



Connect

04

December
2024



MINITEC SMARTASSIST

Worker assistance system with new features

___ page 14



SPECIAL PURPOSE MACHINERY MANUFACTURE

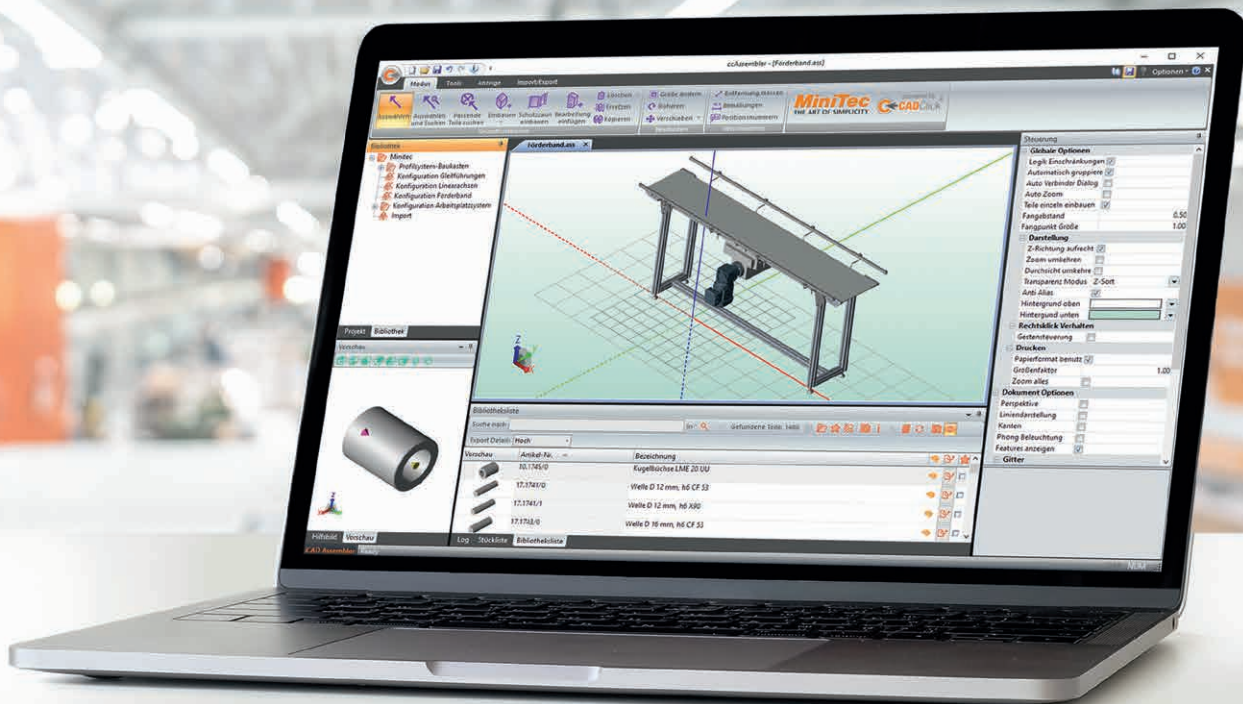
When things need to be somewhat smaller

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MAKING SURE THE QUALITY IS RIGHT

MiniTec test technology

___ page 10



Design more easily: With the **iCAD Assembler**

Our free **iCAD Assembler** design tool is the perfect complement to the MiniTec profile construction kit. Only the combination of hardware and software allows complex requirements to be realized easily - not only in mechanical engineering.

The software creates automatic parts lists and contains configurators for common applications. With automated planning routines, the program calculates, designs, changes and lists parts and checks the plausibility of the entries.

