



GAWGROUP

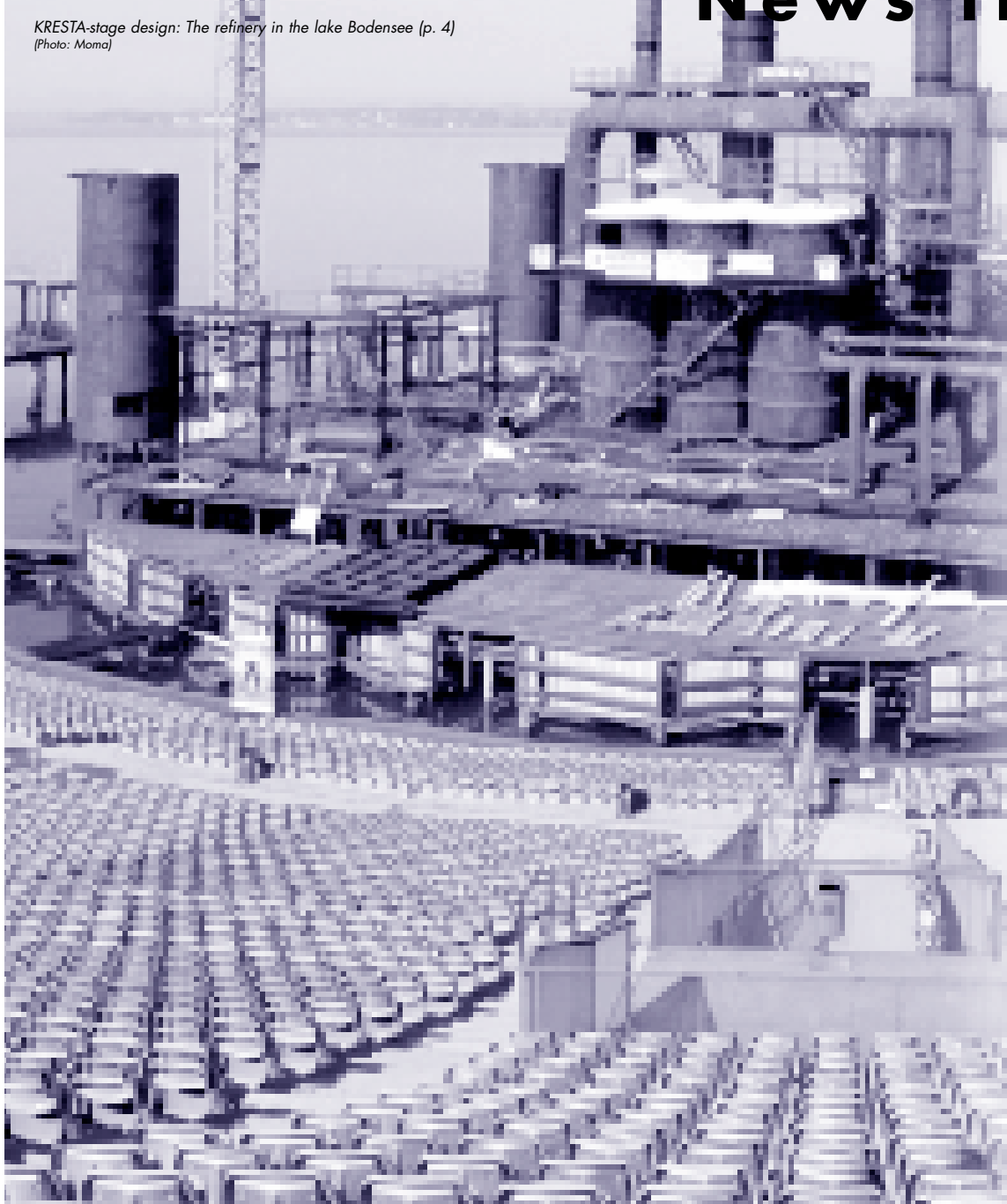
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GAW • GAW PAPER COATING SYSTEMS • KRESTA • MAW • SPEDITION THOMAS • THOMLOG • CCI • STYRCON • ACP TRADING • IHR • ENVIRGY • OSMO

imteam

News from the Group

KRESTA-stage design: The refinery in the lake Bodensee (p. 4)
(Photo: Moma)



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editorial


One cannot emphasize it often enough: The implementation of research and innovation into products, services and processes is the basic requirement for our competitiveness. Styria can proudly look back on the past years, in which an enormous catching-up process took place. In addition, a successful change of structure was fulfilled. The vitality of the development lies above the total Austrian average, but it must be stated explicitly that our neighbors in East Europe have gained on development in the meantime. China has also acquired a dominant position in the world market within few years. On the one hand, this development opens up chances but on the other hand, we are faced with increased competition. It is therefore essential to further the structural change professionally to secure our wealth. The key to a successful future in Styria lies in strengthening research, innovation and technology. The "innovation summit" consists of about 100 companies in Styria which are concentrating on research. There is no doubt that this summit must be ensured and spreaded. Existing operational "centers of competence" must be boosted and, especially medium-sized companies need to be developed from all sectors more strongly towards innovation. Whatever counts for the whole economy needs to be applied by our companies all the more. We will work hard to intensify and to expand our complex competencies.

