



Process optimisation in the Injection Moulded Products Division

Information event about 'Kennedy Project'

Customers are to be supplied faster. How? The turn-around times for new orders should be shortened by direct project acceleration. This is the goal of the "Kennedy Project" (impulse 2/2002, p. 2). Those who attended the information event on June 20th, quickly became aware of the great deal of work connected with the project.

To find the right approach, the whole process chain of the product division was analyzed. Several project groups had been formed, devoted to such topics as order processing, screening, project management, design, construction and sampling. Under the guidance of the Swiss business consultants "pro transfer", the groups ascertained which processes could be optimized. "The teams that are directly participating in the Kennedy Project have shown their commitment and are highly motivated," Product Division Manager Karl-Heinz Kugele commended.

The following aims have so far been processed in the individual project groups:

The receipt of the order/screening process will be optimized by checking the order against a check list and passing it on so that there will be no questions from the technical department or the designers.



Martin Bauer explains the demands on a project leader to the participants

In project management more efficient planning is the goal. A critical requirement is to recognize possible problems and to offer solutions in advance. Further important points are regular meetings and a well-defined profile of requirements for the project manager.

In design and tool manufacturing as well as in sampling, processes are to be optimally planned by the elimination and omission of possible dis-

turbances. A further goal is to work out norms for tool manufacturing.

The employees who presented the Kennedy Project during the information event had made a great effort. Together with the Swiss business consultants they presented their work according to process optimisation in the injection moulding production division on large screens. The main topic was the comparison of the actual situation and the future

situation. They showed the processes that could be steered more efficiently and the measures that have already been taken. The visitors found out the advantages of process optimisation for customers as well as employees. With a fictitious order they went through the individual areas of the injection moulding unit. During the first run the "order" was handled within the parameters of the actual situation. The participants had to go through processes from the receipt of the order to sampling, solving different queries. For example, they had to complete a construction drawing and measure the length of a two-component part. During this run the visitors could see for themselves the problems that appeared and which points were directly connected with them.

The second run was based on the new process. The time-saving connected with this and the future plans became apparent to each participant.

The "Kennedy Project" is not yet fully completed, but many process improvements have already been integrated within the production processes. "Now we have to make the improved processes routine," says Kugele. "That includes our work from receipt of the order to the inspection report."

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An important step towards the future

The use of TECAST 12 in food manufacturing

ENSINGER has made a significant step toward the future. With positive laboratory testing of the applicability of the cast polyamide TECAST 12 in food manufacturing, the company opened itself to the whole area of food industries.

The result of the TECAST 12 examination by the NATEC Institute for Scientific and Technical Services was that the global migration limit when in contact with aqueous acidic and greasy foods was not exceeded.

On this basis, equipment manufacturers for food machinery can implement their developments and finally have the finished machines examined by a certifier and authorized with the final aptitude certification.

This opens up further interesting ranges of applications, for example bottling machines, machines with direct food contact or meat and bakery machines.

A basic feature of TECAST 12 is the outstanding sliding behaviour. On the company's tribology test station the sliding friction value $\mu = 0,1$ with a wear rate of 0,1% was achieved.

Such values can only be achieved with cast polyamides on PA 6 basis with the addition of solid or fluid lubricants.

Furthermore, the cast polyamide is extraordinarily resistant to repeated impact. It also has low water absorption, a high resistance to chemicals and a clearly improved dimensional stability and wear resistance.

For many decades, polyamides have been the classical partner of metals in engineering applications. TECAST 12, for instance, is very suitable for embedded metal inserts, even though the demands on the material increase. Many specific and variable material properties are required that are able to withstand function/ performance parameters. Last year the range of the well known and well-proven ENSINGER cast polyamides within the TECAST range was extended by the addition of this cast polyamide TECAST 12 (impulse 1/2002, p. 5).

ENSINGER technical plastics are used in many industrial branches. Whether in classical engineering, medical technology or automotive engineering, almost everywhere these high quality materials come into use. Even for sporting activities – there is no getting away from it. ENSINGER Czech were instrumental in the development of a grass ski. Successfully – since the Czech Jan Nemeč even became world champion with this ski.

The history:

Looking for partners for his special project, young student Jan Nemeč from Brno contacted some ENSINGER employees at a trade fair for plastics. Nemeč wanted to perfect his extraordinary sports equipment, the grass ski. The ski, which will go downhill with a speed up to 90 km/h, is highly complex and looks like a small Caterpillar vehicle.

