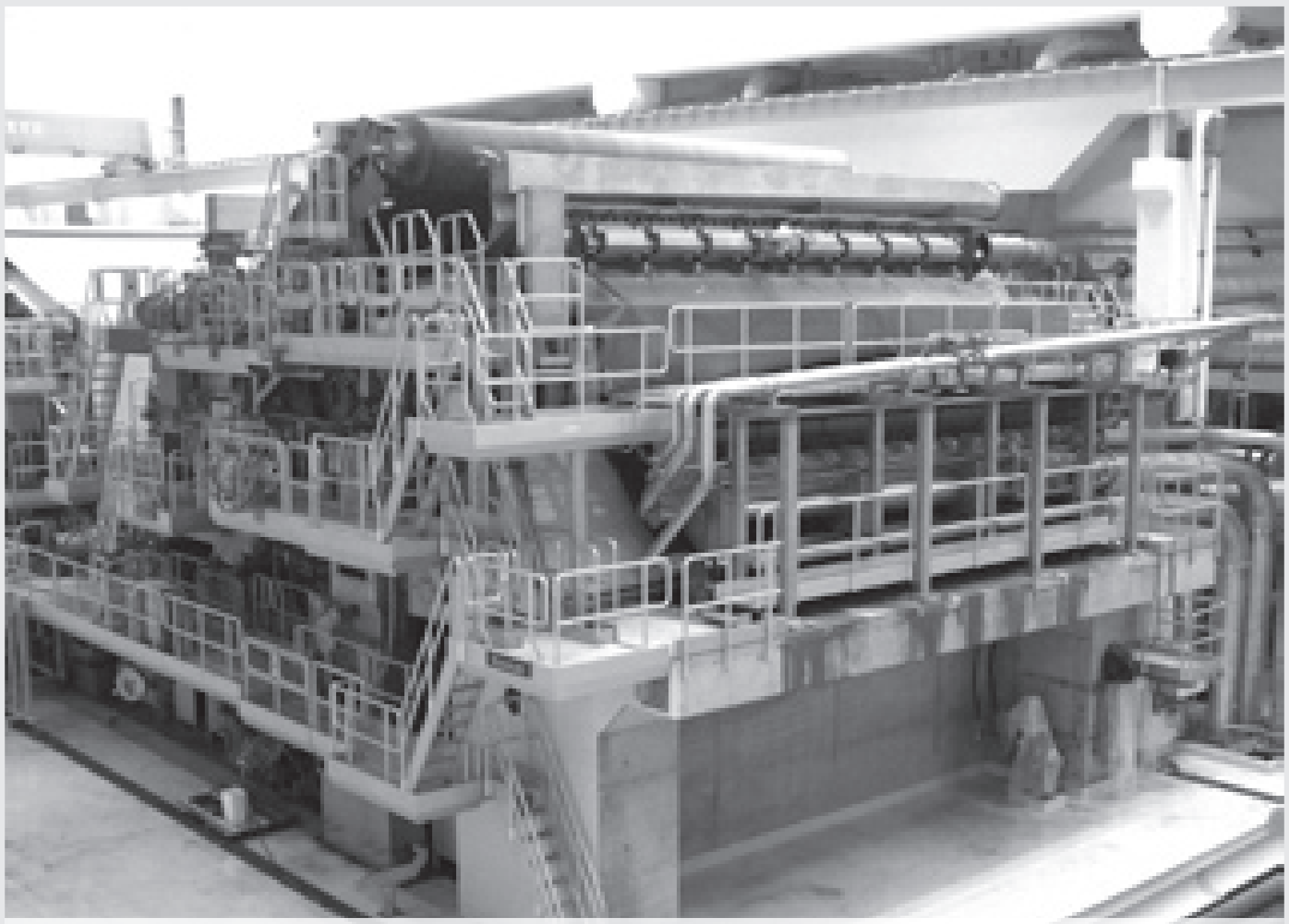
GAWGROUP

NEWS FROM THE GROUP imteam



GAWGROUP succesful in Hungary

GAWGROUP
www.gawgroup.com

GAW

KRESTA
Anlagenbau Gesellschaft m.b.H Nfg & Co KG

MAW STYRIA
MASCHINEN- U. ANLAGENBAU GMBH & CO KG

OSMO
membrane systems

emc

thomas SPEDITION Gesellschaft m.b.H.

edition 1 | 2009
limited edition

Shortcuts

Upgrades at Papermill Albruck

The existing GAW process control system V2.0 was replaced with the new GAW PLS AutomationX as part of a comprehensive modernisation programme. GAW also upgraded the existing Modicon Controller to Quantum. The weighing technology was also brought in line with the latest technological standards. A joint FAT was carried out with the client in advance in order to guarantee a smooth system conversion process and the conversion then took place in July 2009.

Expansion at Dresden Papier

The coating kitchen that was installed by GAW in 1993, which is still working to the fullest satisfaction of the client, was expanded to include a complete preparation line. Increased demand for the product and the increase in paper machine speed that thus became necessary prompted Dresden Papier to take this step. The project was completed at the beginning of August 2009.

Dongguan Nine Dragons Paper to use GAW Filtration Process

GAW was granted a contract by Dongguan Nine Dragons Paper to deliver a starch preparation and work station, fitted with the GAW Fibre Extraction System (FES). The FES is particularly effective in filtering fibres out of the starch glue and the coating colour at the work station.

Low Floor Skid Conveying Technology for the Audi A6 Successor in Neckarsulm

Integration of the conveying technology for the Audi A6 successor in the Neckarsulm plant will be finalised shortly. The innovative low floor technology, which requires a conveying height of only 250mm, was a particular challenge for the GAW and MAW teams, both in planning and engineering as well as in production. A total of more than 500 new conveying technology elements such as jacks, lifting tables, chain conveyors, gravity-roller conveyors, transfer carriages and rotary tables were integrated simultaneously in three existing systems, whereby the limited space within the systems and open areas meant that a very strict time plan, especially the precise programme coordination, were of great importance for a smooth assembly procedure.