It is a pleasure for me to announce that the companies of the GAW Group have achieved altogether a gratifying development since the beginning of the new financial year 2005/2006. The orders received are very satisfactory. In addition, it is positive that our customers in Europe and in the U.S.A. are also investing increasingly.

The planned investments and holdings in the GAW-Group itself are becoming fulfilled with the aim to make our company network more future-orientated.



Editorial team edition 1/2005, June
from the left to the right: Delfel Zeller/MAW, Wolfgang Senner/GAW, Nina Steinburg/GAW, Brigitte Paier/KRESTA, Renée König/GAW, Josef Mohl/GAW E-Abteilung, Alexandra Pichler-Jessenko/B&I. In cooperation with: Klaus Stuffer, Dietmar Werner, Manfred Wohlfahrt, Jürgen Rapp, Peter Stuffer, Johann Illmaier, Christian Stine


Mag. Jochen Pildner-Steinburg

inhalt

- **Getting to know our departments better.**

companies of the

GAW Group are presenting themselves.

companies of the GAW Group are presented

GAW – production of key components for the paper finishing industry

Key competence from GAW

The production of special plants for the paper finishing industry is one of GAW's key competences. The focus lies in engineering, erection and start-up whereas the necessary key components are produced in Graz.

Mechanical manufacturing, steel construction and final assembly

The mechanical erection is carried out mainly on two CNC-turning machines, one CNC-miller, one radial drill, two millers and on several bench drills and universal extruding-turning machines.

The necessary welding work, such as manual electric arc welding, MIG/MAG-welding or WIG-welding are done in the steel construction area. There, you can also find the sheet metal forming where the sheet metal is cut, rounded off and rolled. Moreover, a shot blasting equipment and the paint shop are also located in the steel construction area.

The core products

A substantial part of technologic know-how is involved in the manufacturing of the components which are produced in Graz. The components

are, amongst others, filter systems, dispersing machines, agitators and special valves. Also small plants, e. g. for the processing of starch, sodium hydro sulfite or talc and measuring systems for the on-line monitoring of coating colour, are produced on the premises in Graz and delivered as a whole unit.

Two work masters are responsible for a team of 35 people, who are mainly craftsmen. They are all versatile in various working fields and this team ensures that only products of the best quality are leaving the premises.



The GAW production team

- **Technology made easily.**

Here, products or processes
are explained comprehensibly
for everyone.

lexica

Waste water treatment plants in Austria, Egypt and also in China are fitted with components produced by MAW. The products, such as surface aerators, longitudinal and round reamers or also rake racks and their mode of operation have already been presented in one of our imteam-issues. But how does a waste water treatment plant operate? In other words, how does the waste water flow back into our streams and rivers as purified water?

A modern waste water treatment plant for communal sewerage is divided into three main treatment stages:

- 1.) mechanical treatment
- 2.) biological treatment
- 3.) sludge treatment

Mechanical treatment

Discharges are collected via a sewage network and led to waste water treatment plants. First, they

are separated from coarse substances by various screens. With the use of rake rack, the materials are automatically selected from the waste water and disposed.

After passing the screens, the waste water is directed through the sand trap and grease trap. Fats and oils are forced to surface by the use of air blowers. They are then disposed by suction reamers. Sand and mineral granular substances sink because of a reduction of the flow velocity and are shifted through revolving scantling reamers to the elutriating funnel. Later on, fats and oils are pumped into the raw slurry tank.

Biological treatment

The organic mainly dissolved compounds which still remain in the waste water are degraded by microorganisms in the aeration tanks. The neces-

sary oxygen comes to the waste water through the surface aerator. This results in a flocculation of the organic substances due to the initiated self purification effect. The flakes are clinged onto the ground of the secondary treatment basin and the purified waste water is directed into the runoff ditch.

