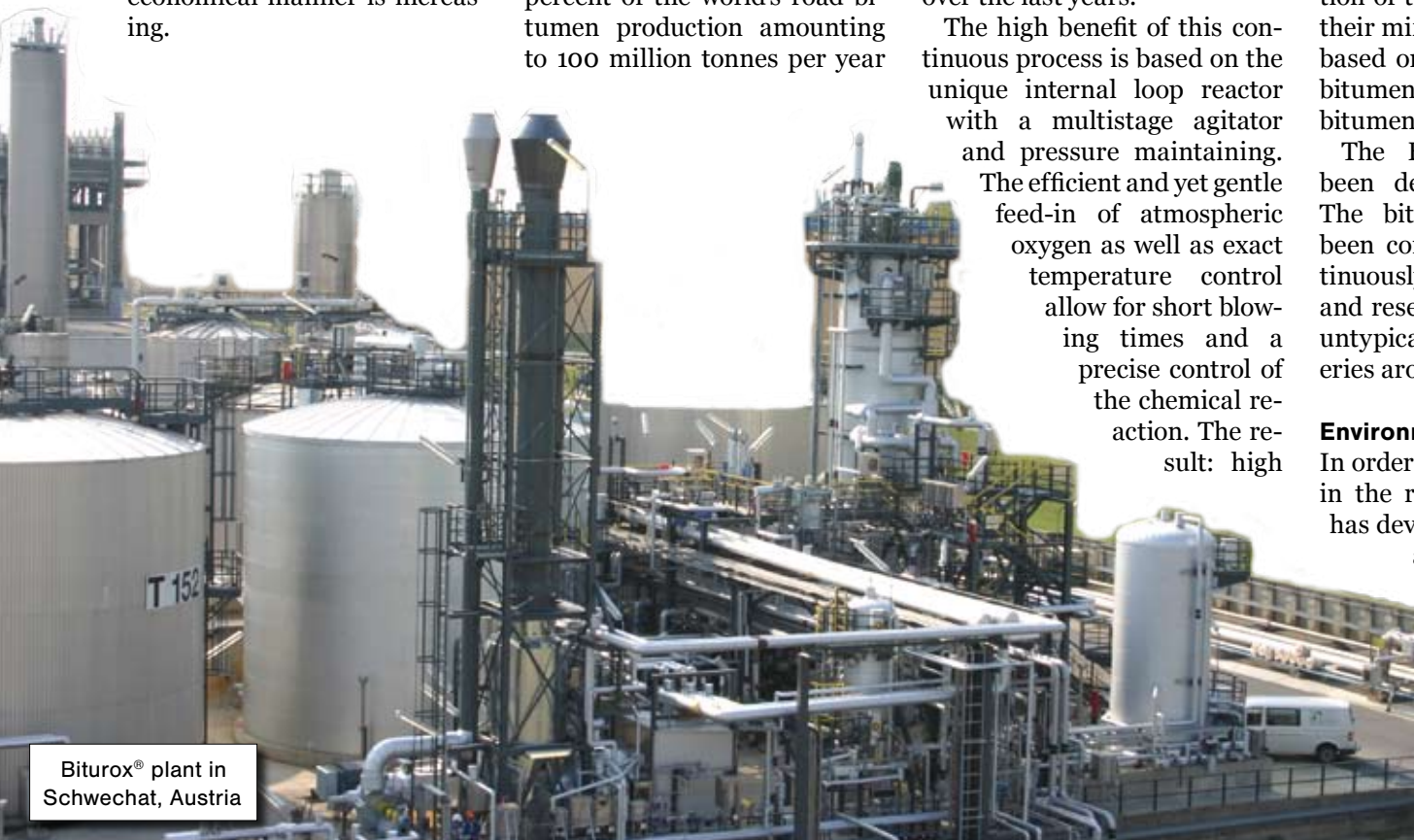
Compared with other refinery production plants a Biturox[®] plant is a small investment and can be operated in a modern refinery without any problems.

Pörrer's specific know-how mainly refers to a stable mode of operation, environmental sustainability and operating safety when handling bitumen. It enables producers to use especially efficient raw materials mixtures from a refinery to produce more and better bitumen at lower cost.

With the sophisticated Biturox[®] process Pörrer contributes to more and better bitumen being on hand for economically important road construction in the world. ■



Schematic picture of the Biturox[®] reactor



Biturox[®] plant in Schwechat, Austria

New Contract. Pörrer realizes Biturox[®] Plant in Pakistan

Vienna (Wolfgang Heger). On 2nd of December 2008, Pak-Arab Refinery Ltd. (PARCO) and Pörrer Vienna held a ceremony to sign the contract for engineering and erecting of Biturox[®] plant. PARCO is a joint venture of the Governments of Pakistan and Emirates of Abu Dhabi. The Biturox plant would be located at PARCO's Mid-Country Refinery near Multan in central Pakistan.

In January 2011 the Biturox[®] plant is planned to go into production. Pörrer will provide the design by the end of 2009. The overall scope of work by Pörrer includes licensing, basic and detailed engineering and

construction supervision.

The project has received priority despite the general recession and downturn. With this high quality indigenous bitumen production, Pakistan will be able to substitute imports, leading to saving in foreign exchange and timely supplies. With a production capacity of 165.000 tpa, the plant will play a major role in various highway and infrastructure programs of Pakistan.

Meanwhile, it is the 36th plant engineered and erected by Pörrer. ■

M. R. Jung (left) and W. Heger (right) during official contract signing ceremony in Pakistan



Reliable. Biturox[®]: always a good choice

Vienna (Christian Opitz). A good example for the durability of Biturox[®] plants is the first installed plant at OMV Refinery in Schwechat/Austria. Only after 40 years' operation the plant was replaced by one of the most recent design with the objective to adjust it to a continuous production of industrial bitumen 90/10. Since the old plant was not designed for a pressure-less batch operation, the increased requirements to the production could not be fulfilled any longer.

In summer 2006 the new Biturox[®] plant was put into operation. Pörrer Vienna was responsible for the execution of basic engineering, detail engineering, construction and erection supervision, start-up assistance as well as for training and documentation.

The engineering work started in June 2005 and as early as at the beginning of September construction works commenced. In peaks up to 100 skilled workers were at the site. But safety first: nevertheless, the work was performed without any accident!

The fast seller

Following the pre-commissioning the plant was fed with feedstock and process air for the first time. And as expected, the guarantee values were achieved at the first onset. The project was basically implemented without any problems due to the many years of good cooperation between OMV and Pörrer as well as vendors and construction companies involved.

