

# 217 INNOVATIONS

>> Hennecke customer journal for technologies and trends on the PU market



## COVERSTORY

### **The new COLOURLINE with MULTI-CONNECT technology**

Fast and uncomplicated colour change for surface finishing

## PROJECTS

**Successfully in use all over the world**

Hennecke slabstock lines

## ENGINEERING

**Consistently modular**

Hennecke's new IBC station





Dear customers,  
dear readers,

Growth in the polyurethane branch continues unabated. For Hennecke, this coincides perfectly with the equally expansive growth rates in mechanical engineering. In my opinion, however, it is too easy to attribute this positive development simply to the general performance indicators in the relevant markets. Our industry is constantly reinventing itself and pushing boundaries to make the often-referenced "impossible" possible, step by step. In terms of raw materials as well as mechanical engineering. The microeconomic perspective therefore reveals that many players rely not only on global economic data, but also actively drive demand with constant new developments, by adapting their products exactly to market requirements. Hennecke goes a step further in attempting to anticipate future market requirements with new products. An ideal example of this is the new COLOURLINE, a modular machine system that makes it extremely simple to change colours while carrying out surface finishing of injection-moulded parts (see page 4). A highly specialised use that is nonetheless being employed increasingly often for large-scale production applications, where flexibility is a decisive factor. In this subject area, we work closely together with science and research as well as with customers (see page 11). This latest edition of our customer magazine also contains further examples of new mechanical engineering that has been tailored exactly to customer requirements. A new horizontal carriage mould carrier provides optimal insulation values for hot water tanks (see page 14) and our new IBC station is equipped with so many improved details that it completely overshadows comparable systems (see page 20). We also challenge the status quo in classic fields of application, however. In this context especially, I am happy to inform you about two flexible foam specialists from China and Argentina who are "shaking up" the local markets with comprehensively equipped Hennecke slabstock lines and high-quality products (from page 24). As you can see: we set ourselves apart from the competition so that you can also set yourselves apart with your product ideas. With this in mind, I hope you enjoy reading this exciting and informative edition of our customer magazine INNOVATIONS.

Dates

**FAKUMA**

Friedrichshafen  
17.10. - 21.10.2017

**POLYURETHANEX**

Moscow  
27.02. - 01.03.2018

**JEC WORLD 2018**

Paris  
06.03. - 08.03.2018

**NPE 2018**

Orlando  
07.05. - 11.05.2018

**UTECH EUROPE**

Maastricht  
29.05. - 31.05.2018

As at October 2017

Rolf Trippler  
Managing Director Sales

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## The new COLOURLINE with MULTI-CONNECT technology

Fast and uncomplicated colour change for surface finishing of decorative elements and functional elements



Hennecke is a recognized specialist when the task at hand is generating scratch-resistant and high-quality surfaces on injection moulded components using polyurethane or polyurea systems. With the new COURLINE MULTI-CONNECT the machine manufacturer now introduces a machine system that takes surface finishing to a new level. Based on the CLEARMELT technology users can now process even abrasive colour systems with no problems. The intelligent plug-and-play system "MULTI-CONNECT" allows fast and clean colour changing. Thanks to the consistent modular system structure, users also benefit from a production capacity that can be expanded virtually without limit.



# COLOURLINE

## MULTI-CONNECT



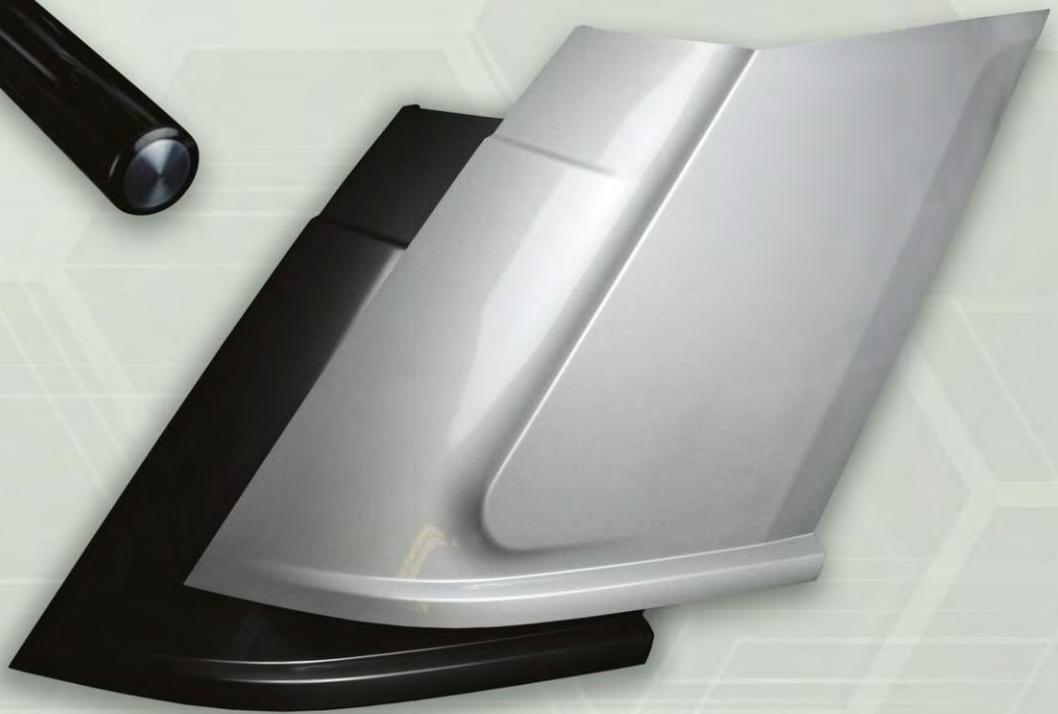
Surface finishing at a new level:  
the COLOURLINE MULTI-CONNECT  
machine system

