

PACO WORLD

Our International
Wire & Mesh Magazine
for Existing and
Prospective Customers

Editorial:

The Diesel and Fairness

The diesel engine is one of those technical achievements that is a particularly German phenomenon. When you try telling an American cab driver that Diesel was the name of a German engineer and not just another word for "gas", they look on in astonishment. Admittedly the diesel has well and truly established itself as the power plant of choice for ships, buses, trucks and construction equipment without making much fuss about where it comes from. But when it comes to carrying people in their own cars, Germany is definitely a global leader. There is nowhere else in the world that gives diesel fuel such big tax advantages to effectively subsidize the diesel engine. Against this background, engineers and managers from some of Germany's most renowned car makers, have been found guilty of misleading the public by falsifying diesel exhaust emissions. This has not only had an effect on the motor industry's business plan, it has dealt the complete German export economy a serious blow. Technically this could have all been avoided. Today's diesel engines are already able to fully comply with current environmental requirements. They inherently have very low carbon dioxide emissions. And the nitrogen oxide (NOx) output that has caused all of the problems is technically manageable. However, incorrectly applied test methods and misguided cost considerations have caused serious damage to not just the image of the diesel engine. Because this happened within Germany's leading industry, the whole affair has seriously tarnished the reputation of "Made in Germany". A situation that PACO and the PACO customer base has been made to feel the effects of. If the perpetrators had been guided by the principles of the honourable merchant in their application of technology, the whole affair would never have blown up in the first place. Nobody should delude themselves that they can indefinitely deceive others. You are always going to get found out by somebody. That is why the corporate governance law no. 1 will always apply: absolute fairness to customers and users. This automatically means that you never resort to questionable technical solutions or false claims. PACO has strictly abided by the rules of fairness at all times and gained the consistent approval of the customers and markets that it serves.

Best regards



Peter Ruppel
CEO, Managing Director



Cooling water for a desert state: HETA Tames Seawater for a Giga-Refinery!

When you specialize in demanding technical fields, you get orders that put everything else that you usually do in the shadows. This is the case with HETA who have received a special order for seawater treatment in one of the largest refineries in the world in Abu Dhabi.

From the normal to the gigantic

Abu Dhabi is the largest of the seven Emirates that make up the United Arab Emirates. At the same time the capital of the Emirate that is also the capital of the complete federal state has the name Abu Dhabi too. The wealth of the Emirate is based on its deposits of fossil fuels – mineral oil and natural gas. This has provided the absolutistic monarchy with riches similar to those of a Thousand and One Nights. Nevertheless those in charge are well aware of the fact that oil and gas sources are finite. This is why the Emirate is investing in expensive and sustainable projects to make the best possible use of current revenue streams and at the same time develop new ones such as tourism. For instance, since 2008 it has been building a complete new city for 50,000 inhabitants – Masdar. What's unique about this city is that it has been conceived as an eco-city that is completely based on renewable energy. To underline this it is to be the seat of a university that aims to be the first in the world to exclusively focus on the fields of ecology through to sustainability. Parallel to this development, Abu Dhabi is working at ways to increase the value it creates from the energy business by refining and further processing the base materials of mineral oil and natural gas.

Ruwais – the superlative refinery

In 2010, the state-owned oil company Abu Dhabi National Oil Company (ADNOC) began to expand its refinery in Ruwais which is located on the coast approx. 250 km away from the capital city. This should more than double capacity from 400,000 to 817,000 barrels a day. Until now the core activities of the refinery have been natural gas liquefaction, oil refining, fertilizer manufacturing and power

generation. In the course of the expansion, additional capacity is being created for crude oil processing and sulphur recovery as well as plant for catalytic cracking and coking of carbon black. Further to this, the new refinery enables the annual production of more than a million tonnes of propylene. The size of the project meant that the leading international engineering companies put in a tender to ADNOC. The contract for the outdoor installations as well as the utility services was

awarded to Samsung Engineering who are supplied with filtration technology and automation as well as the subsequent service support for the Ruwais project by HETA. measures. But in the case of the huge Ruwais refinery this becomes a mammoth task that places extreme demands on planning, materials, control technology, installation and maintenance. It is therefore no surprise that an extensive selection process was started among specialist plant suppliers to provide the necessary seawater filtration and purification. HETA, a member of the PACO group of companies, was finally chosen by the Korean general contractor SAMSUNG.



awarded to Samsung Engineering who are supplied with filtration technology and automation as well as the subsequent service support for the Ruwais project by HETA.

Seawater treatment for cooling

A lot of heat is required during the refining of oil that, for the most part, needs to be dissipated at the end of the process. In the case of the Ruwais refinery, large plate heat exchangers are used for this purpose. The chosen medium for the supply and removal of this heat is sea water. To protect the plant and production process this water has to be thoroughly filtered before it can be used. Mineral and organic contaminants can disrupt the operation of the heat exchanger system and even cause a complete failure. On a small scale this job can be taken care of with a few precautionary

Monster pumps tamed by automatic filters

To supply the seawater that is required for cooling, three suction pumps are required, that are among the largest in the world. The suction pipes have a diameter of 3m! This means that these pumps could suck the water out of a complete swimming pool within a few seconds. As the enormous suction force is associated with a high flow velocity and a correspondingly high pressure, extremely high demands have been placed on the design and performance of the automatic filters implemented by HETA. The tremendous streams of seawater from the three large pumps are guided into twelve HETA filter systems. Four of these process approx. 4,500 m³/hour, the

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Mesholutions created by PACO



The refinery complex in Ruwais, Abu Dhabi, is gigantic. The HSA self-cleaning automatic filters supplied by HETA are only a small part of it. Despite this the demands on engineering skill, technical perfection and on-site service were enormous.