The produced bitumen 90/10 is not only used for mastic asphalt, but also as blending component to produce polymer modified bitumen. ■

Biturox[®]: The Art of Engineering





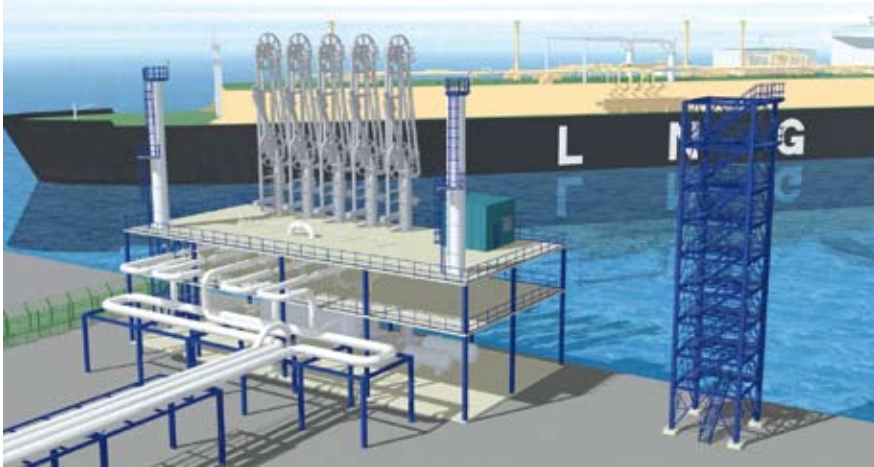
GAZINTEK

Specialist in Gas Engineering

Kiev (Claudine Riou). Founded in 1991 by Ukrgazproekt (Ukraine) and Sofregaz (France) and further developed by Sofregaz for its own engineering needs, Gazintek has teamed up the engineers who graduated mainly in the oil and gas institutes in the Ukraine.

The Gazintek engineers had

Gazintek e.g. participated in the executing of a bitumen plant, hexamine plant, polyethylene plant and a resin plant. The team of 40 engineers thereby uses generally accepted European, Russian, Ukrainian and international standards and is also familiar with other norms required by the client.



- tem for a new generation carrier
- LNG receiving terminal located on a GBS (Gazintek combined its experiences for onshore terminal and LNG carriers)
- surface facilities for underground gas storages, onshore LNG terminals, gas metering and pig trap stations
- gas compressor stations
- extension of LNG terminals: additional LNG unloading arm and line, BOG compressors, re-condensers, HP pumps, ORV, SCV
- gas filtering, pressure reducing, metering stations
- skid mounted
 - gas dehydration units
 - glycol treatment units
 - gas sweetening units
 - gas chilling units

Also in areas other than gas, Gazintek reached a high level due to detail designs for:

- air separation units
- water cooling unit for air conditioning of storages
- water treatment unit for re-injection in an oil field
- radionuclide contaminated fluid treatment
- oil terminal

Having long-term experience in engineering / site supervision, the senior as well as junior engineers are capable to work with the latest software. And while planning they always take account into the most stringent operative, environmental and economic efficiency aspects of the clients plant. ■

implemented huge projects in their engineering institutes such as Ukrgazproekt, thus gaining acknowledged expertise in the oil and natural gas sectors. During the partnership with Sofregaz the know-how in LNG treatment expanded enormously.

Growth within the Group

Within Pörner Group (Pörner is shareholder since 2005 and 100% owner since 2006), Gazintek continues its activities and extends the sphere of capabilities through the co-operation with Pörner companies.

Gas Engineering

The expert knowledge in the gas industry is gained by various types of projects, including large plants such as terminals, very congested installations like extensions or skid mounted units. Providing the preliminary design, detail engineering or pre-commissioning the following projects speak for the achieved know-how:

- LNG and NG cargo handling systems for several LNG carriers located on deck and in the cargo compressor rooms, on-board re-liquefaction sys-

Plant revamp with Turbo effect:

Leipzig (Wolfgang Kursch). There may be less and smaller ones: but even in uncertain times as in these days there are economic projects in plant engineering. Instead of huge investments in new grass-roots plants, revamp projects with little expenditures, but high effect are more often implemented.

If an engineering partner specialized in revamps can offer optimal process concepts, efficient planning, cost-conscious procurement and smart installation execution, then all this will lead to low investment costs and short construction times that are adjusted to regular plant shutdowns. In doing so productivity can be increased faster and customers can reap envisaged profits even in case of lower product margins.

EDL as a medium-sized company puts itself forward just for such tasks: the customer gets complete engineering services and the entire project execution up to plant commissioning from one single source – in first-class quality.

Saving of costs compared with big competitors

More service for the same money – EDL provides its engineering services at more reasonable prices. Due to lean organizational structures and thus less overhead costs EDL is in a position to offer the required scope of services cost-effectively. To be successful an in-depth engineering is of vital importance just in revamp projects.

Revamps are always a special challenge. Apart from the common tasks of the process and plant engineering, existing equipment have to be assessed as to quality and exact location, completed or replaced at a later stage. At the same time limited space conditions for installation as well as static concerns in case of new arrangements or

superstructures have to be considered.

Well-attuned EDL project teams perform such services by using most advanced software as well as working methods such as laser scanning.

Plant shutdown

Plant revamps require a very close cooperation between customer, vendors as well as construction and installation companies on the one hand and the engineering partner on the other hand. For a plant shutdown with new installations, replacements or adjustments of equipment, steel structures and piping that have to be executed during running operation and during shortest possible plant shutdowns EDL elaborates optimal plant strategies.

EDL's reliability – meanwhile well-known and appreciated in the whole German-speaking region – is no accident.

It is rather the result of different factors – capable process engineering, professional project execution and last but not least human qualities and professional skills of our specialists.

Such performance is possible only based on most advanced hard- and software acc. to international standards that bears every comparison with large plant engineering companies,



EDL supported TOTAL during refinery shutdown in summer 2008



PÖRNER GRIMMA

Competence Center for Formalin

Since 2003 Pörner Grimma has been acting within Pörner Group as competence center for formalin and its derivatives. Together with reputed European licensors and know-how providers Pörner Grimma offers – as an EPC contractor – plants to produce formalin, UFC, hexamine, UF, MUF, MF, PF resins, novolacs and bakelites, polyester and alkyd resins.

Formaldehyde plant for Metafrax in Gubakha

One of the numerous projects successfully executed in this field of technology is a formaldehyde plant for the long-standing customer OAO „Metafrax“ in Gubakha/Russia. The plant is operated on the Dynea silver technology.

