



Connect

03

September
2022



ASSEMBLY OF SURFACE ELEMENTS

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Retrofitting has many advantages



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Martor optimises warehousing and dispatch processes

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Transparent processes and significant time savings



Simpler design: With the iCAD Assembler

An overview of the iCAD Assembler

- 3D design tool for MiniTec components
- Easy to operate without previous CAD knowledge
- Electronic catalogue and configurators included
- Creates true-to-scale construction drawings and material schedules
- Direct interface with all established CAD systems
- Integrated deflection analysis

Download now for free:
<https://www.minitec.de/icadassembler>



Deflection calculator also available as an app

The calculation program shows the user immediately, whether the profile used or the axis installed is suitable for the application. If the deflection is above the allowable limits, a stronger component is chosen from the MiniTec modular system.



DEAR READERS,

Over many years we have become used to unlimited availability of almost all goods and orders that are delivered “overnight”. This has changed dramatically with the effects of the corona pandemic and the war in the Ukraine. Delivery chains are disrupted, some products are no longer available in the medium or even long-term.

The “just-in-time” logistics concept with the transfer of warehouse capacities on trucks that deliver accurate to the hour or even to the minute is now no longer possible. More than ever, it is necessary to ensure the availability of products and delivery reliability.

MiniTec has always attached the greatest importance to reliable delivery. After all, many of our parts or components are decisive for whether production runs or is idle. We have therefore always opted for reliable suppliers and good relationships. For us, this was also an important element of the topic of sustainability. The fluctuation in our partners and employees is correspondingly low.

A well organised warehouse is an important element of high availability and short delivery times. Therefore, in 2016, we optimised our materials management, warehousing and logistics and put into service a state-of-the-art warehouse logistics system. This pays for itself in shorter delivery times, more reliable and more transparent processes and contributed to significant time savings along the logistics chain. We continuously develop this system further and also add new technologies such as automated guided vehicle (AGV) systems.

In the cover story of this issue, we present this warehouse logistics system and the resulting advantages. Existing and potential customers are welcome to visit our company headquarters and see the advantages for themselves, and to request their own individual offer.

Yours

Sandra Geyer-Altenkirch
Managing Director



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TITLE STORY MORE SPEED IN THE WAREHOUSE

Intelligent stockkeeping is the key to optimised stocks, speedy production and satisfied customers. Therefore, in 2016, MiniTec optimised its materials management, warehousing and logistics and started up a state-of-the-art warehouse logistics system.

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PRACTICE

Assembly of surface elements

Safety devices for machinery and equipment are omnipresent in industry. Retrofitting surface elements in guards has many advantages.

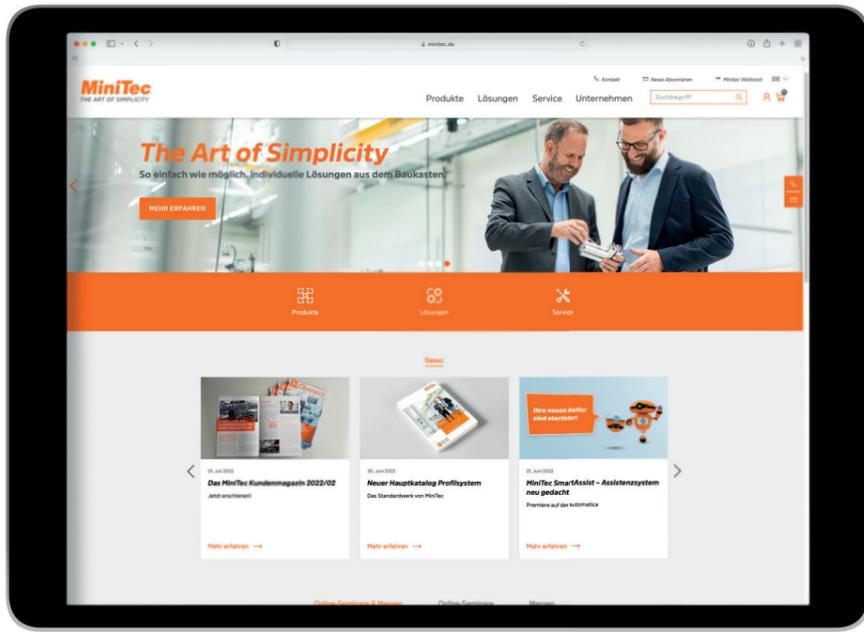


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SOLUTIONS

Competitive lead through automation

Martor KG in Solingen, which specialises in high-quality cutting tools for industry and households, has optimised its warehousing and dispatch processes with support from MiniTec. With astonishing results.



The new MiniTec website went live a year ago. Especially in the digital world, however, it is necessary to optimise things permanently, in line with the CIP approach (continual improvement process). We have therefore recently implemented numerous measures, which further improve use of our online world.

MINITEC WEBSITE WITH NEW FEATURES

Faster results with the new convenient search

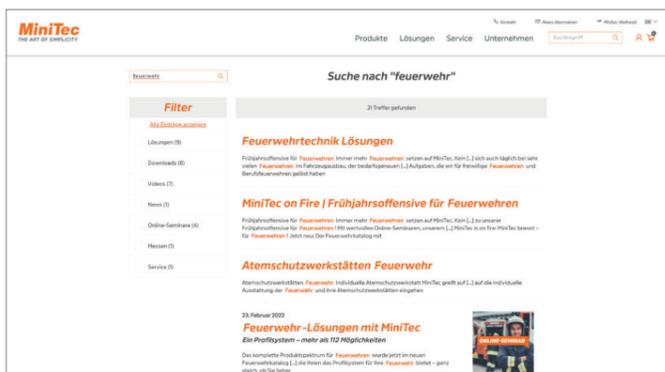
The offers for the different MiniTec products and services on the website are diverse. As a visitor, you can search for products and create enquiries for them, you can watch videos or online seminars on a topic, download information and much more.

We have implemented a new convenient search to guide

you better, so that you get to the required result quicker. Its most important feature is that the hits for a search term are broken down by hit type, i.e. into products, solutions, downloads, videos, news and online seminars.

The categories shown are generated dynamically – depending on whether they contain hits for the search term. Thus, in the example on the left, hit types are also displayed under trade fairs and service.

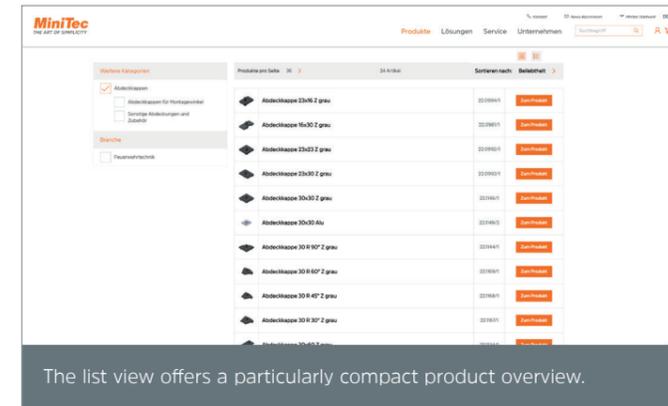
Furthermore, even while you are entering a search term you receive suggestions for its completion (“auto suggest”). If you are searching for the fire service catalogue, say, you can click on the term directly while entering it and therefore get to the hit you want even faster.



The breakdown by hit types facilitates and accelerates the search.

More products at once to select from

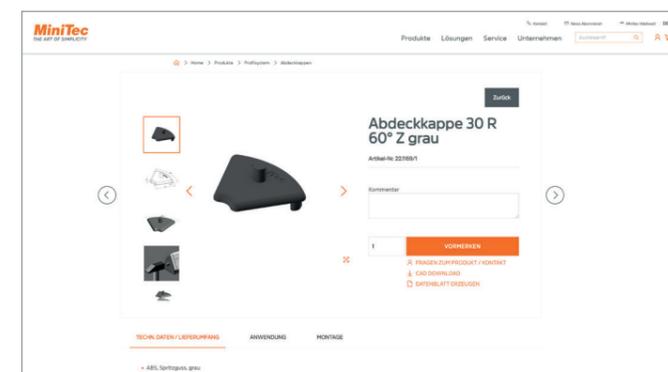
In the product area, the customer can now see more items at one go. The new list view is particularly compact, although the tile view has also been optimised. The customer can choose how many items they want to see at once (12, 24 or 36).



The list view offers a particularly compact product overview.

Improved product navigation

Other valuable features have been implemented in the product area so that you find the required item faster. Thus, with the so-called breadcrumb navigation, you are provided with fast orientation at the start of the page indicating where you are within the product structure and you can therefore easily select a higher level to switch to a different subcategory. If you have selected an item and found that it is not the right one, you can use arrows to conveniently navigate your way through the products and view other items in the same category, without having to jump back to the selection window.