Editorial

The financial and economic crisis hit European Industry with its full force. Many sectors across all the countries in Europe were faced with severe drops in orders, sometimes in double figures, export markets are in sharp decline and unemployment numbers are rising dramatically. In Austria too the brutal events in the financial world and the real economy have meant change on all fronts. For example the idea that banks around the world would function was an implicit fact upon which many companies relied – but all that has changed now. The crisis immediately swept away the market for many businesses but they were still left with loan repayments, wages, salaries and many other fixed costs. The situation remains tense, but it would be totally wrong to withdraw into a cave and to count on the fact that it is possible to survive bad times by reducing our metabolic rate like a bear in hibernation, only to emerge again from the cave in the spring. Anyone who did this would no longer recognise their surroundings and would be unable to stand their ground. In order to confront the current, difficult economic situation what we need is professional, entrepreneurial thinking on all levels within our business!

We are once again seeing confirmation within our group that increased efforts on the markets and the simultaneous adjustment of structures and costs pay dividends. After a tough winter and spring, characterised by numerous order cancellations and insecurity, the past few months have seen a positive trend reversal. New clients have been gained, additional orders won and some clients have reinstated suspended projects, for example the project on the Chinese island of Hainan, where the fastest fine paper machine in the world is being installed. And it is not only the Chinese paper industry setting its sights on expansion: in the new imteam you can find out more about projects in India and Hungary and read reports from the automobile and environmental technology sectors.
However the preservation of sustainability requires not only increased efforts on the markets but also ongoing investment in research, development and above all education. In this connection we are particularly pleased to report that four young people have begun their professional training at GAW alone and that we now have more trainees than ever before.
So let's take an active and optimistic approach to the future and let us no longer simply rely on the fact that we and the world around us will function as before.

Mag. Jochen Pildner-Steinburg

Editorial team: v.l.n.r. Detlef Zeller/MAW, Nina Pildner-Steinburg/GAW, Andreas Mühle/GAW, Alexandra Pichler-Jessenko/PJ, Wolfgang Senner/GAW, Josef Mohl/GAW E-Abteilung, Nikolaus Brücke/GAW
Oliver Koroschetz, Christian Stine, Sigrid Tertinegg – GAW.
In assistance by: Andreas Steinhöfler (GAW), Alexander Hörner (GAW), Walter Verschitz (GAW), Christian Steiner (OSMO), Silke Thamerl (KRESTA), Helmut Petz (SSC)

Editiorial team edition 1 | 2009

Competences

Refinement of Biogas to Natural Gas Quality

Biogas systems make a valuable contribution to alternative and decentralized energy production and close materials cycles through the material utilisation of biogenic waste

1, 2 Biogas preparation system Leoben

Increased dependence on energy imports, the continual rise in greenhouse gas emissions but also the search for new markets for agricultural products have led to a call for the intensified use for renewable energy sources. Use of biogas as a regenerative energy source has thus become more important.

What is Biogas

Biogas is a mixture that primarily comprises the components methane and carbon dioxide, whereby it is the methane that provides the value and is used to provide energy (one cubic metre of methane provides almost 10 kilowatt hours of energy). The gas production is carried out in biogas systems by a process of anaerobic (oxygen-free) fermentation of organic material; The most suitable raw materials are waste materials that contain biomass, e.g. sewage sludge, biodegradable waste or food waste, liquid manure, dung and specially cultivated energy crops (renewable raw materials).

Supplying the Natural Gas Network

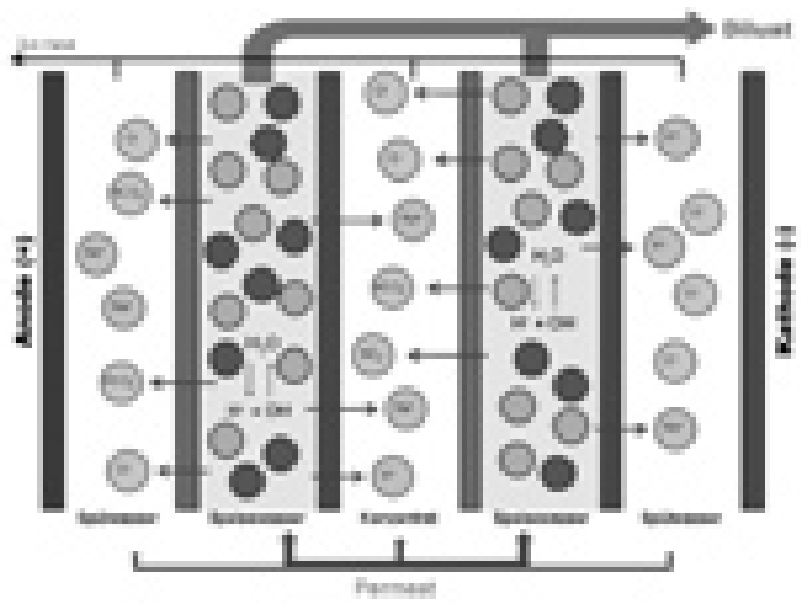
If biogas is correctly prepared and cleaned – in which case we call it methane gas from regenerative sources – it can be used in the same way as conventionally obtained natural gas. In contrast to the local conversion of biogas into electricity in thermal power stations (state of the art) it is possible to transport the entire energy contents to the consumer by supplying biogas into the natural gas network, where its conversion into each required form of energy is carried out with higher degrees of efficiency.
Besides the technical advantage the increased use of biogas also makes a substantial contribution to the reduction of greenhouse gas emissions as only the CO2 that was removed from the atmosphere during plant growth is released on combustion.

Preparation of Biogas

Within the framework of a pilot project at Steirische Gas-Wärme GmbH, the Association for Pollution Prevention in Leoben and Stadtwerke Leoben (the public utilities company in Leoben) the consortium GAW – KVT was granted to the contract for the construction of a biogas preparation system (imteam reported on this in Issue 1/08).
The system comprises primarily gas cleaning, gas drying and wash media regeneration, whereby methane enrichment by component separation (gas cleaning) forms the heart of the system: the gas flow that is taken from the gas pipe is brought to a low preliminary pressure in a charger following successful condensate separation and then washed with an amine water solution in the absorber. This cleans the gas of carbon dioxide, hydrogen sulphide and other interfering components using slight overpressure. After drops of liquid and wall condensation have also been separated in a further step and the gas has been dried the gas flow is transferred to the supply station. The regeneration of the washing medium is carried out by heat input in the desorber. The previously absorbed components are thus removed and the amine can be re-used in the cycle.
The system is designed for 250 Nm3/h of crude gas and is constructed in a compact container system. Amine washing represents an attractive concept for biogas preparation with regard to the low number of necessary pieces of apparatus, compressors, pumps and piping, its operation almost without pressurisation and the thermal regeneration of the washing medium. Another advantage results from the fact that components CO2 and H2S are produced in very concentrated forms during regeneration and the gases can therefore be disposed of easily.
The particular challenge in the preparation of biogas is its cleaning in order to fulfil the strict quality norms that are in force for natural gas. Supply into the public gas network at Stadtwerke Leoben is thus absolutely exemplary.

