

Our International
Wire&Mesh Magazine
for Existing and
Prospective Customers

Keyword “Energy” – Challenge and Chance for Our Customers and Markets.

Dear Reader!

The moving average for the price of a barrel of oil only knows one direction – upwards. The consequences for natural gas and kilowatt hour prices need no further comment. Energy, a commodity that is essential to drive economic success, has become a major cost issue. As no one can do without it, we have to become far more responsible in the way that we use it. This can be achieved through innovation, innovation and more innovation.

That is why saving energy and improving energy efficiency are a long established focal point of the concepts being realized by PACO's R&D laboratories. PACO products and systems play a decisive part in optimized energy production, economic consumption, recycling and, last but not least, the use of alternative energies.

Proof of seriousness about energy is as well our commitment to projects in oil producing countries in the Middle East, such as Iraq – despite the difficult political environment.

How does this benefit our customers? Our success in the face of difficult and, at times, even extreme conditions gives us the experience and motivation needed to take on new challenges. Of course, our continuous gains in innovation, capability to provide solutions, professionalism, precision and quality come to the good of all other markets – with all our energy!

Best Regards

Peter Ruppel
Managing Director



New Production Line for Pleated Filters: A New Dimension in Quality for

Excess Length Filter Elements – A PACO Exclusive

With the commissioning of a new line for the production of filter elements used in applications such as pre-polymerisation, polymerisation and melt filtration for producing textile fibres, PACO has reached a new dimension in quality: the pleating machines in the line enable filter elements with a length of up to 1400 mm to be produced “in one piece”, a world-wide first. Further to this, the new production line offers a large number of other technological, qualitative and economic advantages.

Quality and perfection along the line
The new PACO production line consists of a pleating machine, a longitudinal seam welding machine, a plasma machine for circular welding and a cycle-controlled lathe. The complete system is coordinated and controlled by an integrated electronic control system.

Although this all sounds quite straight-forward and fairly logical, a considerable investment was required to set-up the system – not just financially, but also in terms of development resources. The new PACO line is an innovation that cannot be bought out of a catalogue. It has been carefully planned and purpose-built by PACO specialists that have collectively drawn from their on-the-job experience. The various stag-

es of development and testing lasted over a year. The result is a PACO system that is equally home producing large and medium-sized runs as it is with small batches and even one-offs.

The formula 1 solution to making filters

As is always the case with high-tech activities, fast speeds are of the utmost importance. Nevertheless, these can only be attained when you can be sure that a wide variety of materials are safely handled and there is complete reliability in all processing sequences and transitions. And this is where the new PACO production line scores: of course it reduces production times to ensure that delivery times are minimized. More importantly, however, is that it provides optimum product quality: regardless of whether the materials are superfine or heavy-duty wire mesh, single-layer or multi-layer, single passage or multiple passage, broad or narrow – the new production line processes everything with a hitherto unknown sensitiveness and flexibility.

Key function “welding”

To keep everything together that belongs together in the filter, particular attention has been given to the welding technology in the new production line. Its high performance is the result of the perfect

Continued on page 2



New Production Line for Pleated Filters



A New Dimension in Quality for Excess Length Filter Elements

Precision at the highest level

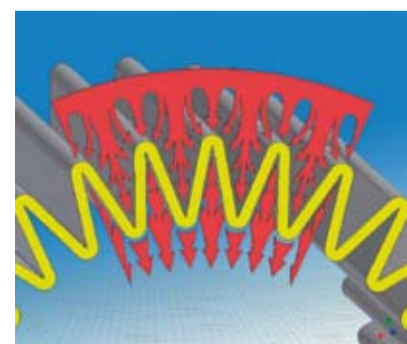
Plasma welding is reliable and efficient. Going a step further, wolfram plasma welding provides utmost precision and is particularly kind to the material.

Continued from page 1

interaction between positioning devices, fixtures and welding equipment. The welding cells combine ultimate process fail-safety and welding quality with innovative control and monitoring of the welding process – within the context of the complete system concept. As the quality of multiple welded joints are particularly important for complex parts such as filter elements; the system architecture, welding technology and monitoring systems have been designed and engineered to ensure complete reliability.