Pörner Grimma's scope of services within the EPC contract encompassed authority engineering, basic and detail engineering, project management,

procurement and supply of all equipment and materials as well as the process control system, transportation, construction supervision, start-up assistance, training and compilation of documentation. Dynea

as licensor was responsible for process design, supply of process-related equipment, configuration of the PCS and training in close cooperation with Pörner.

Russia-proved

Even under severe conditions and with a quite long access route (the site was 3,650 km away from Grimma and 3,900 km from Vienna), the project was executed without any problems.

After a 10 months' intensive engineering, procurement and manufacturing activities the first equipment items and other materials set forth on their journey around a tenth of the earth's circumference. A total of 33 semitrailers with a tonnage of 300 t were sent off. As early as after two months they safely arrived via Finland in Gubakha. Despite transnational transportation and Russian customs authorities (customs clearance lasted three weeks), Pörner could complete instal-

lation work under proverbially Siberian climate conditions of 20 to 30 °C below zero and one meter of snow in February 2006 on schedule.

Plant erection in Ural Mountains

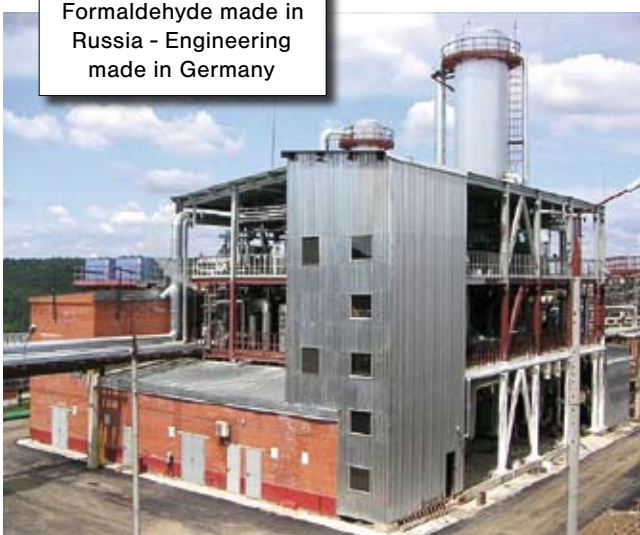
As common in the Perm region, earthworks could start only after the ground was defrosted in mid May. In the winter months

In this respect EDL still feels itself as service-provider in the proper sense of the word. Our motto is to do all necessary to revamp the plant together with the customer within time and budget in best possible quality and to bring it on stream again. ■

all preconditions were set for executing construction and coarse installation work within the short summer period.

In July 2006 the plant was successfully put into operation without any failures. Since the customer was very satisfied with the performed services another order for a hexamine plant being implemented in Gubakha followed. ■

Formaldehyde made in Russia - Engineering made in Germany





Recycling. EDL puts Puralube's second waste oil refinery into operation


 EDL
PÖRRNER GRUPPE


Leipzig (Matthias Haring). On December 10, 2008 the second waste oil refinery of Puralube

Germany GmbH in Elsteraue was put into operation in an official ceremony in the presence of high-ranking politicians of Saxony-Anhalt, the German Bundestag, the Consulate General of the USA in Leipzig as well as further domestic and foreign guests.

Due to the efforts of all parties involved in the project the ambitious completion date was adhered to, the scheduled

decision on the Elsteraue location in Saxony-Anhalt. A second challenge was the limited overall budget influenced by raw material costs and prices expected for the final products. After the basic engineering for the Hylube 2 plant had successfully been approved and handed over to the customer in early 2007, the follow-up order for the next planning stage – detail engineering and compilation of tender and order documents was received by EDL in April 2007.

Coordination - nothing else matters

With BAMAG GmbH from Butzbach as general contractor

another partner to be responsible for procurement of materials and third-party services as well as erection of the plant was entrusted by Puralube. During detail engineering work EDL carefully paid attention to permanently implement the owner's most recent findings and experience of the first plant, to consider technical concepts of vendors additionally selected by the general contractor and to hand over documentation to the site, i.

e. in packages at an early stage. The early start of construction, only a few months after the detail engineering work commenced, and the installation of equipment and piping as of

costs amounting to some EUR 40 million were not exceeded and on-spec products were produced from the very beginning. The hydraulic design with 80,000 t/a is on the same level as the existing plant.

From basic to detail engineering

EDL as engineering company made an important contribution to the success of the project. At the basic engineering stage it was necessary to incorporate the owner's experience from the first refinery into UOP's process-related specifications.

At first, the planning work was performed for a not specified location. While the engineering work was being executed, the customer finally made a

November 2007 required such a continuous mode of work.

Based on the control mechanisms applied at EDL deviations from stipulated dates and progress could be recognized promptly and measures be taken to efficiently eliminate their causes. In doing so EDL's project objectives were fulfilled, and the engineering was completed with a positive result in May 2008.

In the subsequent project execution phase EDL's specialist engineers actively supported the Puralube team on site. At the end, the customer and its general contractor were very satisfied. This was also reflected in their words of thanks during the official plant opening ceremony.

Advantage in technology

As its „older sister“ at the same location the waste oil refinery in Elsteraue is operated on the HyLube™ process developed, patented and licensed by UOP. The technology is used in this plant for the first time in the world. A lot of experience was put by Puralube into this technology in order to make it more

Technology: HyLube™ Process

HyLube™ is a continuous process in which waste oil is contacted with heated hydrogen gas by direct contact hydrogenation. It is the first time that this technology is implemented in the world.

The principle of the process is to evaporate waste oil which is then separated from unevaporated substances and stripped in a vacuum column. In subsequent hydrogenation stages contaminants that were initially brought into the lube oils through addi-

tives are separated. These contaminants are neutralized and led into a two-stage wastewater treatment unit. The hydrogen gas is cycled, spent hydrogen is replaced by make-up hydrogen. The liquid phase is fractionated, and base oils with different viscosity are produced in this stage.

Only small quantities of naphtha and gasoil are produced as by-products so that the process can be considered almost wasteless. ■

efficient and safer. One of the biggest ecological advantages is the very eco-friendly technology since it is almost wasteless.

Further waste oil recycling plants shall be built up at different locations throughout the world. Scandinavia, America and China are being dis-

cussed. The waste oil feedstock is simply too valuable to use it as combustible e.g. in cement works. If one comes to realize this and market prices allow for it, there will not be anything to stand in the way of waste oil recycling and the production of high-quality base oils. ■



Lifting of the pre-assembled column into the steel construction

Refinery. New propylene splitter for PCK


 PCK
RAFFINERIE GMBH

+++ In spring 2007 a new C₃ splitter to produce propylene in polymer-grade quality was handed over by EDL to PCK in time and on budget. +++

Leipzig (H.-G. Thalemann). The FCC Overcracking project to be implemented at PCK Refinery was added in 2005 to a long list of projects realized within a 10 years' cooperation. This project was not only an important investment project for the customer, but also a new challenge for EDL.