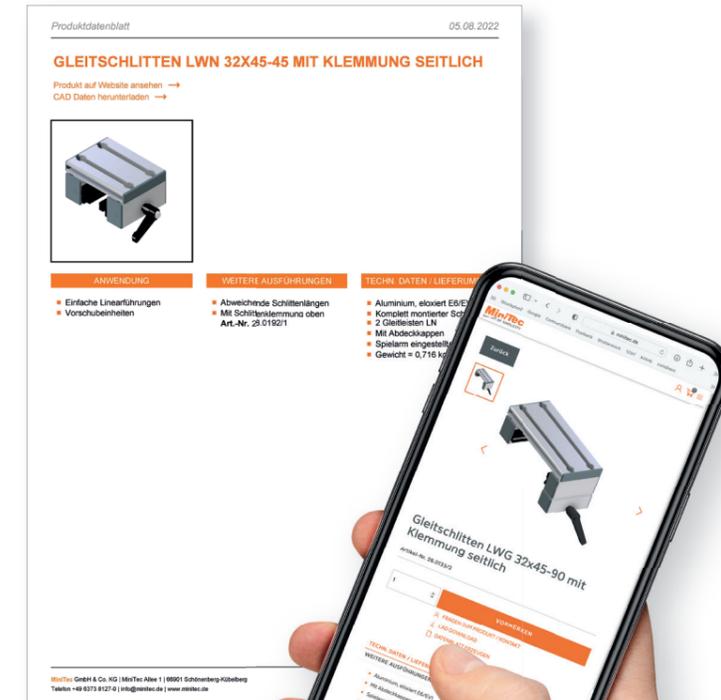
Arrows can be used to conveniently navigate to other products in the same category.

Generate product data sheets

You have selected a product and want to show it and its most important features to a colleague or, for example, discuss it in a meeting? No problem, you can now generate product sheets (as PDFs) for all items, download them, print them out or send them by email!

Further measures in preparation

The continual improvements carry on in line with the CIP approach. Thus, in the near future, there will be 3D previews of products and additional downloads such as operating instructions will be provided for products. Wait and see!



Simply click to generate product sheets for the items.



MORE SPEED IN THE WAREHOUSE

The reorganisation of the warehouse management at MiniTec created urgently needed space: On the same area of 3600m², the storage capacity was trebled.

Intelligent stockkeeping is the key to optimised stocks, speedy production and satisfied customers. Therefore, in 2016, MiniTec optimised its materials management, warehousing and logistics and started up a state-of-the-art warehouse logistics system. This includes fast and space-saving storage lifts, conveyor sections from our own product range and the linking of a warehouse management system to the existing ERP landscape. The solution led to faster delivery to customers, more reliable and more transparent processes as well as significant time savings along the logistics chain.

Logistics is becoming increasingly important: E-commerce is booming and just-in-time concepts are difficult to implement in times of supply bottlenecks. At the same time, customers expect short delivery times, a great deal of flexibility and above all, reliable statements on delivery dates. No wonder that warehouse logistics now play a central role in businesses. Instead of keeping stocks as low as possible so that as little capital as possible is tied up and to reduce costs, storage capacities are being expanded and warehouses and logistics optimised.

Start of a new age

Short delivery times, high availability of products with simultaneously optimised costs were also the drivers for MiniTec to optimise the materials management, warehousing and logistics at its headquarters in 2016, according to the latest aspects.

The static storage system with racking and shelving had reached its limits over time. The floor space of 3,600 square metres had a theoretical capacity of 30,000 storage boxes, however, only around 1/3 of it could be used. The top rows of shelves could only be reached by ladder or lifting gear, which was neither

ergonomic nor efficient. The pick performance of 500 items and 100 orders per day could not be increased with the man-to-goods system and the single order picking. The time for a new warehousing system had long since passed.

From incoming goods through to packaging

MiniTec engineers, who had already acquired extensive experience in this field, undertook the planning and realisation. The new warehouse system was implemented with our partners, EffiMat and Ecovium (formerly LogControl).

The system was put into service in 2017 and consisted of a combination of four storage lifts with a useful height of nine metres as well as static stores, each with its own order-picking stations. All stations in the system were implemented with MiniTec conveyor technology products and automatically connected. The conveyor sections are used to link all logistic subprocesses effectively. Apart from the automated order distribution along the order-picking locations, the goods acceptance and provision of the pick goods as well as the return transport of the empty containers are also mapped by the conveyor technology. Driven roller conveyors for large piece weights, belt conveyors for up and down sections as well as timing belt

conveyors for feeding the pick locations and the pneumatic transfer stations are used, depending on the task. The system is operated with state-of-the-art PLC control technology and simultaneously functions as a link to the warehouse management system (WMS).

Storage lifts provide speed

The four ClassicMat vertical storage lifts from EffiMat form the core elements in the twin lane system and in conjunction with a warehouse management system from Ecovium. The advantages of the racking towers are diverse: Apart from best possible use of storage areas through optimum degrees of fill and utilisation of the complete building height, ergonomic aspects are also a major positive aspect.

The storage lifts with automatic control and direct link to the production and order picking process optimise the in-house material flow according to the “goods-to-person” principle. The MiniTec assortment contains around 12,000 items, of which, around 5,000 items are stored in the lifts. Up to ten orders can be processed at the lifts simultaneously (multi-order picking). In addition to time and space savings, the minimisation of errors during the picking process, improved information and stock control and the automated handling of items are all important benefits.

Picking ten orders simultaneously

Since then, the warehouse logistics has been able to function without paper. The orders come from the ERP system and are “married” with a pick container at the start of the order. The containers with the order information are transported to the right station automatically. There are five pick locations at each station, so that ten orders can be picked simultaneously. The employee receives the goods automatically on trays from the storage lift. The products to be picked and the

INDIVIDUAL SYSTEMS FOR INTRALOGISTICS

quantity are displayed by a pick-to-light system and a laser pointer. The employee merely has to confirm



Four ClassicMat vertical storage lifts from EffiMat form the core elements in the twin lane system and in conjunction with a warehouse management system from Ecovium.

release of the container, the system then automatically navigates its way through the system to the next station or the issue location. 18 barcode scanners register the boxes at each switch point and decide on their transport direction.

Always up to date

The complete system is controlled by the Ecovium warehouse management system. All information converges here and is provided in the ERP or merchandise control system via bidirectional interfaces. In addition, the modules of the Ecovium WMS enable streamlined, paperless warehouse management, from the incoming goods through to the dispatch, in particular for manual stores too.

Thus, for example, with mobile data capture devices (MDC), orders can be picked and packed by paperless means and made available for the assembly and dispatch.

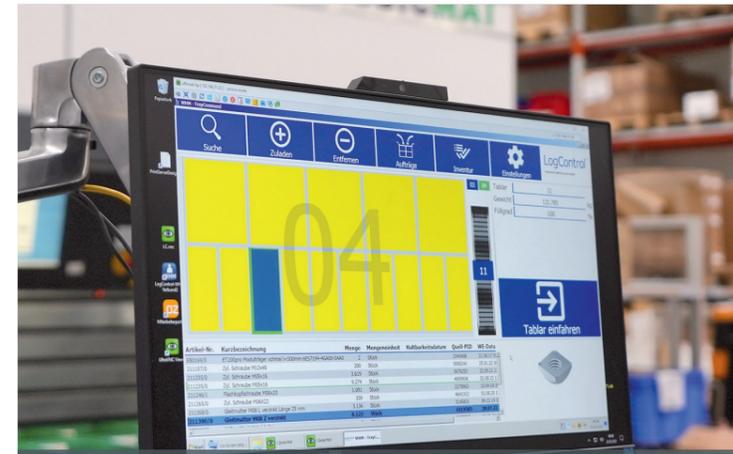
Stock changes are taken into account in the system without a time delay, an up-to-date stock check and replenishment control is therefore possible at all times. Even missing stock items are taken into consideration and when the incoming goods arrive later they are picked directly to the order via a bypass control. The integrated batch management enables random storage of the goods with the advantage of using the storage space optimally. Due to the continuous comparison of target and actual stock, the requirement for permanent stocktaking is met. The annual stocktake is therefore significantly easier.

Highly efficient

With the new storage system, the efficiency of the warehouse has been improved many times over while at the same time, the error rate has reduced radically. The average throughput time for an order has been reduced from four days to one day. An important criterion for the investment was also improving occupational safety, making the work easier and the associated improvement in employee satisfaction.