Your benefits:

- 3D design tool for MiniTec components
- Simple operation without CAD knowledge
- Electronic catalog and configurators included
- True-to-scale design drawing and material parts list.
- Direct interface to all common CAD systems such as: CATIA, Inventor, Solid Works etc.
- Integrated deflection calculator

Discover the Art of Simplicity!



www.minitec.de/en/icad-assembler





DEAR READERS,

In today's industry with its automated manufacturing processes, quality testing has become an indispensable component due to increasingly complex products and growing quality requirements. To meet these challenges, MiniTec implements customised test systems, which work with different test technology and methods depending on the requirement. What they all have in common is high precision and reliability, which ensure uniform quality processes and products. In the cover story of this issue of Connect, from page 10, you will find a clear overview of what we offer in this area and several interesting projects that we have already completed.

The new version of our worker assistance system, MiniTec SmartAssist, will probably also be met with a great deal of interest. Our approach is to continuously develop and improve what is good. From page 14, you can read about the advantages in interactive employee support that result for manufacturing companies and workshops for the disabled. It can likely be used to optimise assembly processes and train employees on the job more quickly in your company too. Feel free to contact us about it.

Have a good read! I hope you find it interesting and inspiring.

Yours

A handwritten signature in blue ink, appearing to read 'S. Geyer-Altenkirch', with a stylized, cursive script.

Sandra Geyer-Altenkirch
Managing Director

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MINITEC SMARTASSIST WITH NEW FEATURES

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WHEN THINGS NEED TO BE SOMEWHAT SMALLER

The MiniTec customer nano|sec is specialised in individual laser technology solutions. The machines are for micro machining of materials or workpieces for defined tasks.

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MINITEC AT TRADE FAIRS IN THE FIRST HALF OF 2025



In 2025, MiniTec will again be represented at the most important trade fairs of its industries and hold its own events at which it will present its solutions.



INTEC 2025, Leipzig

11 to 14 March 2025, Leipziger Messe

MiniTec will be presenting its automation solutions and offers in machine and plant building at the International Trade Fair for Machine Tools, Manufacturing and Automation.



Automatica 2025, Munich

24 to 27 June 2025, Messe Munich

Automatica is the leading exhibition for intelligent automation and robotics. The topics covered there include how robotics and intelligent automation change the future. Digitalisation and artificial intelligence also play a large role. The MiniTec exhibition appearance will focus on innovative automation solutions in machine and special purpose machinery manufacture and the worker assistance system MiniTec SmartAssist.



RETTmobil 2025, Fulda

14 to 16 May 2025, Messe Galerie Fulda

International leading exhibition for rescue and mobility. We will be presenting solutions such as breathing apparatus workshops, mobile container racks and equipment storage for control centres and fire and rescue stations and our system for the fit out of vehicles.



112 rescue, Dortmund

26 to 28 June 2024, Messe Dortmund

Trade fair for fire safety, rescue and civil defence. MiniTec will be presenting its firefighting technology industry solution for the fitout of vehicles or the equipping of buildings and workshops based on the modular system.



all about automation, Hamburg

3 to 4 June 2025, Messe Hamburg,

The theme of the regionally focussed trade fair for industrial automation is systems, components, software and engineering for industrial automation and industrial communication. Here, automation users find solution partners on their way to flexible automation and smart production. We will be showing our latest automation solutions and MiniTec SmartAssist, the innovative worker assistance system.

An up-to-date overview of all trade fairs can be found at www.minitec.de/service/messen-events



INHOUSE AND FUTURE DAY 2025

The popular MiniTec “InHouse” will again take place on 10 April 2025 at our company headquarters in Schöenberg-Kübelberg. After the successful start last year, it will again be combined with the “Future Day” for junior employees and trainees.



It is an established event, which customers, potential customers and employees enjoy attending: The “InHouse” held annually by MiniTec. The in-house fair was held for the first time in 2010. Decision-makers, buyers and technicians meet here to find out about the MiniTec product portfolio. It is not only about the diverse possible uses of the profile and linear system demonstrated using practical solutions for industry, vehicle construction, campers or fire services, but also about current topics. The gates will open for customers and potential customers on 10 April 2025 from 9:00 at the MiniTec headquarters in Schöenberg-Kübelberg. Visitors are traditionally also offered a look behind the scenes.