At its highest speed a band is carried over several rollers. Good dimensional accuracy, abrasion resistance and good surface slip characteristics are the most important properties of the material.

The best point the way ahead!

or: How to become a world champion with ENSINGER

ENSINGER's contribution:

According to the company's motto „Ask. Think. Succeed“ our Czech colleagues set to work. After a detailed analysis of the necessary functions and properties, suitable materials were chosen and some trial sets were produced. Beside the

material choice the accuracy of the rollers is very important since the plastic surfaces were to be exposed to the highest quality demands. And in this area ENSINGER s.r.o. could do their best. The rollers were then produced on a CNC lathe.

The winner:

In Forni di Sopra, Italy, the final of the grass ski world championship was held from September 6th to 9th, 2001. Just as it is in classical skiing they competed in five disciplines: giant slalom, slalom, super-g and Alpine combined. After the final competitors had arrived and the skiers were analysed and evaluated, it was certain: Jan Nemeč is double world champion – in slalom and in Alpine combination. No wonder ENSINGER employees were proud when Nemeč stood on the winners' rostrum. After all they had made a significant contribution to his win.



Grass ski world champion Jan Nemeč with his equipment

Richard Sulko,
Sales Director,
ENSINGER, s.r.o.

Editorial



Dear reader,

For months, our country was dominated by the election campaign. Now, the public wants answers from politicians to the most urgent questions. How will we manage to give back work to millions of people? And how will we fill the financial gaps in the health and

pension service, worth billions, that endanger the medical care and the pensions of many people?

The answers given do nothing but confuse. New concepts and terms occur in the media. Some talk about the necessity for basic structural reforms, others rename the job centres 'private service agencies' and promise work within the 'Me Ltd.'

Instinctively most of us know that we have lived beyond our means. In comparable situations, welfare states like Sweden or the Netherlands have introduced rules that meant

severe financial cuts for many citizens. Why should this be different for us? However, does anybody tell us this clearly, as it is, or do nice words cover up the facts?

In principle, there are only two options to reduce the number of unemployed and to secure the medical care of the sick and the pensions of the elderly: Either those who have work have to pay more taxes and contributions and let these persons benefit from this. Or we expect the unemployed, the ill and the pensioners to work for their necessary income themselves or to manage with less money.

Depending on the party, politicians put their trust in the one or other solution. But it is a fact that even though tax increases which reduce income are painful, they are in store for us, individually or in combination.

If all this is so obvious, we should know better. But we seem to ignore it. German politics is stuck in a self-imposed impasse. No-one dare

distress us with such news. In such a case we really wish our representatives greater courage. Does not the flood catastrophe in Eastern Germany show which forces can be released in critical situations when necessary? A chancellor who calls a spade a spade and prescribes the bitter pill would enjoy great popularity.

Best regards

Klaus Ensinger

P.S.: Apropos politics.

Our Mrs. Seiz has moved into a different field. She is now doing public relations for the Stuttgart Lord Mayor Wolfgang Schuster. Frau Seiz was responsible for our press releases and wrote many articles for impulse. It is a comfort to us that her fight for clear words and statements will bear fruit in politics. We thank her for her great work. Her successor, Mrs. Woelfle, is also well acquainted with language and communication. We wish her a good start and a lot of fun in her new position.

New Dimension of Driving Safety

Continental Teves and ENSINGER develop a plug for ESP-test stand

For almost a century Continental Teves has developed and produced systems that make it easier to check dynamic forces. A milestone of these developments towards greater driving safety is the Electronic Stability Program (ESP). Today, even small and medium size vehicles have this safety system as a standard fitting. Thus, in contrast to the anti-lock braking system (ABS) at its launch, the ESP is not reserved to cars in the luxury class.

The Electronic Stability Program (ESP)

The ESP permanently monitors measurement data from the wheel speed sensors, steering angle sensor, yaw rate and lateral acceleration sensor. It then compares the driver's commands with the actual behaviour of the vehicle. If an unstable condition occurs – a sudden evasive movement for example – ESP intervenes within fractions of a second via the engine computer and brake system, then stabilizes the vehicle.



Plug for online test equipment, produced from TECAPEEK GF

The Online Test Stand

The interaction between the individual elements of the ESP is controlled by the Electronic Hydraulic Control Unit (HECU). After installation the HECUs are checked under pressure by online test equipment for their absolute tightness. The function of each individual valve is also examined. In co-operation with Continental Teves, ENSINGER GmbH has developed and produced a contact plug for this test equipment. The plug connects the ESP/ABS-module electrically with the test equipment and establishes that contact, over that the valves of the control unit, can be regulated.

