

PACO

WORLD

Our International
Wire&Mesh Magazine
for Existing and
Prospective Customers

No. 7 01/2004

2004: Help Yourself and the Upturn Will Help You!

Dear Reader!

The economies in Germany, the European Union and USA have suffered three years of stagnation and, in some cases, even recession. There are signs, however, that the general economic climate in Germany is now beginning to improve – after much debating, all parties have even agreed to a cautious tax reform. At the same time, the economy in the United States, which Europe has been looking to for a long time to power its recovery, is still threatened by the costly engagements in Iraq and Afghanistan and the resultant increase in national debts. Against this background, the devaluation of the US Dollar against the Euro speaks for itself.

Multinationals, with the flexibility to relocate to countries where things are running smoother, can come to terms with this situation far more easily. Meanwhile, in the midst of our country and its demanding and encrusted economic environment are companies such as ours – medium-sized operations rooted to their home base but with their feelers stretched wide out into the global marketplace.

Regardless of how big your company is: waiting for the upturn will not win you any new customers nor secure any jobs. That is why we keep pouring our resources into creating our own upturn; with continued success. For instance, we have just been able to set up a sales base in China. Just like the one that we have already successfully established in India. We are sure that our quality and flexibility is in demand everywhere – it is simply a case of tracking down those in need of it, worldwide. And when the general upturn comes as well – so much the better!

"If you help yourself, the upturn will help you" is the motto of our customers too. Consequently, we have committed ourselves to helping them in every way that we can.

On this note, all the best for a successful 2004!

Best regards
Peter Ruppel
CEO



50 Years of PACO A Feast for Our Guests!

PACO invited and many, many responded! A total of 470 guests celebrated the company's 50th anniversary, in good spirits, on into the early hours of the morning. Local dignitaries were there to express their congratulations just as much as customers and business partners from near and far. Excellent food and drink as well as entertaining sketches and other contributions made sure that everybody enjoyed themselves right through to the very end.

We're celebrating the future!

The 20th September 2003 was a very special day! A historic date not just for PACO PAUL GmbH & Co but for the whole of the regional economy. The 50th anniversary of a company is something to be particularly proud of. It was, therefore, no surprise that the company founder Wilhelm Ruppel felt especially honoured and emotionally involved. Nevertheless, it has never been PACO's philosophy to sit back and rest on their laurels. That is why the anniversary was celebrated under the motto "we're celebrating the future!". Not everybody immediately understood what this meant: how can you celebrate something that hasn't yet happened? Peter Ruppel's clear answer was "What else should we celebrate? Past achievements are no longer of any importance, a company will be measured by what it is doing now and on into the future."

Family event with a global "touch"

Everybody was a guest of honour – the customers and business partners, the staff and, of course, the local dignitaries. It was with considerable pride that PACO welcomed guests that had made their way to Steinau a.d. Straße in Central Germany from places such as the United States, India and Iran. There were also a large number of guests from elsewhere in Europe – from, in alphabetical order, Belgium, France,

Sweden and Turkey. The local dignitaries that felt compelled to express their appreciation through speeches included the mayor of Steinau, Walter Strauch and the president of the local chamber of commerce, Hartmut Rode. But it was the numerous members of staff as well as former employees together with their respective relatives that turned the anniversary celebration into a family event. Living evidence of our corporate culture.

Speeches – thoughtful and optimistic

What is an anniversary celebration without speeches? The organisers deliberately kept the number of speakers to a selected few.

The welcoming speech was made by Wilhelm Ruppel, the senior partner of the company. In his words that looked to the future as well as reflecting on the past, he underlined his commitment as "Father of the PACO Group of Companies" of always looking after the interests of the workforce and of doing everything within his powers to continue this on into the future. There then followed greetings and messages of congratulations from Walter Strauch, the mayor of Steinau and Hartmut Rode, president of the local chamber of commerce.

The final speech was made by Peter Ruppel, the CEO of PACO. He emphasised the challenges of increasing global competition and expressed his dedication and determination to successfully continue operations from the company's manufacturing base in Germany, even though it doesn't provide the most ideal conditions for medium-sized companies at the moment.

Following the lavish meal, Dr Gösta Dahmen from Dahmen & Co spoke a few words. On behalf of all of the guests, he thanked the hosts for their invitation and the, in all respects, successful evening. Following this he paid tribute to the long and prosperous relationship between his company and PACO.