**A** tried-and-tested field of application for polyurethane and polyurea system is the surface finishing of parts e.g. by coating them with transparent PU systems using the RIM process (Reaction Injection Moulding). Hennecke's CLEARRIM technology offers an innovative concept for efficient production of parts with high-quality and functional surfaces. It focuses on the use of a thin layer of polyurethane or polyurea, through which thermoplastic support elements or support elements with natural surfaces are effectively finished. In this manner users achieve scratch-proof, resistant high-quality surface structures with depth effect for decorative parts in the automotive and furniture industries or for countless other decor elements. Moreover, CLEARRIM can be perfectly combined with other processing techniques. This is very well illustrated by a further development of the process based on the cooperation between Hennecke and Engel AUSTRIA in the field of mechanical engineering: The CLEARMELT® technology. Here, thermoplastic moulded parts are combined with decor films or veneer elements in the injection moulding process. In this regard, the transparent polyurethane or polyurea systems are implemented in the same production cell.

Hennecke worked closely with customers to enhance this process. Now it is also possible to use coloured polyurethane systems to flood injection moulded components. Through use of different colours and effect pigments, such as metallic flakes, in terms of design freedom, now there are virtually no limits imposed on the user.



*Colourful: scratch-proof and high-quality surfaces through polyurethane or polyurea systems*





Hennecke  
Polyurethane Technology



MULTI-CONNECT



PARKING  
DOCK

discharge time  
longer than  
1 minute



*Fast, efficient and  
manageable by one operator:  
colour change in the 15-minute cycle*



While the high-pressure metering system STREAMLINE can only fully bring its strengths to bear in the area of the CLEARRIM or CLEARMELT® technology, COLOURLINE with MULTI-CONNECT technology enables a fast and easy colour change. Naturally, transparent systems can also be used in this regard. Flexible production with multiple coloured polyurethane systems becomes possible through the systematic distribution of the isocyanate and colour processing in different units. The COLOURLINE is installed as a stationary isocyanate unit on the injection moulding machine. The MULTI-CONNECT colour module with its own heater is designed as a compact mobile carriage. The MULTI-CONNECT parking station is used for homogenisation and pre-tempering of the different colour systems. In this regard, the parking station provides up to seven colour modules simultaneously. If needed, the user can undock the module with the desired colour from the parking station, move it to the isocyanate unit and re-dock it there. The isocyanate unit then takes over control of the colour module. Each colour module is equipped with its own type MN 8 MC mixhead on which the isocyanate unit is attached. This ensures that each colour circulates in its own system and colour mingling cannot occur when changing colours. Due to this intelligent plug-and-play principle, a colour change does not require cleaning measures and can be carried out in less than 15 minutes.

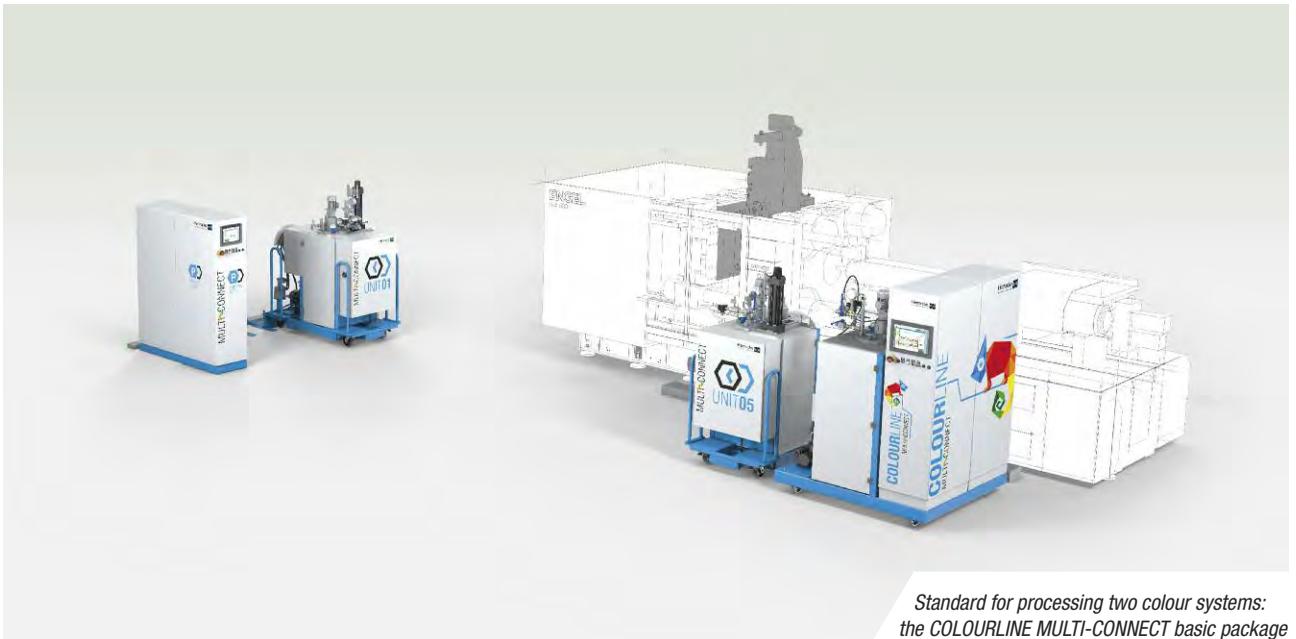
Because colour pigments are highly abrasive, Hennecke has developed the HT30evo piston pump for this special purpose. Each colour module is equipped with its own piston pump that is designed in such a manner that it can produce for an extended period of time under these highly abrasive conditions with high precision and repeat accuracy.