The TECAPEEK GF plug

The plug was machined from ENSINGER high performance plastic TECAPEEK GF. TECAPEEK GF is a glassfibre-reinforced material with high strength which has the best properties for this application: an extraordinary dimensional stability over a wide temperature range and a low tendency to creep for parts with tight tolerances. Even under high tension TECAPEEK insulates electrically. Since the system plug is individually inserted for each test procedure, the excellent sliding-properties and especially the permanent wear resistance of the material is critical. By machining, the material can be processed with the highest precision. Because of its extraordinary properties, the high performance plastic TECAPEEK GF 30 is used in electrical engineering, in medical technology, in mechanical engineering and in aviation and aerospace engineering.

ENSINGER in the world of light

DERKSEN Lichttechnik launches the smallest low voltage projector in the world



GoboTop® with deflection mirror

Many of us have already seen them – at trade fairs, in display cabinets, in exhibition rooms: light projections in the form of graphics, logos or texts. They emerge for example on walls or on floors and ingeniously communicate advertising messages or act as signposts.

Such light effects can be achieved with the help of projectors and projection patterns (Chromgobo®s). DERKSEN LICHTTECHNIK GmbH from Gelsenkirchen, Germany, has launched the smallest low voltage projector in the world. Within seconds it can be installed at all low voltage multi-mirror lamps in standard business practice and can be used in many different ways: on line light systems, on conductor rails and in display cabinets. The projection models, such as graphics, logos and texts are transferred by a high-power laser on to specially coated glass (Chromgobo®s). The low voltage projector projects the coloured or black-and-white light messages at the preferred spot. With an ideal projection distance of 40 to 100 cm it is especially suitable for projections over short distances.

In co-operation with ENSINGER GmbH, the DERKSEN Lichttechnik company has developed and manufactured the housing of the GoboTop®.

The lamp consists of the halogen lamp housing, the adjustable objective housing, the objective runner, the lock ring and the fitting piece that holds the Chromgobo and furthermore acts as spacer between

Chromgobo and lamp. An additional element is a specially designed deflection mirror with a plastic housing which allows projection from any selected position. All parts are made of the ENSINGER high-temperature plastic TECATRON GF and were injection moulded (Fully automatic).

Since halogen lamps develop a considerable heat in minimal space, the main demand on the material of the mini projector was an outstanding dimensional and thermal stability. As a material that withstands high temperatures, TECATRON GF can be continuously used at temperatures up to +230 °C. Furthermore it is resistant to oxidation and hydrolysis, it has a very good resistance to chemicals and has optimum electrical insulation. In addition, thanks to glassfibre reinforcement, TECATRON GF has an extremely high strength. Very often, due to its high strength, dimensional stability and hardness, this plastic successfully replaces metal applications.

Those who keep their eyes open during their next visit to a trade fair will surely discover one or other projections: Either logos, text or graphics – the light effects just serve to catch the eye.

To get more information about GoboTop® and multi-media projector systems just go to www.derksen.de. Information about ENSINGER high temperature plastics can be found under www.ensinger-online.com.



ENSINGER Summer Parties in Nufringen and Cham

From bouncy castle to target shooting to original Swiss cheese and wine – this year's ENSINGER summer party offered fun and delight for everybody. The party started on Saturday, September 14th at 11 a.m. The lunchtime drink was accompanied by Jazz Music, performed by "Georgie's Jazz Corporation", the band led by Sigi Brodt, husband of Ilona Brodt who is a member of the works committee.

After his welcome speech, Klaus Ensinger congratulated those ENSINGER employees celebrating their anniversaries: Lars Bongardt, Carsten Perger, Marianne Bühler, Karin Firse, Steffen Mai, Doris Schlotterbeck and Hans-Martin König were honoured for serving ten years with ENSINGER. Gerhard Wörner was honoured for 25 years

of service, Marijan Juric, Rolf DeLenardis and Slavko Dugopoljak for 30 years. Gerhard Lichtenberger has been working at ENSINGER for 31 years and Stipo Hrnjkas for more than 32 years.

Children were able to romp in the bouncy castle or were entertained by kindergarten teachers while fathers could indulge themselves by shooting at a target. Six shots could be bought for two Euro, and the proceeds from this together with donations from the cake stall were given to the Tübingen hospital for children suffering from cancer.