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Cooling water for a desert state

other eight can take approx. 2,900 m³/ hour. To ensure that the flow is never interrupted, three of the larger pumps work simultaneously while one of the pumps operates in the self-cleaning mode. Six of the smaller pumps work together with two pumps flushing their filters. This provides a continuously ensured capacity of over 30,000 m³/ hour. By means of comparison, a Boeing 747 Jumbo Jet that has been converted to a firefighting plane can hold 1.000 m³ and takes half an hour to load. This means that without much effort the water cleaned by the HETA system could fill 15 Jumbos in the same period of time.

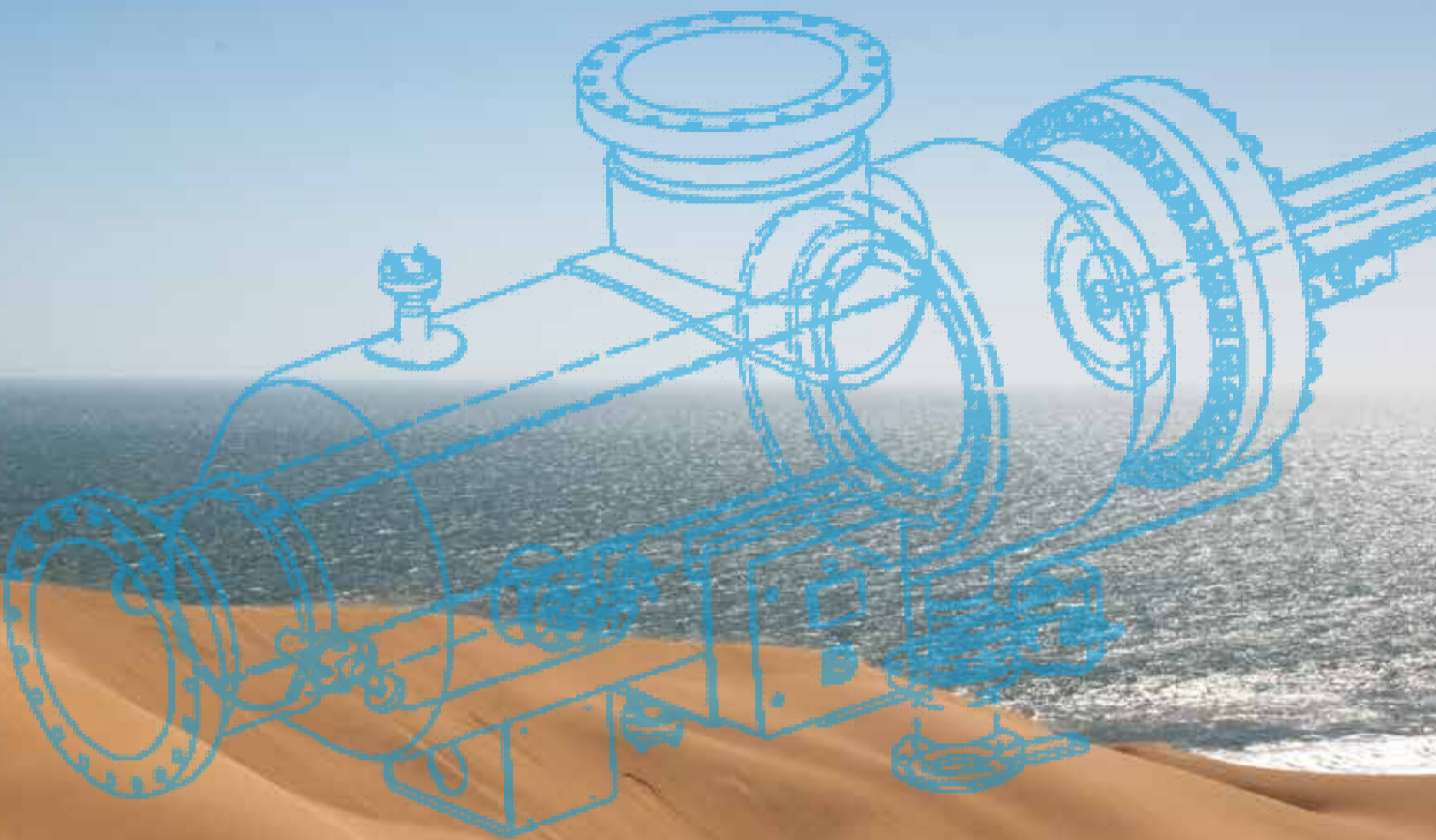
You have to do a lot much better

To be awarded the contract in the face of such serious global competition, you have to sup-

ply much more than just convincing technical solutions. What gave the HETA solution the edge for the Ruwais project was a combination of factors. The main difference was the decision to make the reservoir for the automatic filter out of glass fibre reinforced plastic. Most of the other suppliers had decided to use stainless steel that was still subject to corrosion through the consistent attacks of seawater. They probably decided against offering glass fibre reinforced plastic as it is

difficult to process with the same low tolerances as stainless steel. But this is something that HETA can do, including providing all of the necessary test certificates such as the one for leak tightness, in their production plant in Lich, Germany. Following this, the complete filter system is shipped free of charge to Abu Dhabi, with the inherent advantage that glass fibre reinforced plastic weighs much less than steel. Other factors that spoke for HETA were the in-house development and