The positioning of the COLOURLINE and the MULTI-CONNECT colour units can be adapted with great flexibility to the user's layout, as the units are connected via a single multi-coupling. Moreover, the modular system structure enables effortless expansion of production capacities. Thus a system with a parking station and seven colour modules can be easily supplemented with additional parking stations. To increase production capacity, the number of COLOURLINE isocyanate units can be increased as desired. This means that several injection moulding machines can be used for large-scale production. In this regard, all MULTI-CONNECT colour units can be combined with all COLOURLINE isocyanate units. Thus production has the greatest possible flexibility. In addition, for large-scale production runs that require a high material throughput, the COLOURLINE MULTI-CONNECT system can be equipped with a ring line. The material continuously circulates via this ring line and ensures supply to all systems.



The COURLINE with MULTI-CONNECT technology is now opening up new horizons for the automotive industry, as well as consumer goods industry. Along with the components' very high-quality appearance and the excellent efficiency of the highly integrated process, the new technology scores with the particularly high scratch-resistance of the surfaces. To enable users to master the new technology, Hennecke, in collaboration with the Kunststoff-Institut Lüdenscheid (K.I.M.W.), offers introductory training for the processing of coloured or transparent systems.

In a two-day course the participants will learn through theory and through practice directly on the machines how to master the process and how to carry out optimizations. This training offer is so far unique on the market.



*Standard for processing two colour systems:  
the COURLINE MULTI-CONNECT basic package*



*For production on a grand scale: addition of further isocyanate units (l.)  
and extension with ring lines for high material throughput (r.)*

## Anything but superficial

Hennecke cooperates with science and research in advanced coating processes



*Commissioning of a STREAMLINE with the two persons responsible for the coating project: Dominik Malecha from the Kunststoff-Institut Lüdenscheid (l.) and Alexander Frank from Hennecke (r.)*

Hennecke further developed its partnership with the Kunststoff-Institut Lüdenscheid. Since May of this year the polyurethane specialist has been a member in the sponsoring association and has made a new high pressure metering machine available for a joint project. One of the project's focal point topics is "Painting in the mould". The STREAMLINE was shown by the process engineering specialists in live operation at the 2nd industry meeting in Lüdenscheid to well over 1,000 visitors.

**F**uture-oriented coating processes have already been the topic of research for 18 years in the project "Surface treatment of plastic moulded parts" by the Plastics Institute for SMEs in NRW (K.I.M.W. or Kunststoff-Institut für die mittelständische Wirtschaft GmbH). Hennecke is participating in what is now the tenth joint project together with 40 other companies and is making a STREAMLINE for the CLEARMELT® process available – equipped with the HT30evo piston-metering device that can meter abrasive colour pigments. The high-pressure metering machine is fully integrated into an Engel injection moulding machine. The new STREAMLINE also represents a comprehensive update of the metering machine technology previously used at K.I.M.W..

*Optimised for the metered addition of abrasive colour pigments:  
STREAMLINE with integrated HT30evo piston-metering device*





With the CLEARIM technology Hennecke offers its customers a process to realise components with high-grade and functional surfaces. It uses a thin polyurethane layer to finish surfaces. The technology is particularly suited to be combined with other processing techniques. One example is an advanced process development resulting from Hennecke's cooperation with ENGEL Austria GmbH: CLEARMELT® technology. The Austrian machine builder has been Hennecke's development partner for many years. The CLEARMELT® method has been established in the market for years and enables the users to manufacture durable, scratch-proof and yet highly-sensitive, self-curing polyurethane coatings in a time-saving and efficient way. The depth effect of the surface as well as the opportunity to integrate decoration parts and switch functions make this method especially interesting for manufacturers of automobile interior components or consumer electronics, for example.