Precise-fitting solutions

The customers of MiniTec can also benefit from the experiences and further developments acquired with the project – not only from shorter delivery times but also the precisely fitting warehouse logistics solutions that are offered. The MiniTec product range covers the entire area of conveying technology. Depending on the requirement, heavy-duty roller conveyors, double-belt conveyors, belt conveyors or segmented chain conveyors are used. The UMS system, in which the empty pallets are returned in a space-saving way below the conveyor section, is available. The WF 3000 spiral conveyor can bridge heights of up to five meters. Thanks to the conveyor’s innovative reversing technology, it can also be used as workpiece storage for feeding machine tools.



The warehouse management system has more than 1,000 functions which enable streamlined, paperless stock management.



The warehouse logistics system is particularly impressive for the order picking of small parts.



Batches can now be picked faster and more reliably. Orders reach their destination more quickly and completely.



RETROFITTING SURFACE ELEMENTS

In the last issue of Connect we described the installation of surface elements in the profile groove. This method is recommended in certain cases, such as particular ESD requirements or tightness. However, it requires careful planning and a certain degree of assembly experience. It is easier to retrofit surface elements in guards.

MiniTec offers a large selection of different options, which all meet high safety standards, for retrofitting surface elements in guards. All assembly elements for subsequent installation are suitable for all profiles. Design details and variants can be found in the main catalogue 2022 from page 178.

Clamping block

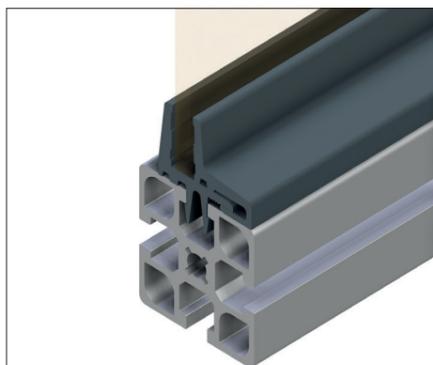
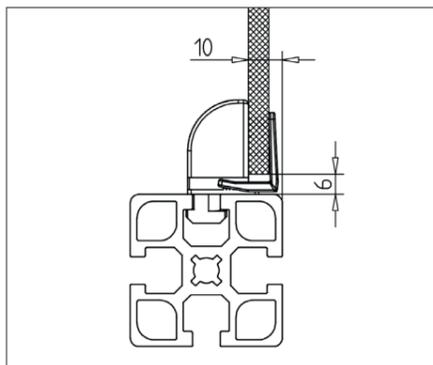
A very simple and cost-effective method for assembling without tools consisting of base and snap-in clip. Firstly, the base (socket) is fixed in the profile groove with a single turn, then the surface element is inserted and is pressed in with the snap-in clip. The clamping block is suitable for surface elements from 2 to 6 mm thick, except for corrugated mesh.

Screw block

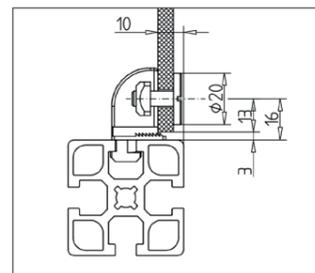
Like the clamping block, the screw block also consists of a base and clip, however, the panel material can be screwed onto the clip. This allows the gap between the profile and the surface material to be reduced to 3 mm and the panes can be easily dismantled by undoing the flat head screws. However, this method is not suitable for corrugated mesh.

Installation socket

The sockets (bases) are simply swung into the profile groove at approx. 300 mm spacings and the panel material is fixed with M6 screws. A tight fit is not achieved until they are screwed together with the surface elements. This variant is particularly suitable for horizontal installation.



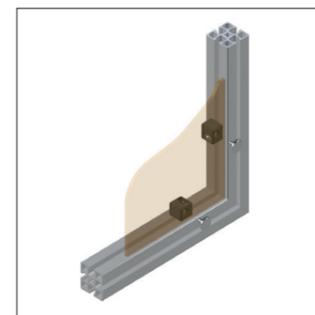
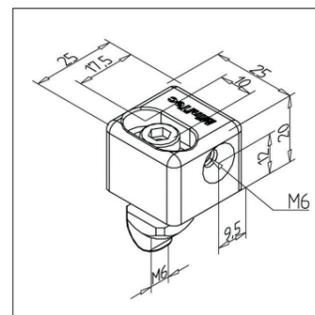
Simply fix: The clamping blocks consist of a base and snap-in clip or a PVC clamp profile.



The screw block is suitable for panel material up to 6 mm thick.

Multiblock

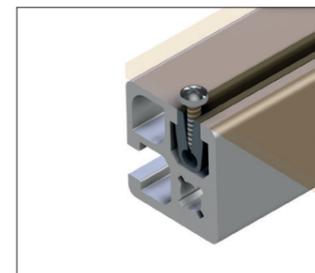
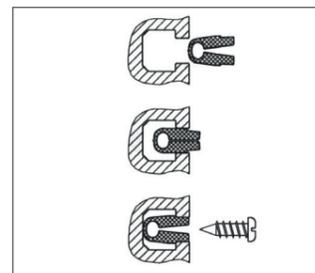
The multiblocks made of die casting are screwed into the clear opening at around 300 mm spacings. Panels made of acrylic, sheet metal or aluminium and from 5 to 15 mm thick can be used. Different distances from the profile edge are achieved by turning the block, elements can then be screwed flush into the construction.



The multiblocks are attached in the clear opening of the frame construction.

PVC screw socket profile

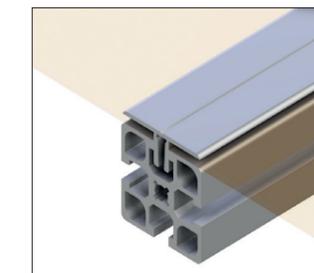
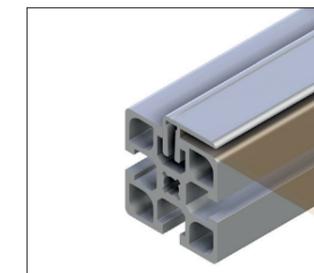
The strip is simply pressed into the profile groove. The surface elements can then be fixed in any place required with self-tapping or particle board screws. This method is also suitable for floorboards or tabletops of any thickness.



Screw socket profile: Fixing of surface elements in any position.

Panel clamp profile, single or double

This can be used to fix panes, shafts or pressed wire mesh from 2 to 10 mm thick onto the outer contour of constructions. The panel clamp profile is pressed into the profile groove and is secured with size M5 setscrews. The edges of the surface elements are protected by the clamp profile. This procedure is particularly suitable for existing frames.



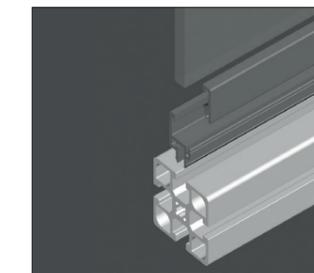
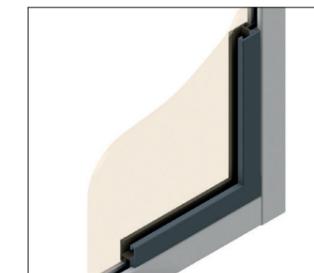
Single or double panel clamp profiles are available.

Clamp profile PVC

With the two-piece clamp profile, panes or corrugated mesh can be retrofitted in existing frames without a gap. Matching end caps are available for solutions that are particularly attractive visually, a mitre cut is not necessary. The clamp profile can be used for materials up to 8 mm thick.

Panel clamping profile

The two-piece panel clamping profile is available for retrofitting panels or glass panes in existing profile frames. Due to its smaller dimension, the panel clamping profile is used for smaller openings. It can be used to install windows or doors without an air gap. It can be used to assemble elements up to 8 mm thick. A mitre cut is not required. However, this product is not suitable for corrugated mesh.



The panel clamping profile enables easy and cost-effective installation of surface elements.



SAFETY KNIVES: COMPETITIVE LEAD THROUGH AUTOMATION

Solingen has an excellent international reputation as the centre of the German cutlery industry. And not only for classic domestic cutlery: Specialists for safety knives for industrial applications and the logistics industry - such as the Martor company - have also developed here. Martor recently optimised its warehouse and dispatch processes with a MiniTec system in order to further expand the company's leading market position still further. A progress report.

Martor is the leading brand for safe cutting solutions. Companies worldwide use safety knives from Martor, to cut open their packages or to process all kinds of other possible cutting materials, particularly in logistics and production. With the result that cuts are avoided as well as damage to the goods.