Sludge treatment

The sludge from the primary sedimentation basin and the excess sludge from the secondary treatment basin is supplied into an elutriating funnel via round reamers and pumped into a thickener. The thickened sludges are biologically degraded in 'rotten towers' afterwards. The emerging bio gas can be used for heating or for the production of heat and electricity. The rotten sludge is drained again and disposed according to regulations..

From waste water to purified water

Components for waste water treatment plants from MAW

GAW – major order from Indonesia

Tjiwi Kimia is expanding its capacities

Indonesia's leading paper manufacturer PT Pabrik Kertas Tjiwi Kimia Tbk. is expanding its capacities and commissioned GAW with the expansion of the coating colour- and starch preparation.

Supply of production lines PM12 and OMC III

The order volume includes, amongst others, the unloading and storage of synthetic binders, preparation and storage of CMC, PVA and starch, extension of the existing full-automatic GAW-coating color preparation including an online-quality measurement and working stations for the supply of the production lines PM12 and OMC III. In addition, GAW was assigned with a very complex and continuous automation solution.

Coating kitchen and coating machine – automation with GAW-AutomationX

Apart from the signage for the coating color com-

plex, which is responsible for the logistics of batch management and usage calculation, the coating machine OMC III will also be equipped with the GAW-AutomationX system.

The realisation takes place in two phases:

The first step includes the expansion of the existing GAW-automation system including the batch and quality management for the integration of the new plant's components. The challenge of this change-over is a very limited machine downtime of 24 hours. This requires preparatory operations where no detail must be left to chance.

In further sequence, the coating color supply of the paper machine 12 and coating machine OMC III is realised by the Automation X system. Moreover, the feedforward control of the coating machine is also integrated into a redundant Au-

tomationX system. The whole production plants can run through an optimal process due to the continuously connected control technology concept. The transparency of the production sequence is guaranteed by the continuous analysis and archiving of the relevant production data.

Leading Indonesia's paper manufacturer

Tjiwi Kimia, located on a 200 hectares big area in the province of East Java, is Indonesia's leading paper manufacturer. More than 13,000 employees produce high-quality writing and printing paper, one- and double-sided coated art paper, cardboard and a number of paper supply for school demands in a three-man-shift. Tjiwi Kimia has already been a GAW customer since 1990. At that time, GAW delivered the coating color preparation for OMC 10, the widest and fastest coating machine in Indonesia.

• Projects and orders.

Presentation of current

projects and orders of the group's companies.

proudly presents

GAW – capacity expansion at Papirnica Goričane

Expansion of the coating color kitchen

Goričane, Tovarna papirja Medvode, d.d., one of the oldest paper manufacturers in Slovenia, is expanding its location and authorized GAW with the expansion of the coating color kitchen.

Order volume

The existing GAW coating color kitchen will be expanded by a full-automatic pigment dispersion and storage, metering of additives, storage of synthetic binders and a continuous preparation system for ca-

tionactive starch. The whole electric control mode is done by the GAW process control system AutomationX. The initial operation will start in September this year.

Environmentalism

The complete operating processes in the paper industry demand high standards in regards to the handling of cleansing waters, especially when they are polluted with chemicals from the production of

paper. GAW pays special attention to ecological plant engineering to avoid any side products flowing into our waters. With this kind of engineering, all waters are collected separately and transported back into the production circle. Goričane, founded in 1740, is located approximately 15 kilometers north west of the Slovenian capital Ljubljana. Its yearly output totals 80,000 tons of woodfree paper – its grammage ranges between 45 to 115 g/m² – of mainly coated special paper and coated offset paper.



Goričane – one of the oldest paper manufacturers in Slovenia

GAW – orders from Chile and Sweden

Start-up at CMPC and SCA

The Chilean paper producer Cartulinas CMPC S.A. assigned GAW with the expansion of the coating color and starch preparation in Maule during its modernization. The start-up will take place soon.

CMPC – a pioneer in the pulp and paper production

Empresas CMPC S.A., an affiliated group with over 8,000 employees and established in 1920, counts as the precursor of the Chilean pulp and paper industry. This company is operating in the following areas of operations: forestry, pulp, paper, tissue and paper products.

Successful co-operation

CMPC and GAW have already been working

together successfully since 1993. Many projects have been realised in various plants. Examples are an ultra-filtration-plant and the newly completed coating colour kitchen which were erected in Maule, located about 280 km south of the Chilean capital Santiago.

Reconstruction at SCA Ortviken

GAW completed successfully the modification works on the preparation systems for cationic starch and coating starch at the Swedish paper manufacturer Ortviken. The erection works included the upgrading of the existing starch cooker and the integration of a new cooker, the expansion and piping of two talc holding tanks as well as the expansion of the process control system

Ortviken – SCA's biggest paper producer

Ortviken is the biggest paper mill belonging to the Swedish corporate group SCA. Its yearly production capacity amounts up to 440,000 tons of LWC-paper and 360,000 tons of newspaper printing paper. The first machine for the production of LWC-paper was installed by GAW in 1990.