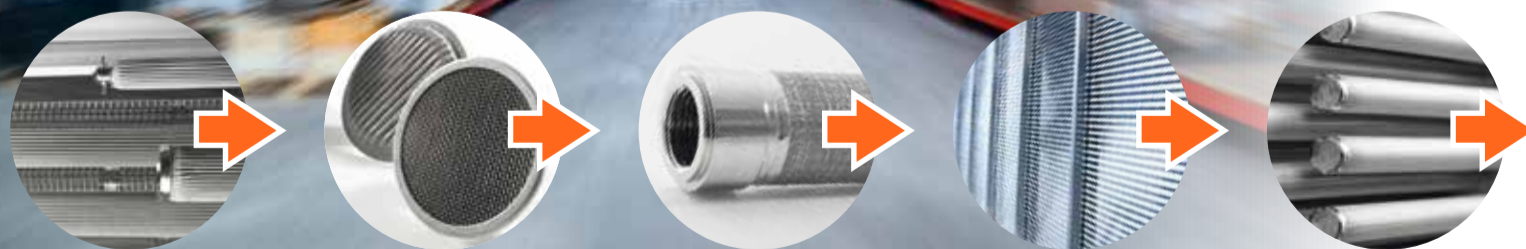
implementation of special electronic controllers, the self-cleaning function of the HSA automated filter using the Bernoulli principle without interrupting the process, as well as the complete assembly and commissioning of the system on-site. As the 14 HETA filter systems initially began tackling the water masses from the huge seawater pumps they started to sing. This was truly a magic moment for the HETA specialists that carried out the assembly and commissioning.



The PACO Consignment Warehouse

Total Customer Accessibility: Everything Always There!

The relationship between buyers and suppliers is constantly taking new directions. This is driven by the need for the assured supply of parts and materials without trade-offs in cost-effectiveness. A current variant of just-in-time supply is the consignment warehouse. The ultimate benefit of this concept is that replenishments will never arrive too late as they are always there.



Customer orientation is doing what you say

There is a huge potential for productivity gains to be implemented in the areas of materials management, warehousing and logistics. Few other management or production-related fields have such established structures and traditionally practiced routines needing such

The consignment warehouse enables a new quality in the relationship between buyer and supplier. The primary advantages are a significant plus in supply dependability, productivity and economic efficiency.

intense critical scrutiny as those found here. And there is much to be gained by exploring new ground in storage and materials management concepts. As one of our customers approached us with the idea of setting up a consignment warehouse we thought very deeply about it. And the concept that we jointly developed was most definitely

able to bring benefits to both sides. That is why we have successfully implemented it. Whereas the customer focused on the cost and productivity gains that the consignment warehouse would bring them, we at PACO saw the further optimization of our customer orientation and the increased trust that results from it as being the major benefit. In the meantime, PACO has set up consignment warehouses with a variety of customers. The industries involved range from automobiles through to machine building and from glass manufacturing through to rubber production.

The consignment warehouse – how it works

Consignment is a word that dates back to the 17th century and literally means to mark with a sign; it comes from the Latin “com” meaning together and “signum”, an identifying mark or sign. In a commercial sense, consign-

Please keep this to yourself:

Ruwais Peripheral Anecdotes



Because the suction pumps are so gigantically proportioned, each of them needs three HETA automatic filters to stop the heat exchanger behind them from being blown away. As the first circuit was started up for testing, the system planner unfortunately forgot to close the system. This meant that huge amounts of water (1100 m³/hour) suddenly descended on a set of roadworks in the desert sand to produce an instant lake – and not all of the construction workers could swim.

In the first desert summer after commissioning the system, the control system gave up the ghost as temperatures reached 55°C. Consequently, two HETA engineers flew into Ruwais to install special controllers that can survive up to 80°C. Both of the men worked in thermal clothing on the basis of what can protect against the cold can also stop the heat. Despite this they could only work 30 minutes at a time outdoors as otherwise there would have been the risk of dehydration.

As system planner and general contractor, Samsung Engineering assumed responsibility for training the customer's staff. The level of English spoken by the Korean engineers was however not sufficient for the customer to understand and so they used interpreters. Unfortunately this resulted in a communication breakdown with the result that the training needed to be repeated – by HETA and one of its English speaking engineers. All of this served to increase the standing of “little HETA” on the big Ruwais site.

A Career in his Father's Company

Klaus Ruppel, managing partner of the PACO Group and managing director of PACO Herolz GmbH has stepped down from operational management on 31.12.2017 and gone into retirement. This is an excellent opportunity for PACO World to talk to him about his working achievements.

PACO World:

At the end of the year you will be vacating your company management position in the PACO Group. For many this comes as something of a surprise.

Klaus Ruppel:

Surprise? Of course, but looking at things objectively, not really, when you find out what has lead me to the decision. On the one hand, my health has taken its toll. And on the other hand, I have decided not to leave things too late before going. Whereby this is the only point where my dear father was not a good example for me. As founder of PACO he understandably never really wanted to let go. But I am convinced that the new next generation can only fully exploit their potential when the older generation makes space for them.

PACO World:

In other words you don't want to look over the shoulder of the next generation and give them advice based on your vast experience?