Full Desalination using Electro-deionisation

The electro-deionisation of OSMO is an innovative alternative to the conventional ion exchanger



3 Function of the Electro-deionisation

Requirements for de-ionised water range from the semiconductor industry to energy and power station technology through to sensitive applications in the medical and pharmaceutical sectors. OSMO Membrane Systems GmbH is now offering an innovative and complete alternative to the conventional ion exchanger in the form of electro-deionisation.

Structure and Function

Several layers of various ion-selective membranes that are permeable for anions or cations are located between an anode and a cathode. The alternating concentrate chambers and ion exchanger chambers, filled with the relevant resin, are located between these membranes.
The ion exchanger resin exchanges the ions in the water supply for H+- and OH--ions. If the original ions are removed from the water supply and replaced with hydroxyl ions then this reduces its conductivity and the electrical potential splits the water molecules on the resin. The hydroxyl ions that are thus produced then regenerate the resin continuously, which leads to uninterrupted operation of electro-deionisation without auxiliary regeneration agents.
As an experienced system supplier OSMO Membrane Systems GmbH offers both electro-deionisation with equipment (e.g. power supply, piping) as well as the preceding preparation steps such as reverse osmosis and membrane degassing from a single source.

The function and structure of the electro-deionisation (EDI) process has the following advantages:

Compact design
Maintenance-free operation
Low operating costs
No handling of regeneration chemicals
Simple to extend due to its modular structure

Technical data:

Type designation	OS-EDI-500XL
Dimensions	22x56x37cm (WxHxD)
Water supply flow	1.3 – 2.3 m^3/h
Yield	approx. 90% *
Conductivity achieved	< 0,1µS/cm *
Electricity	300VDC, 2A *

** The yield, conductivity and electricity consumption depend on the quality of the water supply. In an ideal situation the electro-deionisation will be preceded by reverse osmosis and degassing procedures.*

From Block of Stone to Micro-particle

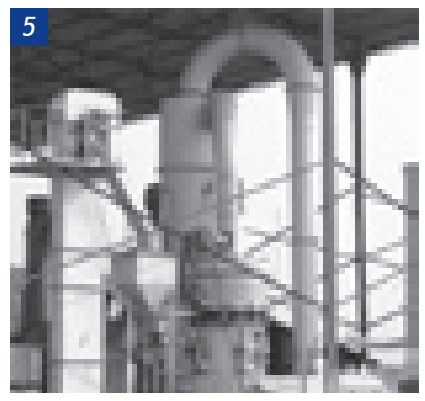
GAW has opened up a new market segment with the supply of a dry milling system for pigments

GAW technologies was commissioned by Shangdong Bohui Paper Industry, based in Zibo, to make the first delivery of a dry milling system for natural calcium carbonate. Besides the coating kitchen that has already been delivered this is the second large contract in a very short period that GAW has received from the Chinese cardboard manufacturer. The system was designed for an annual output of 150,000 tonnes of dry calcium carbonate. The order volume totals 3.5 million Euros. The scope of the GAW delivery includes the delivery of key and individual components, the supervision of mechanical and electrical assembly and the planned initial operation at the beginning of March 2010. .

The Principle of Multi-stage Milling

The principle of the dry milling system is based on the multi-stage milling of stone blocks. In order to achieve this a jaw crusher is fed with blocks of stone the size of a sports bag. The jaw crusher carries out the rough breaking of the stone to a particle size of around 40 mm. The stone is then transported on a conveyor belt to the second milling stage, a so-called hammer mill. This mill smashes the stone with demolition hammers. After this reduction is complete the stone, which now has a particle size of around 10 mm, travels to the third and last dry milling stage via a bucket elevator. In this stage the stone is milled to particles of approximately 40 microns in the vertical pulveriser using rotating runners, after which the dry milling process is complete. The product is suctioned out under negative pressure, separated from the air in a correspondingly dimensioned filter and fed into a storage silo. From here the further processes depend on product specifications in the GAW wet milling sector.

4



5

4 Jaw Crusher

5 Dry milling system for pigments

Energy-efficient dispersing – the new GAW Disperser aggregate

A new rotor/stator geometry requires less power and simultaneously delivers improved performance in the manufacture of high quality coating colours

The use of the new GAW Disperser aggregate for the preparation of complex product recipes delivers substantial energy savings in the manufacture of high quality coating colour. This is made possible by the modified rotor/stator geometry, which requires a substantially lower motor performance level than was previously the case.
Particularly in connection with GAW-VST technology this thus enables top performance in the manufacture of coating colours, especially because the energy input over the duration of the batch preparation is adjusted to each actual requirement.
The subject of environmental protection has already reached a high level, particularly in Europe, and industrial operations are also required to fulfil increasingly strict environmental requirements in other countries. Thus there is great demand for innovative systems that both save energy and reduce production costs while enabling an increase in quality. The new GAW Disperser aggregate not only saves power but also delivers a substantially higher level of performance in the manufacture of coating colours. It will surely find increasing applications in future within the paper industry.

Besides the important aspect of energy savings the new Disperser aggregate also has a number of further advantages:

- An optimum ration between flow and shear
- Low break resistance
- Improved distribution of particle sizes
- Highest solids content
- Ideal viscosity
- Reduction of air content in the coating colour
- Improvement in coating colour rheology
- Saves binder material
- Low wear and tear

[1] The GAW Variable Shear Technology is based on the infinite adjustability of the rotor-stator cover during operation.

6

7

6/7 GAW-VST-Disperser aggregate

Competences

MemCell – the automatic test system for flat membranes

The new OSMO laboratory system can be used to carry out membrane tests for ultra filtration, nano filtration and reverse osmosis using only minimal effort

The MemCell, the new OSMO test system for flat membranes, is used to determine specific parameters for the preparation of aqueous solutions using ultra filtration, nano filtration and reverse osmosis. Equipped with the latest measurement and regulation technology, test series are carried out completely automatically at a constant flow or pressure so that uninterrupted tests are possible over several days while the current operational state is represented in a clear way through visualisation.
The system execution in stainless steel has the advantage that it remains resistant to even aggressive media. The automated MemCell is the logical development of the manual test system that has been tried and tested for many years but only uses minimal human resources and also enables reproducible measurements.

