

# impulse

Issue 2/2019

Employee and business partner magazine  
ensingerplastics.com



## Room for Innovations

A look back at K 2019

---

### Thermix

Spacer business sold

6

---

### Ensinger Assistance Programme

Advisory service for employees

9

---

### Applicant management

Online portal  
improves processes

10



Dear Reader,

As an old saying goes: “The only constant in life is change”. Currently the truth of this adage is once again being clearly demonstrated to us. Almost daily, there are reports in the media about changes in, for example, the automotive industry. With Brexit on the horizon, many activities are already taking place that are leading to changes, and international trade relationships are constantly being realigned.

Here at Ensinger we are also noticing these changes. For the first time in the history of Ensinger we have decided for strategic reasons to part with one of our business divisions. The sale of the Thermix division has been contractually finalised and is currently under way. It should be emphasised here that the dedication and professionalism shown by the affected colleagues in driving forward the relocation to the buyer’s production premises have deeply impressed us and deserve our utmost respect.

The gloomy economic situation worldwide is causing orders to decline in many areas. For most companies, investment plans are being postponed for the time being, which is the case for us too. We have already had to consider introducing reduced working hours, and will still be looking at this option. But in spite of all this rather worrying news, there are also reasons to look to the future with careful optimism:

At the plastics trade fair held in October in Düsseldorf, for example, the mood among suppliers and customers was better than expected. Although no one can predict the future, nearly all market players do not

foresee a huge downward trend but give a cautiously stable assessment of the situation ahead.

The growing trend towards environmental awareness and sustainability will mean greater pressure to increasingly use solutions made from engineering plastics. This is good news for us, because this is exactly where our core competencies lie. In the same way, increased efforts towards protecting the climate will mean that more thermally insulated windows will be needed in additional regions. Here too, we can and will make our contribution.

At this point I would like to add a personal comment: This editorial is my first in my new role of third Managing Director and I am looking forward to the challenges that lie ahead of us. Here too, you can see that the only constant in life is change.

I would like to wish you – also on behalf of my fellow Managing Directors – a peaceful and relaxing time over the coming Christmas period and New Year.

Yours,

Oliver Frey

# K 2019: Expectations exceeded

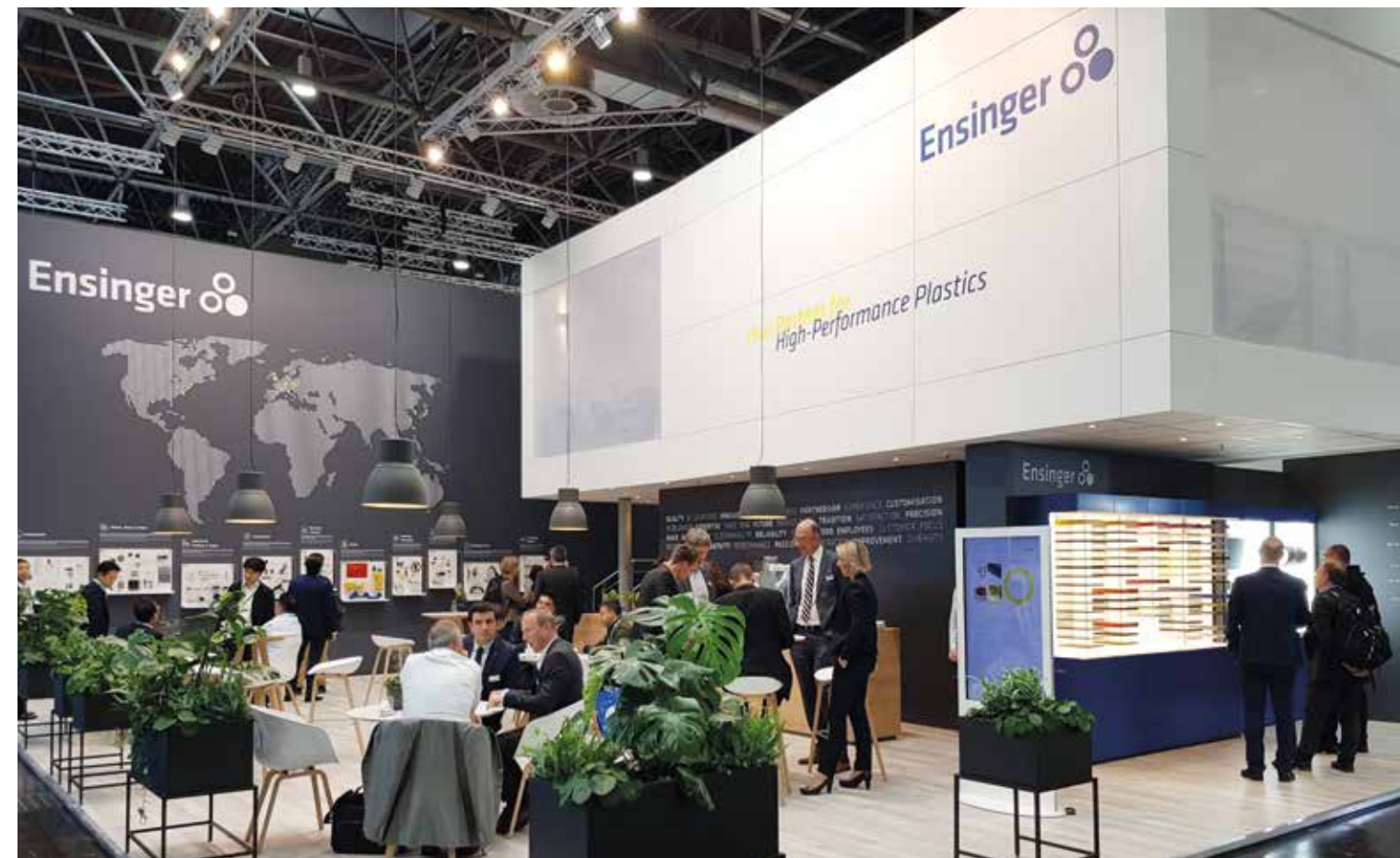
*Ensinger presents its range of services in Düsseldorf – depth and breadth of the portfolio are increasing*