Klaus Ruppel:

Not really, I am no longer going to be physically present. But understandably I would like to drop in and visit my weaving mills every so often – even if I only ever do that on Sunday. I don't want to miss out on the sound of a running loom or the choir of the machines in their entirety. My father always dreamt of looms that ran automatically 24/7, something that I could always fully understand and feel for. And now this dream has become reality. But apart from visiting the machine concert, it goes without saying that I am always willing to provide help and advice if ever I am asked and it is needed.

PACO World:

How did it come about that you started your career at Paul & Co.?

Klaus Ruppel:

My brothers and I practically started working in our father's company as kids during our school holidays as well as when we could find a spare minute. This means that I have been working there for more than sixty years. For my father it was simply a matter of course for me to start in his company. Although this did not fit in with my plans. After a training as an industrial clerk in a well-known company in Hanau, followed by a business administration degree course and periods abroad – including the USA – I wanted to do something dif-

ferent in 1983. But then I felt a certain sense of responsibility toward my father's company. In this way PACO not only provided me with a job, it also became my vocation.

PACO World:

You have had responsibility in a number of areas – from export management through to manager of the Herolz plant. Which was the closest to your heart?

Klaus Ruppel:

Well, the weaving mills in Steinau and particularly in Herolz are very dear to me. And that is not going to change. This is a legacy of my father. But most important for me are the workforce there. People come first and then the machines. I am only going to get satisfied employees if they feel happy working for us. This is not just about money. Respect is important, as is personal development through training, for instance, and we don't want to forget communication. Of course you are always going to see room for improvement. This is something that never stops.



PACO World:

Is there anything that you didn't particularly like doing?

Klaus Ruppel:

O dear. I don't really like to answer this one. But I'll be honest, after all I haven't got anything to lose now. (laughs). The way my brother Peter and I divided our responsibilities often left me with the more thankless tasks. He excels in sales and marketing. And I am better in internal affairs which left me with a number of challenges, particularly in personnel management, which often took me to my limits – always knowing that there were people affected by my decisions. But someone had to do it.



look back and say: he always had a hearing ear and cared about us: that would be a reward which would make me very happy.

PACO World:

Mr. Ruppel, we wish you all the very best for the future as you go into retirement. The editorial staff are going to miss you. Thank you very much.



As a schoolboy, Klaus Ruppel topped-up his pocket money by working in his father's company during the school holidays. After getting a degree in business administration, he started working there full-time. With 35 years of service under his belt, he is retiring from active service. His father and company founder Wilhelm Ruppel would surely have said to him: "thanks Klaus, you've done a good job!"

ment indicates a practice that originated in overseas trade, where it still remains popular today. With this method of trading, the ownership of the stock is only passed from the seller to the buyer when the stock is actually used or sold. In practice PACO ships the products required by the customer to a warehouse that it has set up at the customer's premises. The goods remain the property of PACO until they are used and paid for by the customer. Settlement occurs periodically in an agreed cycle, for instance monthly. All logistical and commercial terms are set out in an outline agreement. Such a supply and storage construct obviously assumes that both parties are committed to a long-term working relationship. At the same time the storage items and stock quantities can be changed at any time according to current requirements of the customer. Exact inventory levels are available in real time and online so that supply levels

and cycles can be precisely coordinated with the customer's production requirements.

Everyone gets what they deserve

Whoever decides to set up a consignment warehouse will want to get the utmost benefit from it. This applies just as much for the buyer as it does for the supplier and owner of the warehouse. On the purchasing side, there are significant advantages in being able to register an optimally filled store with a ready supply of quality assured products without having to tie up any capital. There are even no costs for warehouse management. Not only are the supplies guaranteed and flexible to customer demands, but the risks respecting the goods and logistics lie entirely with the supplier.

Of course the supplier also has to get something out of the consignment warehouse. Most importantly, they are far less

interchangeable than a normal supplier. By giving their customers security and relieving them of some of their financial and organizational burdens, they can be sure of a stable customer base. They can also better plan their own production and optimize batch sizes. Also they gain from reducing in-house

inventories and lowering their administrative expenditure. To the extent that every consignment warehouse solution has to be fully adapted to the mutual needs of both sides, both sides will equally benefit from setting it up. ■

Visit us online!

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PACO a Partner in Fire Prevention

Protective Shield for the Inner Workings of Smoke Alarms

Nero was supposed to have burned parts of Rome. The legendary library in Alexandria was raised to the ground by a fire. And today fires pose one of the greatest risks to the health and life of people as well as all of their belongings. The fact that federal laws in most states in Germany (except Berlin and Brandenburg) stipulate that all homes have to be equipped with smoke alarms serves to remind us that fires can start literally anywhere. Hekatron Technik GmbH, based in the small Black Forest town of Sulzburg, is a leading manufacturer of smoke alarms that sources an important component from PACO that is crucial for the quality and operational safety of their product.

Quality is the best hazard protection
Hekatron has been producing high quality smoke detectors for more than 50 years. To begin with under license from a US American company, but for about the last forty years entirely of their own design. With the success that not long ago the Hekatron smoke detector was the test winner of a group test carried out by a leading product testing magazine. Of course the component supplied by PACO was

not decisive for this result, but it played its part in ensuring that the demand for perfection could be attained. Interestingly there are a number of obvious parallels between the customer and supplier ranging from the company structure through to the mutual understanding of quality: both Hekatron and PACO are family-run groups of companies. And both put their trust in the traditional principles of "Made in Germany". This last fact is the rea-



son that Hekatron have chosen high-quality PACO cloths made of stainless steel wire to protect the inner workings of their warning system.