The core of this measure within the FCC complex was the erection of a new C₃ splitter process stage to produce propylene in polymer-grade quality. Not only the process design of the C₃ splitter put the highest demands on the engineers, but also the logistics concept for transporting and installing the column was a novelty since the column with a diameter of 5.2 m and a total height of 84 m was nearly 30 m higher than the FCC main column erected by EDL in 2004.

High-efficient installation procedure

The C₃ splitter column was delivered in two parts by ship from the manufacturer loca-

ted in Emsland to the port in Schwedt. The lower column part was approx. 53 m long and weighed around 250 t, the upper part was approx. 31 m long and weighed 125 t.

From Schwedt's port both parts of the column were transported by road to the refinery where in clo-

tor of PCK Raffinerie GmbH Schwedt, praised EDL for its work. The project team could also be proud of this showcase project. ■

C₃ Splitter: highest building in this region



Partial view of the Hylube2 plant with product tanks, process and fired heater units



PÖRNER AS GENERAL ENGINEERING CONTRACTOR

Bioethanol plant likely to set records



Vienna (Gerhard Vlcek). The bioethanol plant in Pischelsdorf for which Pörner acted as general engineering contractor to AGRANA Bioethanol GmbH located on the banks of the Danube river is an example for efficient engineering work on large-scale projects. With an overall investment value of EUR 125 million this plant is the big-

gest industrial plant in Austria for the time being - and the largest project in Pörner history.

Flexible use with different raw materials

The annual capacity of the plant being operated on the basis of a process by the American technology provider KATZEN International Inc. amounts up to

240,000 m³ bioethanol. The main feedstock is grain, if required corn or thick sugar beet juice can be used as well.

Quick notification on EIA

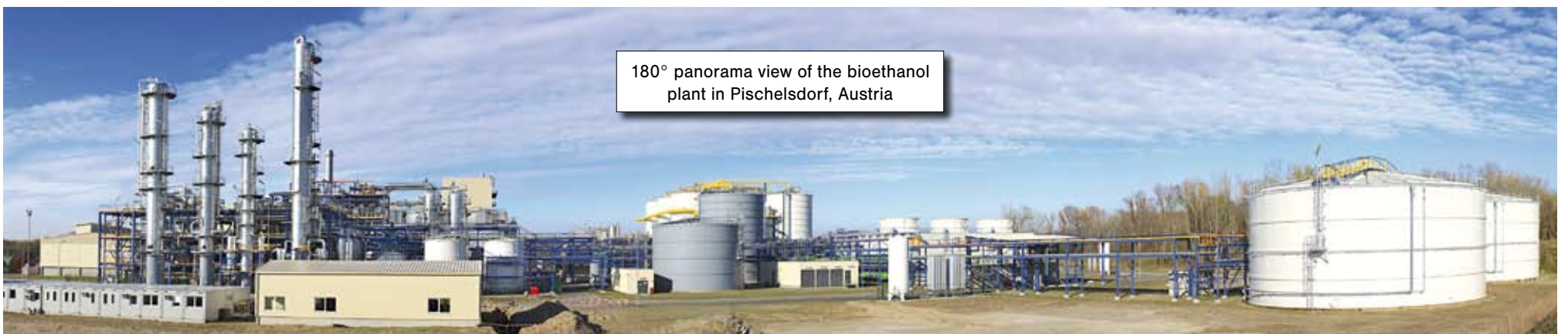
Only two months after having selected the process, the authority approval procedure acc. to the EIA Directive could be initiated. Not even seven

months later, i. e. in June 2006, a legally valid notification for the implementation of the plant was obtained - a period most likely to set records.

Engineering from A to Z

Starting from the investment cost estimate and authority engineering incl. EIA through complete detail engineer-

ing incl. preparation of tender documents, procurement, construction and erection supervision incl. building inspection up to start-up assistance - all engineering disciplines were performed by Pörner. Only 14 months after the start of construction, i. e. in early October 2007, the test run could be commenced as planned. ■



180° panorama view of the bioethanol plant in Pischelsdorf, Austria

Biturox[®] plant built by Pörner in Russia

Vienna (Christian Opitz). When the Russian company TAIF took over the whole refinery from Nizhnekamsk/Tatarstan from the oil company Tatneft this was anything but an easy situation for Pörner since at that time Pörner Vienna was entrusted with the basic engineering for a Biturox[®] plant. Only a short analysis was, however, required and as early as in February 2006 the new owner TAIF placed the order for detail engineering and equipment delivery with Pörner.

needed in order to meet the new customer's requirements. The plant had to be fit into the location of the existing vacuum unit for which the entire detail engineering work was performed by Pörner.

Efficient implementation

The project was implemented together with a Russian engineering partner and, first and foremost, with the support by some colleagues from the Ukrainian Gazintek - a good example for synergies within the Pörner Group.

After a very short construc-

Re-engineering of the engineering

Before starting the work the basic engineering already handed over had to be re-engi-



A. Traxler and Ch. Opitz at the site in Russia



Biturox[®] plant in Tartastan put into operation

tion and installation period fostered by a relatively mild winter in Russia the first implementation stage could be put into operation - after less than one year of project work. The quality of the key products - bitumen sorts 60/90 and 90/130 that are important for local road construction - was promptly achieved. ■

Chemistry. EDL and LEUNA-Harze: 13 years' partnership



Leuna (Conrad Wagner). Due to good quality and adherence to schedules EDL has succeeded in creating a

longstanding partnership with several clients. A prime example of this is the cooperation with LEUNA-Harze GmbH.

EDL can feel blessed because it has been entrusted by this customer with the implementation of several projects since 1996 nearly without any interruption. By now six plants have been producing the most diverse resins and their primary products that can intermediately be stored in associated tank farms at the premises in Leuna/Germany.

2007: Leuna Harze 3

Cooperation was continued in early March 2006 when EDL was contract awarded for engineering services and the implementation of a

plant to produce synthetic base resins. This plant was handed over to the customer on schedule in late March 2007.