Dr. Roland Reber celebrated starting his new position. He provided original Swiss cheese and wine and even gave it out personally. Here are some impressions of the day, just have a look and let them sink in...



Also, full of warmth: This year's summer party in Cham at the end of July.



Second City Run in Cham

ENSINGER-employees participate in the competition



Within the context of the Cham Festival, on June 29, the Cham City Run took place. Among 100 runners, five ENSINGER employees also participated in the contest.



They proved their fitness on a 6.5 km circuit that started in front of the city hall. The route took them along the city wall, passing by a historic gate and the river Regen. Then they returned to the market place where they finished. The fastest ENSINGER employee was Erwin Brey with 31:07 minutes followed quickly by Wolfgang Ippisch. Then Alfred Holmeier, Thomas Betz and Karl Späth crossed the finishing line. Even visually they were a team: management had provided the sporty ENSINGER employees with company t-shirts.

Congratulations on a successful event!

The results were as follows:
 Erwin Brey: 31:07
 Wolfgang Ippisch 32:16
 Alfred Holmeier: 34:12
 Thomas Betz: 36:24
 Karl Späth: 39:53.

Trainee-outing 2002

June 5th was the date for the trainee outing. We met at 7.30 a.m. in front of the main entrance and started off to Mannheim. Over there, we spent two hours at a small lake where we could waterski or wakeboard. After some initial difficulties very soon all of us could stand on the skis without falling off. Of course, there were also some among us who were naturally gifted. Even the instructors, Mr. Lehmann and Mr. Trümper cut good figures on their waterskies. After light refreshments we went on to Ludwigshafen to visit BASF. First we got to know a lot about the factory's history, then we carried out a supervised chemical experiment and finally we visited the bigger part of the factory area by bus. The day was very nice and full of variety but also strenuous and demanding. Such study trips should in fact be repeated more often.



Marco Bossard on the wakeboard

Nicole Ebner and Julia Bieber (Trainees)

Cham Trainees – visit to Munich



On Juli 22nd, trainees from Cham went with their instructors to Munich. On the programme was a visit to Krauss Maffei Kunststofftechnik GmbH and to the Franz Josef Strauss Airport. All participants thought the trip was very interesting and informative.

Successful Completion of Training



Left to right: A. Alsfasser, W. Fisch, S. Piendl, M. Kohberger and M. Langlechner

Cham

At the presentation of certificates Andreas Alsfasser and Max Langlechner had the pleasure of congratulating the successful young tradesmen Marco Kohberger, Wolfgang Fisch and Stefan Piendl on their excellent performance in their respective trades. Mr. Kohberger now is process mechanic, Mr. Fisch and Mr. Piendl are tool mechanics. Their results are outstanding: Stefan Piendl got 97, Marco Kohberger 95, Wolfgang Fisch 91 out of 100 points.

Nufringen

Julian Schlarb, Patrick Dreja and Marco Bossard have passed their final exams as process mechanics with excellent results. In future, the three of them will support the Injection Moulded Products Unit. Dirk Harter has completed his apprenticeship as a toolmaker and was honoured in front of the German Chamber of Industry and Commerce (IHK). The employees of the tooling production unit are looking forward to working with him.

Ursula Wochele and Andreas Pertschy have passed their final exams as industrial commerce employees very successfully. Mrs. Wochele with a dreamlike result. She was also honoured in

front of the IHK. Mr. Pertschy will stay with ENSINGER and gain experience in the purchasing area. Mrs. Wochele will take up her business studies in October.

We would like to thank Heinz Lehmann, Ralf Grammel, Mirjam Hörting and Karl-Josef Rebmann for their commitment and congratulate all the young people on their successful final exams. In the company's history, since the beginning of training activities at ENSINGER, Mrs. Wochele and Mr. Harter have been the best trainees in Nufringen in their respective areas.



Shiny happy people (left to right): Heinz Lehmann, Mirjam Hörting, Andreas Pertschy, Patrick Dreja, Julian Schlarb, Marco Bossard, Ursula Wochele, Karl-Josef Rebmann, Ralf Grammel

A warm welcome

from the editorial team to the new employees who have strengthened our crew since June 2002 (status: up to 26 September 2002, except trainees)