How exactly does a smoke detector work?

The technology that has best established itself is optical smoke detection. The centrepiece of this process is a measuring chamber inside the smoke detector. It is equipped with a regularly flashing LED and a photographic lens. If smoke enters the measuring chamber, the light is diffused by the smoke particles. The photographic lens recognises this and triggers a warning mechanism. To prevent false alarms being raised, for instance through small insects, the measuring chamber of Hekatron smoke detectors are protected by a PACO metal wire cloth mesh. These components are supplied by PACO for each type of smoke detector as pre-fabricated elements (including bending and welding as well as final quality control). This ensures that they can be seamlessly integrated into the production process of the smoke detectors.

Expansion to an intelligent system

To ensure that smoke detectors optimally do their job they have to be combined with modern communication technology. They can be linked together so that, for instance, an alarm in a child's bedroom will activate an audible warning in the parents' bedroom. This is enabled by radio modules that allow up to twenty smoke detectors to be linked with each other. A further "smart" upgrade consists of a specially developed app that communicates with a smartphone. This requests, for instance, the operational status and indicates whether the contamination prognosis for the detector will ensure fail-safe operation for a further fifteen months. Professional users such as facility management companies can receive, evaluate and relay fire alarms through mobile devices or a central PC. All of this demonstrates how a seemingly simple product can be expanded to create a smart and comprehensive solution.

www.hekatron-brandschutz.de

To ensure that smoke alarms can dependably operate, their highly sensitive measurement chamber has to be protected against the ingress of foreign particles. PACO screen cylinders made of stainless steel cloth ensure that coarse dust and insects are not able to raise a false alarm.

Foto: Hekatron

Filter plates for horizontal filters

Stretching Capacity in Factory III

Regardless of whether you call them disc filters or filter plates, the demand for custom solutions for horizontal filtration systems has significantly grown. That is why PACO has increased capacity for the production as well as the re-screening of filter plates. After moving storage and production capacity to the factory in Schlüchtern, the space created in plant III "Im Poppen" comes at just the right time.



The disc-shaped filter plates are used for horizontal plate pressure filtration. As this technique is being applied in more and more industries and processes, the demand for PACO filter plates and regeneration services is increasing.

Wide range: horizontal plate pressure filtration

The name says it all: with horizontal plate pressure filtration, the liquid medium being filtered passes under pressure through filter plates that are horizontally arranged in a pressure vessel. The contaminants that are filtered out accumulate on the surface of the plates to form a filter cake and the purified filtrate flows out through a central vertically-arranged hollow shaft. Whether this method of filtration is more suitable for use in the drinks industry, in biotechnology, in fertilizer manufacturing or for the extraction of precious metals is primarily down to the characteristics and capabilities of the filter plates. This is particularly the case in filtration processes at very high or very low temperatures, at high

PACO and HETA at the "ACHEMA 2018":

Show Booth as a Platform for Solutions

It only takes place every three years and that is why it is so eagerly anticipated by so many: the ACHEMA is the world's leading show for the process industry from chemicals through to pharmaceuticals. Once again a team of experts for process-specific filtration and separation will be presenting PACO and HETA solutions on a joint show booth – in Frankfurt am Main, Germany, from 11th through to 15th June 2018.

A show to see and be seen

Particularly for medium-sized enterprises, taking part in a show is an investment that has to be carefully thought about. As far as the ACHEMA 2018 is concerned, everything speaks in its favour. The organizers expect that the number of exhibitors (2015: 3813) and visitors (2015: over 166,000) will continue to increase. PACO as a manufacturer of precision metal wire cloths for filtering,

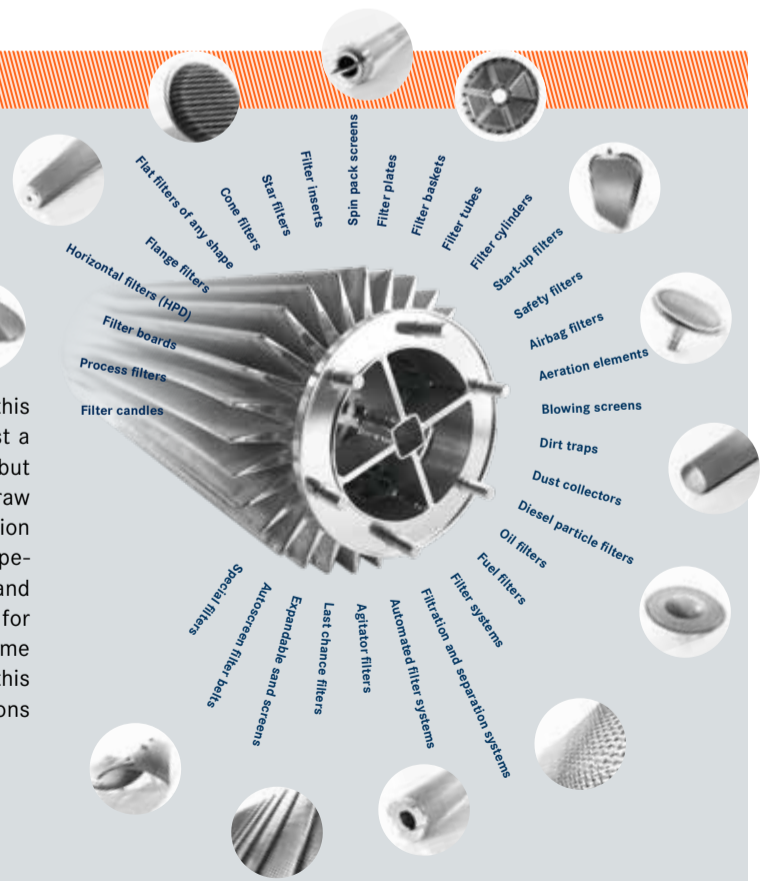
separating and screening, gets an invaluable opportunity to talk to exhibitors from the chemical, pharmaceutical, biotechnical and laboratory equipment industries. And HETA, our specialist for process technology in the PACO Group, especially looks forward to speaking with planners, general contractors and customers looking to build plant for fields as divergent as power generation and environmental protection. But the willingness for industry specialists to come and discuss their projects with us is equally important. The impressive number of visitors to our booth three and also six years ago most definitely provides a promising basis.