For over 80 years, the family business in Solingen has been combining quality with innovation to produce premium cutting tools for industrial and professional purposes. Around 140 employees in the headquarters take care of the development, product and B2B sale of the products. In addition to its own locations in the USA and France, Martor is now present with partners and distributors in more than 70 countries worldwide.

More efficient processes between the warehouse and packaging

In 2019, the company building was extended by adding an annex which led to various organisational restructuring. Among other things, the previous production areas were used to increase the finished goods store and dispatch department. Uwe Longerich, head of logistics, remembers: "In this context we wanted to reduce paths and pick times in order to remain marketable and to match the

The items are taken from the flow rack and are placed in an SLC and are then transported by roller conveyor to a transfer station, explained Uwe Longerich.

growth of Martor in our logistics too. We considered different concepts of where and how time can be saved. From this, the basic idea of interlinking the pick goods stores and packing station emerged."

Until then the order picking was completely manual. Each item was picked up individually and placed on an assembly trolley. The employees collected other items until the trolley was full and then pushed it into the dispatch department. The workers there then removed everything back off the trolley, checked the goods again and then packed them in boxes. "We therefore had enormous waiting and idle times between order picking and dispatch", said Longerich. Accordingly, the need was to automate the processes between the warehouse and packaging in order to improve the cycle time and to optimise material flow.

MiniTec with approach based on partnership

In its search for a suitable project partner, Martor contacted different suppliers who deal in warehouse automation. They also included MiniTec, from whom the company already had various systems such as workstations or roller conveyors in house.

Longerich explained: "Our decision in favour of MiniTec was due to its customer-focussed approach. The other providers all proposed very comprehensive concepts, with full automation, etc. At MiniTec, on the

other hand, the focus was on working together in partnership, approaching a practical solution together. The proximity of our MiniTec customer consultant, Steffen Schoft, was also very useful as he was able to pop by quickly when something needed discussing. Communication with all participants was also very good in the implementation phase, with Waldemar Dirlein in the design department say. That also concerned, for example, feedback if the delivery of a part was delayed (due to delivery chain problems during the pandemic). It always went well."

AUTOMATED PROCESSES BETWEEN THE WAREHOUSE AND PACKAGING

At the start of the project, Martor had already worked up a proposal for the rooms and transfer stations and had thought about the conveyor sections (roller conveyor).

MiniTec contributed its own ideas, from which a joint concept emerged for the ultimate system.

New system with well thought out concept

The new system makes the processes significantly more efficient. In particular, it avoids the double handling of previous times. At the beginning, the order picking



The SLC is lifted up to a conveyor section under the ceiling by a lift.

is started with an MDC device. The employee takes the required item from a container from the flow rack and places it in a SLC (small load carrier), which is positioned in front of them on a roller conveyor. They then push the SLC via the conveyor to one of the two transfer stations. The transfer stations are lifts with which the boxes are lifted under the ceiling. From their they reach the dispatch area via automatically driven conveyor sections under the ceiling. A gravity spiral conveyor located there carries the SLCs back to floor level. From here they are automatically transported further via conveyor sections to the packing stations.

An accumulation section was set up after the spiral conveyor, where the goods wait, so that there is no stress at the packing tables. Request buttons are attached to all four workstations. If table 1 and 2 are busy, workstation 3 can still request an SLC via the button.

The employee removes the goods from the box and packs them. The finished, packed box is pushed away to the front via the discharge, which is always located between two opposite tables, and is then transported automatically to the issue stations of DHL, DPD, UPS, etc.

Gravity spiral conveyor as a special feature

One challenge posed by the system resulted from the circumstance that it was to be divided between two rooms separated by a wall. Because the footways were to be deliberately kept clear, it was initially necessary to make an opening to establish the interlinking.

The next problem was how to get the goods in the second room back down from the ceiling. The initial idea was to use a lift there too. However, because the “down and up” by lift would cost an unnecessary amount of time, MiniTec suggested using the gravity driven spiral conveyor mentioned above instead. MiniTec designed this so perfectly that an empty SLC now flows all the way to the bottom solely due to its self-weight, without stopping anywhere. “This is also something that not everyone can achieve”, says a convinced Uwe Longerich.



The SLCs pass through an opening into the room with the packing stations, where they are returned to working height by a gravity spiral conveyor.



Head of marketing, Jens Augustin, emphasised Martor's competitive advantages resulting from the system.

Clear time gain

Due to the new solution, the throughput time from receipt of the order through to dispatch has been reduced considerably; the production manager, Andreas Ide: “This is already very clearly noticeable for the customers and an improvement, because their orders leave us much faster. At the same time, our sales department now has a far better overview of which items of an order have already been picked and which are still in process.” Uwe Longerich added: “Thanks to the new system, we were also able to save personnel in the order picking, not to make them redundant, but to deploy them more usefully elsewhere.”

Optimised logistics as a competitive advantage

According to the marketing manager, Jens Augustin, Martor also has tangible advantages on the market as a result of the changeover: “Our competitors increasingly have to deal with supply problems, also due to interrupted supply chains caused by the pandemic of course. In contrast, we at Martor not only have all products in stock, but thanks to the new system we can now get them to our customers even faster than before. This improves our image and gives us a competitive lead – and does so in difficult times!”

Flexible for the future

Uwe Longerich faces future growth calmly: “The system is designed so that we can expand it with MiniTec at any time. For example, we have moved the packing area further back and have therefore gained even more buffer



With MiniTec, Andreas Ide has found a partner who advances his projects purposefully.

space. Our packing tables were also designed and built by MiniTec, with drawers for printers, with computer arm fixings.

“MINITEC HAS A CUSTOMER-FOCUSED APPROACH”

And there, for example, the shelf height can be changed at any time, or another device, a printer holder or a scanner bracket can be attached. Here too, we very much benefit from the flexibility of the MiniTec system.”

Assistance system and workstations as new projects

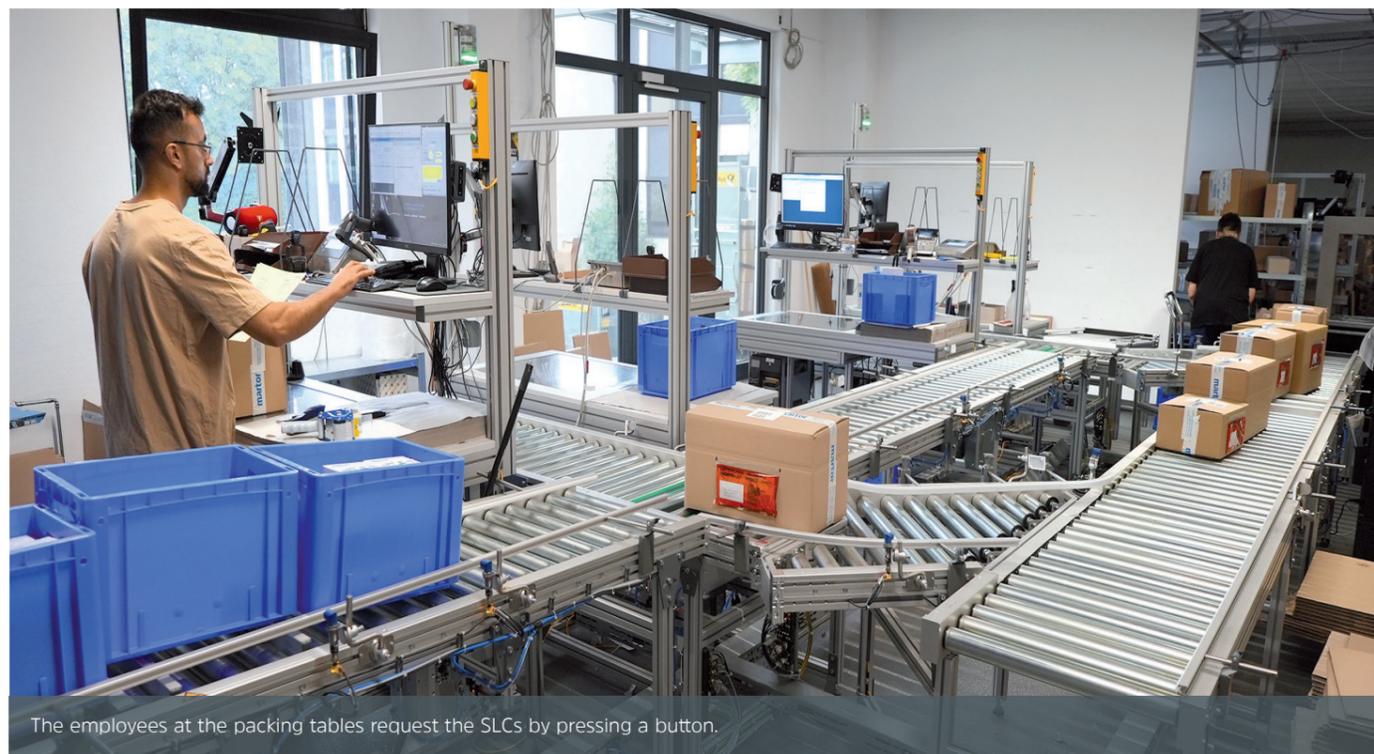
Due to the very positive experiences with the system, Martor will be expanding its collaboration with MiniTec to other topics. An initial new project – in a completely different area – has already been initiated, said Andreas Ide: “Because we were very satisfied with the system, from the planning to the implementation through to the acceptance and working with MiniTec was in general absolutely positive, we have decided to make ourselves available as beta testers for MiniTec SmartAssist. The assistance system will be used in the knife assembly. We hope that the system will support employees in the

introductory training phase. If it works with our test product, we will extend it to other items.”