GAW delivered and erected the complete coating color preparation including the working stations. Nowadays, Ortviken produces LWC-paper of highest quality on two machines.



Reconstruction of the coating color preparation at SCA Ortviken

GAW – starch systems and filter technology

Orders from Europe and Asia

Order received despite heavy Korean competition

GAW received an order from Hongwon Paper in Korea for the delivery of an enzymatic starch conversion plant at the end of March. The mill, which is located close to Seoul, produces woodfree writing and printing paper.

Part of its production is finished on two small off-line coating machines. The order volume includes slurry conveying and filtration, enzyme dosage, con-

version, sizing pump, inactivation and dilution including mountings and instruments. Moreover, the complete control system and power section are delivered by GAW.

Starch processing for Sappi Gratkorn

GAW was assigned with the delivery of a continuous cooking of coating starch and a batch cooker for PM 11 for the existing coating color kitchen

11. The volume order includes a continuous cooker and a supply tank with an agitator. With this expansion, Sappi Gratkorn is able to produce the necessary starch both continuously and batchwise.

ECO-R-Filter for the second working station at Iggesund

GAW's filter technology during ongoing production at Iggesund proved to be successful. Hence, Iggesund placed a follow-up order for the second working station at GAW. The working station will also be upgraded with GAW ECO-R Filters. In addition, GAW provided a test filter to do further filtration trials and application possibilities in different coating areas.

• **Projects and orders.**

presentation of current

projects/orders of the group

companies.

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"Cultural" industrial plant engineer KRESTA

Stage setting for Bregenz Festival

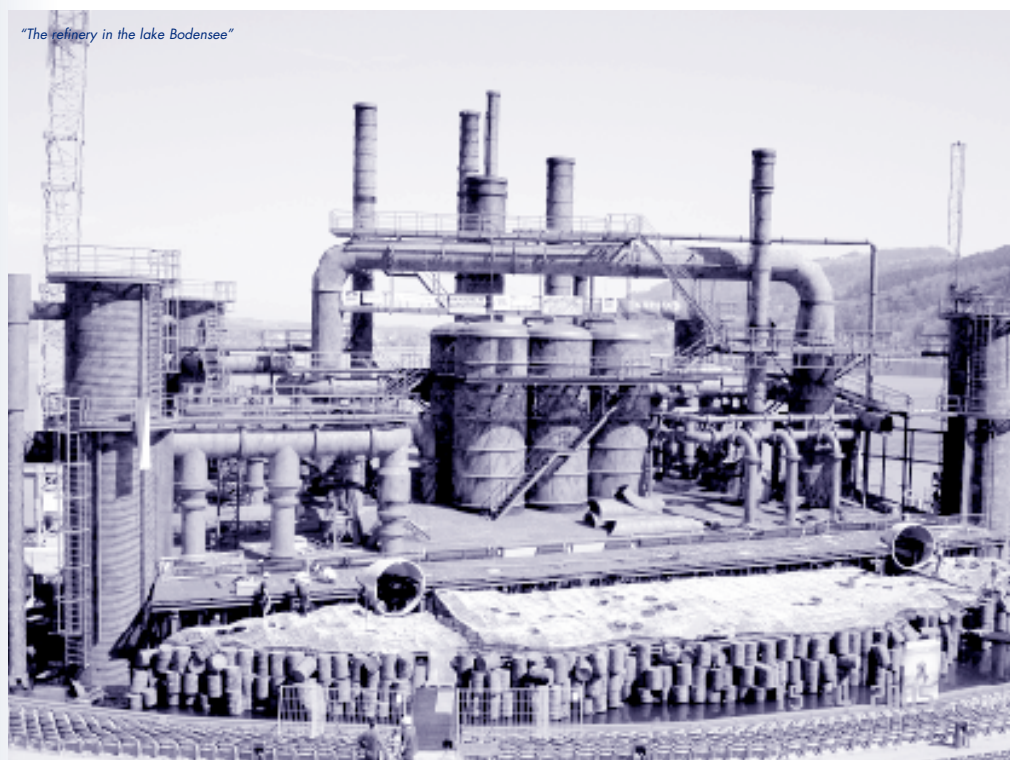
Whoever thinks that an industrial plant engineer has little to do with culture, is mistaken. At least in the case of the Carinthian industrial plant engineer KRESTA. For the construction of the stage design for the opera "Der Troubadour" by Giuseppe Verdi at the Bregenz Festival this summer, a team of KRESTA – under the supervision of the project manager Christian Mottnik and construction manager Bernhard Renner – was assigned with the following services:

- erection of the whole underwater construction

which stays freely on wooden pilots. These pilots were "rammed" into the lake up to 14 metres;

- the base construction – made of steel – was erected onto these wooden pilots. The weight of the base construction added up to 10 tons each and this construction is the basis for the 21 metres high superstructural parts;

- erection of the corrugated iron sheet-silos and the central pipe line bridge including platform and steps.