The flooding in the mould with polyurethane systems was worked on extensively in the earlier project "Surface treatment of plastic moulded parts" in Lüdenscheid. K.I.M.W. employees produced numerous test pieces from different thermoplastic/polyurethane combinations. Subsequently extensive trials were carried out on the samples to test the characteristics of these coating systems with regard to adhesion, resistance to scratching, abrasion, cream and media, as well as hydrolysis, durability in changes of climate and UV weathering.

Hennecke customers ask increasingly for the CLEARMELT® applications to be equipped with colour pigments and thereby enable a painting process in the injection mould. Due to the increasing demand for flooded plastic parts, one of the focuses in the institute's current surface project is "painting in the mould". According to the institute, the manufacture and finishing of components in one production step is desirable for many reasons. Integrated coating processes offer, among other advantages, less components logistics and a reduced contamination of surfaces, which in downstream finishing methods often generate a higher amount of rejects. The demoulding of such components represents one of the challenges that the institute is investigating in the current project. The polyurethane paint systems used tend to stick to the mould surfaces. To avoid or to reduce the use of release agents, anti-adhesive mould coatings should be researched in the project and their effectiveness for polyurethane systems should be tested in practical trials. The specialists will initially carry out pretests using a testing device, with which they want to determine the general separation effect. Finally, two to three potential coatings should be

integrated in the experimental mould and be sampled with selected polyurethane systems for validation. The moulding of mould surfaces with polyurethane represents a further focus. Different structural techniques should come into effect, in order to be able to introduce graining, lettering or very fine microstructures into the mould. Among other things, in Lüdenscheid they want to analyse the achievable degree of moulding through visual measuring methods. Other project focuses are "digital printing" and "scratch-protection through coating technology".



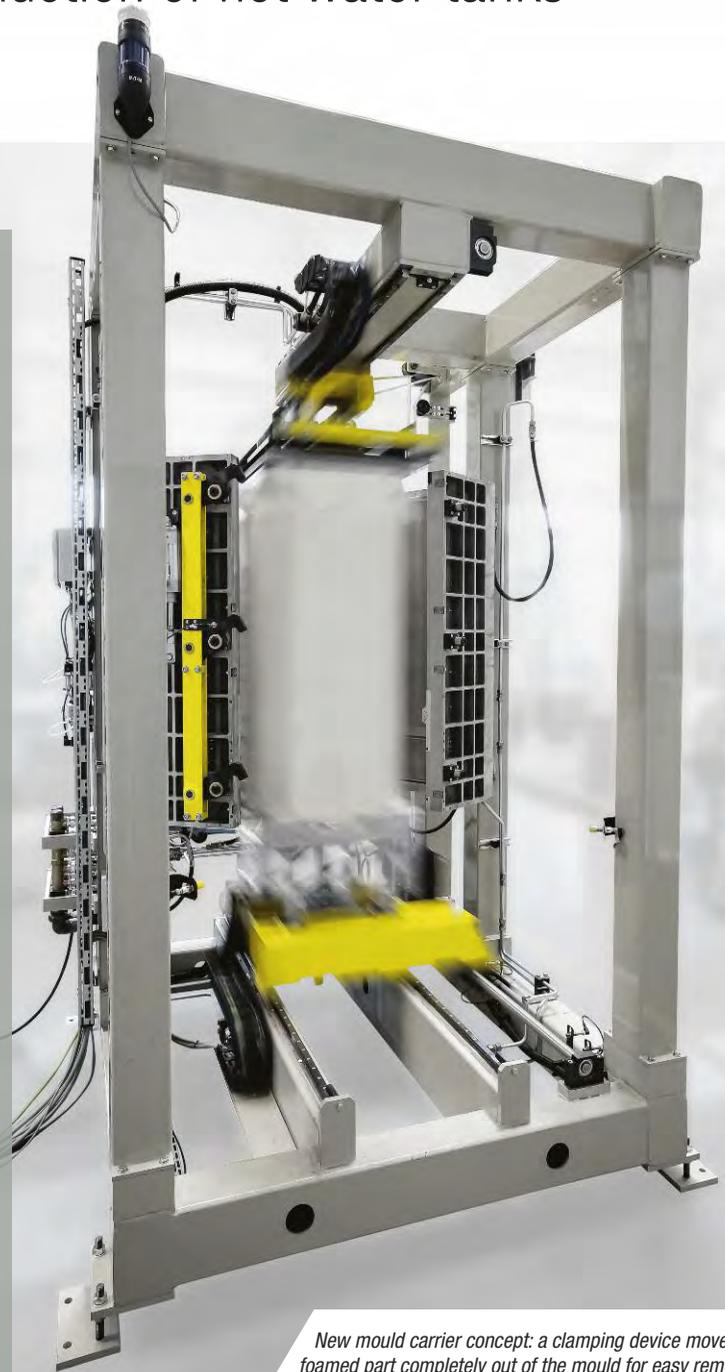
### STREAMLINE with special equipment at the University of Delaware