The flat module is modelled on the hydraulic characteristics of the coil insert. This allows the transfer of experience from the laboratory experiment into the pilot scale. The flat cell in the system is available with various spacers (30-44-80 mil), whereby only the central section needs to be exchanged. A permeable sinter plate with similar characteristics as the permeate space is fitted on the permeate side to enable optimum and even permeate derivation. This makes safe scale-up possible.

* *A feed is a flow of material supplied to a chemical-technical system.*

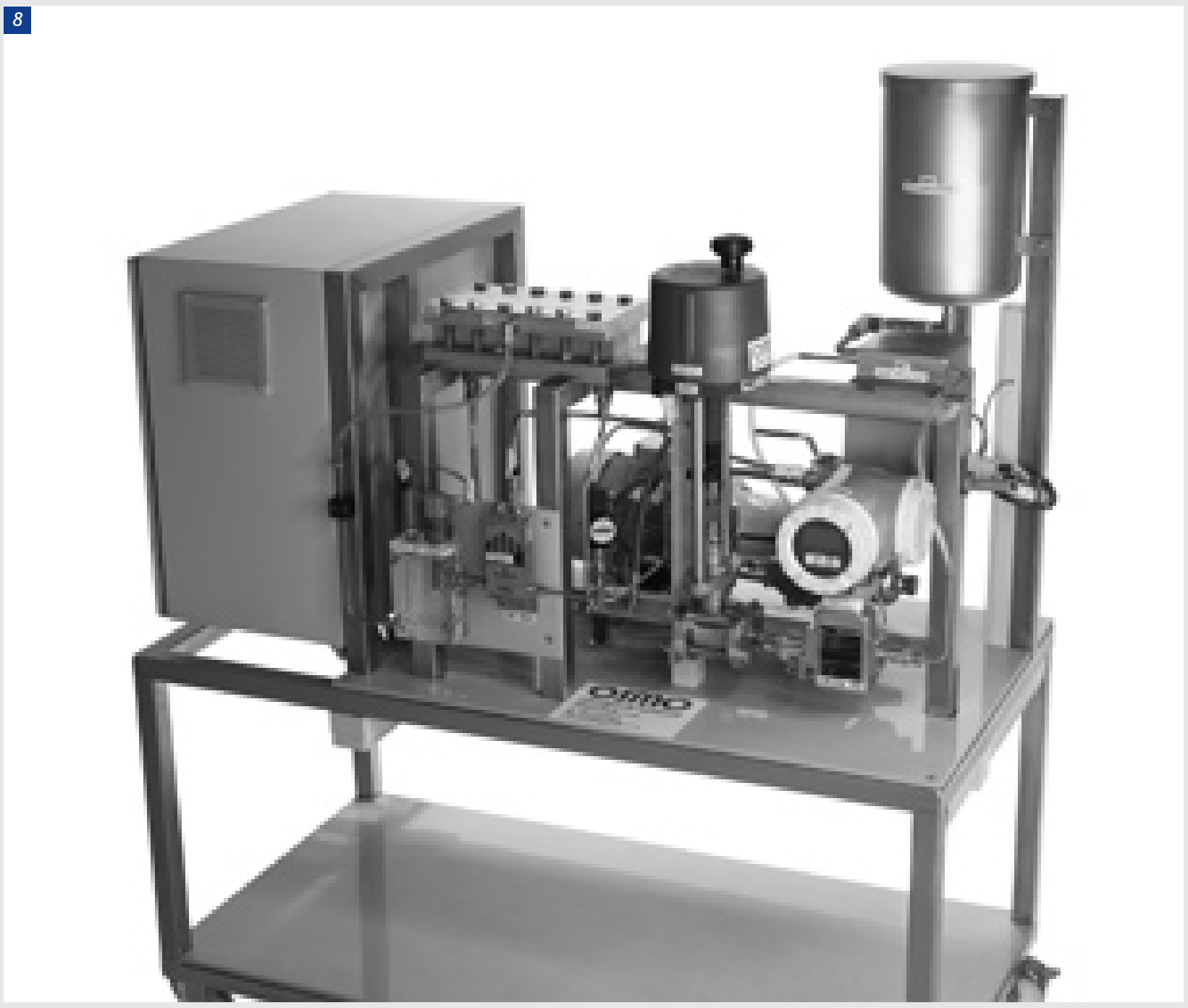
Documented Measurement Data

The following measurement data is recorded, read via a USB 2.0 interface:

Feed pressure *
pH value of feed
Temperature of feed
pH value of permeate
Conductivity of permeate
Permeate flow
Concentrate flow

8 Automativ test system for flat membranes

8



Projects

GAW – Coating Kitchen and GCC – Mill Systems for MCC Meili Paper Industry

Ten years ago Meili Paper was a paper factory in a small town – today it is one of the largest paper manufacturers in China and continues to expand

MCC Meili Paper Industry Co., Ltd., which belongs to the China Metallurgical Science and Industry Corporation, is located far into the interior of China on the border to Inner Mongolia, near the Tengger Desert . In the last 10 years MCC Meili has carried out highly successful innovation and investments and is now one of the leading paper producers in China. In 2008 a completely new factory with several paper production lines was constructed on a green field site in Zhongwei, in the autonomous province of Ningxia.

Contract worth Millions for GAW

GAW will plan and supply all coating colour preparation equipment for the LWC production line, including the film press work station and two GCC milling systems for grades as fine as 98% smaller than 2 microns.
China Metallurgical Group Corporation (MCC) is one of China's leading transnational groups and is primarily active as a general contractor in the international construction sector, in the development of natural resources and in the paper, systems manufacture and real estate development sectors. MCC Meili Paper has been part of the MCC Group since 2006 and has worked its way up in only 10 years to being one of China's leading paper producers, primarily through innovation. The gigantic reforestation project that they began in 2004 gained them a lot of attention: the factory, which was originally to be constructed in the middle of the desert, is now part of a modern industrial park surrounded by over 33,000 hectares of forests and plants and is considered to be a prime model for the integrated development of the forestry and paper industries in China.