"The refinery in the lake Bodensee"

The refinery in the lake Bodensee

The erection of each component parts on the lake stage was a great challenge for the KRESTA team. Even divers were needed who carried out the necessary tasks underwater, such as pre-cut parts on the pilots and erection of the base wiring. The stage design "Die Raffinerie im Bodensee" embodies "a fortress of today's industrial society", according to set designer Paul Steinberg. In his opinion, "power, affluence and revenge are all key factors in Troubadour. And how is our contemporary ruthless pursuit for power typified better than with petroleum?". It was Steinberg's and the Robert Carsen's idea to create such a fancy stage design. The latter is the director. There is no doubt that this special stage design and various special effects will make the opera 'Der Troubadour' a great cultural experience.



Underwater erection by divers

KRESTA and Controlmatic

Successful co-operation with Kartogroup Leuna



Leuna paper machine



Leuna Vacuum plant

Volume order

KRESTA received the order for the turn-key-project "Tissue-Papiermaschine" in Leuna (near Leipzig) from Kartogroup in spring 2004.

The scope of delivery included the complete erection of the paper machine, which was delivered by PMT Italia, measuring and control system, equipment and machinery erection, substance preparation, process and Ermeto piping (in total 23,000 running metres) as well as tank construction (MFG + erection in the size of 10 to 500 m³).

In co-operation with the company Controlmatic, which is responsible for the measuring and control system, the project was completed within ten months only (from planning until the start-up on 10.12.2004)

Successful co-operation

The co-operation between Controlmatic and KRESTA has proved to be successful already during the shared bidding phase. The two companies developed the successful project progression based on a great amount of effort and the necessary know-how.

KRESTA can look back on experience of many years and on numerous well-known references within the European paper industry. KRESTA-teams are currently working for Stora Enso in Kvanseveden/Sweden, Holmen Paper in Madrid/Spain and Perlen Papier in Switzerland. Working under most extreme conditions is a challenge for KRESTA: the project Leuna is an example for such a challenge, where the erection of a 10,000 m³ big tank was carried out for the pulp plant Stendal last year.

Controlmatic, a subsidiary company of the French VINCI Energies, carried out following services during the project: delivery of the conductor rail system for the feeding of the low voltage switchboard plant and cabling for 360 actuations and consumers, installation of 70 km cable and pneumatic-tubes for control valves, installation of 6,200 metres aluminium-cable ways, planning and mounting of grounding and potential equalization.

The detail engineering for electric and control engineering was also accomplished in addition to the erection in close co-operation for the plant areas, such as chemical storage, yankee-spray-system, steam/perspiration water system and water preparation. The water preparation was automated with Siemens PCS 7 using MFL-module catalogue developed by Controlmatics itself. The co-operation KRESTA/Controlmatic shows how successful a collaboration between suppliers can benefit the customer, taking the Leuna project as an example.

MAW develops extraction system for exhaust fumes

A3 is becoming more environmental-friendly

In order to make the A3 line more environmental-friendly, a mobile extraction system for exhaust fumes is planned to be installed into the existing finishing bath for the primary start of cars which produce a high amount of exhaust gas.