Employees Nufringen

Hans-Joachim Rühl	Sales Engineer, Service Centre Sales and Marketing
Sabine Albrecht	Design Assistant, Service Centre Technical Development
Ursula Steimle	Secretary, Service Centre Sales and Marketing
Doris Wöfle	Employee Marketing/Public Relations, Service Centre Sales and Marketing
Anita Haase	Further Processing Worker, Injection Moulded Products
Rocco Pomposo	Store/Despatch Employee, Semi-Finished Products
Gerald Wilhelm	Employee Incoming Goods/Raw Materials, Service Centre Finance & Control
Hermann Galm	Works Electrician, Service Centre Raw Material
Martin Schmidt	Employee, Injection Moulded Products
Michael Rinderknecht	Works Fitter, Service Centre Raw Material
Marija Vavulidou	Room Care Employee, Service Centre Finance & Control
Uwe Lerner	Project Engineer, Thermal Insulating Profiles
Axel Sehbürger	Project Engineer, Thermal Insulating Profiles
Karen Lehmann	Director's Secretary

Employees Cham

Willi Weisstanner	Manager Calculation, Semi-Finished Products
Wilhelm Lugert	Manager Production Planning, Thermal Insulating Profiles
Martin Fuchs	Machine Operator, Thermal Insulating Profiles
Matthias Drexler	Machine Operator, Thermal Insulating Profiles
Christian Lankes	Machine Operator, Thermal Insulating Profiles
Josef Kiener	Machine Operator, Thermal Insulating Profiles
Josef Bollwein	Managing Clerk, Casting, Semi-Finished Products
Markus Klimm	Machine Operator, Casting, Semi-Finished Products
Christof Piasecki	Machine Operator, Thermal Insulating Profiles
Michael Hartl	Machine Operator, Thermal Insulating Profiles
Harald Heumann	Machine Operator, Thermal Insulating Profiles
Hans Feil	Machine Operator, Thermal Insulating Profiles
Thomas Gilitzer	Machine Operator, Thermal Insulating Profiles
Martin Schlamming	Machine Operator, Thermal Insulating Profiles
Roland Kögler	Machine Operator, Thermal Insulating Profiles
Anton Würzer	CNC-Milling Worker, Service Centre Technical Development
Thomas Stahl	Machine Operator, Thermal Insulating Profiles

Trainee Nufringen

Christian Herrmann	Tool Mechanic
Mehmet Haybat	Tool Mechanic
Patrick Jacob	Tool Mechanic
Alexander Schiebel	Process Mechanic
Ivana Hrnjikas	Industrial Commerce
Rosemarie Wochele	Industrial Commerce
Christoph Luche	BA Economic Engineering
Britta Lauer	BA Business Studies

Trainee Cham

Jenni Kolbeck	Process Mechanic
Martin Weinzierl	Process Mechanic
Robert Dörner	Tool Mechanic
Benedikt Bricha	Machining Mechanic
Michael Luger	Machining Mechanic
Michael Schönberger	Machining Mechanic
Thomas Kropf	Machining Mechanic
Janine Zangl	Team Assistant

We wish you all a good start at ENSINGER!

Competition Solution

impulse 3/2002



In our last German issue, we had an ENSINGER specific crossword puzzle. The solution was "Querdenker" which is the German name of the "Little Lateral Thinker". As always, participation was overwhelming. The draw went in favour of Irene Dengler (photo). What's the prize? She can look forward to a meal voucher to the value of € 60 for the Hasen Hotel in Herrenberg. Congratulations!

On May 27th, Erna Paulus experienced a very different working day at ENSINGER. It was her last day before retirement. After more than 24 years of work at ENSINGER she had decided to take early retirement from July 2002 on. Many colleagues, the management, the works committee, Wilfried and Martha Ensinger accepted Mrs. Paulus' invitation and celebrated the retirement during an informal get together. As a parting gift, Mrs. Paulus got several wicker chairs from her colleagues, "that she can relax in, enjoying her retirement and making plans in peace to organize the new chapter in her life." Mrs. Paulus entered the just 11-year-old company in November 1977. From the begin-

After many years at ENSINGER

Erna Paulus retires



ning, she was responsible for various projects. Besides office tasks for management she worked in the sales department and participated in the changeover to EDP. Over the years she became more and more involved in the purchasing department where she spent the majority of her years at ENSINGER. Frau Paulus is very happy to retire and wants to take the things day by day. This is a good attitude and leaves her the freedom to take on everything that comes her way. Finally, we do not want to miss endorsing completely the many good wishes of all the speakers during the get together. We wish her many happy years and hope to see her again every now and then.

The Impulse Interview

5 Questions to Fred Nass



Since 1998, Fred Nass has been Manager of the Machined Finished Parts Division at ENSINGER, Cham. For impulse he answered questions on the application of machining, on the strength of ENSINGER machining in comparison with competitors, on modern machinery and on the Global ENSINGER Network, GEN.