Hennecke also supports scientists and researchers in the US with know-how and technology. The Center for Composite Materials at the University of Delaware (UD-CCM) is extending its Application & Technology Transfer Laboratory (ATTL), to further the development and manufacturing of light and high-performance composite structures with fast-reacting epoxy, polyurethane or thermoplastic resins. The 2200 m<sup>2</sup> off-campus laboratory is suitable for prototype manufacturing, as well as for small and medium-sized series production. A STREAMLINE Hennecke high-pressure metering system is likewise the focus of the laboratory. With this machine system the PUR specialist offers a custom-tailored processing system for all major matrix systems of fibre-composite components. The mixhead is one special feature of this laboratory machine. It can be used for HP-RTM moulds, as well as for wet compression moulding tools. The machine is first connected on a small press. In a subsequent investment step, the metering machine, fully integrated with a large and modern press, should then offer additional research and development possibilities.

## High-quality insulation for highest energy efficiency

New Hennecke horizontal carriage mould carrier  
for semi-automatic production of hot water tanks

In modern house technology, going without a hot water tank is unthinkable. With state-of-the-art devices, contractors and heating modernisers can provide hot water with great energy efficiency. Thanks to high-quality insulation, hot water tanks impress with very low heat loss. To further reduce this heat loss, Daikin Europe from Oostende in Belgium recently achieved insulation of its hot water tanks with the help of polyurethane and a Hennecke production plant, which was perfectly adapted to the high requirements of the customer.



*New mould carrier concept: a clamping device moves the foamed part completely out of the mould for easy removal*

**T**he energy efficiency of its product range is top priority for Daikin. Even proven processes are therefore the focus of constant optimisation. At K Trade Fair, the heating and climate specialist came to Hennecke with the idea of foaming the insulation of the hot water tank for its new generation Altherma floor-standing heat pump system with polyurethane. The insulation of the previous generation was carried out by assembly of styrofoam half shells. To design the process as efficiently as possible, Hennecke developed an innovative mould carrier concept in collaboration with the customer. It enables a highly efficient foaming process, thus realising perfectly insulated hot water tanks without thermal bridges.

In the new mould carrier plant, the hot water tank is foamed upside down. It is inserted outside of the mould between the upper and lower mould. The plastic upper tank cover is in the lower mould, because this material has lower thermal conductivity which additionally improves the reaction process. The upper mould uses magnetic force to hold the steel floor along with connections and base joints. Then the lower mould moves up electromotively via a spindle drive and clamps the tank between the floor and cover.



*Lower mould with electromotive spindle drive*

Instead of applying a release agent in the mould, a tube made of plastic film is pulled over the tank which separates the mould and polyurethane during the foaming process. The complete omission of release agent not only makes the process safer but also more environmentally friendly. The clamping device then moves the tank horizontally into the open mould. This is likewise realised via an electromotive spindle drive. The mould is closed and then locked via pneumatic cylinder. The arising internal mould pressure is thus diverted uniformly in the closed mould. The fluid reaction mixture then enters the film tube from the top by means of the manually guided type MT22 mixhead. After the foam has finished expanding and has cured, the mould opens and the clamping device drives the hot water tank completely out of the mould for easy removal. The bottom and cover are then firmly connected to the hot water tank by the polyurethane foam, thus ensuring stability along with optimal insulation.



A TOPLINE high-pressure metering machine of size 650/650 assumes the metering task in the plant network. The metering unit is designed for processing the environmentally friendly blowing agent HFO. The plant also has an automatic formulation adjustment for various product sizes. Hennecke's new IBC station is responsible for the optimal conditioning of the raw materials (see page 20). In Daikin's case, the IBC containers are not only used as transport containers, but also as storage containers at the same time. This effectively reduces costs for raw material storage.





*Flexible: production of different products by means of a vertically adjustable lower mould*

Daikin produces this type of hot water tank in sizes of 180 and 230 litres. Because the two variants are different lengths but have the same diameter, the plant can produce both sizes with little changeover work on the mould. To foam around the smaller tank, the lower mould extends higher for clamping. When foaming is finished, operators install the Daikin heat pump module and attach the exterior sheet metal cladding. After that, the unit is ready for packaging. Daikin plans production of about 25,000 devices per year with the new plant technology.



*Safe and reliable: closing and opening through pneumatic cylinder*



## DAIKIN

Daikin Europe is a one hundred per cent subsidiary of Daikin Industries Limited, a multinational company listed on the Japanese stock exchange and globally leading manufacturer and provider of heating, ventilation and air conditioning plants and devices. In the entire Europe group, there are almost 7,000 employees at the company headquarters, 12 production facilities, 17 subsidiaries and 3 sales branches.

## Turned on its head

### Side walls for truck trailers in sandwich construction



Sandwich elements with a polyurethane core are tried and tested components which have countless applications, even outside of the construction industry. These panels are usually fabricated in a discontinuous manner and sealed in a press. However, the South American press specialist Iturrospe, headquartered in Rosario (Argentina), turns this methodology completely on its head. Iturrospe fabricates so-called A-frame presses, in which wall elements for truck trailers are produced upright by means of a "free-rising foam method". Hennecke provides the requisite PU know-how, as well as the wet part, in the form of a TOPLINE HK 1250.