New development from MAW

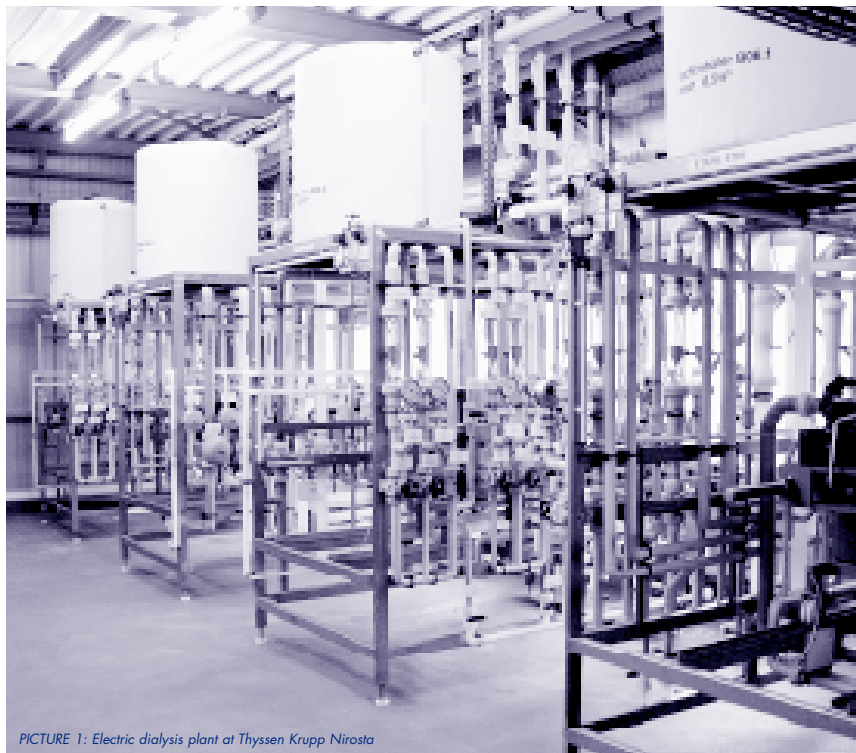
MAW developed a following-on extraction system for exhaust fumes which was accomplished as an accessible slat conveyor. After the breaking-in

of the cars into the primary start station, the flue outlets are lifted in precise defined positions for the exhaustion of the cars. The flue outlets, integrated into the slat conveyor, are fully immersible and remain lifted until the strip end. Due to this position, Audi is able to suck the required exhaust fumes amount. The main problem during erection was the adaption of plate division and strip speed. Moreover, the fact that the position of the strip ranged over two levels also turned out to be difficult. The pre-

paratory work for the strip-installment had to begun early because the downtime of the A3 line was limited. The preparatory work included the support for the existing slat conveyor in the loop-hole for the actuation and turning round station and electronic pre-installation. In addition, various walls and ceilings had to be broken through. At the end of the year 2004, the complete erection of the extraction system for exhaust fumes were carried out on three weekends and taken into operation successfully.

OSMO – Projects for ThyssenKrupp

Reduction of sulfate and emission of nitrates



PICTURE 1: Electric dialysis plant at Thyssen Krupp Niosta

OSMO Membrane Systems presented its products and services at the IFAT (International trade fair for water-waste water -garbage-recycling) in Munich at the end of May.

The main focus this year was the reduction of sulfate and emission of nitrates from the most diverse industrial areas. Exemplary are two current projects at Thyssen-Krupp:

Electric dialysis plant at Thyssen Krupp Niosta

About 2 tons of nitrate are removed during the dialysis from the sewage of the existing acid regeneration. It is then transported back in form of ni-

tric acid into the caustic line. The plant was taken into operation at the end of 2004 and has been working since then to the customer's greatest satisfaction (picture 1).

In comparison to the prototype, which was taken into operation in Sweden in 2001, the lifetime of the anodes could be doubled and thus the plant's costs could be reduced due to the plant's technical improvements.

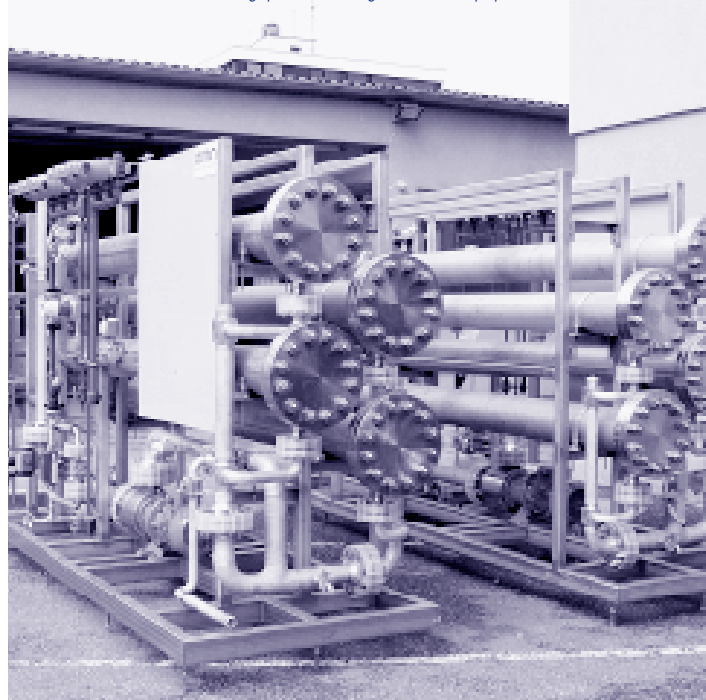
In addition, OSMO is working on a complementary operation with which – in combination with the electric dialysis – a total regeneration of the consumed pickle is necessary. For this reason, a research project has started at OSMO since the beginning of April.