2008: Bisphenol 2 and glycidic ether 2

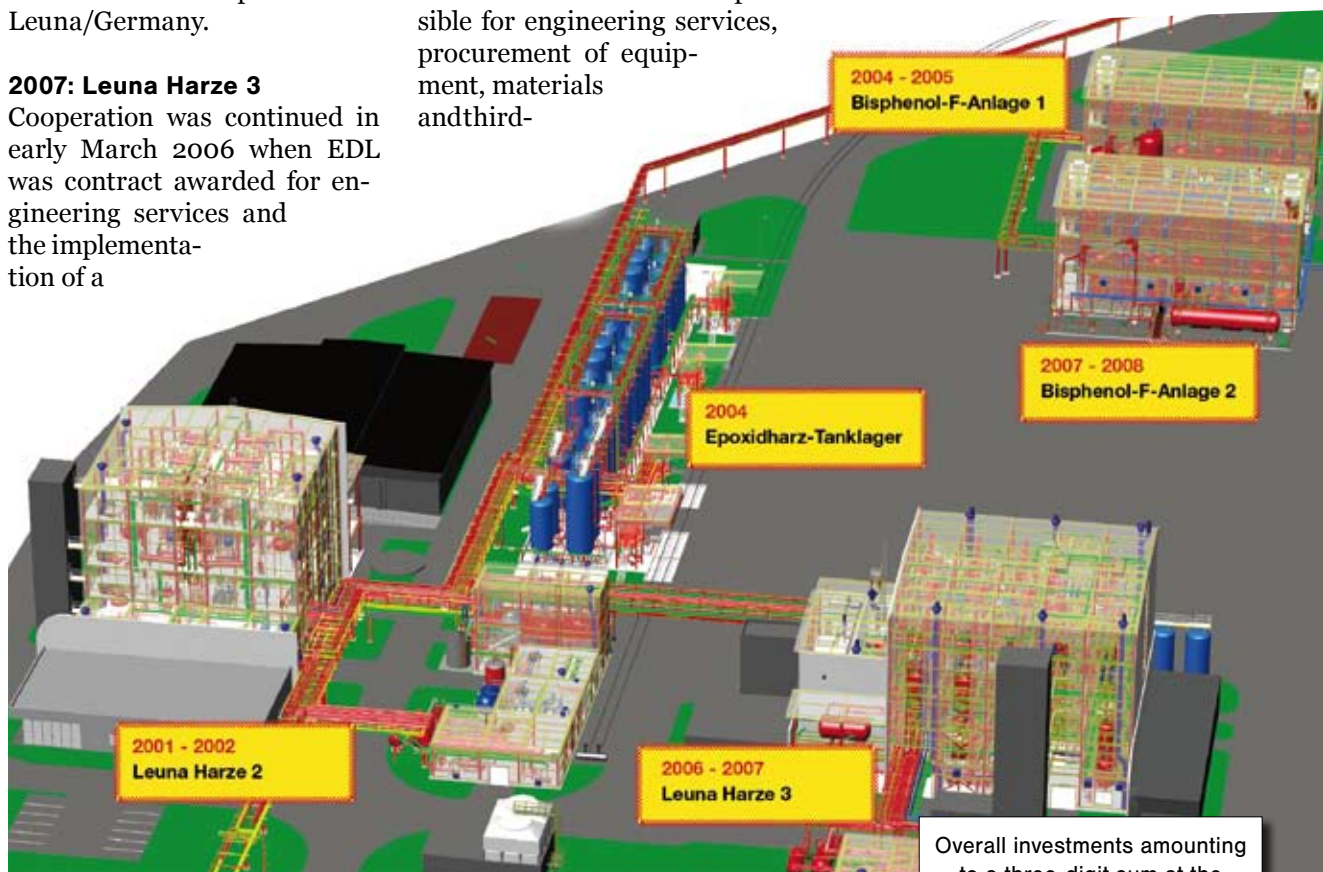
In 2007 another two contracts followed: for engineering services and the erection of a second bisphenol F plant as well as another, separate glycidic ether. Both plants were put up with completely new buildings at different locations at the premises of LEUNA-Harze GmbH and handed over to the customer in the first quarter of 2008 in due time.

Tailor-made execution

In all projects executed for LEUNA-Harze EDL was responsible for engineering services, procurement of equipment, materials and third-

party services on customer's behalf and account as well as for the site management. Planning work was performed by means of most advanced software systems. Thus, and due to EDL's experienced project and construction management being familiar with the client all projects could be completed on schedule.

It has proved to be true that a longstanding, partnership-like cooperation between an excellently managed chemical company such as LEUNA-Harze and an engineering partner of confidence such as EDL Anlagenbau Gesellschaft mbH comes to fruition and thus creates permanent values and high productivity. ■



Overall investments amounting to a three-digit sum at the premises in Leuna



ENVIRONMENT AND ENERGY

Sun Diesel of the 2nd generation by CHOREN - with EDL

Leipzig (Holger Kosch). The cooperation of both Saxon companies CHOREN Fuel Freiberg GmbH & Co. KG and EDL is based on a five years' successful history.

In the second half of 2004 CHOREN placed an order with EDL for basic engineering services incl. all required utilities for process stages subsequent to the Carbo-V process.

In July 2005 the approval for the construction of the plant acc. to the Federal Control of Pollution Act was received by CHOREN. The successful search for a suitable technology-provider for Fischer-Tropsch synthesis was also the beginning of a new quality of the

previous cooperation. In July 2006 after contract award by CHOREN EDL started detail

engineering, advised by Shell. In spring 2008



Plant commissioning in the presence of the German Federal Chancellor Angela Merkel

the construction phase was completed and on April 17, 2008 the first commissionings began in the presence of the German chancellor, Angela Merkel.

In parallel to the running commissioning tests, CHOREN, Shell and EDL - sup-

ported by further independent experts - again joined forces in order to optimize the worldwide first, very complex plant to produce biodiesel of the second generation as to possible failures. So, e. g. the whole technological process is simulated on a separate computer before commissioning of the entire plant starts. Apparent bottlenecks are removed.

Upon completion of this plant optimization in 2009 the so-called Beta plant will start its shift operation.

This step as well as crucial political decisions will create the basis to further develop plants for the production of synthetic fuels from solid biomass. ■

Automation today and Future trends:

Vienna (Gerhard Preisl). The field of plant automation and process control systems has been faced with a tremendous development leading to any safer, faster and often more cost-efficient plants. The electrical and ICA engineers of the Pörner Group always stay on the ball and continuously keep themselves informed at exhibitions and information forums regarding the latest developments in order to be able to select the best offer for the customers from a variety of technical opportunities.

Field level

The time-tested concept of highest possible plant automation will be further improved by advanced technical solutions. State of the art is a signal transfer from local transmitters to a decentralized input/output level of the automation systems (remote I/O) via conventional wiring. However, the cost for wiring can efficiently be reduced by leading the remote I/O level to measuring points/actuators.