In which practical cases do you use and recommend the technique of machining?

Nass: Unlike injection moulding you mainly machine parts when the numbers are not very large. In these cases you do not incur expensive tool costs that have to be split over each part. Furthermore you machine when the parts cannot be formed by injection moulding or when undercuts make injection moulding impossible, e.g. due to different wall thickness.

You can machine basically all ENSINGER plastics. But in principle you can machine unreinforced plastics easier than those which are glass- or carbonfibre-reinforced.

What are the strengths of ENSINGER machining, how do we differ from our competitors?

Nass: Our strengths are experience, quality, size and the wide range of possibilities within the ENSINGER group.

We offer our customers more than 20 years' experience in machining thermoplastic materials and have mastered the technology that is required to produce very exact and very complex components.

A finished part from ENSINGER has to be perfect in quality and optically attractive. Our machining is ISO-certified and, furthermore, since last year, we fulfil the quality guidelines of the German Aerospace Industries Association (BDLI).

With a planned capacity of about 130,000 production hours per year, the size of the machining unit is a further positive argument – there is no bottleneck in scheduling many orders at the same time. Our machinery is the optimum equipment, enabling us to produce small volume runs as well as large volumes for a reasonable price.

Also the various possibilities of the ENSINGER group are a significant differentiation factor from our competitors. At any time we can fall back on more than one hundred different materials. Additionally, the organisation inside the company is very flat. Problems can be solved quickly and without upheaval. If a customer wants to produce his parts by another procedure, this is also no problem. ENSINGER has a lot of

knowledge of almost all the processes of production and working of thermoplastics and the communication between the divisions is excellent.

What does ENSINGER have to do to keep this exceptional position?

Nass: For me it is very important to keep this exceptional position. The market and customers' requests keep on changing and we have to be flexible enough to be able to react to new situations.

A quotation I once read with a customer made me think: "In future there are two kinds of companies. Fast companies and dead companies." I am convinced that ENSINGER is a fast company. For me "fast" basically means "to be flexible". But you can only be flexible if your team is highly motivated, innovative and has a great deal of know-how. And this is exactly the case with my ENSINGER team. That's the secret of our success.

You mentioned the optimum equipment of your machinery that allows competitive production. What are the advantages?

Nass: The ENSINGER machining unit is optimally equipped. We can produce parts with the most complex geometries. The network between all of our CNC machines makes central computer programming possible. And this is the prerequisite for well-priced volume and prototype production.

With our progressive, external programming consoles with special CAD/CAM-interfaces we are at any time able to use customers' graphic data which considerably reduces the cost of CNC programs. Two CNC coordinate measuring machines make exact quality control possible. The narrow link between material choice, and constructive advice is the basis of our good reputation as an excellent business partner for customers.

The Global ENSINGER Network GEN was initiated last year. Can you benefit from the experiences of other ENSINGER branches and use synergy potentials?

Nass: I personally think that the GEN project is very important. It offers many possibilities to the ENSINGER group: The exchange of experience in the international area, the co-ordination of international resources and investment, the optimum utilization of international capacities and knowledge management.

The machining unit in Cham has had very good contact with colleagues from England for the last ten years. Now we also integrate with other international ENSINGER machining branches in this group. During regular meetings within our GEN group the exchange of information and experiences is as important as the personal acquaintance of our colleagues from different countries. It reinforces the sustainability of the actions we have already carried out and we can take further steps in the direction of new projects.

In my opinion, the GEN idea has to be intensified so that we can fully profit from the advantages that result from these co-operations.

Mr. Nass, thank you very much for talking to us.

ENSINGER in bridge construction

Post-tensioning bridges with deflection parts in TECAFINE PE

The German company BBV Vorspanntechnik GmbH is a specialist enterprise in the construction industry. Their main business is the development and marketing of tensioning processes for construction engineering. A current project of the company is a bridge in Essen-Scherenbusch in the German Ruhr district. The impressive structure measures 325 metres.

The superstructure of the bridge consists of a box girder in pre-stressed concrete. This allows the construction of narrow bridges with high spans. The concrete is pre-stressed with the help of tendons which consist of bundles of strands that lie in a protective tube. The beginning and end points of the tendons are fixed in concrete and the strand bundles are stressed with a hydraulic press.

Due to a special static arrangement of the tendons with the top points above the bridge piers and the lowest points in the middle of the field between the piers, there are levers that bring about large spans and a high ability to withstand stress.