Trade disputes, Brexit and uncertainty in the automotive sector: the backdrop to “K 2019” was cause for tension among the 3,330 exhibitors on the Düsseldorf trade fair site. But in the end the scepticism proved unfounded. The leading international trade fair for the plastics industry attracted a total of 225,000 visitors. This is a figure almost approaching the level of the K trade fair three years ago. Evidently the global demand for innovative machines and plastic products continues to be very

high, despite a weak economy when it comes to individual consumer industries. At Ensinger too, expectations were exceeded; the first few days of the trade fair in particular saw lively public interest at the stand.

In Hall 5, the family business showed its range of process technologies and a wealth of innovations. The showcases newly designed by the Marketing department enabled the visitors to see stock shapes, finished parts, profiles, filaments and com-

posites. Technical applications were also on display. This year the Compounds division, which at previous K fairs had exhibited its products in the Hall used by the raw materials providers, was also represented at the corporate group’s two-storey trade fair stand. Thanks to the value added chain, Ensinger is perceived by customers not just as a supplier, but also a development partner offering all processing options from a single source.



Questions, suggestions, different opinions? Write to us at [impulse@ensingerplastics.com](mailto:impulse@ensingerplastics.com)

**Imprint**

Employee and business partner magazine of Ensinger GmbH

Ensinger GmbH  
Rudolf-Diesel-Str. 8  
71154 Nufringen  
Tel. +49 7032 819 0  
Fax +49 7032 819 100  
[ensingerplastics.com](http://ensingerplastics.com)

Publisher:  
Klaus Ensinger  
Dr. Oliver Frey  
Dr. Roland Reber

Editor:  
Jörg Franke  
Layout / Production:  
Corinna Kohler

Cover photo:  
Christian Schlüter,  
Essen  
Printing:  
Druckerei Maier,  
Rottenburg



All versions are resistant to wear: TECAPAI



Stock shapes continue to have the highest sales, so at K 2019 this division was once again represented by a large team. The portfolio of plates and rods made from engineering and high-performance plastics is being continually expanded.

### Innovations

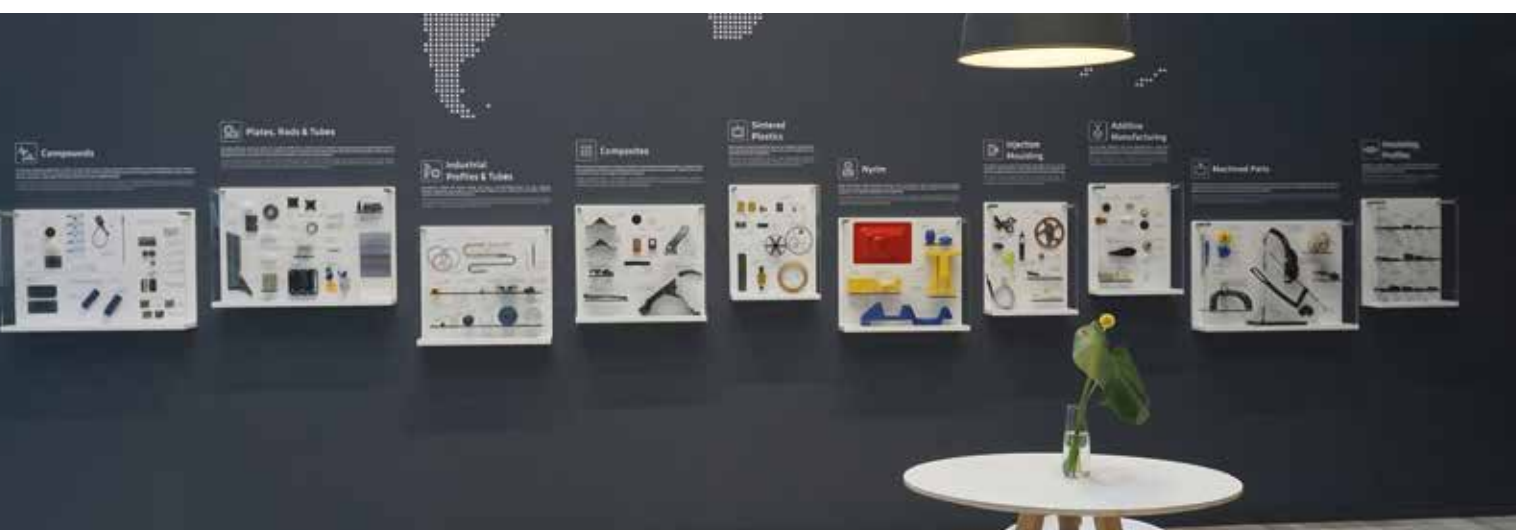
The product innovations include modifications made from the thermoplastic high-performance polymer polyamide-imide (PAI). These thermally stable stock shapes – in some cases filled with glass fibre or carbon fibre and with outstanding

tribological properties – are manufactured by Ensinger using Solvay Torlon® granules or powder, and marketed under the name TECAPAI.

The composite specialists did not only exhibit components in Düsseldorf but also stock shapes for industrial applications. The TECATEC plates made from PPS and PC, with carbon fibre and PEI with glass fibre, round off the range of TECATEC PEEK materials, which are used above all in medical technology.