The management themselves are on duty and, for example, show the guests how MiniTec is organised, how new plants and machines are built and how the short delivery periods are ensured. The technical talks and practical demonstrations in our exhibition are also popular.

Future Day – Training Day

MiniTec is a popular employer in the region. The company has also acquired a good reputation as a training centre. Numerous opportunities are opened up here for qualified young people: Whether in the technical environment as a mechatronics technician, industrial mechanic, cutting machine operator or technical product designer; the

commercial area or as a student employee. Talented young people can find out what the occupations entail at the Future Day from 14:00 to 17:00. This was held for the first time this year and was very popular. Numerous young people and others interested gathered at MiniTec on the InHouse day and informed themselves about training options.

It is possible to find out about the different training routes offered by MiniTec. Straight from the horse's mouth, as the current trainees will be actively involved and will pass on their experiences directly to anyone interested.



FURTHER INFO AND FREE REGISTRATION:



www.minitec.de/inhouse-2025



www.minitec.de/unternehmen/minitec-future-day



THE NEW MINITEC WEBSHOP: SUCCESSFUL START!

The MiniTec webshop went live on 19 September 2024. The customers' response was decidedly positive and shows that once again, MiniTec lived up to its slogan "The art of simplicity".



The first order was received just before 9 o'clock – from Melanie Reichard, a buyer at Bremer cellumation GmbH: "Until now, we have always ordered by email. In comparison, the shop option offers important advantages – such as directly visible prices and trackable orders.

The process is very easy and understandable. The online shop is a substantial simplification for us, which is why, in future, we will use it to place all our orders!"

Mattis Peitsch of the industrial engineering team at Paul Vahle GmbH & Co. KG in Kamen had a similarly positive response: "I am very positively impressed! In the past, I always had to switch between the website and the iCAD assembler to determine the prices. Thanks to the new webshop, this effort is no longer necessary for the standard components. But the

function, for example, for configuring cut-to-size profiles or ordering directly in packing units also makes my work easier and I will certainly be using it in the future. All in all, a super changeover!"

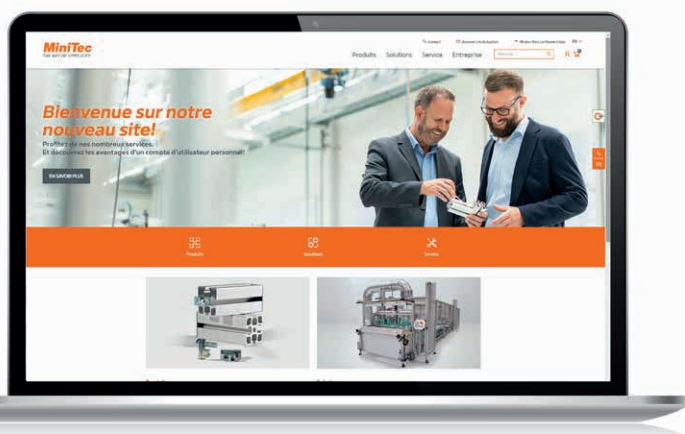
Several thousand customers' accounts were activated in advance so that as many of them as possible could use the shop directly from the outset. In addition, since going live, numerous new applications, in addition to the positive reviews, are a further indication that the MiniTec community has been waiting for just such a tool.

ACTIVATION AND USE

To use the MiniTec shop, you must be registered as a business customer. Which requirements must be met and what you have to do for the activation is described on a shop info page on the MiniTec website. www.minitec.de/webshop



FRANCE HAS A NEW WEBSITE



MiniTec France has relaunched its website and migrated it onto the same platform as the one on which the German site is based. Accordingly, French customers now benefit from significantly enhanced functions. Especially in the product area, there are diverse advantages regarding up-to-dateness and filter options. All online configurators are now also available.

Moreover, the new website forms the basis on which France can also introduce a shop in the medium-term, similar to the German counterpart. Patrick Jaeck, Managing Director of MiniTec France, expressed his pleasure: "With the new site we can offer our customers even better service and at the same time we have taken an important step towards a webshop."