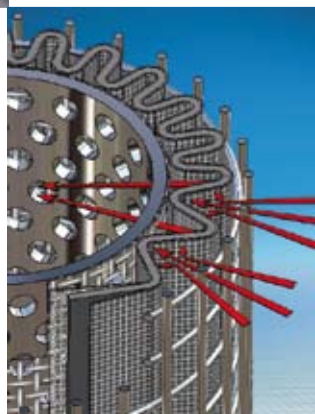
From plasma welding to wolfram plasma welding

Plasma welding has become standard practice in automated production sequences due to its inherent precision in placing the arc and competitive cost compared to qualitatively similar electron beam welding processes. However,



Pleating quality

Decisive for the quality of pleated filters is the precision of the pleat and the careful treatment of the filter medium.



Individual strength in a perfect team

The ultramodern machines in the new pleated filter production line are the perfect combination of individualists and team players.

the new PACO processing system goes a technological and qualitative step further: wolfram plasma welding produces an almost cylindrical plasma arc and, therefore, enables a particularly exact and concentrated emission of heat. The high stability of the arc during changes of length or offset of the edges are further advantages of the system. The pilot arc provides 100% ignition surety. The

filter candles up to a length of 1400 mm in one piece. The necessity of having to place a coupling piece in the middle to produce an element with a length of more than 1000 mm, as is the case with conventional methods, is now a thing of the past.

The advantages are obvious: the filter technological and mechanically critical spot in the middle of the filter is no longer required, the rheological characteristics are unchanged, a clean production flow, for

example, for polymer melting is ensured. Sediments and contamination are avoided. In addition the useable filtering area is increased by up to 8%. Since commissioning the new line, PACO has delivered more than 1200 filter elements with a length exceeding 1200 mm – to the complete satisfaction of our global customer base. And that is probably a new world record.

thin pool crater means considerably less material distortion. In other words, the welded seams are far more precise and kind on the material than with other methods – in particular when working with sensitive filter media such as PACO metal fibre cloth or extremely fine metal wire cloth.

Pleating quality with "soft touch"

Closely connected with the production step of welding is the pleating of the filter media. The new pleating cell rightfully earns its place in the line through its high intelligence and gentle treatment of the material. It is based on parallelogram technology and incorporates features that ensure minimum-stress material treatment (soft touch), decentralized control and drive technology, production optimization in real-time without stopping the machine as well as continuous process data processing and visualization. The advantages of this include optimization of the pleating geometry and avoidance of process-related contamination of the pleated media.

Flexibility plus candidature for the Guinness Book of Records

The new production line has the flexibility of being able to produce filter elements in a range of different sizes used in applications such as Prepolymerisation, polymerisation and melt filtration for producing textile fibres and PET resin. Its particular strength, however, lies in its capability of producing

Quality is a process, dynamically moved on by PACO

At the end of the PACO filter manufacturing process is a fully automated cycle-controlled lathe, the fourth of its kind at PACO. It is used as required to, for example, produce end pieces such as threaded pins, positive displacement tips or condensation rings. Further to this, it optimizes the manufacturing of small batches, special designs and one-offs. It increases production flexibility and speeds up the time required between the conceptual drawing and the finished workpiece while maintaining utmost accuracy and quality. Incidentally, large batches are produced on one of our fully-automated CNC turning centres.

All in all, the new filter manufacturing line provides further evidence to our customers that they can always expect optimum quality and innovation when they work together with us. At the same time, putting productivity increase and cost lowering methods into practice is just important to us at PACO as it is to our customers.

PACO Export Report: Indonesia – A Market with a Growing Sense of Quality

What do we Europeans think of when we hear the word “Indonesia”? Bombs on Bali? Volcanoes erupting on Java? Our picture of this extremely important Southeast Asian market is very scant. It is, for example, not particularly well known that the rate of unemployment is lower than in Germany and that the economic growth is considerably higher. The economic development has moved along way away from that of a raw material producer towards that of a supplier of processed industrial products. This means that Indonesian companies are no longer interested in the lowest possible prices but are increasingly looking at quality. A situation that offers companies like PACO promising work opportunities and a high likelihood of success.

Why PACO wants to be personally present in Indonesia

Most companies exporting to Indonesia work through local representatives. Generally, these are not specialists, but are distributors selling a variety of products. We are, however, convinced that this is not the ideal way to market highly specialised products such as the PACO range. That is why PACO prefers to rely on its own local sales office.

The reasons are strategic as well as being for the benefit of the customer: the more capably our products can be explained, the more convinced potential customers are of their value. Also, the closer we can be to our customers to provide advice and practical assistance, the greater their chance is of getting the best out of our products.