[1] *The Tengger Desert is the fourth largest desert in China, located to the south west of the Gobi Desert. There are many stretches of over 100 km of sand in the Tengger Desert, which is why it has the name 'Tengger', which is Mongolian for 'wide sky'.*

The contract is worth several million Euros and includes:

Fully automated coating colour preparation
Storage and transportation of coating colour
The preparation of coating starch
The preparation of china clay, PVA and CMC
The storage of coating pigments, CaCO3 and synthetic binding materials
The work stations
The preparation, storage and transportation of pre-milled calcium carbonate
The storage of auxiliary milling materials and
Two GCC wet milling systems.

GAW to supply Chemical Preparation System and Coating Kitchen to India

The new PM 3 paper machine is part of the over 230 million USD expansion plan of the Indian paper giant Tamil Nadu Newsprint and Papers Limited

The Indian paper producer Tamil Nadu Newsprint and Papers Limited is investing millions of US dollars in its factory, located in the state of Tamil Nadu and destined to become the largest paper factory in India with an annual production capacity of approximately 400,000 tonnes. One important component in this investment is the production system for valuable writing, printing and copy paper (PM 3), which will produce 155,000 tonnes of paper per annum as of summer 2010 and mainly uses environmentally-friendly bagasse cellulose, which is produced in their own factory.
GAW was commissioned with the engineering, supply, mechanical and electrical assembly and initial operation of the complete chemical and coating colour preparation system for this new production line, whereby the majority of the project will be realised by GAW Paper Coating Systems, USA.

Preparation of complex Product Formulae

The fully automatic coating colour preparation system is based on GAW-Variable Shear Technology (VST) and results in highly efficient dispersal with the lowest possible level of energy consumption, minimal viscosity and savings in the addition of binding agents to the coating colour. The optimal distribution of the pigments achieved by VST dispersal guarantees particularly even coating and increases gloss characteristics in the paper. The entire coating colour preparation process is controlled by the GAW process control system AutomationX.
Besides coating colour preparation and the Speedsizer workstations the contract also includes the entire preparation – storage, transportation, dosage and weighing – of pigments, filling and auxiliary materials, binding agents such as kaolin, calcium carbonate, latex, starch, PVA, biocides and optical brightener and control using AutomationX.

Environmentally-friendly Paper

The Tamil Nadu factory is located in the state of Tamil Nadu, approximately 350 km southeast of Chennai (Madras), the fifth-largest city in India. It is used to manufacture high quality writing, printing and copy paper, primarily made of environmentally friendly bagasse cellulose, which has already brought the company numerous awards relating to environmental protection. Bagasse is a fibrous component of sugar cane, which occurs as press waste in industrial sugar production and also serves as a base material for paper manufacture because of its high cellulose content. Initial operation of the new PM 3 will take place in mid 2010.

India's paper industry expecting a positive development in demand in the long term

According to a prediction by the Indian Paper Manufacturers Association (IPMA) demand for paper and paper products is expected to rise from a recent level of just 8 million to 15 million tonnes by 2015 and then 20 million tonnes by 2020, whereby it is primarily the products like copy paper or coated paper that are expected to rise at rates between 15% and 20%. India, with its annual consumption of approximately 9 kg per person, is still far below the international average of 45 kg, but paper consumption is increasing steadily together with increasing household income, increased literacy within the population and higher government spending on education.
India's paper manufacturers are therefore counting on long-term expansion and want to increase their capacity and modernise their old systems in coming years. The paper manufacturers will already increase their capacity by approximately 3 million tonnes by 2012, with the IPMA estimating necessary investment for this at 130,000 million Indian rupees - approximately 2,000 million Euros. [Source: Bundesverband Sekundärrohstoffe und Entsorgung e.V.; www.bvse.de on 10.05.2009]

GCC Wet Milling System: contract worth millions for GAW

The highest productivity fine paper machine in the world was installed on the island of Hainan and GAW will supply a wet milling system for natural calcium carbonate

The industrial and economic development of China has now also reached the island of Hainan, which previously relied primarily on the tourism industry and its wealth of natural resources. Asia Pulp & Paper (APP), one of the top 10 paper manufacturers worldwide, not only operated the world's largest cellulose factory on Hainan, but is also currently operating the fastest fine paper machine in the world with the PM2 paper machine on this southern Chinese island.
Besides a paper and a coating machine the 'Hainan' project also requires a milling system for natural calcium carbonate and APP has once again chosen GAW technology. The order of the GCC wet milling system primarily includes basic and detailed engineering, electrical controls, filter equipment and of course the wet milling machines at the heart of the system. The overall contract is worth several million Euros.

Highest Degrees of Fineness with specific Grain Distribution Curves

The GAW wet milling system produces liquid calcium carbonate by first liquefying the calcium carbonate powder stored in the silos and then milling it in one or more stages using charge-influencing auxiliary materials and high performance mills. The continually operated process lines are fully automated and guarantee the required quality characteristics of up to 98% smaller than 2 microns. They transport the finished product into large-volume storage containers for further processing.
Asia Pulp & Paper is one of GAW's largest and most loyal clients. In recent years APP also granted the contract for the coating kitchens for the supply of all production lines in the Dagang factory to GAW. Also the fist GAW-GCC system went into operation in Dagang as early as 2005.
Calcium carbonate is gaining importance in the paper and cardboard industry, both as a bulking agent and as a coating pigment. Besides the whiteness and refraction index properties the form and fineness of the particles also play a major role in the coating of paper and cardboard, especially as the developments in the speed of paper and coating machines require ever increasing running properties from coating colours. This means that materials must have both a high solids content and controllable order weight – all this at speeds of almost 2000 m/minute and without any line or scratch formation. The GCC is prepared using a special procedure and dry or wet milling is used depending on its purpose.