Formerly, the tendons were usually in the cross section of a bridge construction and the empty space between protective tube and strand was grouted with mortar to protect it from corrosion.

These tendons then became inaccessible and could neither be controlled, re-tightened or replaced. Today, at bridges made of box girders, a certain number of tendons have to be accessible in the box girder.

With the tensioning system of BBV Vorspanntechnik the tendons can be controlled at any time. If required, they can be readjusted or exchanged even after decades.

For this project and for further bridge constructions, the company needed deflection parts within the box girder at points where the external tendons are deflected. These parts have to be capable of withstanding the enormous forces of the tendons and guarantee problem-free sliding when being stretched and re-stretched.

This equipment was produced by ENSINGER. Working to very specific customer instructions, ENSINGER has developed a material type based on TECAFINE PE. TECAFINE PE is an unreinforced polyethylene with a high density which meets the demands of heat, weathering and light stability. Moreover, the material has very good sliding properties.

With the combination of extrusion and machining a very economical production concept was realized.



Deflection parts out of TECAFINE PE



Under construction: Bridge made of pre-stressed concrete

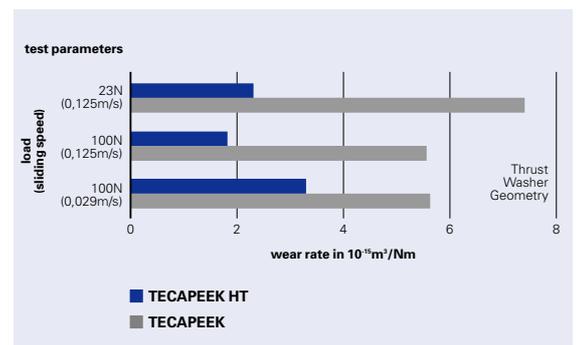
New: The high-performance plastic TECAPEEK HT

Better material characteristics than TECAPEEK

New in the ENSINGER GmbH product range is the high-performance plastic TECAPEEK HT, based on Victrex PEEK HT™. This semi-crystalline, high-temperature thermoplastic offers a whole spectrum of excellent material characteristics. These make the plastic a real all-rounder – which means that it can be used in any sector of industry. Most of its material characteristics are comparable to those of TECAPEEK, which already offers very high performance. These include, for example, the high use temperature of 260 °C, the high creep resistance and stiffness, good electrical insulation, or its resistance to gamma rays. TECAPEEK HT tends to come off better in comparison with TECAPEEK when it comes to chemical and abrasion resistance. The glass transition temperature and heat distortion temperature are significantly higher. In mechanical engineering and automotive technology, in particular, this opens up new paths for sliding applications that can withstand higher thermal-mechanical stress.

TECAPEEK HT is an optimum plastic for medical and laboratory technology – it is precise and reliable, and can be repeatedly disinfected and sterilised in superheated steam without developing stress cracks. Further examples of possible applications are aerospace technology,

electronic and semiconductor technology or nuclear and X-ray systems. ENSINGER uses TECAPEEK HT natural, in glass-fibre or carbon-fibre reinforced compounds, and in other modifications, to make extruded semi-finished parts, die-cast and milled finished parts.



Wear resistance of TECAPEEK HT compared to TECAPEEK at different parameters

ENSINGER in Czech Republic

ENSINGER technical plastics are used all over the world. They are also used in the Czech Republic. In the truest sense of the words, the late eighties brought the all embracing change – not only a political one. The people quickly recognised that in today's Czech Republic there is great economic potential. In 1993,

ENSINGER also took advantage of the favourable economic climate and built a branch there. With three employees and three machines their work started in a rented building in Pilsen. And today? Today, ENSINGER, s.r.o. is a successful and innovative young enterprise with good prospects.

is well placed for transport and the logistical advantage is guaranteed. What's more: It is not only close to Germany but also close to customers throughout the whole Czech and Slovak Republic.

their major customers. Also the automotive manufacturer Skoda is supplied with finished parts produced from ENSINGER high-performance plastics. Furthermore the whole Czech mechanical engineering branch is provided with ENSINGER products.