Joint show booth – shared hospitality

It's not easy to present what PACO and HETA currently have to offer. For a long time there is more to it than simply displaying a range of metal wire cloths and filter cartridges that can be looked at and picked up. These days the visitor is more interested in things that

can't be seen and first take shape during talks that describe the problem and provide the initial solutions. In this respect, the PACO Group is no longer just a manufacturer or engineering consultant, but a developer of specialized solutions. The raw materials especially include comprehension of the problem, process knowledge, experience, technical know-how, creativity and problem-solving skills. The initial plans for the "product" are then produced in real time during the resulting discussions. All of this means that a lot of interesting conversations

For PACO and HETA the joint appearance at the ACHEMA trade show is an integral part of their marketing communications. What's special is that the real products are not the ones in showcases, but the ones resulting from discussions between interested customers and experts from the PACO Group – as solutions in the form of unique products for filtration, separation and screening.



take place in the PACO/HETA show booth. We look forward to you visiting us at the ACHEMA 2018. You can find us in Hall 5.1 on Booth B20

www.achema.de/de/home.html

pressures or with hazardous substances such as easily flammable, toxic and/or highly corrosive media in specially coated or encased horizontal plate pressure vessels.

Special design for specific processes

The main difference between one disc filter and another is the know-how of its designer and manufacturer. Each plate is made of different materials that are chosen according to the medium to be filtered and the desired quality of the filtrate. For instance metal wire cloths such as reverse dutch twilled weaves, metal fibre fleeces, perforated plates or additionally PTFE filter cloths. Filtration agents include diatomaceous earth, activated carbon or cellulose. As PACO is at home in most industries and has extremely extensive process knowledge, the most suitable filter plate designs result from efficient adaptation and test processes. Further to this, the PACO application laboratory can provide economically viable optimization of plate filters on the basis of damage patterns to improve filtration results and increase lifetimes. Horizontal plate pressure filtration has established itself for applications such as breweries, the beverages industry, wineries and food processing in addition to fine chemistry, pharmaceuticals, pigment manufacturing as well as rougher areas such as fertilizer production.

Im Poppen: additional capacity, increased flexibility

The expansion in capacity at the PACO plant III serves both the production of filter plates as well as the regeneration and re-screening of used plates. Additional machines and new re-screening tables have been installed. These are complemented by various fixtures for a range of different ways of screening such as U-section rings with seals or electric hot plates for screening. As the plates being processed can have a diameter of up to 1500 mm and a weight of 100kg a new overhead crane system has been installed. Another important feature is a bubble point bath which tests the plates for tightness in the course of the final testing procedure. The ratio of newly produced filter plates to reconditioned filter plates is at the moment one to three. Another important effect of the new high pressure plate production system is the shortening of turnaround times for re-screening. This is particularly important for a number of our customers to minimize or completely eliminate downtimes. Whether the vision of getting the job done over the weekend will ever become reality is something that we are still working on at PACO.



PACO World of Sales



Morocco's Phosphates – an El Dorado for Screens and Filters

Did you know that Morocco has the largest deposits of phosphates on the planet? And this young kingdom at the top north western corner of the African continent is most definitely one that pays to learn more about. PACO can underline this statement after being active there for decades together with its Belgian sales partner CANAL-ENGINEERS. And you would have to take a long and hard look to find somebody that knows their way around Morocco's phosphate industry better than the founder of CANAL, André Brassine.

From mineral to high quality fertilizer

The development of a phosphate industry has taken on such immense dimensions that it is heavily dependent on the resources of the

state. That is why the most important players in mining and the chemical industry in Morocco are state companies. Nevertheless, the government intends to transfer more and more of these over into the private sector. The OCP Group (Office chérifien des phosphates) whose business concentrates on the mining and processing of phosphate is 100% owned by the Moroccan state. The group employs approximately 20,000 people and has four mining sites and two chemical plants. The company is one of the world's leading exporters of phosphate rocks, fertilizers and phosphoric acid. PACO metal wire cloths and filter elements have been fully integrated into handling processes for phosphate sand, the classification of phosphate fertilizer granulate as well as for the production of phosphorous and sulphuric acid. Both sides know that they can rely on each other.



Phosphates are the wealth of Morocco's mining and chemical industries. PACO metal wire cloths for screening, separation and filtration are reliable tools to support the extraction and processing of these globally sought-after natural resources.

Superphosphate – who invented it?