Enginger had already strengthened its

capabilities at the start of the year in this field through the acquisition of Moll Engineering. On the premises of its affiliated company Wenglon in Poland, the trauma surgery specialist manufactures, for example, target devices, retractors and other medical instruments from hybrid materials. These could be seen for the first time at the Ensinger stand.



Alongside the highlights from the Machined Parts and Injection Moulding divisions, and the product line TECASINT, the growing range of filaments at this year's K trade fair was also met with a high level of interest. The majority of these engineering and high-temperature plastics are used in 3D printing. A further interesting application is filaments for the additive manufacturing of MIDs (LDS materials, see below).



Filaments made of PEEK. The plastic is extremely resistant to chemicals and is suitable for high long-term service temperatures.

### Events

Something with a long tradition at Ensinger's K trade fair appearances is the customer event held on the evening of the second day of the fair. The framework programme and the good atmosphere on board the chartered Rhine ship once again offered the opportunity to intensify contacts with commercial partners and other customers.

### International exchange

This year's trade fair was rounded off with exchanges between technical experts from the Ensinger Group and additional meetings involving the international branches and subsidiaries.

The Düsseldorf old town provided, at the end of each day and at the traditional "Enginger Abend", opportunities for discussions that there is not time for in every-

day office life.

### Here's to another one

The date is already fixed for the next K: in three years' time, from 19 to 26 October 2022, the world of plastics will once again meet at the Düsseldorf trade fair site.



Recognise anyone? Daniel Stieglitz' caricatures were drawn during the customer evening.



High spirits during the Ensinger evening in Düsseldorf's Old Town.



Guaranteed aroma. A professional barista and his creations impressed customers and staff at the Ensinger trade fair stand.

## Material for Laser Direct Structuring

The demand for 3D circuit carriers (Moulded Interconnect Devices, MID) is not only increasing in the electronics industry. In industry automation, the telecommunications and aerospace sectors and medical technology, individually mouldable, conductive micro-components with high thermal dimensional stability are also needed. The technology enables companies to manufacture smaller, lighter and more cost-effective components than would be possible with conventional circuit boards.

For several years, Ensinger has been developing thermoplastic compounds for the LDS technique in close collaboration with LPKF Laser & Electronics. In a series of process steps, conductor path layouts can be generated on three-dimensional plastic components: Polymers with laser-activatable additives are moulded to form plastic carriers, usually by means of injection moulding. The structures of the conductor path layouts are exposed to a laser beam, which activates the additive in these sections. In metallisation baths, the conductor path layouts are applied with sharply defined contours.

### New LDS compounds for additive manufacturing

At the K 2019 fair Ensinger had been showcasing newly developed filaments for the additive manufacturing of MIDs. The filaments, which are based on PEEK with LDS additives, have shown good results in customer projects with an aerial manufacturer: The Hahn-Schickard Institute of Microsystems Engineering has confirmed – in spite of higher roughness depths resulting from the technology used – that the values for the metallisation and the fine pitch performance are comparable with those obtained with standard material.

### Save up to 50 percent of costs

"Using a 3D printer, it is possible to produce functional demonstrators quickly and easily in order to check the functioning of individual components, without having to invest in an injection moulding tool. This way customers can save up to 50 percent in production costs", says Thomas Wallner, Head of Sales & Marketing for Compounds at Ensinger.

### TECACOMP LDS compounds for injection moulding

Enginger has presented another innovative approach for LDS materials: TECACOMP LDS white compounds, based on PEEK or liquid crystal polymer (LCP), enable, with white additives, the production of very light coloured circuit carriers as well as LDS structuring without a copper base. Ensinger is the only plastics processor worldwide offering PEEK for the LDS process that has been approved by the LPKF Laser & Electronics AG. The high-performance polymer stands out for its high thermal stability up to 300 °C. It also has very good weld line strength, good adhesive strength and good chemical resistance. Furthermore, continuous bonding is also possible. Important areas of application for the material TECACOMP PEEK LDS are shielding and security applications. The compound TECACOMP LCP LDS is particularly suitable for components with very low wall thicknesses. The liquid crystalline material LCP stands out for very good dimensional stability and rigidity. Furthermore, the plastic has good chemical and flame-retardant properties. Target industries are electrical engineering and

LED light technology, mechanical engineering and the automotive sector.

Further information: [ensingerplastics.com/en/compounds/laser-structuring](http://ensingerplastics.com/en/compounds/laser-structuring)



MIDster: Sample for a moulded interconnect device.





1994 saw the start of production of Thermix spacers at the production site in Cham. Together with the management of the Italian company Alu Pro, who have acquired the product line, Ensinger has organised an orderly transfer of business to ensure that all customers will continue to be supplied without interruptions. The first machines and facilities have already been dismantled. The last production line is due to be transferred to Milan at the end of March 2020.

# Sale of the Thermix business division

## Part of the workforce to receive offer of continued employment

This summer, Ensinger sold its Thermix insulating glass spacer business to Alu Pro. The Italian company, which is headquartered in Milan, is part of the Fenzi Group, a provider of chemicals, spacers and other products for the glass-processing industry. In addition to the production site in Cham, where the Thermix product line was manufactured, the sales office in Ravensburg is also affected by the sale. Most recently, the division's workforce in Cham consisted of 49 employees. The team in Ravensburg consisted of a total of ten internal and field sales staff members.