Natural Calcium Carbonate (GCC – Ground Calcium Carbonate) occurs in Three Types of Stone:

Chalk: a loosely solidified sedimentary stone of biogenic origin (shells and skeletons of nano-fossils)

Limestone: A more solid sedimentary stone of biogenic origins (snails and shells)

Marble: a metamorphic, carbonate stone, created by chemical re-crystallisation of chalk and limestone

GAW is developing Chassis Palettes for the Production of the Peugeot 308C

Serial production on the new Peugeot will soon start at Magna Steyr in Graz

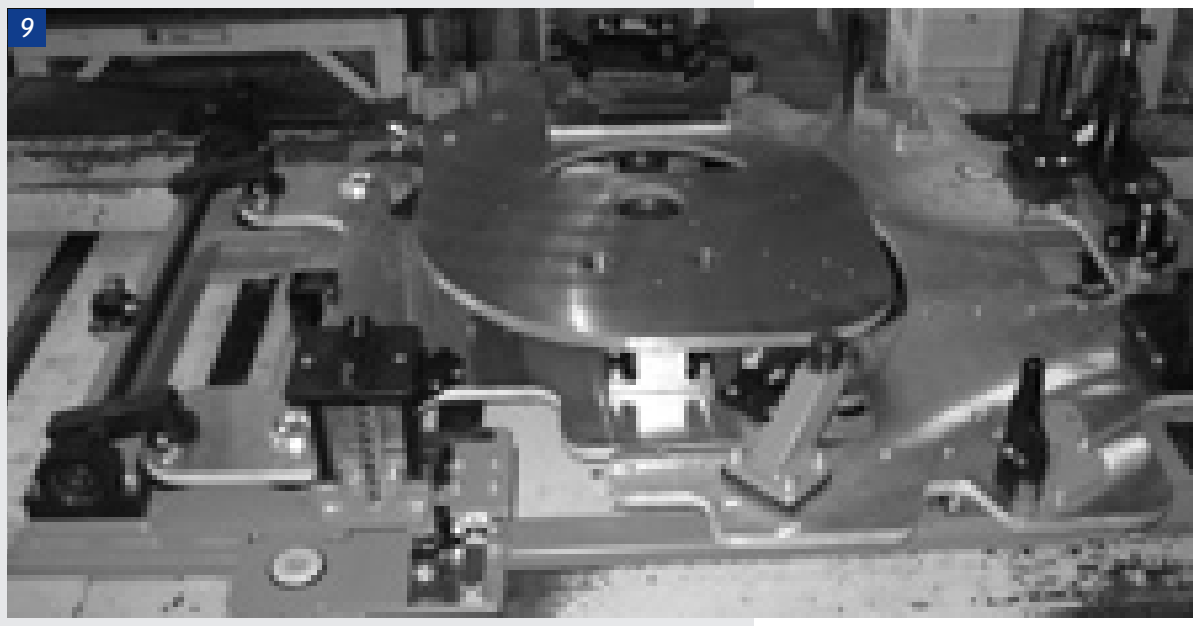
Magna Steyr, who will begin serial production of the new Peugeot 308 C at their Graz-Thondorf plant this winter, granted GAW a contract for the development, production and delivery of chassis palettes and sub-assemblies in December 2008.

Virtual Development of Close-to-production Prototype Palettes

The greatest main challenge lay in the requirement to develop as much as possible virtually, which greatly limited the availability of STO parts (system tryout). In only two months the GAW engineers and their partners developed and constructed close-to-production prototype palettes in cooperation with the Magna Steyr planning department, thus ensuring installation on the PTO online (production tryout) of 100 pre-series vehicles from April 2009.
Once serial production begins approximately 22,000 vehicles can be produced in Graz.

Assembly Process for Engines and Axes

Assembly of the axes, transmission and engines as well as the installation of components such as the starter and the generator will be carried out on the pre-assembly lines.
The engine and axes components that are produced on the pre-assembly lines are transferred to engine or rear axle palettes (work piece carriers) using lifting or handling equipment. In order to position the engine to the vehicle position the turntable on the engine plate is turned 90° from its original position and received by contour and form supports mounted on the palettes. After this the engine transmission unit is connected to the front axle and the palettes transported to the transfer station on a floor transport system (BTS) using roller conveyor belts. The rear axle palettes are transported from the back axle mounting course to the transfer station at almost the same time.
The mating and screwing of the engine transmission unit to the vehicle chassis then follows at the so-called aggregate mounting station, including the front and rear axles. This process is also termed the marriage or joining course. After completion of the last screwing process the lifting tables are lowered again and the position pins that are inserted in the side member when the lifting tables are lifted, are laid manually back in their starting position. The empty palettes are steered back to the return route and the same process can begin again.



In total GAW will deliver 27 engine palettes, 10 rear axle palettes and the pre-assembly equipment for the front and rear axle assembly.

9 Engine palette Peugeot 308 C

Projects

Curtain Coating at Cham Paper

GAW was granted the contract to deliver the workstation to supply the curtain coater

10

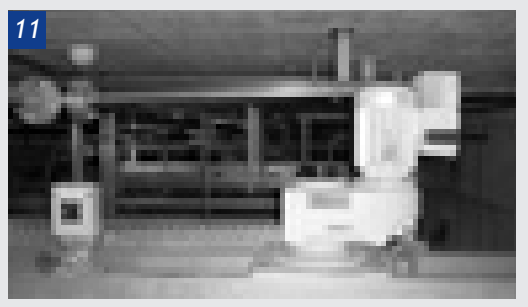
The non-contact curtain coating procedure, which was originally used in the photographic industry, offers much potential for forward thinking product developments. Investment in this kind of innovative coating system makes Cham Paper Group the first user of this new curtain coating technology and opens up new possible applications for high quality specialist papers, especially in specialist paper manufacture.

Strict Requirements for the Degassing of Coating Colour

Curtain Coating is a non-contact coating process that, in contrast to coating aggregates like blade or film presses, does not produce excess coating colour: a so-called slit cap is used to apply the coating colour in one or two coats onto the paper strip without excess; thus only that quantity of colour is applied that will remain on the material strip. The nozzle has no direct contact with the paper strip, the coating colour is distributed evenly over the entire width of the nozzle and falls onto the paper fed past it like a curtain.
As this type of application places special requirements on the degassing of the colour the conception and realisation of the workstation with integrated filtering and degassing was a particular challenge for GAW.
The system went into operation in the spring of 2009.