Parameterization of HART-enabled field instruments by handheld terminals or notebooks at any point of the measuring circuit is an important tool during commissioning. Intelligent field instruments are sophisticated meanwhile and e. g. allow for a

predictive diagnosis in order to recognize possible failures at an early stage.

The functions of evaluation systems have still to be enhanced in the future so that information about the status of field instruments can be shown clearer and in a more compact way and the specially required hardware will become standard.

Wireless LAN is an alternative mode of transmission - but an expensive one as well so that it should be used as special solution under difficult conditions only. More effective is the connection of the remote I/O level with plant control systems (PLC) via fast bus systems. Since the application of Ethernet in the field bus (e. g. Profinet) the transfer rate could considerably be increased and at the same time the cost be reduced due to the use of standard components and wiring. Furthermore, fiber-optic cables are an advantage to get over long distances when transferring signals: they are not subject to electromagnetic interference, are insensitive towards lightning strokes, offer such features as isolation and, of course, speed.

Control level

In primeval times of plant automation individual autarkic controller were responsible for controlling, whereas today a programmable controller for every plant/production line is the measure of all things.

Moreover, in case of unattended plants remote control facilities to control the plant via public and private networks are available. This saves operating personnel and can, if provided with adequate safety features, also be used remotely by system specialists for the maintenance and fault-clearing service. Thus, the plant is controllable 24 hours from every internet access point, without having to be on site.

Visualization

In recent years there have been considerable innovations in process visualization. Today control systems with continuous data management from signal input up to data display on the screen in the control room are reality and facilitate commissioning and optimal plant operation, if properly engineered.

Even if works-overlapping control rooms are to be visualized, new ground is broken. The quality of process visualization through beamer or back panel projection has reached such a high level that mosaic-type or mimic diagrams can be replaced. Investment values are nearly the same as of conventional systems since there is only a connection to the computer level (no additional hardware inputs/outputs) and adjustments (only software) can easily be done in case of plant modifications.

Conclusion

Electrical and ICA departments of the Pörner Group combine all these innovations with their experience gained in different projects (from steel mills to refinery plants) when it comes to engineering and selecting automation systems for the benefit of the plant operators. ■

Opening of the Energy World in the Blue Lagoon



Vienna (Gerhard Schütz).

The Energy World - an information and consulting platform to increase energy efficiency in Austria - opened in the Blue Lagoon, Europe's largest prefabricated houses center in the south of Vienna opened on March 20, 2009. People interested both in new buildings and refurbishments can inform themselves about conscious handling of energy resources in this visitors' center designed as a world of experience.

Architecture, planning and technical issues of the Energy World turned out to be very challenging for Pörner+Partner since they had to meet the fol-

lowing criteria: well-adjusted incorporation of the building into the existing area with a clearly optical distinction to the model houses, trend-setting architecture, good usability as visitors' center with logistically perfect visitors' guidance and accessibility, highest possible energy efficiency and last but not least: acceptable project costs.

Based on the existing preliminary draft Pörner+Partner was contract awarded in June 2008 to engineer and realize the project in shortest possible time. Due to the tight schedule it was necessary to execute the basic engineering and authority engineering, the structural detail engineering as well as the tendering procedure and placing of orders nearly at the same time. At the end of August the site was opened; the quite sophisticated building was completed in late December 2008, i. e. after a 4 months' construction time only. The months of January and February 2009 were needed to do the finishing, commissioning and preparation of the exhibition hall. ■



The Energy World South of Vienna

Safety in construction

Vienna (Thomas Olbrich). Pörner+Partner attaches utmost importance to safety. Not only with respect to SCC certification, but also in recurring activities acc. to the Construction Coordination Law our employees are trained best as to safety on site and operational safety issues. Thomas Eckl is responsible for all these activities such

as personal protective equipment, training training, recurring certification agendas etc. ■

Thomas Eckl, Safety officer



Visualization of a gasoline inline blending unit

Software. Selecting the right tool is important



Kiev (Viktor Tsvihun). Those were the days when the pencil was the one and only, non-replaceable tool

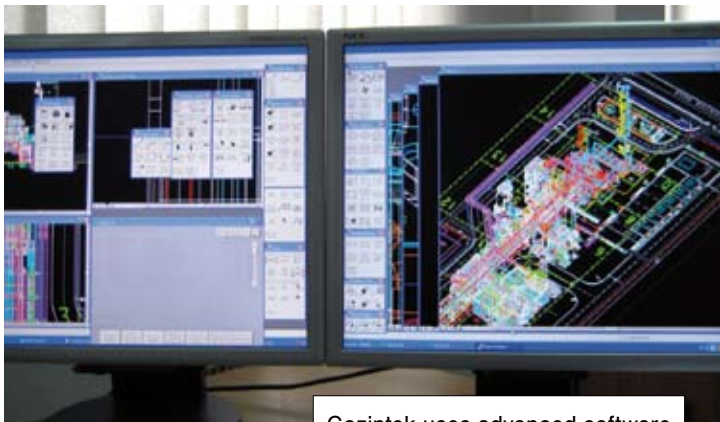
In this regard a careful analysis of working processes to be automatized is required so that afterwards as few corrections as possible occur that may bring about additional costs. That's why not the functionality of a program is important for a proper support during the planning stage, but its usability in practice.

Coordination of different software systems

Joining most of the software programs and systems used by partners or customers requires additional working time and material. Despite many difficulties in adjusting them the

for designing. A few decades ago the idea of automatizing the process of designing seemed to be unfeasible. As early as at the end of the 20th century the dream of quite a number of engineer generations came true.

The application of a 3D model allows not only for a higher efficiency and quality of planning, but also considerably reduces the design time. In this respect, however, new demands are put on engineering companies.



Gazintek uses advanced software (above); daughter Yulia is interested in dad's work - Gazintek obviously has no difficulties in finding young talents (right)

Having a sound grasp of contemporary developments

Until now Gazintek has been the one and only engineering company in the Ukraine using Intergraph software programs. This fact as well as the highly qualified engineers working in the field of oil and gas are the reason why Gazintek is competitive with western companies in the field of engineering. Customers can choose between PDS and Smart Plant systems.

By now 3D models have not been unique any longer. The fast development shows how important it is to remain up to date and offer novelties such as animations based on 3D models.

The Pörner Group has taken up these challenges by consistently further developing the systems and by permanent training of its engineers to meet the clients' highest requirements as regards software performance.



Systems have to have a practical orientation

Computer-aided design systems are efficient only by a coordinated use of all functions provided. It is crucial to balance all opportunities to perform planning work in advance and to consider them.

advantages prevail. Because engineers have to get familiar with new systems and standards they increase their knowledge, thus ensuring the company's flexibility and enlarging the data pool.