In addition, the assembly tables in the production will soon be replaced by MiniTec tables, said Uwe Longerich: “Together with MiniTec, we have developed a standard table for our production that covers our requirements optimally and is flexible for expansions.”

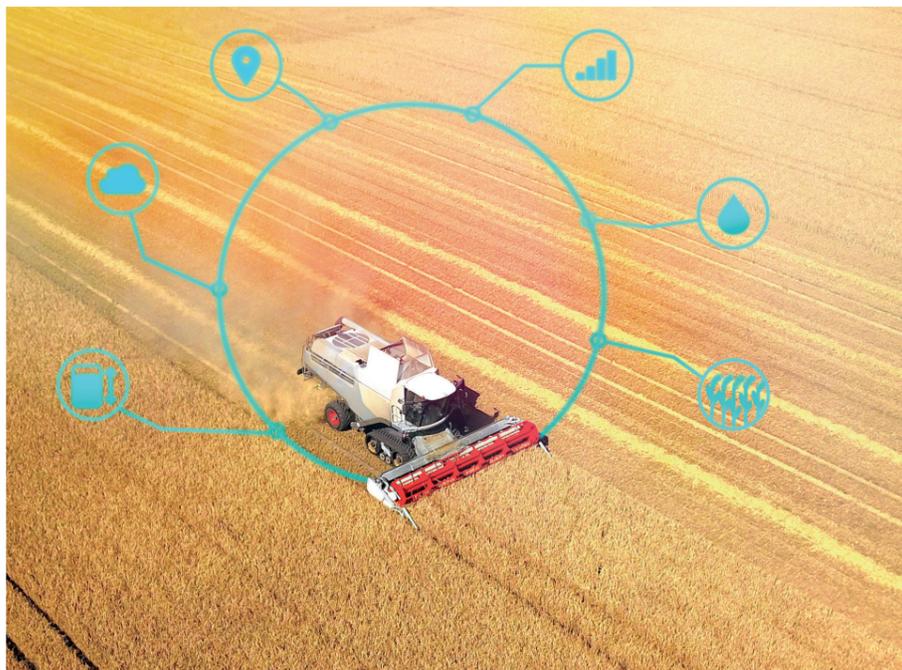
Positive conclusion

Andreas Ide's summary of MiniTec was definitely positive: “What Martor needed for the system and other optimisation projects was not suppliers, but a partner who provides the support needed to advance our projects purposefully. We have clearly found them with MiniTec!”



The employees at the packing tables request the SLCs by pressing a button.

DOLLY GAINS MOMENTUM WITH MINITEC



A UR-Automation rail track supplies measured data on the environmental perception of agricultural machines. The MiniTec modular system is used comprehensively in the system.

The trend towards self-driving cars continues. A lot of development effort is also being invested in autonomous driving for agricultural vehicles. If tractors or combine harvesters are to work the fields independently, they must keep to predefined lanes and reliably detect obstacles such as people or animals. The high variability of the ambient conditions is not without its problems: The machines on the field are confronted with environmental influences such as rain, dust and light from oncoming traffic as well as diverse plant and soil properties.

Which sensors are suitable for compensating for these particular conditions? The DFKI (German research centre for artificial intelligence) started the “AI Test Field” project last year to find answers. An outdoor test environment was to be created for generating reproducible sensor data in variable field, weather and plant conditions. With the objective of enabling the evaluation and optimisation of sensor systems with regard to their reliability in different environments.

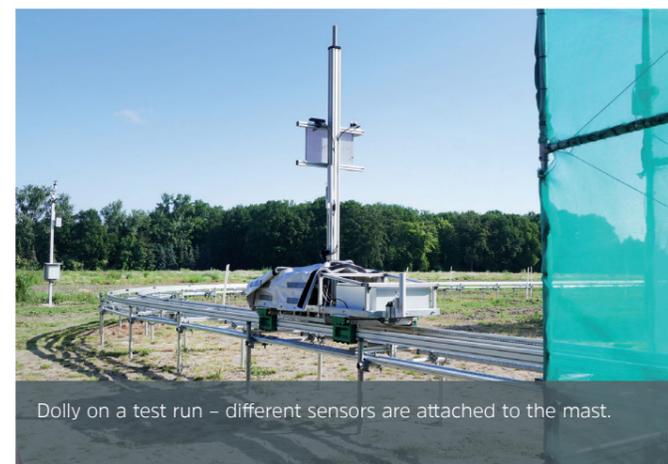
A lot of development effort is being invested in autonomous driving for agricultural vehicles.

Platform for recording measured data

Accordingly, the DFKI research location in charge, in Osnabrück, required a rail-bound platform to record the measured data. It contacted RTS Rail & Tracking Systems, which is specialised in solutions for moving cameras. The company has already realised, for example, automated rail systems for sport broadcasts, which enable optimum positioning of the camera in movement sequences. There were therefore certain overlaps with the DFKI requirement.

AI TEST ENVIRONMENT FOR AUTONOMOUS TRACTORS AND COMBINE HARVESTERS

RTS in turn brought in UR-Automation for the overall project management. The specialists for automation had already had good experiences of the profile system and working with MiniTec in a previous project at Lufthansa in Frankfurt and so there was no question when it came to using the MiniTec system for the installation, said Martin Urban of UR Automation: “We have a longstanding collaboration and affinity with MiniTec.



Dolly on a test run – different sensors are attached to the mast.

It has very reliable specialists and is also characterised by fast and flexible delivery on site. The modular profile system includes a large and flexible range of parts, adaptations on site are easy to implement. And last but not least, the price is also fair.”

Functional, even under adverse conditions

The specific task involved building a platform for recording measured data outdoors in the field for at least three years under all weather conditions and at all times of the day. The research centre would repeatedly attach different sensors to the test vehicle and evaluate their results. The system should execute precisely accurate movement commands with up to 20 km/h. The requirement for the route layout was for a 15 metre straight section after the starting point which then transitions into a 90 degree curve that is then followed by a 90 metre straight section up to the end point.

Practical solution implemented

After a development period lasting several months, including preliminary digital tests, the system was finally built and officially opened in July 2022. Since then, the environment on the test field with the different boundary conditions in agriculture has been recorded by a carrier vehicle equipped with different sensors (such as laser scanner, stereo camera, time-of-flight camera, ultrasound and radar). This vehicle is guided along the rail course through the field setting, exactly and reproducibly. Together with the collected meta data, such as weather conditions or time of day, the raw data provide the necessary database for a control based on algorithms.

The rail track functions automatically and can be controlled and monitored remotely. The movements of the test vehicle, lovingly christened “Dolly” by the developer team, are generated by a servo motor via a rope.

MiniTec provides flexibility

The MiniTec system is used comprehensively in the installation – for the whole rail track and for the rotating tower (sensor carrier) on the vehicle, for the substructure of the weatherproof enclosure and for the masts for the monitoring cameras. This was essential for the successful implementation, said Maik Wittek of UR Automation: “with such prototypes, it is not possible to plan and design everything in advance. With the modular MiniTec system, it is easy to make do and to achieve good and even visually attractive results. Almost every challenge is solved with an aluminium saw and some spare materials on site.”



The straight section is 90 m long – it is surrounded by agricultural production areas, which were especially created for the test installation.



Thanks to the flexibility of the MiniTec modular system, a lot could be implemented on site.



ALL IN ONE: MACHINING, TESTING AND SERIALISATION

A customer of MiniTec has been in the forming sector for many years. The company opts for MiniTec know-how to automate processes. Four highly specialised systems have now been designed and built during the course of the collaboration.