**W**hen it comes to transporting temperature-sensitive products, box semi-trailers are used. The side walls, with dimensions of up to 17 m x 3 m, are produced as a sandwich construction. A polyurethane core, fabricated in different thicknesses to suit the particular application, achieves outstanding insulation values. The outer skin is produced from aluminium and the inside can consist of either aluminium, plastic or composite liner. The thickness of the PU foam inserted in between ranges from 38 mm up to 150 mm. The various box configurations are used for a range of applications, which encompass regular transport tasks through to refrigeration logistics.

While such large, flat parts are conventionally foamed lying horizontally on presses and then compressed, Iturraspe, with its A-frame double press, goes for an unconventional method: foaming with an upright press. The side parts stand upright and slightly inclined on the two legs. A huge advantage is that these presses require less space than conventional ones. This configuration also makes the extremely large

parts more accessible and generally easier to handle. To guarantee optimum production capacity utilization, the curing time is used to prepare the next panel for the foaming process. The upright side wall is filled using the "free-rising foam method". During this process, the foam rises over the entire height of the side wall. During the foaming process, the press is open at the top. And so ultimately, the foam only uses its own weight as counter pressure. With conventional presses, closed moulds are always used in order to achieve a largely uniform density distribution. With A-Frame double presses, this important characteristic is ensured by means of specialised raw material systems.

In the new A-frame double press, the outside of the press can be moved backwards using spindle drives, and opened slightly with hydraulic cylinders. The upper third of this side of the press is divided up into further sections, which can also be opened and closed hydraulically.



This allows the mixhead to be lowered into the press. During production, the operator inserts the pre-prepared inner and outer sides into the press using a crane. The spindle drives move the outside of the press into the exact position for the desired wall thickness. During this process, the side of the press and its upper third section remain open. On the work platform at the top of the press there is a transport system, which drives the Hennecke mixhead using a servomotor, and which can move the submerged mixhead up and down throughout the entire upper third of the mould, in order to inject the reactive mixture into the side wall at up to three kg per second. The rate of travel of the mixhead depends on the required thickness of the sandwich element. Following the mixhead, the individual segments of the upper third of the side of the press close into place. Once the mixhead has reached the end of the section and been removed from the press, the entire outer wall closes. When the press is closed, locking pins are extended at the top of the press, mechanically locking the other side of the press and absorbing the pressure produced in the mould. One production cycle takes 20 to 40 minutes, depending on the design of the trailer wall.

Iturraspe is the only company in the world to fabricate A-frame double presses. Although similar concepts in single-piece construction have been realized in the past, the big drawback of these "self-built" presses was the widespread lack of automation. For example, these designs often still require the mixhead to be guided by hand. Now, customers worldwide can rely on a modern and highly-automated concept from an experienced press manufacturer with first-class metering technology from Hennecke.



*Wet end from Hennecke: TOPLINE HK 1250 high-pressure metering machine with 500 litre work tanks*

The core component of the plant as a whole is the TOPLINE HK 1250 high-pressure metering machine with 500 litre work tanks. These supply the reactive PU mixture, ensuring the optimal mixing of the components and a precise output. Although the press is an extraordinary solution, a standard machine with a standard MXL mixhead is used for metering. Due to the modular structure of the machine, the user is able to flexibly react to production requirements at all times and can adjust the production capacity and production process according to the plug-and-play principle. This is also important, for example, for subsequently expanding to the environment-friendly blowing agent pentane at a later time. During the development of the metering machine, Hennecke also paid particular attention to user-friendliness. With the latest generation of machines, the company has significantly upgraded the standard equipment. As a result, users can cover a wide range of applications without having to make any compromises whatsoever in terms of quality. A genuine all-rounder for all situations - even unconventional ones.



*Unconventional but highly efficient: foaming by means of the "free-rising foam method" using the A-frame double press*

# Consistently modular

## New Hennecke IBC station with innovative detail solutions



The use of Intermediate Bulk Containers (IBC) for the transport and storage of fluid chemicals is increasing across the world. In the processing of polyurethane as well, the 1000 kg drums offer significant advantages. The new, modular IBC station from Hennecke greatly simplifies handling of the containers, ensures utmost process reliability and also offers an attractive price-performance ratio due to standardization and series production.