EDL extends service offerings to Gas Technology

Leipzig (Lutz Hoffmann). Changed framework conditions require new strategic measures in order to exist even in times of a regression. EDL has taken up this challenge. For a long time EDL had thought about an extension of its service offerings and looked for suitable cooperation partners. In late 2008 time had come – a cooperation agreement was undersigned with DBI-GUT from Leipzig, Germany, a reputed company acting in the field of gas technology. This agreement is the key to a promising joint work since the service portfolios of both companies excellently complement each other in the field of gas technology.

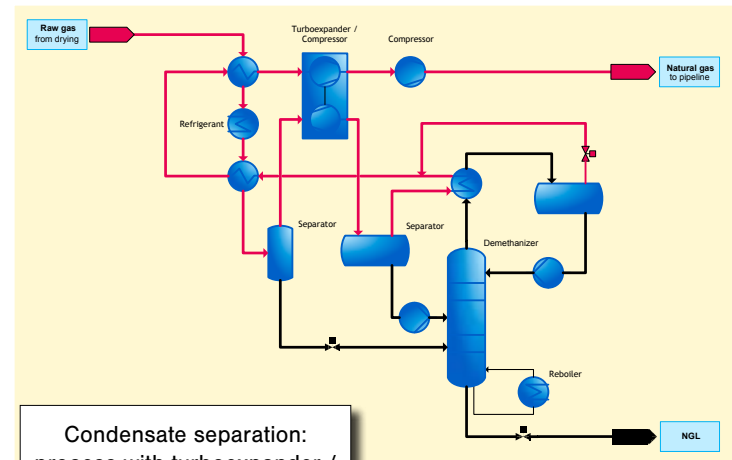
EDL and DBI GUT offer the whole range of engineering services in gas technology – starting from exploration and gas production (reservoir engineering) through preparation of detailed solutions for processing, transportation and storage systems (among them underground storage systems) up to services for gas network operators (network simulation

and optimization) or gas analytics/gas chemistry.

Process stages of natural gas processing such as

- Pretreatment
- Sweetening
- Dehydration
- Gas condensate separation and processing
- Fractionation
- Compression and
- Cooling

are designed using proprietary process know-how, most advanced software tools or - if



Condensate separation: process with turboexpander / compressor

required - third-party licenses.

First projects, e. g. the process design or the preparation of approval documents for three natural gas pipeline compressor stations in Austria could successfully be done together.

By joining the knowledge and experience of both companies optimal solutions for the customers' benefit can be offered worldwide.

PÖRNER GROUP STICKS TO ITS PRINCIPLES

New challenges in plant engineering marketing

Vienna (Andreas Pörner). There was a time in the mid-1990s when engineering services in Central Europe were deemed unfeasible from the economic point of view. Starting with the new millennium it turned out that neither Germany nor Austria had become pure service deserts, but took hold in new niches of mechanical and plant engineering and could stand their ground as world's leaders in these lines of industry.

After certain market adjustments were made and focus was put on the refinery and chemical industries and not least because of increasing raw materials and energy prices process plants were built again: for new products and with optimized production processes.

Booming sales

With its strong focus on process engineering and competence in all other engineering disciplines the Pörner Group has

been in greater demand over the past years than ever. As a matter of fact, interesting projects had to be rejected – selling in the common sense was hardly required. Sales activities and preparation of quotations were only subject to adjustments and extensions resp.

EDL operates on a broad basis in Germany since on this huge market there are roughly 200 potential customers. In Austria, Pörner is the „top dog“ in process plant engineering on the small domestic market so that many regular customers find themselves their way to Hamburgerstraße in Vienna or Unionstraße in Linz when it comes to new projects.

Moreover, both Pörner Austria with its bitumen plants and Pörner Grimma with its for-



Neftegaz fair, Moscow, 2008

maldehyde and derivate plants jointly work on several interesting export markets.

Confidence creates regular customers

Framework contracts and alliances with high-class customers from the refinery, chemical and gas industries proved to be a factor of success. Particularly in times of heavy workload at our companies, agreements between customers and our engi-

neering offices were concluded for mutual benefit so that the most important projects could be implemented in time and employing the appropriate staff being familiar with the customer's requirements.

Turbulent times

Turbulent situations on international financial markets nearly led to a collapse of the banking system within the last six months and at the same time to a decline of the high oil price from USD 150 to less than USD 40 per barrel. Thus, the economic basis of most projects got lost.

The loss of confidence in banks has almost paralyzed some of the previously approved ways of financing plant engineering projects e. g. in Russia. This is a bad scenario for the plant engi-

neering sector that very strongly depends on the investment climate.

Tailor-made concepts

But also in times of a regression and especially after it, when „a new leaf is turned over“ there will be interesting issues in our economies. Smaller projects and revamps on a manageable scale become attractive. Projects for which Pörner and EDL enjoy special confidence due to best references.

Pörner's sales and engineering departments can continue to stick to their principles: not only to get to know and understand the customers' requirements, but also to develop, offer and implement tailor-made plant concepts based on experience and the use of most advanced methods and components.



COMPANY OUTING TO THE TECHNOLOGY PARK MERSEBURG

Bound by tradition ...

Leipzig (Rüdiger Bauer). ... is the association „Sachzeugen der chemischen Industrie e. V.“ in Merseburg and, therefore, it tries with a lot of enthusiasm and commitment to preserve a more than 100 years' old tradition of the chemical industry in Germany, in particular in the Central German Chemical Triangle and keep it for posterity.

Unlike in mining or mechanical engineering there has not been any platform in Germany so far to present internationally renowned outcomes of chemical research, development and production in form of a museum. The association has undertaken this task and brought the Deutsche Chemie-Museum Merseburg (German Museum of Chemistry in Merseburg) into being.

„To be faster than the flame cutter and the demolition ball“ - this was always the leitmotif when looking for old chemical plants. More than 4,000 historically valuable apparatuses, machinery and equipment - some of them unique in the world - were saved and lovingly restored.

Unique in the world

EDL and their guests visited the museum which is designed as technology park in September

2008 during a company outing and got an insight into the history of the chemical industry and the work of several generations of engineers in this region.

So e. g. a single-stage piston compressor (year of manufac-

a pressurized blast furnace) can be seen. Especially impressing is the design of high-pressure reaction vessels using materials that were available at that time and the special rivet technology used at that time.

The complex of chlor-alkali electrolysis shows different types of electrolysis cells such as amalgam, diaphragm and membrane cells still used today.