Bandung – the Indonesian hub of the textile fibre industry

The Bandung Inter Tex 2006 took place between the 7th and 11th of June and, once again, PACO was represented with

a booth at this show, which has a very high profile within Southeast Asia. As we are one of the world’s most important suppliers of filter products to the textile fibre industry and Indonesia is a dynamic centre of the production of fibres from polymers, the show in Bandung is particularly important to PACO’s presence in Southeast Asia. We are not just concerned with protecting our market share in Indonesia, but want to look at ways of further market development.

Synthetic fibres and much more

It would be short sighted to assume that the chances for PACO filter products on the Indonesian market are limited to textile fibre production – although this offers a very broad spectrum of activity: polyester, nylon, rayon, acrylic and viscose. Other interesting activities include fluid and gas filtration, the milk processing industry, natural rubber, vegetable oils, cocoa and countless other fields. Not forgetting Indonesia’s oil and natural gas production industry.

Our commitment:

partnership on the basis of quality

PACO would like to play a part in helping their customers to achieve success in the face of global competition. Of course, we cannot stop the upward spiral in the price of oil – an essential commodity in the production of synthetic textile fibres. What we can do is to increase the quality of the finished product as well as improve efficiency and optimize the production process so that productivity is increased and costs are lowered. Offering this approach is important, as experience shows that behind an apparently low entry price for filter technology, there is often the risk of incalculable consequential costs. Spinning lines, for instance, often suffer from broken threads – caused by capillary problems due to filter media being impure or out of specifications. Such events, that adversely affect the quality of the downstream process and cause unnecessary costs, can be avoided in advance by setting the right priorities.



Visit us online!
www.paco-online.com

For this reason, PACO is interested in the long-term satisfaction of our customers. We see optimum quality as an integral part of filter products – starting with the metal wire mesh, through the fundamental design to the high standard of the finish. The Bandung Intertex 2006 proved, once again, that our Indonesian customers think the same way. An initially higher price pays for itself in the long run by avoiding unnecessary subsequent costs. More than this, world class production quality is an essential asset for them.

On-site for exports

PACO managing director Peter Ruppel at the show booth in Bandung, Indonesia. His message: Quality always pays in the long-term.



Tribute to PACO Co-Founder Wilhelm Ruppel: Congratulations on Your 65th Working Anniversary!



Retirement is an important goal in life for most people: at long last, no need to work any more! But there are exceptions: politicians, artists and company founders such as Wilhelm Ruppel. PACO WORLD spoke to him as he celebrated his 65th working anniversary.

PACO WORLD: First of all congratulations on your 65th working anniversary. This was commemorated by the PACO management and workforce presenting you with a golden “filter candle” – a completely new honour.

W. RUPPEL: Yes, this was a great source of joy to me. It showed that the work of a lifetime hasn’t been taken for granted by others. It wasn’t just about being appreciated for starting and building up the company. For me it was far more important that everybody understood that my heart has been in my work throughout so many years and still is.

PACO WORLD: How was it as you began your long working life so many years ago?

W. RUPPEL: I was only just 14 years old as I started my apprenticeship as

a clerk at Ratazzi & May in Frankfurt, which at the time was the leading metal wire weaving mills. As I really enjoyed what I was doing, I was able to complete my apprenticeship within just two and a quarter years. At 21, I was already the domestic sales manager. And then came the hard times – Reich Labour Service, Army, Prisoner Of War. After all of this, in 1953, we started our own company with three looms in a garage.

PACO WORLD: What is your working day like today?

W. RUPPEL: I have, of course, retired from the operative side of the business. My sons take very good care of that side of things. But my specialist knowledge, experience and guidance are still very much in demand. Work is, after all, the best medicine for me.



The combination of fine screening with simple cleaning and forced separation enables the RoMesh® System to continuously and safely separate large concentrations of fine solids from waste water.

PACO Screening Cloths: Clean Waste Water Solution for Hairy Situations

When treating industrial and domestic waste water, the effective removal of fibres, hairs and other extremely fine residues is of utmost importance. That is why the RoMesh® System has been especially developed by Hans Huber AG. This company, which is a true "Global Player" in the field of waste water treatment, is a long-standing PACO partner. On a number of occasions both companies have already worked closely together to develop innovative waste water treatment solutions.

Magical!

The Brothers Grimm, puppet shows and Steinau an der Straße belong together.

Steinau an der Straße: Awarded the Honorary Title "Brothers Grimm Town"!