Scope of the Order

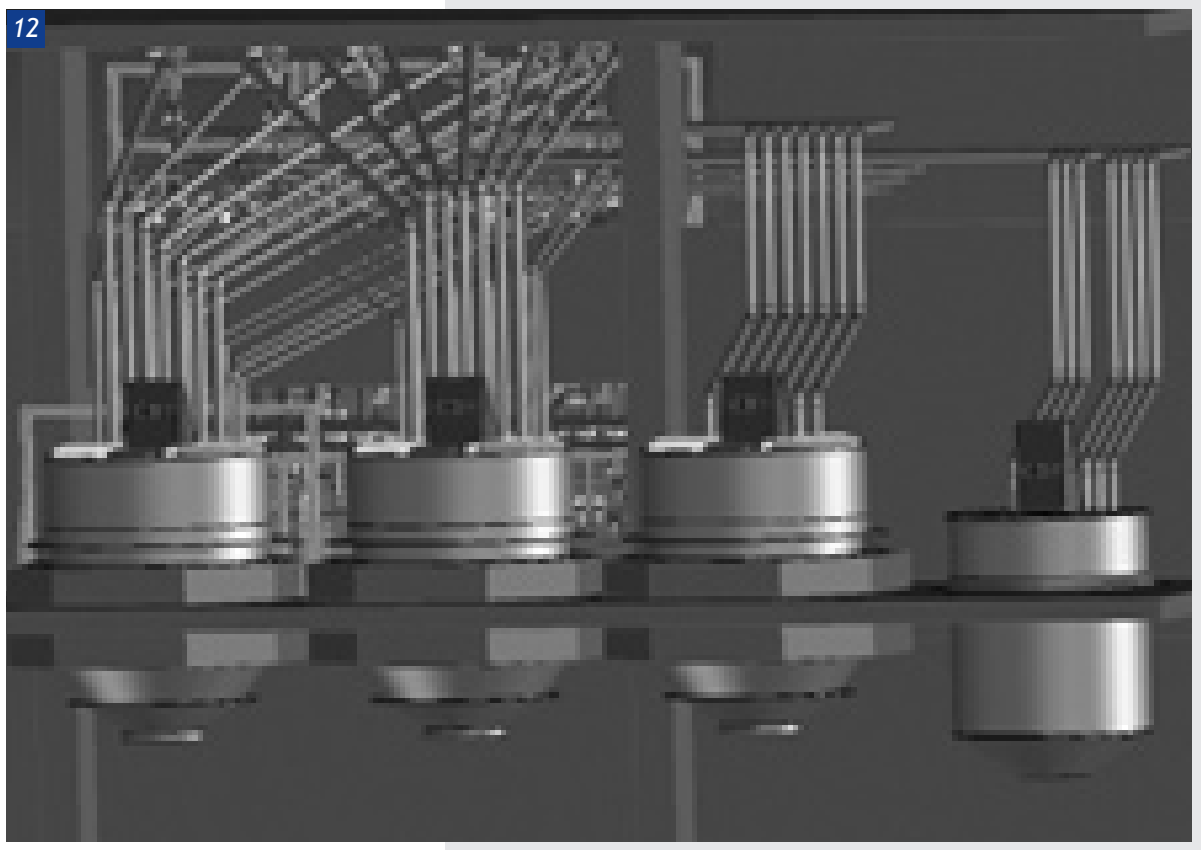
- Transfer of the colour from the paste preparation area to the workstation
- Exact temperature control, filtering and degassing at coater application
- Preparation of temperature-controlled process water
- Construction of a vacuum system for degassing
- Cleaning system for the degassing components



11

GAW Disperser Aggregate for Stora Enso – cost efficient and environmentally friendly

Stora Enso in Hagen puts the company's strict environmental guidelines into effect in an exemplary way at their Kabel factory



12

12 Coating colour preparation

The Kabel factory is located in Hagen, at the edge of the Sauerland district, 15 km south of Dortmund and approx. 65 km east of Dusseldorf, Germany. The Kabel factory has two paper machines and concentrates on the production of high quality, wood-containing, coated printing paper that is used for the manufacture of consumer and specialist publications, mail-order catalogues, newspaper supplements and other commercial printed papers but also for text books, brochures, coffee-table books, wall calendars and company reports. The annual production capacity is 485,000 tonnes.
The Kabel factory has had its own waste water cleaning system since 1970. Domestic waste water is also cleaned here, in cooperation with the Ruhr River Association, as well as the waste water from paper production – a useful symbiosis.

GAW scores Points with Cost-efficiency Environmental Compatibility

At the end of last year GAW was already able to beat the competition and win the contract to modernise and expand the existing coating colour preparation system at Stora Enso Kabel. The three VST dispersal aggregates (Variable Shear Technology) form the heart of the system with a capacity of 13,000 litres each and replace the Cellier aggregates that had been used previously. The client's requirement for 'low energy consumption and the highest possible level of environmental compatibility' was certainly a special challenge on this project. It was necessary to realise this requirement in the GAW disperser and this was achieved successfully with the VST technology.

Functionality and Scope of Delivery

With the help of the VST technology it was possible to adjust the energy input over the duration of batch preparation to the consumption that was actually necessary. This adjustment is fully automated using the batch management system supplied by GAW.
Besides planning, delivery and assembly of the mechanical components the contract also included exchanging the existing CMS relay controls and the CP550 AEG controls to PCS7, implementation of batch preparation using GAW PLS AutomationX, including data linkage and integration of the FAW quality loops, and the conversion of the S5 controls to PCS7. Overall document production for the entire system in WSCAD was also carried out in the course of these comprehensive changes to the system. GAW carried out all electrical installation in the old and new system, including power supply units.

MAW Transportation Systems for AUDI A6 and A7

MAW is developing a specialised system for the transportation of front-end modules

AUDI Neckarsulm granted MAW the contract to develop a specialist transportation system to delivery the so-called front-end module to the unloading station. The front-end module comprises the radiator with radiator grill and is delivery in stackable specialist containers from the system supplier. They are transported automatically to the loading station and pulled in automatically on a conveyor belt. A turntable and lifting device position the container. A worker removes the front-end using a manipulator and positions it for screwing onto the chassis. The empty container is transported on further conveyor belts and removed. High-speed doors and PLS scanners were installed for safety reasons. The challenge for MAW lay in developing a transportation system that could accommodate the extremely tight space situation and guarantee a smooth assembly process. The system was delivered in May 2009 and functioned perfectly following a brief trial operation period.

GAW und KRESTA successful in Hungary

Significant participation of the GAW Group in the construction of Hungary's largest paper machine

Hamburger Hungaria Kft, which belongs to the Austrian Hamburger Group, took Hungary's largest paper machine into operation in June. With a screen width of 8600 mm and a construction speed of 1500 m/min it will manufacture approximately 400,000 tonnes of corrugated board and test liner per annum.