High-pressure reversing osmosis in the chemical industry

A second major OSMO project is also dealing with a reduction of the emission of nitrates, however in a neutral medium. The preparation of the nitric waste water, which is generated in the chemical industry, occurs via a multi-level reversing osmosis.

The last stage of the plant (high-pressure stage) works with different pressure capacities up to 120 bar. This stage was delivered at the end of March 2005 (picture 2) and will commence its operation in June this year.

PICTURE 2: High-pressure reversing osmosis for the preparation of nitric acid waste waters



KRESTA at Stora Enso in Sweden

Chilling coldness and reindeer-cough sirup

The KRESTA mechanics, who were assigned for a Stora Enso project in Sweden in winter, can tell all about the often quoted "adventure work". 23 tanks in the dimension of 20 to 4,000 m³ were delivered and erected under the supervision of project manager Brenner Edwin and the construction supervisors Weber Ehrenfried and Marschnig Harald for the customer Stora Enso in Kvarnsveden. This Swedish company is located 250 km north of Stockholm. The tanks and towers respectively, with a total weight of 750 tons were partly pre-manufactured and assembled at the KRESTA production plant and then transported by numerous trucks to the Swedish construction site.

A speciality was the combined deviation of the upper part (85 tons) with the lower part of the stack tower of 4,000 m³. For this assembling, an extremely expensive special tracklaying-crane had to be rented because of the erection and space conditions.

Erection at minus 30 degrees Celcius

The tanks which were mainly placed outside, had to be erected by the "weather-proof" KRESTA mechanics at temperatures of -30 °C (!) during day and night shifts. The crew was forced to exchange the conventional central-European mechanics clothes with suitable Scandinavian ones already after few days on the "chilling front".

Whoever did not take his angora-underwear to the construction site, had to stock up on site with warm clothes, such as warm lined gloves, work boots and special thermo-underwear, jackets, caps, and so forth.

The adaption of each parts and materials (St and VA) was difficult. They had to be freed from snow and ice daily caused by the weather. The

welding works could only be done after a pre-warming up of the material with a bundle burner which was very time-consuming. Erection tents had to be built at the welding places because of snow storms and squalls in order to guarantee the weld seam's quality.

reindeer-cough sirup and other medicines

The most difficult situation can be overcome only with endurance and the right portion of humour. The following story at the construction site Kvarnsveden is an example: It did not take long until one of the mechanics came down with the first cold and subsequently with flue due to the Siberian conditions. Since it is very difficult to obtain some medicine in Sweden, the only doctor in this region had to be consulted in order to get a remedy.

After a short checkup, the mechanic only received a cough sirup whose package insert was in Swedish, of course. After taken the medication with confidence, he hoped that his medical condition would thus be soothed. The cure was probably too strong, because the mechanic suddenly felt a palsy after couple of hours he had taken the remedy. The KRESTA-mechanic had stopped taking the medicine immediately and asked himself the question whether he went to a vet who prescribed him a reindeer-cough sirup...

Well, in such situations the alpine patriotism is remembered very well: The sick mechanic for the right medication to be sent by courier from Austria.

The cold was cured with Austrian "schnapps tea" and sweating cure within couple of days only. We see: The good old remedies are still the most efficient ones ...

Project completion

KRESTA will be finishing its project Stora Enso Kvarnsveden at the end of July 2005. Start-up and paper production are planned to commence in November this year.



KRESTA tank with a total weight of 750 tons

• **Projects and orders.**

Presentation of current projects and orders of the group's companies.

proudly presents

• **Being in the front line.**

Reports directly from the construction sites.

on site

- **Branch relevant research.**
- product and operation developments and optimizations are carried out by GAW with the most modern technologies.**
- Concrete examples are given...**

high tech

- **Current news from the companies.**

Current topics in the companies.

on focus

Flow analysis of the GAW-ContiMixer

Innovation creates winning margin

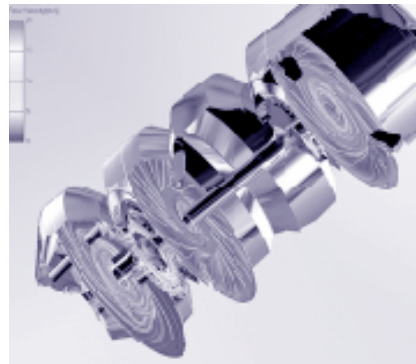
GAW's dispersing machines are the core of the coating kitchen. The continuous dispersion station Contimixer CC500 is producing 28,000 litres coating colour per hour on a daily basis constantly.