## Reconciliation of interests and redundancy package

Following negotiations between the Executive Board and the Works Council, a programme for reconciling the interests of the different parties and for redundancy payments has been finalised for both sites. The office in Ravensburg will discontinue its sales activities at the

end of the year because the team was exclusively responsible for the Thermix product line. In Cham, the jobs ranged from development tasks to production activities that form the focus at Thermix. In order to ensure a fair social criteria-based selection, a cross-divisional programme for reconciling interests has been agreed between the respective parties. This means that employees from other divisions are taken into account if they perform roles comparable to those at Thermix that have now gone. In the joint efforts to find a good solution for as many employees from Cham and Ravensburg as possible, the Executive Board, the Human Resources department and the Works Council agreed to offer the staff threatened with job losses 26 positions that are free or becoming free through staff turnover at the Cham site. In addition, by the start of December a number of employees had accepted termination agreements. In total there will be a maximum of 24 redundancies for both sites combined.

# Trainees Present Training Board

## Making Occupational Safety and Energy Conservation Tangible

It's a situation we've all experienced: the annual safety training is due, but most of the audience has already seen the presentation several times. The compulsory training usually takes place in this way without any active involvement from employees. However, Raphael Kappler and Markus Schroth from the QM-HSE (Health, Safety and Environmental Management) department thought that things could be different. They had seen a training board at a customer's facility with which training on the issues of occupational safety and energy management were vividly presented. Two trainees, Arbnor Halimi and Jannik Mau, took on the task of making that idea a reality.

At the start of the project, the two future process mechanics compared requirements with occupational safety statistics. In addition to frequently occurring accident types and preventative measures, the training sessions now also cover fire safety and conserving resources. It became clear that the board should be used not only to demonstrate personal protective equip-



Trainees Jannik Mau (left) and Arbnor Halimi (right) developed a training board to increase the attractiveness of annual safety training.

ment, but also fire extinguishers and how to use electricity and compressed air economically. Arbnor Halimi and Jannik Mau quickly created an initial draft of the board. They then determined the required materials and calculated the costs. The technical specialist departments assisted the two

trainees with constructing and implementing the board. Arbnor Halimi and Jannik Mau presented their training board this autumn. It can be used on site on for training sessions with immediate effect. The construction of another version is in the planning stages.

# Tool Construction Repeats Previous Year's Success

Ensinger has once again won a prize among the best three participants in the "Tool shop of the Year" competition. Although the score achieved was not enough to win the "In-house toolmaker with under 50 Employees" category, by taking part in

the final, the team from Cham was able to repeat its success from the previous year. For sixteen years now, the machine tool laboratory (WZL) of the RWTH Aachen and the Fraunhofer Institute for Production Technology (IPT) have been comparing the

best tool and mould making companies. 303 companies took part in this year's competition. In addition to the technological performance of the tool construction, the jury members assessed organisational aspects along the order processing process.



# A warm welcome ...

## Employees who have joined Ensinger GmbH:

### Nufringen

#### Industrial Profiles & Tubes

Dilara Yüce

#### Shapes

Anna-Lena Kübler  
Roberto Tabarasi

#### Apprenticeship:

#### Specialist for Warehouse Logistics

Gianmaria Cardamone

#### IT Specialist

Daniel Schnürer

#### Industrial Management Assistant

Teresa Frank

#### Mechatronics Technician

Maurice Edelmaier

#### Process Mechanics

Mohammad Ramo

Jael Scheef

Marc Schiebel

Philipp Wizemann

Nikolas Woisetschläger

#### Tooling Mechanics

Davide Arena

Jeron Kuner

Pascal Nüßle

#### Bachelor programme:

#### Mechanical Engineering

Johannes Schmollinger

#### Business Informatics

Carina Sökler

#### Industrial Engineering and Management

Axel Philippin

### Ergenzingen

#### Injection Moulding

Roman Bach

Janine Baumann

Adrian Kolsen

Tobias Lang

Giuseppe Sabatino

Heiko Saile

Jo-Ann Schwenk

Nermin Uyar

Karin Werder

### Cham

#### Apprenticeship:

#### Office Management Assistant

Vera Aschenbrenner

#### Machining Mechanics

Tobias Adam

Daniel Hirmer

Marie Weindl

Felix Weingärtner

Jenny Wittmann



# myEAP – So That Everyday Worries Don't Gain the Upper Hand

## Ensinger Assistance Programme Offers Competent Support for Difficult Situations

There are some times in life when things get a bit much: stress at work, difficulties at home or a conflict within the team. Both in our everyday work and in our personal sphere, there can be situations that cause us stress, lead to exhaustion or place a strain on our physical and mental health.

To prevent things going that far, it can help to talk the problem over with someone, whether that's friends, family or colleagues. Sometimes it's more useful to discuss the situation with a neutral and

independent expert. That's why, since July this year, all employees of Ensinger GmbH can receive support for professional and private matters by an external advisory service myEAP (Ensinger Assistance Programme). Our partner here is the company Insite, an experienced provider in the field of occupational health management. The professional team consists of experts in the fields of medicine, psychology, education, social work, family and law.

Depending on the issue, Ensinger em-

ployees can choose between a telephone consultation, a personal discussion or online advice.

myEAP is free of charge for those seeking assistance. The services include first-degree relatives as well as persons sharing the household.

All advice is provided 100% confidentially. Nobody will find out if you use this service: neither your employer, your partner nor your friends. All advisors are bound to maintain confidentiality.

### More Information

#### Find Balance

The "myEAP" brochure, which was posted to all employees of Ensinger GmbH, contains the most important information and contact details. If you have not received this information, please contact your HR Business Partner.

You can access the advisory service directly on the cost-free service number- you won't be put on hold and can speak with your personal contact.

Even in the event of crises and emergencies – such as an accident or a serious illness – the service is available to you 24 hours a day, 365 days a year.