Very efficient solutions often result from MiniTec's work with its customers. One of these customers has been in the forming sector for many years. It has repeatedly opted for the know-how of the MiniTec experts for the automation of processes and already has four highly specialised systems in use. After ten years of use, one of these is to be replaced by a new machine. This should not only be more efficient

HIGHLY SPECIALISED SYSTEMS FOR FLEXIBLE USE

and allow a higher throughput, but also be adapted to the new lathes that were integrated in the system concept. These were more flexible

than the previous ones, because they could be extended and adapted for an even higher output. In addition, the products to be machined for the automotive supplier sector had also changed – originally there were only two products, the system must now cope with five.

Fruitful collaboration

Accordingly, MiniTec worked with the company to develop a concept for the new system for the machining, testing and serialisation of parts. After extensive project meetings, the required solution finally emerged and has been put into service on the customer's premises in the meantime. The following is a description of the processes, which gives an idea of the high degree of automation and the complexity of the system.

Aligning and singularising

At the beginning, a cage with the blanks is pushed into a tilting-inclining device. This tilts the parts onto a bunker conveyor belt, which transports them to the hopper of a step conveyor. The parts are aligned by the step conveyor and are carried upwards on a vibrating rail.



The products are tipped into a chute at the start by a tilting-inclining device.



From here, the parts are carried by a conveyor belt to a step conveyor.

INTEGRATED ROBOTS PROVIDE GREATER FLEXIBILITY

They are then moved via a chute with vibration technology to a segmented chain conveyor. The upstream conveying stops as soon as congestion is identified. Incorrectly aligned parts fall onto a return belt

and are transported back into the hopper. The conveyor with inlet control by baffle plates transports the components to predefined locations where they are singularised and offered to a robot.



Apart from several robots, a segmented chain conveyor is also used.



The step conveyor transports the parts upwards.

Measuring station and handover to CNC machining centre

The robot with double gripper picks up a component and transfers it to a measuring device. It is an analog device positioned above the component and determines a measured value in three places.

After the test, the parts are removed and are transferred, together with the result (mean value) to a CNC machining centre for turning.

The finished parts are then placed on the conveyor belt. The parts are turned through 180°. In the meantime, the robot goes to pick up the next blanks from the feed system.

THE PICK AND PLACE SYSTEM PICKS UP WORKPIECES FOR THE QUALITY TEST

As the process continues, a pick and place system is used, which picks up the workpieces and places them on a turning unit for quality testing. Depending on the test result, the components are placed on the OK belt or on the NOK belt ("not ok"), after they have been handled by the other positions. The faultless components are finally marked and serialised.

Conveyor section with parts storage

The workpieces classified as correct ("ok parts") are ejected via a central conveyor belt through the whole system. The conveyor belt is made from the series 45. At the end there is a buffer disc for storing the components.

For the faulty parts there is an NOK roller conveyor, i.e. a storage place within the system. The roller conveyor has a downward gradient towards the removal hatch. The level is scanned by sensors. When the storage is full, the authorised worker must remove the components manually.

Convenient control

The production line is controlled by an S7 unit. A mobile panel is used to operate and monitor the system. This portable control unit enables in situ operation and monitoring with direct access and visual contact with the process.

Goal achieved

The new system meets the customer's wishes in every respect. It is significantly more flexible than the previous installation, which was only designed for specific components. By contrast, the new system can also be used for new components in the future.

While linear technology only was used to date, robots are now integrated – which also increases flexibility. Accordingly, the customer is very satisfied with the system, it provides them with important advantages in their production.



The tested parts found to be "OK" finally land on a rotating disc.

EFFICIENT ASSEMBLY LINE



MiniTec España is specialised in assembly lines.

MiniTec España is specialised in conveying equipment and focuses on higher piece weights and assembly lines. A flexible assembly system (FAS) has now been further expanded for a customer in the automotive industry. One assembly line model has already been in use in multiple plants worldwide for 15 years. It is an FAS in the form of a horizontal circuit for the assembly of car instrument panels. The parts move on jigs designed and

produced by MiniTec, which are mounted on transport pallets. These pallets have a rotating system, which makes the work of the operator easier by enabling fast, ergonomic and safe loading, unloading and turning of the workpiece.

The assembly stations are equipped with RFID pallet identification, pneumatic and electric sockets, an emergency off switch and an Andon system for work management and signal lamps for communication with the operator. One of the stations includes a camera quality control system, which can be used to check whether all small parts have been assembled correctly.

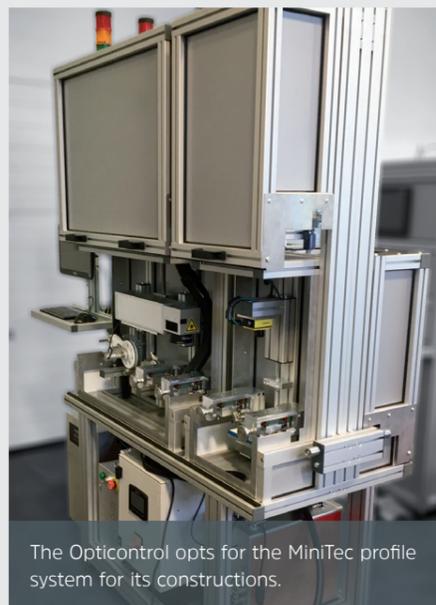
A main control cabinet with HMI enables management of the different work modes and includes a program for monitoring the conformity and traceability of parts in accordance with the customer's requirements. The assembly line is designed for a cycle time of 50 seconds and enables the assembly of 1,550 instrument panels per day.

MODULAR MACHINE FRAMES

In the Czech Republic, MiniTec is represented by the distributor Opticontrol. It is specialised in special mechanical engineering, robot cells and automation. The Czechs value the MiniTec modular system due to its simplicity, variability and availability. They therefore switched from a welded steel frame for robot cells to the aluminium profile system, including for robot applications with higher movement dynamics. On this basis, among other things, a robot cell for cutting the inlet system of moulded plastic parts was created. This cell moves between two IMM

machines, depending on production requirements. The frame body is made from MiniTec 90x90 profiles and they are all combined by connection elements. The profiles ensure the required stiffness for the dynamic forces of the robot movement. By using profiles, the cell itself is significantly lighter than a steel frame.

Another example is a demo cell for trade fair purposes, for which the 45/45 profiles are used. This cell also meets the same parameters. They are quickly set up, lightweight and yet stiff enough to enable fast



The Opticontrol opts for the MiniTec profile system for its constructions.

and precise dynamic movements. One interesting project involved a machine frame for high-precision microscopy.



A CAMPER WITH PROFILE

The vision of a customised motorhome led Leigh McCarron to MiniTec UK. To realise his dream, MiniTec advised him on the choice of profile with which an old transporter could be transformed into a customised motorhome.

When Leigh McCarron saw an old racing transporter for sale, it was clear to him that he had found the perfect motorhome for travel and holidays. However, he had to remove all the installations from the transporter, with which the cars had previously been secured. Only then could he convert the large interior into a motorhome. This was followed by the planning of the furniture and equipment and dividing up the space. The partitions had to be stable but lightweight so that the payload did not increase too much.



Conversion with the MiniTec profile system.

Simple planning

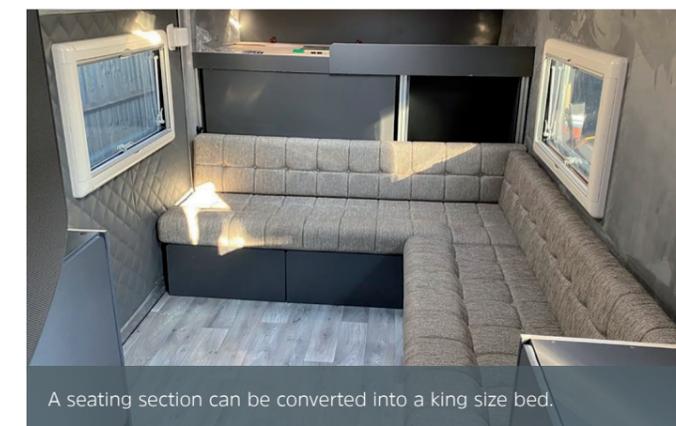
Leigh contacted MiniTec UK and explained his project. After talking to one of the company's engineers, he chose size 45 profiles, electric locks, angles, brackets and hinges with which to form the individual sections inside the converted transporter.

Using the free MiniTec iCAD Assembler software, he calculated how many profiles were needed and which accessories were required. The versatility of the MiniTec system enabled him to set up a separate "garage area", sleeping spaces and a flexible seating unit. The conversion also included a storage space at the rear for two racing bikes, which can be securely fixed on the floor of the motorhome, as well as storage space for bicycle equipment and accessories. This was separated from the main seating area in the motorhome.