Phosphate fertilizers are produced with varying phosphate content and differing water-soluble components. The generic term for these products is "superphosphates". The first of these were developed on the basis of bone meal and sulphuric acid by the British agricultural chemist John Bennet. But a superphosphate on the basis of a mineral phosphate was first produced in the laboratory of Justus von Liebig, who incidentally went into fierce competition with Lawes. He would consequently be pleased to know that his method for producing superphosphates has become the most popular. This holds true for the OCP subsidiary Morocco Chemicals that uses Liebig's process to produce various types of superphosphate fertilizers that are then exported all around the world.

Canal-Engineers – our sales partner in North Africa

The cooperation with the Belgian company "bvba CANAL-ENGINEERS sprl" dates back to the seventies. It was based on the friendship between the founder of CANAL André Brassine and the Ruppel family. This successful cooperation led to PACO obtaining a share of CANAL-ENGINEERS, whose main activities are in national and international sales as well as in engineering services. One of the pillars of CANAL is its strong presence in Africa: Morocco, Tunisia, Egypt, Cote D'Ivoire, Guinea, Mauritania, Congo, Ghana, Angola, Gambia, Togo and Senegal. Constant changes in the political conditions in the area have a strong influence on sales opportunities, whereby the relationship to the Moroccan market has been particularly stable for decades to provide an excellent basis for future development. A driving force behind this has been and still is André Brassine. He loves the adventurous nature of his African involvement, understands the differences in mentality and speaks the most important languages that are needed: French, English and decent Arabic. But his living and working years have now accumulated to a point that he is in the process of handing over CANAL-ENGINEERS to the successors. In other words, the continuity of the business relationships between PACO and Morocco as well as other African countries has been well taken care of.

www.canal-engineers.com

PACO QM innovation:

Photometry across the Complete Width of the Cloth

For a long time 100 % checking of metal wire cloths has been an obligatory part of the quality control procedure at PACO. Until now this was carried out with the human eye. In combination with the experience of the person behind, this was difficult to beat in terms of accuracy, reaction speed and certainty of action. As the brain does not have the ability to electronically archive, retrieve or print out data, PACO quality control has just been equipped with a new photometric system.

Increasing demands – new challenges

When you say "quality assurance" you always mean "investment". The demands of buyers on the quality assurance of the products that they receive are not only more numerous they are also more specific. At the forefront of QM trends is generally the car industry. But the manufacturers and users of sand filters for oil and gas production have also

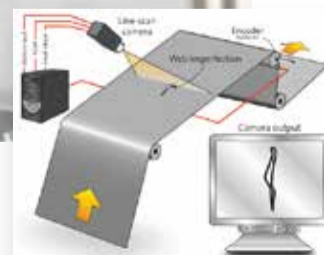
defined special testing and documentation procedures that have to be complied with by their suppliers. This means that the demands placed on PACO for a customer-specific quality management system are constantly changing. And when these are technically and commercially viable, both sides closely cooperate to provide a solution that can be implemented according to the needs of the customer. This is the motivation for installing a camera based fault recognition system that can be precisely adapted to customer requirements.

If you are going to do it then do it well!

It goes without saying that when PACO decides to install a new visual inspection system for metal wire cloths, this has to be state-of-the-art. It would also be uncharacteristic if the project was not to contain something very special. Whereas the usual working width of camera-based fault detection systems is 700mm, the new PACO system screens metal wire cloths that are twice as wide as this – from plain weave through twilled weave to dutch twilled weave. And this from both sides using the transmission



Camera based monitoring systems that perform 100 % checks of cloths might have been installed a number of times. But a width of 1360 mm, such as the one at PACO, represents a completely new dimension for the quality assurance of metal wire cloths.



as well as the reflected light method in a continuous re-rolling operation at speeds of up to 10m per minute. The aim of this visual inspection is to find faults such as holes, thin areas, protruding wires, kinks, stains, roughened wires and impressions etc.

Evaluation, recording, optimization

Detecting faults in the cloth is only the first part of the quality assurance process. The advantage compared to a purely visual inspection, for instance using the human eye, is that the data obtained can be stored and automatically evaluated. For this an evaluation algorithm has been developed that contains specific variations in accordance with each cloth. If a fault is recognized by the system it can be shown as an image on the screen and allocated to a specific job or batch for archiving. The capability to also capture errors or quality risks that are below the predefined quality threshold enables forward-looking error prevention that provides proactive quality assurance.

DIN ISO 9001:2015

The PACO Group Quality Management Update



For companies today quality management is just as much taken for granted as finances and accounting. Business relationships between manufacturers and their customers are almost impossible without up to date certification. This means that audits and visits from certification experts have become a regular routine among the companies within the PACO Group. At the moment it is all about upgrading to DIN ISO 9001:2015.

Historic performance in a short space of time

Nearly forty years ago the British Standards Institution introduced the standard BS 5750 to establish a quality management for com-

panies, industries and markets. This was the first step along a route that has since then spawned the ISO 9000 range of standards that was first introduced in the year 2000. In particular, ISO 9001 with a million certifications worldwide (as at the end of 2009) is one of the most widely spread global quality management systems. These days most companies demand compliance with ISO 9001 before entering a business relationship with a supplier. The spread and level of establishment of this standard proves that it provides an excellent foundation for the common understanding of quality requirements among clients and suppliers on an everyday basis.