Details on the range of subjects, the advice process and FAQ are available online at [meinEAP.de](http://meinEAP.de)



## Diplomas and Awards in Cham and Nufringen



Katharina Neubig (3rd from left), Lukas Peinelt (4th from right), Josef Deml (3rd from right) and Sebastian Schröpfer (2nd from right) have successfully completed their Process Mechanic training in Cham. Katharina Neubig was awarded the Bavarian State Prize for her achievements and she also received the Wilfried Ensinger Award alongside Josef Deml. The image shows the young professionals together with Werner Bachl (left, Chairman of the Works Council), Andreas Alsfasser (2nd from left, Head of Technical Management), Jessica Braun (4th from left, Junior HR Business Partner) and Heiner Hackl (right, Industrial Trainer).



In Nufringen, Manuel Binder (3rd from left, Tool Mechanic) and Maurice Speidel (3rd from right, Process Mechanic) were awarded the Wilfried Ensinger Award for their training activities. They were congratulated by Sven Birk (left, Technical Trainer), Miriam Fiedler (2nd from left, Head of Personnel Development and Training) and Wilfried Ensinger (2nd from right) and Edith Holzberger (right, Wilfried and Martha Ensinger Foundation).



# Say Goodbye to Mountains of Portfolios

## Applicant Management Accelerates the Recruitment Process

Those wishing to apply to Ensinger can now use a convenient online portal. The digital applicant management system, which was introduced this year, also offers a number of improvements for the HR Service Center and the specialist departments: responsibilities and communication channels are clearly defined, manual tasks are eliminated and personnel decisions can be made more quickly.

Up to now, most applications were received by the HR department by e-mail or post and had to be viewed manually. Entering data alone involved a huge amount of effort, especially with traditional application portfolios involving a letter, CV, references and certificates.

During strategy workshops, in which the HR teams analysed the personnel recruitment process, it became clear early on that a modern applicant management system offered lots of potential for optimising administrative processes. Maria Baur, HR Business Partner at the Cham location, was in charge of managing the project. “Our

aim was to reduce the amount of manual work, by implementing an IT-supported applicant management system, and to avoid errors by means of largely standardised processes,” Maria Baur explains. “With the new system we can present a uniform and professional image from all locations to our applicants, and it helps us comply with statutory requirements such as deletion periods and other data protection requirements.”

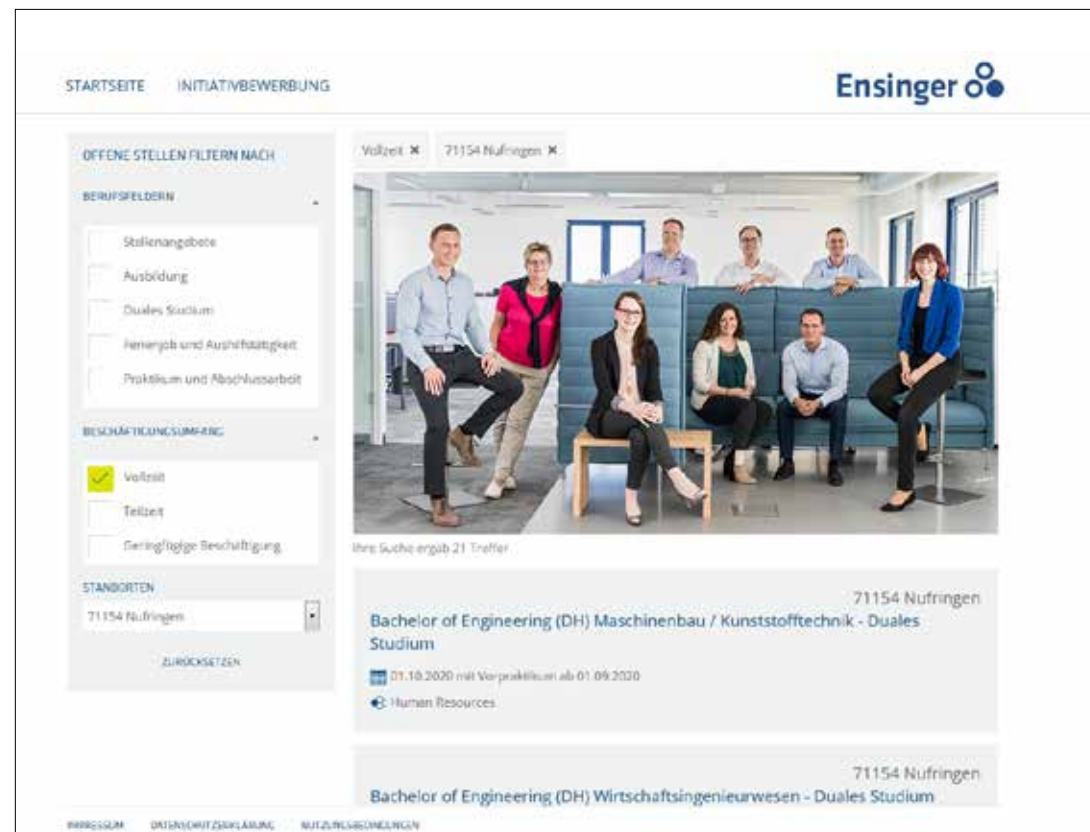
### Workflow between HR and specialist department

Applicants access the new online portal via the Career page on the homepage ([ensingerplastics.com/de-de/karriere](http://ensingerplastics.com/de-de/karriere)). They enter their own data, attach their CV, letter and references, and make sure everything is OK before submitting their documents. As soon as we receive the candidate’s data, an HR Business Partner forwards the profile directly to the relevant specialist department. “This means that everyone can obtain a comprehensive image of the candidate. Everyone involved in the process can enter their comments directly

on the interface. This helps us reach a decision more quickly so there are no delays in responding to applicants,” says Maria Baur. “Anyone who is rejected can join our pool of applicants. We save their data for six months. If a position becomes free, suitable candidates from the pool are back in the running.”