Continued on page 2





A Feast for Our Guests!

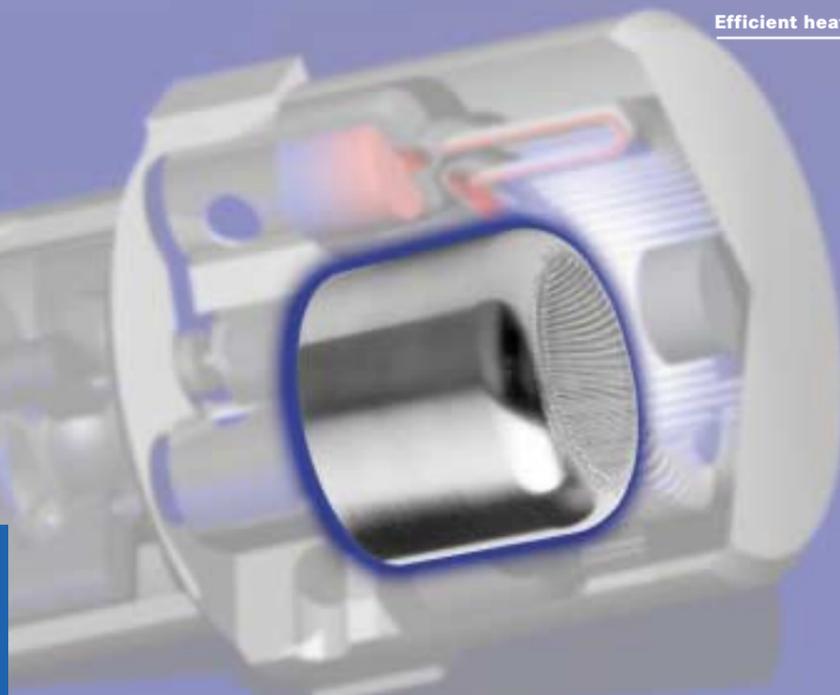


Continued from page 1

Waiters, acrobats and musicians
Regardless of how important the official ceremonies were, the physical well being and entertainment of the guests was something that wasn't to be neglected – as is the case with any good family party. After the eagerly awaited signal to open the buffet that offered an appetising spread of hot and cold specialities, there were a certain amount of worried looks: the waiters had started dancing on the benches and tables and began to feed the guests and spill ketchup everywhere. Fortunately, it soon became apparent that the ketchup wasn't real – and neither were the waiters. They were a group gastronomically specialised clowns that raised plenty of laughs, particularly from the guests that were not directly involved. To make sure that there was no letup in the excellent atmosphere: a number of groups of artistes and musicians from the region provided plenty of entertainment, much astonishment and finally the backdrop for a lot of movement on the dance floor.

A wonderfully long night – and a CD-ROM

The best way of measuring the success of any celebration is the length of time that the guests stay – which, of course, can be quite strenuous for the host. The PACO anniversary celebration closed its doors during the morning of September 21st 2003 – at approximately half-past five! Wilhelm and Peter Ruppel could be more than satisfied within this 50th corporate birthday party and are both keenly looking forward to celebrating the company's 75th. Before we forget: throughout the celebration, a professional photographer captured the events and faces of the evening. A few days later, each guest received a delayed birthday party present in the form of a CD-ROM containing countless photos and snapshots of the guests. If you would like to receive a copy of the CD-ROM, you can order it under www.paco-online.com.



Efficient heat exchanger:

The PACO regenerator for the Stirling engine

When the heated gas flows from the hot end of the Stirling motor piston through the regenerator, it leaves its warmth in the wire mesh structure of the regenerator. The multi-layer design and inherent large surface area ensure that a large proportion of the heat energy is stored. On the return journey the cold gas can then reclaim a large part of the heat from the regenerator. This means that it no longer needs to be completely warmed in the working cylinder. The regenerator developed by PACO, therefore, plays an important role in considerably increasing the efficiency of the Stirling engine.

energy supplier, but solely operates through externally applied heat energy. This heat can either be solar energy or recycled thermal energy obtained from garbage or landfill gas. Whatever the source, the combustion can be optimized to ensure that it remains environmentally friendly.