*Optimal solution for integrating IBCs within the polyurethane production:  
Hennecke's new IBC station*

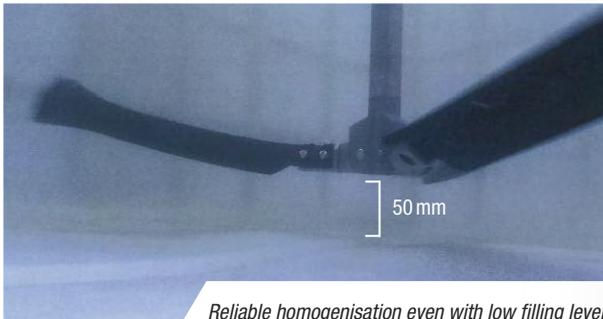
The most important components for producing polyurethane are polyol and polyisocyanate. Auxiliary materials that can be added to the polyol to facilitate processing even during production of the raw materials are above all blowing agents, activators, emulsifiers and foam stabilizers. These auxiliary materials can sediment after a short time and settle at the bottom. In order to achieve a uniform and reproducible production result, it is therefore imperative to thoroughly mix and homogenise the polyol with the auxiliary materials before the raw material is filled into the metering machine tank. The polyisocyanate, on the other hand, can be used without additional conditioning. The chemical raw materials are also hazardous materials with risk potential. Clean and safe handling of the raw materials is necessary not only for the sake of the employees but also for environmental reasons. The quality of the raw materials being processed may not be impaired by the transferring processes because it is essential for the production of high quality polyurethane products.

For PU processors with a high raw material requirement, tank storage facilities are the optimal solution for conditioning the chemicals and filling the PU metering machines. Many manufacturers with small and medium quantities of raw materials, for which a tank storage facility is not practical, cover their raw material replenishment supply with 200 kg barrels. In comparison to an IBC with a 1000 kg capacity, the PU processor must hereby replace empty barrels with full barrels far more frequently. Using IBCs prevents contaminations, disruptions, and sources of errors in the work process by loading or replacing barrels and increases the efficiency of production.

Hennecke has now developed a new IBC station especially for the use of drums, which, in addition to a consistently modular construction, contributes significant unique selling points compared to comparable solutions. The system therefore represents an optimal solution for integrating IBC containers in PU production. The advantages for users start as soon as loading: The flexible construction enables assembly by means of a stacker or lifting carriage. Each raw material component is identified at the station with coloured labeling. The IBC can be easily positioned in a ground-mounted base frame using guide rails and stops. The stirrer is then released after correct positioning and connection of a hose. At the push of a button, the stirrer drives automatically into the container. When it is completely driven in, the container also automatically seals airtight.



To achieve a safer, faster, and more effective bubble-free homogenisation of polyol with additives, Hennecke has equipped the IBC station with the newly developed and patented special stirrer FLOATJET. By means of fluid mechanical simulations, company experts have perfectly optimised the special stirrer to the special requirements. The stirrer is folded up outside of the tank, so that it fits through the container opening. Upon driving into the tank, the stirrer automatically folds out. The large diameter of the stirrer also ensures a high degree of efficiency. Due to its special geometry, the stirrer can also be lowered almost to the bottom of the IBC. This ensures that small residual quantities are homogenised. Stirrer systems on the market up to now agitate significantly further from the bottom, leaving much greater residual amounts that cannot be homogenised.



*Reliable homogenisation even with low filling level*





*Simple selection of different procedures: SIMATIC PLC with full-graphics display*

The control can store different procedures for conditioning the polyol. It can therefore be programmed, for example, that at the beginning of a set time period, the stirrer passes through continuously at a high speed to homogenise the material. During this period, removal of raw materials is blocked. After this time elapses, removal is enabled and the

stirrer enters into preservation mode with a slow speed and interval switching. This guarantees that the material is always filled into the metering machine in the same conditioning. This ensures high process reliability. During removal, there is continuous filling level detection. It is thus possible to automatically control the FLOATJET as well as the pumps and to display a necessary container change. Optionally, the base frame can be expanded by a frame for placing a collecting basin and a drying cartridge for drying the inflowing air. By separating the IBC station into individual modules for the reception of polyol and isocyanate IBCs, the station can be expanded as desired, with the control always taking place via the polyol side. The IBC station can also be easily integrated into existing PU processing plants.



*Upon moving into the tank, the stirrer automatically folds out: FLOATJET special stirrer with a high level of efficiency*

# High tech plant technology for Hubei Shifeng Automotive Interior Co. Ltd

## Grand factory opening with Hennecke plant technology for producing polyester foams



The highest degree of flexibility for competitive production results over an extremely long time frame: Hennecke customers appreciate these properties of the company's continuous slabstock plants. It is not without reason that the PU specialist is the global market leader in this segment, offering a wide range of plant configurations for standard and special foams. Word has long since gotten around in China as well. Since June of this year, Hubei Shifeng Automotive Interior Co. has relied on a continuous production line in special design and "maximum equipment" to produce unrivaled ester foams.