Paper Machine Assembly by KRESTA

KRESTA was granted the contract for the assembly of the paper machine and equipment for materials preparation such as sorters, cleaner banks, screen filters, pulpers, for the waste paper feed belt, the reject system and the sorting drum as well as pumps, motors and stirrers, multi-screens, mixer pumps and polished piping for the head box and the refiner.
The main task, however, was the installation of the elimination system and the assembly of the paper machine, comprising head box, screen section, press section, preliminary drying section, speed sizer, subsequent drying section, master reel, tambour bearing and the vacuum system in the wet section. Approximately 19,000 m of Ermeto piping and the installation of hydraulic aggregates and various pneumatic barriers were also included in the scope of the assembly work.

GAW delivers Custom-made Starch Preparation System

GAW was granted the contract for the construction of the starch preparation system that is necessary to glue the packing boxes. The scope of delivery included the entire preparation system from the delivery of the raw materials to preparation at the paper machine. A system was developed that enables product delivery in both powder and liquid form and combines them, whereby a stirrer was conceived, planned and taken into operation for this liquid delivery for a 300 m3 starch storage tank with a free corrugated length of almost 15 m. The Plugflow-Converter, which has been tested a hundred times around the world, was selected as the heart of the system (the enzymatic breakdown of native starch), whereby the loss of waste water was reduced to a minimum and there are no variations in viscosity during start-up, operation or shutdown. The workstation following the starch preparation was fitted with stirrer-less, steam-heated, conical work containers and the rewindable GAW filter systems in order to supply the starch to the paper machine at the highest quality.
The entire bentonite preparation system and a lignin sulphonate dosing system that allows unimagined concentrations of solids will also come from GAW.

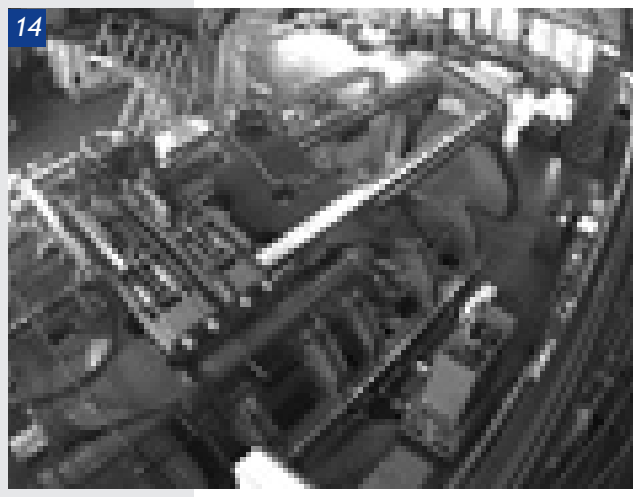
Manufacture of seamless Steel Pipes

Successful cooperation between GAW and SCC Prototypen-Anlagenbau GmbH

SSC Prototypen – Anlagenbau GMBH was commissioned by VSB VALLOUREC & SUMITOMO TUBOS do BRASIL with the planning and delivery of a DBCM 1200 Double Billet Centring Machine. The machine was intended for use in the manufacture of seamless steel pipes.
Because of the size of the project, generally successful business development and the resources available to SSC it seemed sensible to realise both this and a further project in cooperation with GAW as their industrial partner, whereby the entire technical/technological responsibility lay solely with SSC. GAW offers SSC the necessary support, especially in the sectors of project controlling and finance as well as sourcing.

Die Double Bill Centring Machine - structure and function

The machine is designed to press various centring holes into the front face of steel blocks that are supplied aglow from a rotary heath furnace with great precision (2 or 2.5 mm tolerance) and at an interval of 18 seconds.
The execution of centred holes substantially improves the quality of the finished tube blank (the blank of a seamless pipe) by avoiding quality defects on the front face of the pipe blank as well as retaining the wall thickness precision in the finished product.
The pressing system comprises the press frame and the two, independent, hydraulically-operated press trolleys as well as the transportation technology that is necessary for the feeding and unloading of the press system and the transfer of the work-pieces to the following production states. This transportation technology comprises the central roller section to feed the system from a hydraulically driven block lifting apparatus, which lifts the work-piece to the processing position and centres it as well as a transfer trolley that removes the work-piece from the hole press on a transverse bridge structure.
SSC is also responsible for the entire hydraulics system and all the completely electronic controls on the system that are necessary for fully automated operation, whereby all functions can also be controlled manually.



14 Double Billet Centring Machine

OSMO supplies System Technology for Landfill in Hanover

The treatment of seepage water by reverse osmosis can remove the negative environmental effects of dumping

The Wuppertal Company Boden- und Deponiesanierung GmbH (BDS) has been operating hydraulic security at the Lahe landfill in Hanover successfully now for 12 years. Because the old structure was not sealed off the contaminated groundwater will now be treated by reverse osmosis. OSMO was granted the contract to delivery the technology and operate the system.

The System

250 to 300 m3 of groundwater are being treated every day using nano-filtration as a preliminary process followed by reverse osmosis. The permeate is of direct discharge quality but is also available to the landfill as service water while the concentrate is fed into the landfill's own seepage water treatment system.
OSMO Membrane Systems operates the system on behalf of BDS. The fully automated system is carried out remotely and any defects are communicated to the stand-by personnel. The system is currently working successfully in its trial operation period and will enter regular service in the autumn. This regular service will continue for 6 years.

To protect the Environment

Seepage water from landfills must not be fed into the sewage system or a receiving water course. The following environmental protection measures are therefore necessary: the cleaned water must be separated from the wastewater and must fulfil feed values as well as a minimum concentrate content level. The cleaned water can then be used again as service water or possibly as drinking water.
For landfill seepage water, as with many other industrial wastewater types, we must, however, be satisfied with bringing the water to a quality at which secondary clarification is possible at biological clarification plants or at which it may be fed into a receiving water course. The contents are concentrated so that they can be disposed of without negative effects on the environment.

Treating Seepage Water with Reverse Osmosis

OSMO offers the following treatment for landfill seepage water: water cleaning to receiving water course quality and concentration of the contents so that the concentrate may be disposed of at the landfill depending on the landfill and the level of concentration. CSB and BSB values can sometimes be reduced substantially when ultra-filtration is used as a preliminary process. Where there is preliminary treatment reverse osmosis can be used as a general procedure in one or more stages depending on quality requirements.
Reverse osmosis is particularly interesting for the treatment of seepage water if the concentrate can be returned to the landfill. OSMO can operate corresponding landfill seepage water systems (operator model) at the client's request.

15 Reverse osmosis