The PACO regenerator is the key to success

The inventor Stirling and his brothers all worked hard to improve this innovative technology and tried to eliminate the practical deficiencies of the system. One of their ideas was the integration of a regenerator in the engine. The purpose of this was to considerably increase efficiency, something that was not achieved for almost 150 years. Following decades of stagnation, during which the whole concept almost fell into oblivion, recent developments have provided the turning point. In close co-operation with bold investors, PACO has developed a regenerator that goes along way to giving the Stirling engine the practicality that it deserves.

The basis of this is a multi-layered, sintered PACO metal wire mesh made of particularly heat-resistant steel that can easily withstand the temperatures of up to 730°C inside the Stirling engine.

A dream comes true

This particularly environmentally friendly power plant is more up-to-date than ever before. Its use allows important targets to be reached with

The Stirling Engine Regenerator: Hot and Cold Efficiency Booster!

The search for an "almost perpetual motion" machine has made considerable advances. And PACO has played a major part – through the optimization of the Stirling engine. The key to increasing the efficiency of this "closed loop gas engine", that was originally invented by the Scotsman Robert Stirling way back in 1816, is in the regenerator that PACO has been largely responsible for the development of.

Driven by heating and cooling – ecologically valuable

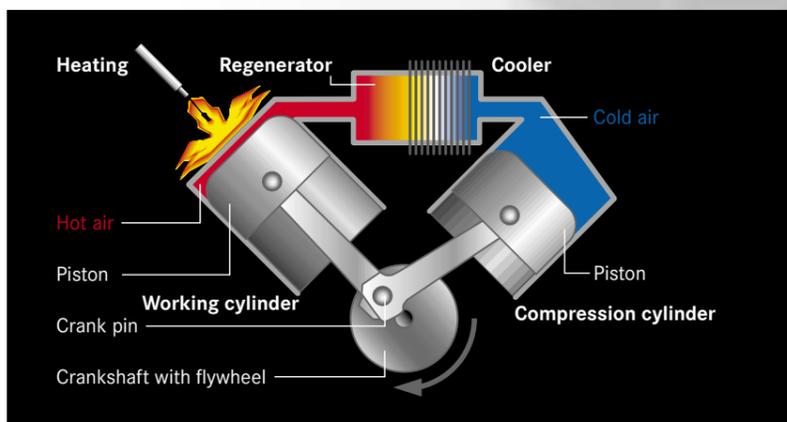
The rumour that the Stirling engine is an "almost perpetual motion" machine – i.e. a machine that can almost endlessly run under its own 'steam' – is based on the fact that it uses a constant amount of gas in a closed loop. This, simply put, is alternately expanded and contracted through heating and cooling so that it can

requirements on the basis of a completely new principle."

In principle an optimum system

The Stirling engine is the first closed loop gas engine. A constant amount of gas – these days helium is used – circulates within the system without ever needing replenishment or replacement from outside.

For those interested in technical descriptions, here are a few details: integrated in the cylinder of the Stirling engine are a loose fitting piston known as a displacer and a working piston. Both pistons work in opposite directions, are arranged at an angle of 90° to each other and are connected to a flywheel. The cylinder has one end that is externally heated and remains extremely hot, the other end is continually cooled. The thermal extremes in the closed loop cause the expanding and contracting gas in the system to circulate.



Power from changes in temperature: The principle of the Stirling engine

A heated working cylinder and a cooled compression cylinder between which a regenerator acts as heat exchanger to change hot to cold and vice-versa. The forces that result from the expansion and contraction of the gas are transferred to a flywheel that generates the movement for the aggregates that are to be driven.

turn a flywheel. (As you well remember from your physics lessons back in school: heated gas expands and will contract again when it cools down.) The application for the patent that was originally filed in the 19th century reads like a primary policy statement of today's Greens: "improvement and further development of an engine that reduces fuel

Ideally, the Stirling engine produces no exhaust gases, requires no valves and is as efficient as any engine can be.