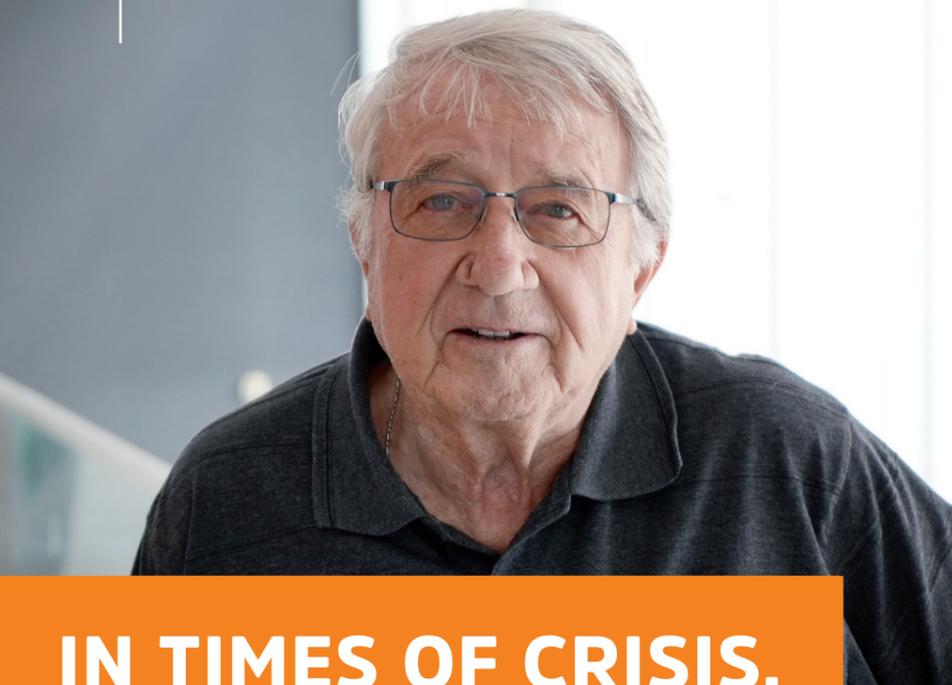
Flexibility is key

The MiniTec profiles also allowed a certain degree of design flexibility and Leigh was able to integrate a sleeping area for two persons above the bicycle storage space.

The finished design includes seating for six persons, which is modular and arranged in an L-shape or can be transformed into a king size bed. There is also a pull-out area for additional storage space. The remaining interior fitout includes base cabinets and a kitchen area. Although work on this project was limited to weekends, Leigh needed only three months for the conversion. "It was hard work, but thanks to the flexible system and the low costs, I was able to complete the project with minimum effort", explained Leigh.



A seating section can be converted into a king size bed.



IN TIMES OF CRISIS, DON'T FORGET THE POOREST

For 25 years, Brother Karl Schaarschmidt has been committed to the Steyler missionaries in Kenya. With his support, many projects have been implemented during this time in order to give the people in the region a vision. In the spring he was on home leave in Germany – we used the opportunity to meet him in July.

Mr Schaarschmidt, we are pleased to have the opportunity to talk to you. How long have you been in Germany?

Karl Schaarschmidt: I have been here since April. We normally get home leave every three years. Only this time it was delayed by the corona pandemic. I already had a ticket in 2020 but couldn't use it because all flights were cancelled. A year later I got corona myself – I was in hospital for four weeks, on a ventilator, a rather difficult process. I then planned my holiday for this year, but then the war got in the way.

I am normally here for three months, as I get a month's holiday for each year. That is to say, it is not only a holiday, I also try to get my health in order and to use the opportunity to visit benefactors and sponsors.

What effect did the corona pandemic have in Kenya?

Corona was not so widespread as in Europe. The disease situation was far more difficult there. In Kenya we also had no vaccines at the beginning. They were not supplied to Africa

Karl Schaarschmidt initiates and supports many humanitarian projects in Kenya.

until later, when the Europeans and Africans had an abundance of vaccines. The economic effects on the other hand are immense and the people are in great need. This year the government decided to catch up on the year lost due to corona. This means that two school years were planned for 2022. The people then had to pay twice the school fees as the schools are private. Many families simply can't pay.

With the war in Ukraine, a second major crisis has occurred.

Due to the war in Ukraine, broad sections of the population are threatened with acute famine. Kenya has always been supported by the "Welthungerhilfe" (a German aid agency). Now, where wheat is no longer arriving, it is getting very difficult. In addition, there is the dry period. There was a drought period at the start of the year, so that people in the northeast of Kenya had to be supplied with food and water. It will now get even worse because it hardly rained during the wet season. At the same time, less is being donated.

We are happy to have companies such as MiniTec, who step in again and again when emergencies exist. Bernhard Bauer also helps to establish contact with organisations such as the Rotarians or the Lions Club, in order to present our problems to them and thus obtain new donations. In times of crisis, we must also not forget that there are people who are in far greater need.

Which projects are you currently supporting?

On the one hand, we are still involved in continuing the Reinha Rosary Health Centre in Githunguri/Nairobi. The hospital has been upgraded to class four due to the various equipment purchased by MiniTec and other donors. However, this also means that they must have two operating rooms – one for childbirth, the other for normal operations. The plans and everything else is already ready, but further funds are still missing.

And what about the school environment?

A school is currently being planned for a new settlement and we are trying to connect the project to the "1000 schools for Africa". Funds would then also be available to set up the school. I am also helping a Sisters Community with around 45 Sisters to build a school. It is in the Ngong Mountains, a mountain area outside of Nairobi. The residents are widely scattered over the mountains.

Your SASA volleyball team was also recently very successful again. What does this sport mean to the girls

The volleyball team belongs to the school in Soweto. We set it up and it now has around 800 students. The team was then developed from the group of students. The coach is very active, they participate in numerous competitions against other schools. This makes our school known and with it MiniTec too. For example, the



A trusted person who has helped many over 25 years: Brother Karl Schaarschmidt



Building schools is one of the central projects of the Steyler missionaries in Kenya.

sportswomen have a uniform with a MiniTec logo, which can sometimes be seen on TV or in newspaper reports. For the girls, this is social advancement. Participation in volleyball is also conducive to their personality, morale and self-discipline.

You have reached an age at which others are long since retired. Do you ever think of retiring?

I will be 78 on my next birthday. Missionaries carry on as long as they can still work. Nonetheless, a few years ago I started thinking about the topic of housing. I lived in a rectory, which would have been returned to the diocese at some stage and then I would have had to move into another rectory. And when you reach a certain age, you want to be sure that you have somewhere to live. I therefore built a retirement home, a centre of the Steyler Mission, which is in the same place as the school. Five of us live there – colleagues who work in the school and others. A Filipino, a Brazilian, an Indian, a German and a Kenyan. We are therefore a very international group and it works very well!

Donations account for Brother Karl Schaarschmidt's projects:

Steyler Bank St. Augustin
BIC: GENODED1STB
IBAN: DE77 3862 1500 0000 0110 09
Purpose: For Brother Karl projects, Kenya



METALS TECHNOLOGY ENTHUSES SCHOOL STUDENTS

In July 2022, further project days took place at the integrated secondary school (IGS) in Schönenberg-Kübelberg, with the overarching topic “our school is diverse!”. At the end, a school festival was organised with games, fun, culinary offers and interesting presentations. MiniTec has supported the IGS for many years.

to important basic principles of metalworking in theory and practice. Actively supported by the trainee, who himself was still at school at the IGS three years ago, during the project individual workpiece production was taken into account in that each participant built a “desk organiser or pen holder” made of aluminium and steel.

Imparting basic knowledge

The learning content included, among other things, the basics of dimensioning, handling callipers, all kinds of different measurement exercises, getting to know different object views, scribing, handling a vertical drilling machine, drilling technology and threadcutting.

In addition, Simon Lorenz informed the young people about specific occupations with formal training at MiniTec: Management assistant for marketing communication, technical product designer, metal cutting mechanics, mechatronics technicians, industrial mechanics and industrial management assistant. The “Dual Study” (sandwich course) option was also discussed.

After the built workpieces had been subjected to critical examination, the participants received certificates for their successful participation in the project. Class visits to the company and other joint activities between the school and MiniTec are already one aim.