"Mirror, mirror on the wall which is the Brothers Grimm town among them all"? This question, loosely based on the one in Grimm's fairy tale "Snow White" has diplomatically been answered by the Minister of the Interior of the State of Hesse: the towns Steinau an der Straße and Hanau are both allowed to carry the honorary title. The historical background: the brothers Jacob Grimm and Wilhelm Grimm were both born in Hanau (in 1785 and 1786 respectively). In 1791 the family Grimm moved to Steinau, where both brothers together with five other siblings spent their childhood. In his memoirs,

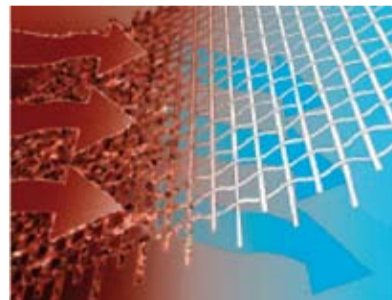
Jacob was to later write "I feel that a large part of my stimulation and motivation is rooted in my home town. I spent some of the happiest and most vigorous days of my life there." The tourist board in the town of Steinau is convinced: "The town of Steinau would be just as familiar to the Brothers Grimm now as it was then, as they can still find the places where they enjoyed to spend their time as children. Steinau has been able to keep its identity." Just to round up the facts, the brothers later compiled their collection of fairy tales (1806 - 1829) in the city of Kassel, at the centre of Germany.

PACO square aperture cloth for reliable precision screening

The fundamental design of the RoMesh® rotary drum fine screen enables an optimum combination of precise screening, process reliability and productivity. PACO square aperture cloths in fine screening baskets (mesh size 0.2 - 1 mm) or wedge wire screens (gap 1 - 2.5 mm) enable the exact selection of the desired resolution for precise screening of fibres, hairs and other finely distributed solids from communal and industrial waste water. This is important as the reliable removal of fine and ultra-fine waste water particles is an essential requirement for the trouble-free and maintenance-free operation of subsequent purification steps such as membrane filtration.

System advantages through perfect operation

The considerable benefits of the high filtering performance are further enhanced by system technology that ensures fail-safe operation. The water to be purified flows through the RoMesh® rotary drum screen from the inside to the outside. The filtered water is then guided downwards while the rotation of the drum removes the residue horizontally. The use of a fine mesh screen cloth is beneficial as the screened water can efficiently and cost effectively clean the screen as the drum rotates.



Bits and Pieces Murphy's Law – A Positive View

For those who don't already know it – here is Murphy's law:

"If anything can go wrong, it will."

This adage – complemented with the addendum "... it is only a question of time" – definitely has an effect when it comes to putting technical developments into practice. That is why error avoidance strategies and quality assurance programs do everything they can to cancel out "Murphy's Law". Nevertheless, its effects can still be extremely entertaining. Here are a few derivations and interpretations of the law that have been thought up by practically minded technicians with a tendency towards pessimism:

Everybody has got a system of getting rich that doesn't work.

Everything good in life is either illegal, immoral or makes you fat.

The other queue is always the fastest.

Never argue with an oddball – he will bring you down to his level and beat you with his experience.

Friends come and go – enemies accumulate.

You always find the thing that you are searching for at the last place that you look.

Murphy's law was not thought up by Murphy himself, but by a man with the same name.

Murphy's law can be traced back to the US American engineer Edward A. Murphy, jr. He was a captain in the US Air Force and in 1949 part of a team working with a rocket sled at a Californian research base. Someone in the team had improperly attached all of the sensors to a test person with the result that a costly experiment went completely wrong. Annoyed, Murphy voiced the saying that very quickly came to be considered as his law.

PACOs Short Guide to Manufacturing



Work at PACO is characterised by a variety of different production techniques. This series introduces some of the most important of these:

2. Ultrasonic Cleaning

In just the same way as with the production of textile cloth, additives are sometimes required when weaving metal mesh – for example, to ensure that a weft wire is taken off smoothly from a spool. This is particularly important at

high speeds or when processing special materials such as aluminum or palladium. After weaving, these additives and other substances such as lubricants, drawing agents, oil and grease as well as dust and other contaminants have to be removed. To carry this out, PACO uses the environmentally friendly method of ultrasonic cleaning – both continuously as well as an inline process. Assembled parts are treated in a batch system. This process ensures that all impurities are safely removed without trace of any residue.

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