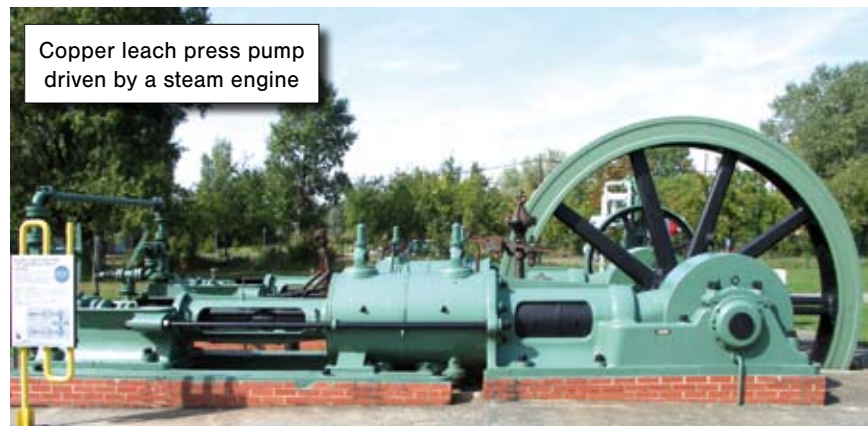


Pörner's ski circus
2 skis and wonderful snow...

Vienna (Herbert Benda). The base camp for Pörner's skiing outing was set up at Hotel Tauernblick in Schladming/Styria already for the second time. 77 „Pörnians“ took part in the ski circus. With best catering, in a good mood and under lovely snow conditions we did a lot of sports. The weather god was inclined towards our undertakings. And despite a bad weather forecast we could enjoy two wonderful days in the sports world „Amade“.

In rush periods as nowadays it is very important to the Pörner Group to foster the team spirit among the employees. Colleagues from Vienna, Linz and Kundl took the opportunity to chat with each other and talk to our „young“ retirees about the good old days and modern times.

We look forward to the next trip and thank our management very much for the support! ■



Copper leach press pump driven by a steam engine

ture: 1925) for ammonia synthesis based on the Haber-Bosch process as well as equipment for syngas production from lignite (Pelton turbine, copper leach press pump; a fragment of

Accessible history

The history of chemical technology comes alive in Merseburg because of many „jewels“: equipment for water treatment in the chemical industry, a scrape chiller for dewaxing of crude oil fractions, a natural gas delivery station, a nearly complete historic plant for synthesis by means of zeolithes (mol sieves).

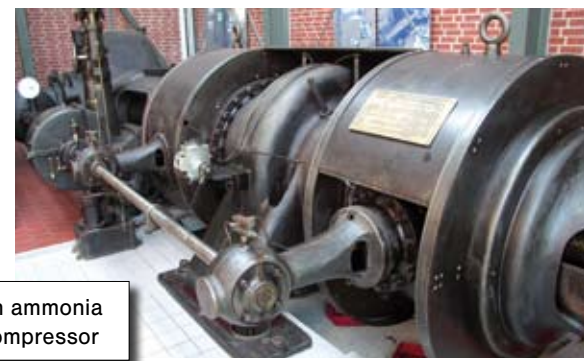
The exhibited rubber machine bears witness of the synthetic rubber production in the Buna-Werke Schkopau.

Actively supported by EDL

The tour through the technology park showed the technologically outstanding achievements of the last century that were required to translate the developed processes into production.

EDL being a member of the association actively supports its activities. Not only in financial terms, but also in restoring exhibits. For several months a rotary vacuum dryer has been refurbished with great passion for detail. Upon completion it will be displayed at EDL's for about six months and then handed over to the association.

Many thanks to the initiators of the association and museum for their high commitment in preserving an important part of industrial history in Central Germany. ■



Part of an ammonia piston compressor



La dolce vita. Pastries from the countries of Pörner Group

„Mehlspeisen“ in Europe and at the Pörner-ACHEMA booth



„Mehlspeise“ is an Austrian word to the core. Behind its meaning there is a great variety of des-

serts - sometimes containing a touch of flour only - as well as all cakes and pastries that were brought from countries of the old monarchy to the royal capital Vienna.

The origin of this very comprehensive meaning is in the strict Lent commandments of the Catholic Church. On around 150 days of the year the faithful did not have to eat meat. Because fish was expensive at that time and because necessity is the mother of invention - various Austrian-style dishes were created that were very delicious although prepared without meat.

When in Rome, do as the Romans do

„Mehlspeise“ is indeed an Austrian word, but other cuisines also know culinary delicacies of this kind. On a journey through five countries where the Pörner Group companies and offices

are located you can come across numerous such delicacies. Five of them can be degusted at our ACHEMA stand and later perhaps cooked by yourself by following the recipe. All recipes can be found on our homepage www.poerner.eu.

Austria: Apfelstrudel (apple strudel)

The apple strudel is one of numerous dishes of the Vienna cuisine. It has its origins in the Danube Monarchy. The Turk-



ish baklava served as example. During siege by the Turks in the 16th/17th century Hungarians learned how to make strudel dough.

Attention: Strudel dough is stretched by hand so thin that one can read a newspaper through it - the text and not the headline.

Germany: Dresdner Eierschecke

Everybody should have tasted it at least once: the Dresdner Eierschecke. Whether with or



without bottom layer, with or without raisins is a basic question such as coffee with cream or milk.

The name of the Saxonian speciality derives from the top of three layers, the so-called „Schecke“.

Hungary: Dobos tart (Hungarian: dobostorta)

is a tart consisting of six lay-



ers of fatless sponge, chocolate cream and a caramel frosting. Its inventor was the Hungarian pastry-cook József Dobos. In 1885 he started to create a tart keeping its shape and taste for at least ten days under consideration of the cooling technology at that time. Finally, in 1906 he published the recipe. Today, the tart is still made according to this recipe.

Romania: Papanashi

This dish is the Romanian doughnut version, over which sour cream and a special jam are poured when served.



To prepare the dough mix fresh cottage cheese, eggs, sugar, flour and vanilla sugar very well in a bowl. The not too sticky mixture will be formed as ring with a hole in the middle and then fried in hot oil until it

is golden brown. Finally, pour sour cream and jam over it - and enjoy it!

Ukraine: Bliny (Ukrainian: mlynci)

Bliny are a fancy variation of pancakes. These round, flat dough-cakes with different fillings inside are folded and served



warm, often with toppings. According to Ukrainian tradition Bliny are eaten after having them dipped into sour cream or butter. Meanwhile, this dish has been spread all over East and Southeast Europe.

In pre-Christian times Bliny had a ritual meaning to the Slavs since the round form was a symbol of the sun. Since the Middle Ages Bliny have been baked at the beginning of springtime to symbolically celebrate rebirth of the sun. ■