MISSION FUTURE: AI IN FOCUS

In a time of political, social and technological change, markets also change. For MiniTec, as a globally active company, this also means that it has to deal with this development and prepare for the future.

As reported in Issue 3 of Connect, MiniTec is making itself fit for the future – with the comprehensive “Mission Future” project. What are the challenges? Where

AI: PACESETTER FOR DIGITAL TRANSFORMATION

is there potential for improvement? Which structural measures must be taken? All areas of the company are being examined carefully and optimised.

In addition, there are general topics on the agenda, which are important for the company's future development – including “artificial intelligence (AI)”. This is increasingly becoming an everyday companion. It will help us to do things more easily and faster, but it also involves dangers, which we

should know. Therefore, as part of the Mission Future, an info day was held in October about the opportunities and risks of AI. The speaker was Prof. Dr. Prof. h.c. Andreas Dengel, Managing Director of the German Research Centre for Artificial Intelligence (Deutsches Forschungszentrum für Künstliche Intelligenz, DFKI) in Kaiserslautern.

In his talk on “Artificial intelligence: Pacesetter for digital transformation”, Professor Dengel first gave an overview of the historical development of AI and how it is to be categorised today. Using various examples, he pointed out the possibilities of AI systems. The areas of application ranged from media and art to production environments through to wine growing and medicine. In his presentation, the expert also addressed the high precision with which so-called “deep fakes” are already possible, which makes

assessing the authenticity of images and videos increasingly difficult. The talk and subsequent discussion gave the participants a good insight into how artificial intelligence can be used in future by MiniTec and where care has to be taken.





MAKING SURE THE QUALITY IS RIGHT

Quality testing has become an indispensable part of automated industrial manufacturing processes due to increasingly complex products and growing quality requirements. To meet these challenges, MiniTec implements customised test systems, which work with different test technology and methods depending on the requirement. What they all have in common is high precision and reliability, which ensure uniform quality processes and products.

Test technology plays a decisive role in modern industry, as it ensures the quality and safety of products. In a time in which competitive pressure and technological innovations are continuously on the increase, it is indispensable for companies to implement reliable test methods in order to meet the high requirements of the market. Advancing automation and digitalisation of production processes has revolutionised test engineering and enables more precise, faster and more efficient checking of materials and products. MiniTec has offered various technical methods for quality testing for many years.

Optical test

Optical testing is based on visual inspection of a product or a product part. Image processing systems, which work quickly and without contact, are used for this. The results delivered by them enable evaluations with high reliability and availability and are increasingly used for quality assessment and testing. They enable solutions for dimensional and geometric testing as well as visual inspection.

Typical applications are form and dimensional checking, surface inspection and object detection, position determinations, completeness checks as well as presence and distance checks.

Eddy current testing

Many manufacturing companies, for example, in the automotive industry, must ensure uniformly high quality of the workpieces produced in highly automated assembly processes. Workpieces and materials can be tested by non-destructive methods using electrical eddy current testing. MiniTec has already implemented this method in many test systems in the assembly automation of customers.

Leak test

In production processes of many industries, workpieces or components must be subjected to a leak test after they have been machined. MiniTec has already designed and implemented numerous systems with different test methods for such application tasks, both as worker dependent and worker-independent systems.

Leakage test systems for exhaust systems including marker station and leakage test benches (water basins) including rework stations help our customers to test their products and to produce them with consistently high quality.

Hipot test method

MiniTec can already look back on more than 20 years of experience in the design and construction of production and test systems with state-of-the-art testing technology for the photovoltaics industry. During this time, numerous systems have been developed, which now belong to the standard for an assembly system

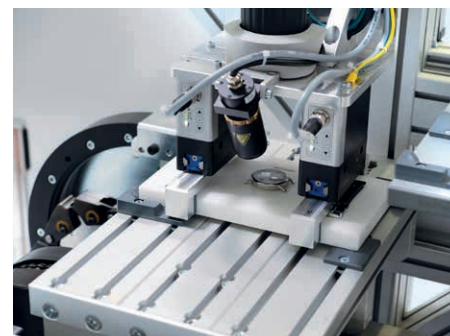


Image processing systems work quickly and without contact.

such as lay-up, glass storage, flasher, automatic frame jointing jigs and much more.