### 85 percent via portal

The digital applicant management system has proven its worth after just a few months. In Nufringen/Cham, over 85 percent of applicants applied via the new online portal.



# More space from 2020 onwards

## New warehouse and logistics building in Washington soon ready to occupy

Construction of the subsidiary Ensinger Inc.’s new warehouse in Washington, Pennsylvania, is nearing completion. The plan is for the inventory to be transferred right after the first of the new year. The new building, measuring 65,000 square feet, will hold finished goods inventory and cutting services as well as shipping. It will alleviate space constraints in the production hall, allowing for additional extrusion capacity and making production safer and more efficient.

Washington is the place where the first American branch was founded with a handful of employees back in 1986. Nowadays Ensinger has five production locations in North America with a total of 370 employees.



Ensinger's new building in Washington, PA

# Before the damage gets worse

## Technical Services are all about Preventive Maintenance



Dismantling the hoisting drum on the storage and retrieval machine

The dimensions of the high bay warehouse at the Nufringen site are impressive: 50 metres long, 24 metres wide, 24 metres high. Semi-finished plastics reaching to the ceiling, several hundred fully automated storage and retrieval operations per shift. But years of continuous operation take their toll, even on robust technology. And one day in August this happened. During a testing cycle, technicians detected unusual noises on a storage and retrieval machine. The equipment could have

possibly functioned for another few days, maybe even weeks, though, if technology suddenly stops working this endangers the delivery performance of the Stock Shapes division. “Since the affected area is difficult to access, and since we had to anticipate complications in view of our lack of experience, we ran through several repair scenarios and scheduled the repair for the weekend,” recall system specialists Markus Schröder and Lutz Paarsch from Technical Services. Consequently, the preliminary work began early on Friday morning and it was hours before the extremely heavy hoisting drum was dismantled with the aid of lifting devices. Here it turned out, contrary to expectation, that there was no damage to the drum shaft and the actual fault was to be found on the electric motor. “Thanks to the well-structured storage system and advance planning we had all the required spare parts in stock”, summarises Werner Buschek, Head of Technical Services in Nufringen, who is proud that his

team can usually deal with such maintenance and repair work without external specialists. “Particularly in situations where the supplier cannot help us, it is beneficial to have our own well-trained fitters, electricians and other specialists at the sites to be able to react at short notice to malfunctions.” Thus, the repair of the storage and retrieval machine went better than they had hoped for. By midday on Saturday, the Logistics staff were able to start up the system again, two days before expiry of the critical deadline.



View of the stock shapes warehouse. The new drive motor hangs from a wall crane.

# In the frame for success: insulating bars ensure energy-efficient metal windows, doors and façades

Aluminium is a popular frame material for windows, doors and façades. It is weatherproof, light and stable at the same time. However, due to its high thermal conductivity, the metal frame composite must be thermally separated - with insulating profiles made of glass-fibre-reinforced plastic as insulbar from Ensinger.

From the outside, efficient thermal insulation of aluminium windows is barely visible. Nevertheless it is a key factor when it comes to having a comfortable and energy-saving living environment. In order to reduce the thermal transmission coefficient of the metal frame (Uf value), the external aluminium shell is thermally separated from the internal one. To do this, insulating bars made from engineering plastics (for example insulbar from Ensinger) are incorporated between the metal profiles, and direct heat dissipation via the aluminium is interrupted. Through this separation, an insulation zone is generated in the interior of the frame assembly. The design engineer has a variety of options available, when creating this zone, for optimising the thermal insulation and bringing about a desired Uf value using construction measures. At the heart of these are the different types of heat transfer.

design engineer has a variety of options available, when creating this zone, for optimising the thermal insulation and bringing about a desired Uf value using construction measures. At the heart of these are the different types of heat transfer.

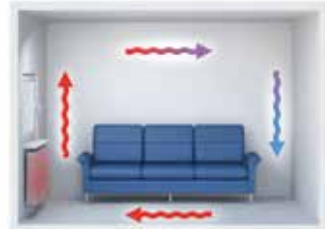
design engineer has a variety of options available, when creating this zone, for optimising the thermal insulation and bringing about a desired Uf value using construction measures. At the heart of these are the different types of heat transfer.

## Types of heat transfer

Heat is energy which, by means of thermal conduction, heat convection and radiation (emission), always flows towards where the temperature is lower.