Everything in its favour

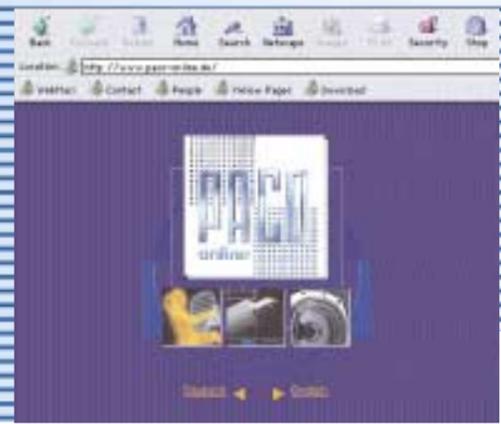
After the steam engine, the Stirling engine is the oldest thermal engine in the World. It is, however, not only more efficient than the steam engine, its efficiency is also higher than that of the petrol (gasoline) or Diesel engine. A particularly outstanding feature of the Stirling engine is that it is not dependent on a special

respect to the reduction of CO² emission and decreasing of the green house effect. Because of its compactness and low weight, it is ideally suited for use in outlying regions that are, at present, without electrical power. The future of the Stirling engine has, therefore, most likely only just begun.

Whatever the case, PACO Research & Development has provided a practical contribution to the fulfilment of one of the best technical dreams among modern power plants.

Further Information
www.Paco-online.com

PACO History Part 2



Visit us Online!
www.paco-online.com

Interview with Peter Ruppel, CEO

Our Future Starts Today. And the Same is True Tomorrow.

Since 1989, Peter Ruppel is CEO of the PACO Group. In this interview he comments critically about the general conditions within which medium-sized companies based in Germany and the EU are expected to operate. At the same time he expresses his determination to succeed and shows his optimism regarding the future of the PACO Group.

PACO World: Mr Ruppel, how do you feel when you celebrate the 50th birthday of your company?

P. Ruppel: Yes, how do you feel? To begin with, a little bit sentimental. I will always remain truly thankful to and have great respect for my father for the way in which he successfully built up the company. And to this day, I look to him as an excellent example for me, inasmuch as he has continually proved that he knows how to make a business succeed by quickly



Innovations have to be made
Peter Ruppel, CEO of the PACO Group is convinced that "you don't wait for innovations, you make them, discover them and check them out – so that they can be evaluated in the face of global competition."

reacting to changes in market requirements. Of course, product life cycles have now become much shorter than they were and sudden changes in demand have become increasingly difficult to foresee – and all of that on a global scale.

PACO World: Do you think that the German economic minister could learn something from your father?

P. Ruppel: Certainly, but not just him, also the trade unions and employers associations. If we were as inflexible

as a number of politicians and official representatives of both employers and employees have shown themselves to be recently, we would have ceased to exist a long time ago. Instead, we are one of the leading companies in our field, worldwide – a position that has become increasingly rare among German companies.

PACO World: You have committed yourself to your economic base in Steinau a.d. Straße, the birthplace and corporate home of your company. A region in the heart of Germany, that can draw on the country's tradition in wire drawing as well as its weaving expertise. In the face of globalization, however, local tradition has become of less and less importance. Why then do you remain so loyal to your home area rather than switching production to locations such as the Czech Republic, India or China?

P. Ruppel: That is a good question too. I think the reason for this is: as an entrepreneurial family we are very emotionally involved with our home area. This has less to do with sentimentality than with the excellent skills and motivation of our workforce. The extremely quality-oriented, dedicated and economically responsible staff and workers here have continually proved that they can generate and secure our competitiveness. An interesting fact though, is that our workforce in Steinau is more multinational than ever before. Without our foreign employees we would be in a very poor state.

PACO World: Is it true that for the past 10 years you have not been able to find an apprentice to learn the metal thread weaving trade?

P. Ruppel: Sad but true. Both the government and unions are complaining that a certain amount of young people are not being given the opportunity to learn a trade – they are even talking about bringing in a tax penalty for all companies that do not have apprentices – our reality, however, looks different. We can find neither sufficiently qualified school leavers nor can the labour exchange send us skilled workers that meet our requirements.

PACO World: People abroad are, on the one hand, surprised about the problems that Germany has as a manufacturing base and at the same time they accuse us of moaning even though we still have a high standard of living. What is your personal view of this?

P. Ruppel: I'm not only an eternal optimist but also a realist. A short time ago I was on a business trip to China. To see what is happening there at the moment should, without exaggerating, make every company in the EU sit back and think out their position very very carefully. The quality being produced with extremely low costs and a very highly motivated workforce is just the start of the Chinese challenge to companies in Europe and North America. To try to compete, each company has not only got to work on itself – we also need a far more flexible business environment. In Germany, its no longer a case of simply defending our standard of living, it's a struggle for existence – and that is the situation that we have got to get over to politicians, trade unions and employer associations.