The employees amicably call the company "Esro". This name originates from the abbreviation of ENSINGER, s.r.o. ("s.r.o." corresponds to English "Ltd"). The first year was so successful that ENSINGER was soon looking for a bigger site: The choice fell on Dobruška. The city of Dobruška, about ten kilometers away from Pilsen, is situated next to the new motorway Waidhaus – Prag. It

In accordance with the ENSINGER motto "Ask. Think. Succeed." Esro became so well established that customers confronted the Czech ENSINGER employees with the most difficult questions and tasks. Especially in the areas of semi-finished and finished products ENSINGER, s.r.o. is doing very well. In the meantime they have successfully dealt with a great number of tasks. Many foreign companies who have realized extensive investments in the Czech Republic are among

With over 30 employees and many new machines, today ENSINGER s.r.o. represents best quality and comprehensive know-how. In the current ENSINGER team, Richard Sulko is the Sales Director, Milos Strunc is Production Director and Jaromir Habart is responsible for the areas of Technical Services and Control.

*Richard Sulko,
 Sales Director, ENSINGER, s.r.o.*

The building of ENSINGER, s.r.o. in Dobruška, Czech



Know-how is emphasized at ENSINGER GmbH

TECAST training for sales employees in Cham

On June 13th and 14th, at the ENSINGER branch in Cham, Germany, 16 ENSINGER sales employees met for internal training. Information about the manufacturing processes of machining and injection moulding were on the agenda as well as a special lesson on the engineering plastic TECAST. Furthermore the gathering was an ideal opportunity for colleagues from Cham and Nürtingen to become better acquainted and to exchange experiences with each other.

The TECAST training had been organized by Walter Wagner, head of this product group. He informed his audience about the different raw materials used for TECAST, then he gave a detailed insight into the engineering processes and discussed the various types of materials. Further topics were quality control, subject to availability and last but not least the differences between TECAST 6 (PA 6G) and TECAST 12 (PA 12G). Actually, TECAST 12 was introduced to the market at the end

of last year. This material was developed jointly by EMS-Grivory and ENSINGER and is an extremely light cast polyamide, produced in a two-component-system. The major advantage of this plastic, which can be subjected to high stress is, that its hardness can be varied at will, and that exact dosage is possible. Very consistent characteristics are achieved within a wide process window. This enables greater synchronization with customers' wishes. TECAST 12 is the ideal material for highly stressed mechanical-dynamic parts, e.g. castors, spiral conveyors, sprocket wheels, or components for pipe fittings.

All the new information had to be digested and the participants then relaxed during an informal get-together and an evening dinner. "For us it is very important that our employees are always up to date. Our sales employees need wide technical know-how since it is up to them to convince our customers of the high quality of our products", Walter sums up.

The Angels of Erechim

ENSINGER supports the Brazilian relief organisation CECRIS

Brazil is a country at the stage of economic take-off: On the one hand, it has a high degree of industrialization and a broad range of goods. On the other hand, large parts of the population are wretchedly poor and live at subsistence level. In practically each city the so called Favelas, the poor districts, are present. Erechim is an example of this. Although the city is situated in one of the wealthiest states in the southern part of Brazil (Rio Grande do Sul), about 10,000 people live in poverty.

The relief organisation CECRIS supports these people with projects to help them to help themselves to escape from the poverty trap and lead a new and self-determined life.

The organisation was founded 35 years ago by sister Consolata Graber. "Sister Consolata was an extraordinarily capable and vigorous woman who put her whole energy and her time into this project," said Martha Ensinger remembering her aunt who lived in Brazil for 53 years. Today, CECRIS is led by Rosi and Otto Niederberger, who also enjoy a

good reputation among the population, Martha Ensinger continues.

A foundation was established to carry on the project after the death of Sister Consolata. CECRIS gets financial support mainly from Switzerland, Austria and Germany.

The organisation wants to show the inhabitants of the Favelas that there is an alternative to life in the street. Therefore, beside basic support with food, they attach great value to the education of both children and adults. The offering is large: Coaching is a part of the programme for the children along with music, theatre, folklore and sports. Lectures and projects about topics like health care, environmental protection, and law, together with psychological and medical care are part of the program for adults.

"The Erechim University has given twelve computers to the relief organisation. Now we can even offer computer courses," says Martha Ensinger, who visited Erechim last Whitsun. In order to learn technical skills and to get them off the streets,

young people are shown how to make furniture and toys in the training workshop for joiners and woodworkers. The proceeds go to the foundation.

The City and the population of Erechim support "their" foundation. Some judges no longer punish lesser offences with a prison sentence – the offenders have to support CECRIS with their social work instead.

And then, what nobody would have dared to expect: Even after their obligation is discharged, they commit themselves to CECRIS.



Martha Ensinger at her visit in Erechim



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