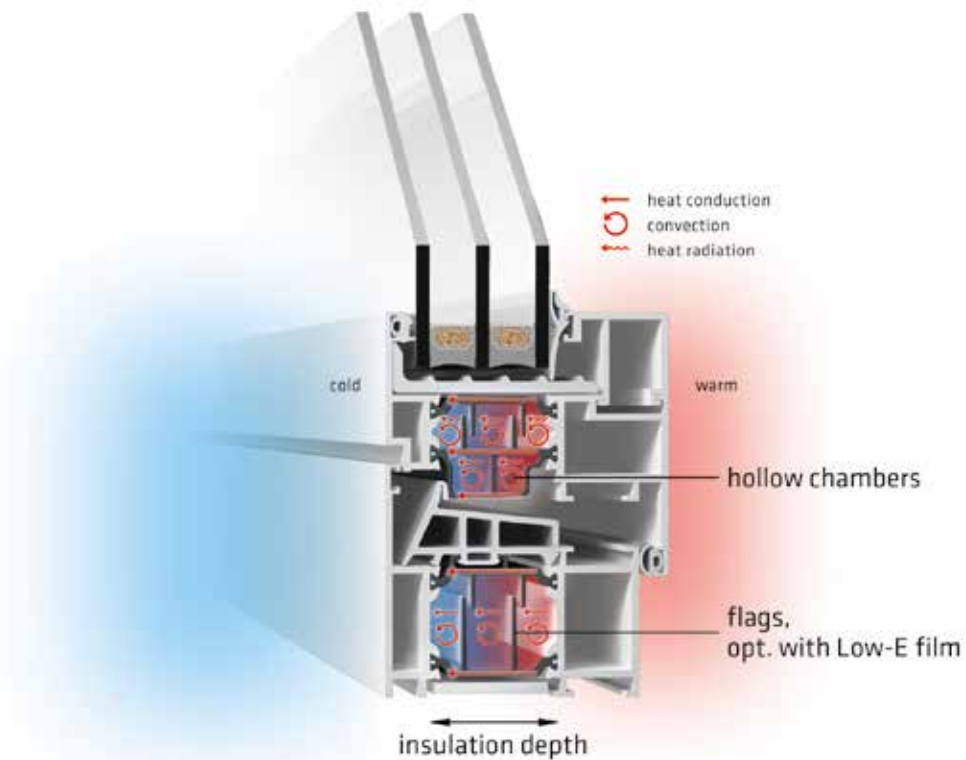
**Thermal conduction** is dependent on the material. The energy, in solids, is passed on through the increased movement of the particles.  
Example: Heating of water on a hob.



With **convection**, heat energy is transported by a moving liquid or gas.  
Example: Air circulation in a heated room.



With **heat radiation**, the energy is transported by means of electromagnetic (usually infra-red) waves. Example: The reflective surface on the inside of Thermos flasks reduces - by means of reflection - the loss of heat via heat radiation.



## Optimising the insulation zone

For efficient insulation tailored to the particular requirements, the combination and fine adjustment of several individual influential variables in the insulation zone is required. Here it is above all the individual types of heat transfer that form the starting point:

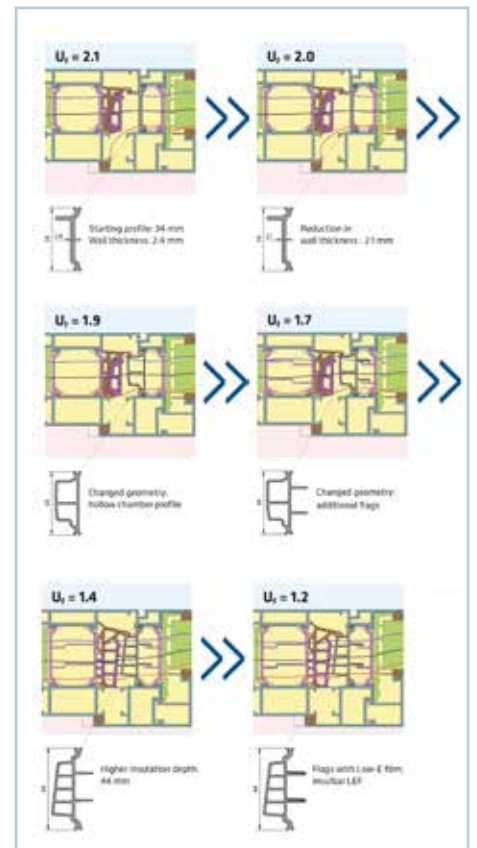
- In order to minimise heat conduction, thermal insulating bars made from material with low conductivity but high strength are used, for example from glass fibre-reinforced polyamide 66.
- The reduction of wall thicknesses and increase in insulation depths of these insulating profiles are further possibilities

for keeping the heat transfer through transmission at a low level.

- A reduction in the size of the hollow chambers within the insulation zone minimises the air circulation. Insulating profiles with hollow chambers or profiles with inwardly directed flags generate such smaller convection cells.
- A very effective method is the use of insulating bars with a flag onto which a thin Low-E film is applied. This aluminium foil ensures a high level of reflection of the radiation and works in a similar way to the Thermos flask principle.

## Summary: A winning combination!

Across the world, non-thermally-separated metal systems are increasingly a thing of the past thanks to ever more stringent government regulations and rising energy costs. In order to thermally separate aluminium frames efficiently, the developer has several possibilities but must combine the individual adjustable elements with one another. If, however, the named influential variables are carefully tailored to each other, then in combination the optimum thermal insulation and the desired Uf value can be achieved. In this way valuable energy savings can be made and simultaneously the living comfort be significantly improved.



Step by step to the desired Uf value: By changing the individual parameters, the thermal transmission coefficient is minimised down to the desired target value.



# insulbar LI: Closed shell, foamed core

Ensinger expands its range of insulating bars for windows, doors and façades with a profile with particularly low thermal conductivity



With insulbar LI (lambda-improved), Ensinger is complementing its portfolio and thereby offering a broad range of insulating bars for the thermal separation of metal windows, doors and façades.

The new insulbar LI (LI = lambda improved) made of polyamide 66 enables even more efficient thermal separation of metal windows, doors and façades. Compared to a conventional insulating bar made of solid PA 66, insulbar LI is less thermally conductive. As a result, less thermal energy escapes via the metal frame and the window's so-called heat transfer coefficient (U-value) is improved.

Ensinger achieves the reduced thermal conduction capacity of insulbar LI by means of a special production process in which glass fibre reinforced polyamide is foamed. Thanks to the integral pore distribution across the cross section, insulbar LI ends up with a porous structure and a lower density than solid PA 66 GF. The outer profile skin is closed and there are therefore no differences regarding visual appearance, quality or workmanship.