PACO World: How do you see the future of PACO against this challenging background?

P. Ruppel: Our future starts today, day for day. And the same is true tomorrow. Our motto is: activity instead of passiveness, vitality instead of standing still, communication instead of information. For us, this means concentrating our activities on the future. Providing innovations that the markets need, increasing the flexibility of structures within the company, carefully watching the market, getting background information and implementing it in our products. And behind this, there has to be a highly motivated team. It is the same as with a tug-of-war: there is no use pushing, if you want to win you have to pull! Something that we're already doing with all our might.

PACO's Short Guide to Weaving

7. Five-Heddle Twilled Weave

In the textile industry, the five-heddle twilled weave is valued for the production of lingerie or high quality bed linen – keyword: satin. Technically and on a metallic basis, this special twill is a no less elegant solution – for instance for the production of high-performance filter cloths.

As the name indicates, when weaving, every fifth wire (or thread) is passed over and under, a technique which is also known as a satin or sateen weave. This type of weave usually produces a long or square mesh. What provides bed linen with its lustrous finish, gives filter media made of metal a particularly smooth surface for optimum filter cake removal. At the same time, the open underside of the sieve ensures excellent de-watering efficiency. This means that high flow rates can be combined with a high mechanical quality.

PACO five-heddle twilled weaves are particularly used in drum filtering systems and disc filters. With both applications, a filter cake is formed that can be cyclically removed.

Characteristic areas of application of PACO five-heddle twilled weaves are waste water treatment, the filtration of process water and mining.

A sieve that shines
The five-heddle twilled weave is also known as a satin weave. PACO satin "shines" as an effective medium for specific filtering applications.





The Steel Fleece – Extremely Fine: PACO HE Filter Candles FK 5060/5065

With filtration, it seems that there are two fundamental conflicts of interest: either you go for optimum separation capability or economy of the total process. In practice, however, the reliable operation of the filter media to ensure separation down to a specific particle size is just as important as effective integration of the filtering step in the complete processing cycle. PACO HE filter candles FK 5060/5065 provide convincing results in both disciplines: they are available with filter ratings between 2µ and 60µ based on PACO non-wovens (random layed fibres) as well as PACOPLATE, which is a composite material based on multiple mesh-layers diffusion-bonded to provide a fixed structure.

This is all integrated in a construction of perforated metal tubing or PACOSLOT slotted wedge wire that provides high mechanical stability. Adaptable fixings – right through to bayonet fittings with double O-rings – allow the filter elements to be adapted to the requirements of almost any system available on the market. In addition to the standard range, customer-specific solutions are also available. The principal characteristics of the PACO HE filter candles FK 5060/5065 are a high contamination retention capacity that, at the same time, allows excellent flow rates. Outstanding deep-bed filtering properties are combined with a separating capability exceeding 99% and long filter lifetimes: all features that play an important part in ensuring the high cost-effectiveness of the filtering solution. This is complemented with high resistance to heat and temperature changes, excellent mechanical stability of the active filter layer made of metal fibre fleece, resistance to changes in differential pressure and the large-scale use of high-quality non-corroding materials (mainly stainless steel 1.4404 (AISI 316-L)).

Further information:
PACO flyer D14/E15 and
www.paco-online.com

Precise variety
The PACO HE filter candle range is not only available in various filter ratings ranging from 2µ to 60µ, but also in a variety of designs including straight, cylindrical and pleated – i.e. for an enlarged surface area.

Steinau a.d. Straße: The Grimm Family – Fellow Citizens for Decades

When the name Grimm is brought up in connection with Steinau a.d. Straße, most people usually think of the famous brothers Jacob and Wilhelm Grimm and the time that they spent in the town. This, however, plays down the fact that Steinau was home to the Grimm family for almost a whole century. The ties between the Grimm family and Steinau a.d. Straße go back to the great grandfather of the famous Brothers Grimm: at the beginning of the 18th cen-

tury he worked in the town as a church superintendent. His son then preached as a reformist pastor in the Steinau *Katharinenkirche* between 1730 and 1777. In turn, his wife gave birth to Philipp Wilhelm Grimm, the father of the Brothers Grimm who, as an adult, served the Landgraves of Hesse-Cassel. Together with his wife Dorothea, whose maiden name was Zimmer, he had nine children – eight sons and a daughter Charlotte Amalie

(born 1793). The second and third of this line of siblings were Jacob (born 1785) and Wilhelm (born 1786). In 1798 both left Steinau to visit the Grammar School in Cassel – a loss that, knowing what we know now, Steinau was easily able to recover from. Then, if the Brothers Grimm had never had a good education, they would never have become the World famous Brothers Grimm – and Steinau a.d. Straße would never have become a "fairy tale town".