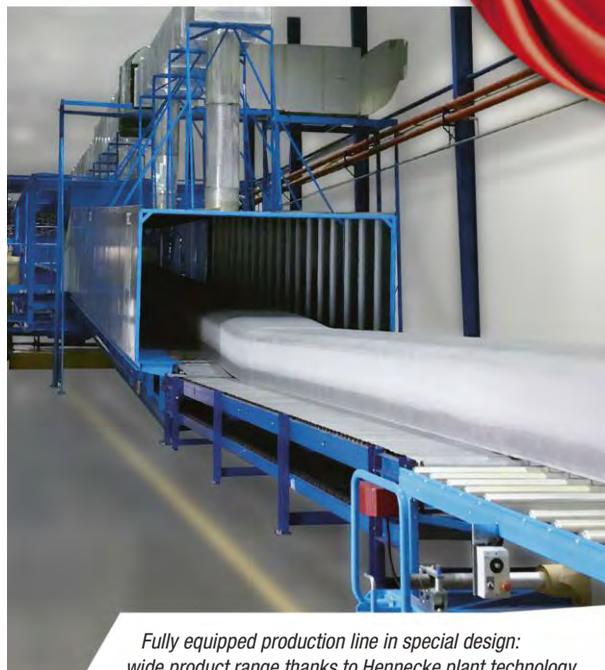


**M**r Cao Kai, the managing director of Hubei Shifeng Automotive Interior Co. Ltd, was certain, in his speech during the opening of a new production facility near the large Chinese city Wuhan, that the production of high-quality ester foams in collaboration with Hennecke would be a great success. Even in the stiffly competitive Chinese market, he should expect nothing less. The company ultimately decided on a fully equipped production line in special design, which was the focus of the grand opening on June 16th. At this time, the plant was already in operation. A 60-metre foam block was therefore able to be presented to interested guests.



*Grand opening of the new production facility in the immediate vicinity of the Chinese metropolis Wuhan*

For the Chinese foamers, the Hennecke plant represents an important device for producing a wide spectrum of end products in excellent quality. Along with the perfected machine technology, however, there are also substantial developments on the part of the raw material suppliers. An extensive range of polyester grades is used in the automotive, packaging, and flame laminating sectors, as well as in various special fields.



*Fully equipped production line in special design: wide product range thanks to Hennecke plant technology*

Each grade requires a different degree of formulation control. This therefore presents a great challenge for the foamers, to specify the optimal machine concept and later successfully implement it in day-to-day production operation. Thanks to the efficient polyester foaming technology from Hennecke, Hubei Shifeng Automotive Interior Co. Ltd can now supply its customers with high-quality polyester foams. The customer seems to be more than satisfied with the result. In the coming months, an additional factory will be opened in China which will also use the plant technology from Hennecke: a MULTIFLEX continuous slabstock plant is already being ordered.



## Largest slabstock plant in South America:

Grand opening of QFM plant  
at Piero S.A.I.C. in Argentina



*Production of high-quality ether and ester foam:  
Hennecke QFM slabstock plant*

In May 2017, the Argentinian group of companies – Grupo Piero, market leader in mattresses and upholstery, officially opened its new factory. The focus of the event was the new QFM slabstock plant. This continuous production line from Hennecke provides comprehensive production options thanks to integrated NOVALEX technology and MULTIFILL equipment and is the largest slabstock plant in operation in South America. The new investment replaces an almost 40-year-old UBT Hennecke plant.



**G**rupo Piero is a specialist in flexible foam applications and is well-known far beyond Argentinian borders for its first-class mattresses and furniture foam. The company has relied on Hennecke's plant technology for almost four decades. The new factory in the South American city of Buenos Aires allows Grupo Piero not only to expand its current production capacity, but also enables the company to expand its existing product portfolio in future. Despite poor weather conditions, over 500 invited guests from the fields of business and politics attended the excellently organised inauguration celebrations.

In awarding the contract, the Argentinian company's aim was to configure the slabstock plant for as many production purposes as possible. The plant primarily produces high-quality ether foam for mattresses and furniture. To this end, Hennecke also equipped the machine with state-of-the-art NOVAFLEX technology and MULTIFILL equipment. However, Grupo Piero anticipates enhanced future growth within the local automotive industry and would like to be in a position to also produce ester foam economically for automobile applications.



*Grand opening in Buenos Aires: (from left to right) General Manager Horacio Alaluf (Piero), Jorge Alonzo (Iturraspe), Claudio Tome (Piero), Dr. Miodrag Konstantinovic (Hennecke), Martin Madera (Piero), General Manager Rolf Tripler (Hennecke), Mariano Iturraspe (Iturraspe)*

The NOVAFLEX technology replaces traditional blowing agents such as methylene chloride with CO<sub>2</sub> and thus allows targeted manipulation of the foam's performance characteristics, or the production of entirely new foam types. NOVAFLEX technology is therefore impressive in both environmental and economical terms. The high production stability and reliability of this process reduces production costs incurred and therefore significantly improves competitiveness. With NOVAFLEX-MULTIFILL technology, manufacturers can reliably incorporate solid materials into CO<sub>2</sub>-blown foams. Here too the focus is on the flexibility and modular design of the NOVAFLEX system and of the QFM technology.

Continuous slabstock lines from Hennecke are the first choice for manufacturers for the efficient processing of all typical commercial raw materials in almost all density ranges. These plants can run production lengths smoothly and their limitation is only dependent on the capacity of the block storage. The combination of various technologies provides an opportunity for PU processors like Grupo Piero to adapt plants to their individual market or environmental requirements.



*Targeted influencing of the foam's performance characteristics or production of entirely new foam types: NOVAFLEX technology with NOVAFLEX creamer*

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