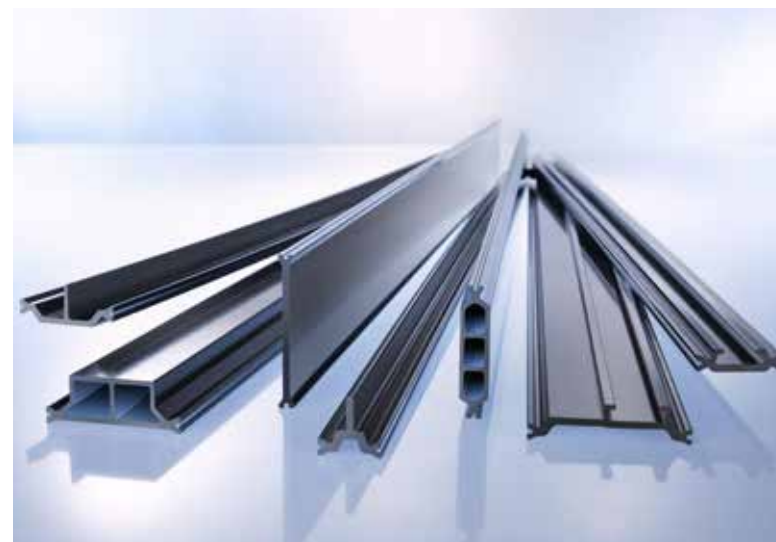
### The right profile for every requirement

insulbar LI is complementing our profile range of high-quality insulating bars. Whether from solid or foamed PA 66 GF, with or without Low-E film, or bars made from recycled polyamide, we have the insulating profile to suit all tasks in the field of thermal break of aluminium profiles. Flame retardant, shear-free, highly rigid, electrostatically optimised and self-lubricating profiles for special requirements in application and processing round off the range.

More information:  
[insulbar-li.com](http://insulbar-li.com)



Smooth shell, foamed core: The fine-pored structure in the core of the profile of insulbar LI reduces the thermal conduction capacity. The compact, smooth structure of the surface ensures a perfect visual appearance and reliability in the coating process.



## Young Stars Twinkling in the Chamber Music Sky

Wilfried and Martha Ensinger Foundation Supports the Aris Quartet

Ten years ago, Hubert Buchberger, Professor of Chamber Music, put together four talented adolescents to form a string quartet: Anna Katharina Wildermuth, Noémi Zipperling (both on violin), Caspar Vinzens (on the viola) and Lukas Sieber (on the violoncello). The last letters of their first names gave the ensemble its name: "Aris Quartet". What started out as an experiment at the Frankfurt Music Academy turned out to be a stroke of luck. Having won several awards in prestigious competitions, the mu-

sicians quickly gained international attention. Crowned the BBC's "New Generation Artists" and "Rising Stars" of the European Concert Hall Organisation, the Aris Quartet has recently won two more awards for young musicians. As the artists themselves say, they are seeking to make chamber music their profession and to establish themselves at the forefront of the world's stage. The Wilfried and Martha Ensinger Foundation has been supporting the Aris Quartet with projects since spring this year.



The Aris Quartet with sponsors after a concert in Stuttgart's Liederhalle (from left to right): Theresa Wetzel (Foundation Council), Lukas Sieber (cello), Anna Katharina Wildermuth and Noémi Zipperling (both violin), Edith Holzberger (Foundation Council), Wilfried Ensinger (founding member) and Caspar Vinzens (viola).

### Various cultural offerings

The foundation already supports versatile cultural offerings in Germany, including youth work carried out by orchestras and music schools as well as the International Hugo Wolf Academy for Singing, Literature, Song e.V. in Stuttgart.

More information:  
[ensinger-stiftung.de](http://ensinger-stiftung.de)  
[arisquartet.de](http://arisquartet.de)

## WAK Prizes 2019

Award-Winning Work in the Field of Plastics Technology



Award ceremony at the K 2019 fair in Düsseldorf (from left to right): Klaus Ensinger (Ensinger Foundation), Edgar Hochholzer, Ronak Bahrami and Prof. Alois K. Schlarb (WAK)

Every year, the Scientific Working Group of University Professors in Plastics Technology (WAK) awards prizes to the best scientific work in its research field. With these awards, the WAK intends to document important advances in science and technology in plastics on the one hand, and motivate and support the work of young engineers on the other.

Wilfried Ensinger Awards for Developing and Describing Engineering Plastic for Innovative Applications were awarded to Ronak Bahrami for her dissertation which was completed at the University of Bayreuth and Edgar Hochholzer for his master's thesis, which he completed at the Friedrich Alexander University Erlangen-Nuremberg.





## *Travelling in a vacuum*

At 482 km/h through a tube: this is what allowed the team from the Technical University of Munich (TUM) to win the “SpaceX Hyperloop Pod Competition” for the fourth time in a row. With vehicles they have developed themselves, students from all over the world compete against each other in California every summer. The prototypes are intended to give an idea of the track-based, high speed transport of the future.

Elon Musk devised how this future might look. Running on solar power, vehicle capsules (pods) transport people and goods through a tube system (Hyperloop) maintained at a partial vacuum. The tubes would connect large metropolitan areas and permit virtually the speed of sound. The trip

from Berlin to Hamburg would then take only 16 minutes.

The TUM Hyperloop team are researching the mobility concept with regard to feasibility, sustainability and profitability.

Alongside the competition pod for summer 2019, the students also developed a test track with a diameter of 30 cm. Ensinger is supporting the current project by donating materials: Rings and end caps made from TECAFORM AH natural are used to seal the vacuum tube which consists of high-strength concrete segments.

Further information:  
[tumhyperloop.de](http://tumhyperloop.de)