The new ISO 9001: from the documentation through to process orientation

Until now quality management was heavily focused on the documentation of quality assurance measures and routines. This meant

Everybody involved is relieved when the certification is finally obtained. But the joy is short lived as the surveillance audit has to be repeated in one year's time. All the same: many congratulations for your renewed success!

that it earned itself a reputation for being extremely bureaucratic: doing all the paperwork meant that you never got the chance to get a proper job done. ISO 9001:2015 streamlines quality management by placing stronger emphasis on the optimization of processes. This includes the demand for a systematic and comprehensive process management. It starts with the identification of all processes combined with a definition of the expected results, performance indicators for process control, responsibilities and powers. The senior management responsible for quality management are given clear-cut obligations. They are expected to provide support to other managers and officials working with the QM system. For the first time, the technical code also includes the areas of risk management and knowledge management. On the other hand, the demand for a printed QM manual that was undebatable in the past or the naming of a quality management officer are not as strict as they were. This doesn't change the fact that the revised ISO 9001 still contains a significant number of demands that call upon companies to seriously question and further develop their existing quality management system. There's a lot still to do.

Bits and Pieces

Homo ludens, the person that plays:

Whoever likes to play, finds it easier to work

Playing is not just something for children. And an adult that likes to play is not childish. In fact the contrast is true: the capability to encounter situations, challenges and everyday life playfully can lead to better and more innovative solutions. Something that benefits you at your workplace and the company you work for.

Playfulness as a survival technique

Children playing is completely normal. But adults? Shouldn't the serious side of life stop us wanting to play? Most certainly not. There are people that even at a very advanced age have managed to maintain

their playful tendencies. Whereby under "play" we don't just mean the ability to pass time with board, card or computer games. It is a fundamental outlook on life and the way in which we deal with ourselves and others that we interact with on a daily basis. Some like to fool around with others. Others view their whole life as a big game. Whoever is more of a thinker likes to play with ideas and thoughts, which helps to make even the most monotonous tasks entertaining. And finally there is the extravagant playful type of person that likes the grotesque and involuntary humorous. Their special type of observations turn even the most everyday of situations into something comical. Whatever category you choose, all of these people have been able to transform their tendency towards playfulness into a survival technique that

Steinau an der Straße PACO as Neighbour: Solidarity with Senior Citizens!

Actions speak louder than words. This is an often repeated credo in the run up to Christmas when everyone is busy with their handouts. Instead of simply handing out freebies to customers and business associates, PACO has a long tradition of providing generous financial support to Seniorenhilfe Steinaue.V., a well-established charity providing assistance to the aged. This not only makes sure that the season of good will becomes a season of good works, it also underlines PACO's solidarity with the older generation of its

hometown. As trustee of a centre for senior citizens in the historic old quarter of Steinau, the charity is dependent on donations to ensure that its most important project can economically survive. Mario Pizzala, the head of the retirement home, is extremely grateful for the additional financial resources as "elevator repairs can easily cost thousands", the fleet of vehicles has to be kept roadworthy and wholesome food has to be lovingly cooked and served. As far as the latter is concerned, the retirement home is proud to maintain its own kitchen with two full-time



Every two weeks the Steinau senior citizen welfare charity organizes a get-together with plenty of high spirits, casual conversation, coffee and cakes.

cooks. To make sure that this continues to be economically viable, the kitchen also cooks for the meals on wheels service that supplies hot food to hundreds of other Steinau senior citizens. The senior citizen welfare charity has already been in existence for over 25 years. Incidentally, its members have also included the former senior manager of PACO Wilhelm Ruppel and his wife Irma. So let us keep up the good work in the neighbourhood.

www.seniorenhilfe-steinau.de

√ Brilliant Minds

Bouguer, Lambert and Beer: The Three Fathers of Photometry



Johann Heinrich Lambert

There are scientists, researchers, mathematicians and other brilliant minds to which PACO is deeply indebted because their contributions positively influence the way that we carry out our day-to-day business. Theme-related we would like to introduce our readers to them in a series appearing periodically in various issues of PACO WORLD.

The fact that PACO can today use leading edge photometry systems to check and record the quality of its cloth owes much to the fundamental research of three different scientists that lived in three different centuries. The first of these is the French astronomer and physician Pierre Bouguer (1698-1758). His research into light intensity provided the basis for photometry. This was further developed approximately 50 years later by the Alsace-Swiss mathematician, physicist and philosopher of enlightenment Johann Heinrich Lambert (1728-1777) in his work Photometria that established a complete system of photometric quantities and principles. It took almost another hundred years before the German mathematician, chemist and physicist August Beer (1825-1863) provided the Lambert-Beer-Law. This is considered to be the basis of modern photometry as an analytical method.

helps them to master their everyday life and work. With the added advantage of lowering their stress levels, not knowing what boredom is and being able to find solutions faster.

Humour also helps you at work

Under no circumstances should humour be banished from the workplace. In contrast: it has a liberating effect that helps in the tensest of situations. Taking a light hearted view of a situation allows you to see things in a different light and ask yourself whether something has to be taken at face value or can be viewed completely differently. This means that you

are more open for new solutions which provide the best possible basis for creativity. Nevertheless humour is only beneficial when everybody is included and is not used at the expense of others. Also be careful with irony as not everyone can easily come to terms with it. At the end of the day, the best type of humour is the ability to laugh at oneself. And those in charge can set a good lead in this respect. After all, having a good sense of humour means to always look on the bright side of life.

(Source: research project of Martin Luther University, Halle-Wittenberg, TÜV Rheinland)

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