The New PACO Company Brochure: Mesholutions – Invitation to Information and Dialogue

The 50th anniversary celebrations gave PACO an excellent opportunity to bring out a completely new company brochure. It describes the company's philosophy, provides an overview of the various product ranges and underlines the company's commitment to research, development, quality assurance and service. In particular, however, it contains an invitation to all those interested in PACO's products and services to get in touch with PACO and discuss their specific needs and wishes.

If you have not already received the new PACO company brochure, you can order it through www.paco-online.com



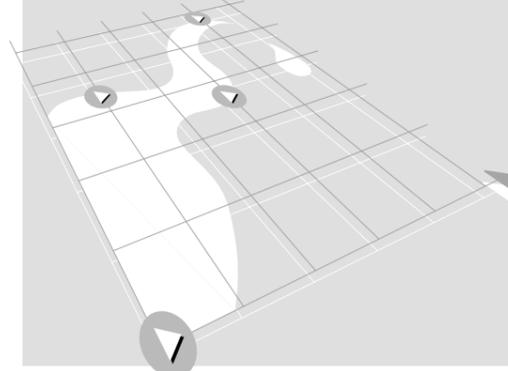
Bits and Pieces

The Art of Extrapolation

Economic experts have the amazing ability of using figures from today to forecast the trends of tomorrow. The American Author Mark Twain (1835 – 1910, the literary father of Tom Sawyer and Huckleberry Finn) recognised very early on the considerable advantages of scientifically substantiated conclusions and forecasts and devoted the following allegorical lines of his work Life on the Mississippi to them:

About Extrapolation

"In the space of one hundred and seventy-six years the Lower Mississippi has shortened itself two hundred and forty-two miles. This is an average of a trifle over one mile and a third per year. Therefore, any calm person, who is not blind or idiotic, can see that in the Old Oolitic Silurian Period, just a million years ago next November, the Lower Mississippi River was upward of one million three hundred thousand miles long, and stuck out over the Gulf of Mexico like a fishing-rod. And by the same token any person can see that seven hundred and forty-two years from now the Lower Mississippi will be only a mile and three-quarters long, and Cairo (Illinois) and New Orleans (Louisiana) will have joined their streets together, and be plodding comfortably along under a single mayor and a mutual board of aldermen. There is something fascinating about science. One gets such wholesale returns of conjecture out of such a trifling investment of fact."



Seizing the Opportunity in Ireland: PACO at the IRCHEM 2003

The growth rates of the Irish economy are some of the most dynamic among the member states of the OECD. Ireland's continuously successful policy of making itself more attractive to industry has meant that over 1200 foreign companies have set up industrial bases there. As a result, the enterprising island has developed a huge demand for the import of plant and machinery, half-finished goods and raw materials. This means that Ireland has become an extremely interesting export market for PACO. To make the most of these opportunities, PACO presented themselves – along with their business partner GDC Europe (Ireland) – at the IRCHEM 2003 in Cork, Ireland. At present Irish importers are looking for suppliers within the Euro-zone so that they can reduce their volume of trade in Pounds Sterling. This gives German suppliers the chance of long-term success in the Irish market. PACO is also determined to seize its opportunity in Ireland. At the IRCHEM 2003, the trade fair for pharmaceuticals, chemicals, food processing and process engineering, PACO found that there was considerable interest in their filtering solutions. In addition to the existing business contacts, new business relationships could be already be formed.



Many thanks to our
"Irish Connection"
Michael and Redmond Quigley
from our business partner
GDC, Ireland, at the
IRCHEM 2003.

Imprint

Published by:
PACO PAUL GmbH & CO.
Metallgewebe und Filterfabrik
Industriegebiet West
36396 Steinau a.d. Straße
Phone: 49 66 63-97 8-0

Editor, copy:
ralf.geisler@t-online.de

Graphic design:
info@knoechel.info

Printed by:
Brönners Druckerei,
Frankfurt am Main

Photos:
page 4 city of Steinau,
all the rest of the photos: PACO