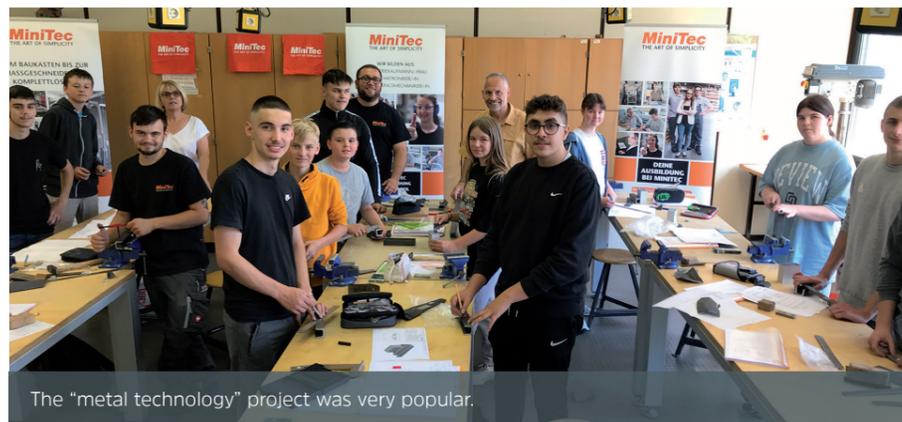
Many people contributed to the success of this interesting and informative project.

One very practical project involved “metal technology”. It took place on its own stand in front of the workrooms, as a cooperation project of the IGS and MiniTec. The IGS has benefited for many years from the local company and the “Sonja und Bernhard Bauer Stiftung” – a fund of the MiniTec founder.

Under the guidance of the trainer, Simon Lorenz, his trainee Fabian Seyler and the teachers of the “Industry and engineering” department, 13 young boys and girls in years 7 to 10 were introduced



Trainer Simon Lorenz (lh) and trainee Fabian Seyler organised the project with a great deal of commitment.



The “metal technology” project was very popular.

RUNNING FOR A GOOD CAUSE

In a former life, Holger Weyand was a beer brewer. He hasn't forgotten how, although he has now been working in MiniTec's QM department for 14 years.

He also offers home-brewed beer today as an incentive for people to take part in his benefit runs. Weyand has participated in sport regularly since his childhood. He came to

regular running via the benefit team “42*42,195”, which he co-founded three years ago. The running group has set itself the goal of helping people in need who receive no or insufficient help from the government.

Each week, Holger Weyand runs 50 km, which adds up to over 1000 km per year. He donates one euro per kilometre for the distances he runs. If he is the host of a run, he sets up a box for donations: “Several thousand euros can be raised, for example, at the last Christmas run.” He naturally also uses every opportunity to run at MiniTec – such as this year's Homburg company run in May which he took part in with 12 sporty colleagues.



MiniTec employees in the company run in Homburg/Saar.



Passionate runner: Holger Weyand

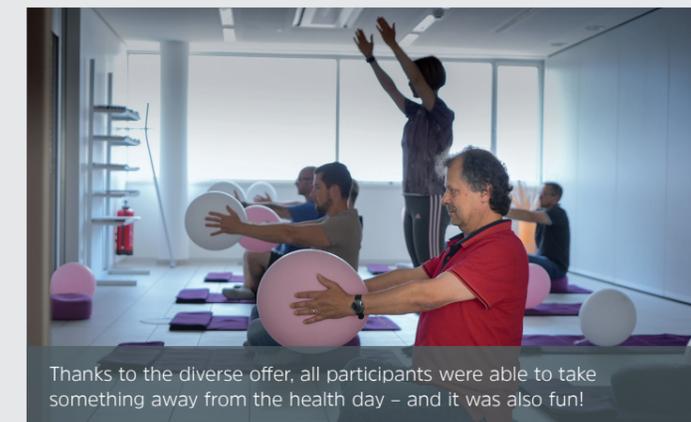
More info:
www.42x42benefizteam.de

MENS SANA IN CORPORE SANO

(Latin for “A sound mind in a sound body”) Even the Ancient Romans knew how important physical health is for mental fitness. At MiniTec, both are promoted – which is why the company invited its employees to take part in the health day at the company's headquarters in Schönenberg-Kübelberg in June. Instructed by experts of the Barmer medical insurance company in St. Wendel, all participants had the opportunity to do something for their health and to also learn exercises for every day.

With the MediMouse they were able to find out the condition of their spine. It is a small measuring device for computer-aided representation and examination of the shape and movability of the spine and the spinal segments. The result was an extremely informative posture and movement analysis. The Moving-Workshop offered easy exercises suitable for everyday use to improve back health. Five specific exercises were trained, which counteract back pain (so-called “Landing”, “Crown”,

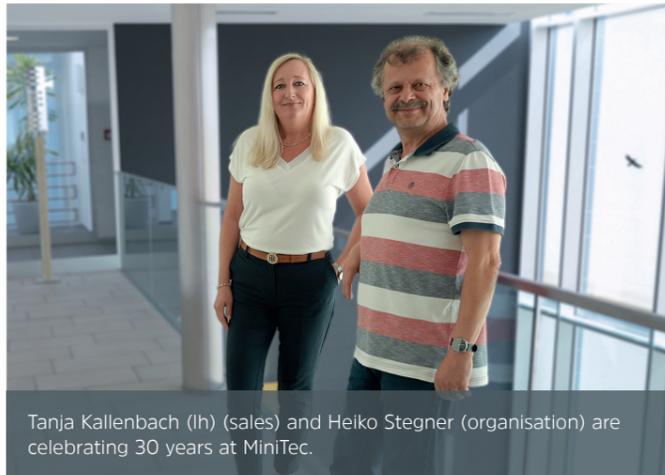
“Medal”, “Palm” and “Screw”). They supply the spinal discs with nutrient fluid, stretch tendons and ligaments, loosen the back muscles and also ensure mental rest – including for stress. Anyone who wanted to delve more intensively into the topic of health was able to experience what self-healing means for the body with the Cantienica method.



Thanks to the diverse offer, all participants were able to take something away from the health day – and it was also fun!

MINITEC IS FUN – EVEN AFTER 30 YEARS

MiniTec
THE ART OF SIMPLICITY



Tanja Kallenbach (lh) (sales) and Heiko Stegner (organisation) are celebrating 30 years at MiniTec.

Alex Friesen (packaging): 5 years
Elias Huber (shaft machining): 5 years
Michelle Pfaff (marketing): 5 years
Dirk Schmelzer (assembly): 5 years
Davide Stagno (assembly): 5 years
Carolin von Ehr (engineering): 5 years

The managing director, Sandra Geyer-Altenkirch, is also celebrating her 15-year anniversary.

“As the daughter of the company founder, MiniTec has been with me almost my whole life. I am proud to have now been part of this great team for 15 years and to continue the company in the 2nd generation.”

30 years are a long time – as Tanja Kallenbach and Heiko Stegner started at MiniTec in 1992, the Schönenberg-Kübelberg site didn't yet exist. The company was based in Waldmohr, where today the machining of shafts and machine components is still located. The workforce had only ten employees, which made working together very familial. What has not changed in all these years is her enjoyment of the job and the work environment, says Tanja Kallenbach: “MiniTec has a very pleasant work climate, I still go to work with pleasure.”

We are pleased to celebrate our employees' work anniversary with them in this quarter:

David Daniel Cordier (engineering): 5 years
Tanja Kallenbach (sales): 30 years
Heiko Stegner (organisation): 30 years
Irene Feller (sales): 20 years
Sandra Geyer-Altenkirch (management): 15 years
Simon Lorenz (assembly): 15 years
Benjamin Müller (assembly): 15 years
Jürgen Oehmig (engineering): 15 years
Dominik Schermer (packaging): 15 years
Patrick Gorges (assembly): 10 years
Mark Ludwig (packaging): 10 years
Oliver Tobi (engineering): 10 years
Norbert Singer (field service): 10 years
Steffen Schoft (field service): 10 years
Jacqueline Dejon (engineering): 5 years



Sandra Geyer-Altenkirch, MiniTec Managing Director



Our field-based customer consultants, Steffen Schoft (lh) and Norbert Singer are celebrating 10 years at MiniTec.



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Simply more efficient: **MiniTec automation solutions**

Very different techniques are required in the automation of production processes. True to its motto "The Art of Simplicity", MiniTec offers complete solutions from a single source.

Whether robots, linear axes, conveying technology or automated guided vehicle (AGV) systems: We combine the different worlds to form optimum overall concepts, with which we increase the productivity and efficiency of our customers permanently.

Our solutions are as individual as the requirements. Find out more during a visit to the Motek. At our trade stand we will be presenting to you innovative concepts for the automation of processes.

New products and solutions also await you, for example, efficient conveyor technology such as the UMSL pallet circulation system or the mini conveyor belt. Wait and see – we look forward to your visit!

Messe Stuttgart
04- 07 October 2022

Hall 3, Stand 3115



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www.minitec.de/komplettlösungen