A heating-up of the colour is prevented by a special division into four mixing zones and thus, an ideal result is given. The current Contimixer is able to convert 18 different raw materials into coating colour at present.

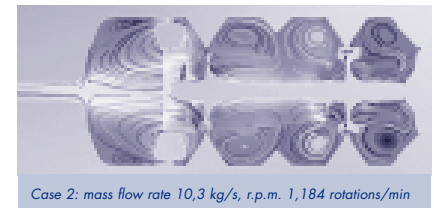
Optimization of the operation with flow analysis

GAW achieves product and operation development and optimization with the most modern technologies. A concrete example is the ContiMixer, which was developed by GAW and tested by AVL-Graz in close collaboration in regards to a flow-technical analysis.

The aim of this inspection was to define the optimization potential concerning the geometry of the mixing elements, tank building and the ideal operational parameter, such as r.p.m. and flow rate, in order to work out a more efficient construction of the aggregate. Different loading cases with vari-

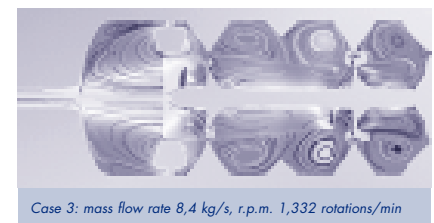
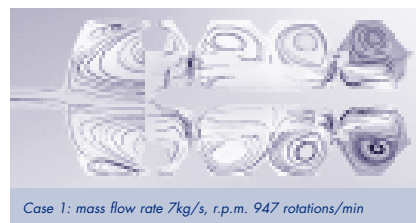


GAW has realised a further step into the right direction as a means of the best possible product design by using trendsetting technologies.



The maximum of the technological winning margin and availability of 'state of the art' products are guaranteed for the customer who is in the position of receiving products of top-quality.

able flow rate, r.p.m. and different holding tanks were simulated and delivered valuable information in regards to the "hidden" operations in the inner-life of the equipment.



KRESTA as an educational partner

Collaboration with FH Joanneum

KRESTA's philosophy lies strongly in training and internationalization which also leads to training-partnerships. The partnership between KRESTA and the advanced technical college Joanneum in Graz is the reason why two students, studying industrial engineering and organisational management, are being trained at KRESTA until 2008. The studies at the advanced technical college is a dual training, which means that theory and practice is taught alternately within a period of four years. Emphasis lies in practice orientation in order to be

able to cope with the requirements of the modern economy. The partnership between KRESTA and FH Joanneum in Graz has also established a relationship to two French students who are studying mechanical engineering at FH Bethune/University Lille in France. They were looking for a traineeship at an Austrian industrial firm. One student is employed at

KRESTA and the other one is working at the Carinthian company SCHWING, both for three months.

The young French students are scheduled to be working in Lavanttal/Carinthia until the end of June. It is a great opportunity for them since they do not only get to know the Austrian companies but also become acquainted with the country and its people.

GAW Group – shared exhibition at the SPCI 2005

GAW and KRESTA consolidated



GAW Group presented itself at the international paper trade fair SPCI 2005 from June 14 until June 16 in Stockholm. This fair is regarded as one of the most important and biggest exhibitions for the paper and cardboard industry worldwide. It provided for KRESTA and GAW the ideal opportunity to get to know many interesting people within couple of days only and to intensify existing customer contacts. News were exchanged and GAW's new technologies were presented.

The SPCI (Swedish Association of Pulp and Paper Engineers) trade fair is taking place every three years together with an international symposium. This fair is valued as an information pool by especially residential paper manufacturers and – also increasingly – by Russian and Chinese visitors.

Spedition Thomas expands its truck fleet

Thomlog GmbH shares increased

The forwarding agent Spedition Thomas has expanded its truck fleet from 6 to 13 trucks at the turn of the year 2004 due to an increased demand and order volume. New DAF-tractors with semitrailers and one freezing-truck were purchased in addition to the existing Volvo-trucks.

The investment volume totaled € 1,1 million. The trucks' cover – being an important advertising medium – was also redesigned during this renewal. The trucks of Spedition Thomas thus carry the modern, dynamic image of the company and its worldwide operation. As a result of its modernization, Spedition Thomas has also increased its Thomlog GmbH shares from 50 to 100 per cent. Hence, Karl Frühauf is the sole CEO of Thomlog GmbH.