TEST SYSTEMS FOR QUALITY CONTROL

As a specialist for photovoltaic module production, among other things, MiniTec has developed a Hipot tester, which performs the safety tests and documents them at the same time.



Robots can move workpieces to stationary quality test sensors.

Diverse solutions

Test technology and quality assurance accompany special purpose machinery solutions. The requirements in practice are so different that in general, automated special solutions are used, which are adapted by the MiniTec technicians to the specific requirements of the application or the customer. Several customer examples realised by us and which are in use show just how diverse the solutions are.

Quality testing with robots

Quality testing is a wide area of application for robots. Increasingly with cobots too, with which many manual tasks can be automated. For example, robots can move workpieces to stationary quality test sensors, or present them to a human for visual inspection, and thus assist the tester while they complete other tasks. Robots can also perform tests themselves by using scanners, sensors or measuring heads.

In general, there are also many test procedures within a production line and built-in quality gates between individual processing steps. These are dealt with by robots during their handling tasks, by moving workpieces in front of a sensor or into/out of a quality test station.

MiniTec has already realised various solutions in this area for its customers. Another advantage here is that the company can impress with decades of experience in different

AUTOMATED TEST PROCESSES WITH ROBOTS



The AOP tester is an optical measuring device that works fully automatically.

disciplines. Among other things, the key competencies include assembly, conveying technology, handling and automation. And it is precisely these disciplines that MiniTec combines with the advantages that robots offer for quality assurance.

Measuring fully automatically

Precise-fitting solutions are often developed in cooperation with partners such as ISW GmbH. With the AOP tester (Automatic Optical Product), the two partners produced an optical measuring device that works fully automatically. The unit measures and evaluates twelve product parameters within a minute and is non-contact. IO products are fed back into production, NOK products are discarded and ejected. The technology can, of course, also be adapted to other needs. The AOP tester can measure up to twelve parameters on a workpiece, some simultaneously. And does so with a very small footprint. This is made possible by using a highly precise small robot, which picks up the parts and feeds them to the various integrated measuring stations.

The unit is suitable for areas of use in all kinds of different industries in which high precision, non-contact measurement and speed are important.



Test technology also plays an important role in assembly workstations.

Counterfeit products in the pharmaceuticals sector

Another cooperation with our partner ISW produced the image processing supported track & trace systems, the "PALC unit" and the "IPAC unit". PALC stands for Package Aggregation Line Controller. This is a flexibly configurable solution that can be integrated in any production system for serialisation of already packed pharmaceutical products. The PALC unit is optimal for pharmacists, packers and contract manufacturers.

The "IPAC unit" can be used to test bottles with pharmaceutical contents. The correct printing and readability of the data and correct fit of the cap and thus the tightness of the closure is checked. As the production processes in the pharmaceutical industry are frequently different, each of these units must be adjusted to the individual circumstances.

Test process for photovoltaics

Voltec, a French manufacturer of photovoltaic systems, covers virtually the complete manufacturing process. In the highly competitive industry, European manufacturers not only have to produce cost-effectively but

must also guarantee high quality of the panels. MiniTec realised highly-efficient production equipment for Voltec with efficient quality assurance, which achieved a significant increase in productivity.

One unit from MiniTec tests the cells in a first step. The panels are then lifted by a pneumatically driven multi-articulated arm, placed in a vertical position and are presented to an employee for the visual inspection. The employee compares the information on the control screen with the panel. Depending on the result, the panel is assigned the relevant quality level and is labelled with a corresponding barcode. Based on this classification, a decision is made whether the panel is passed on to the next step or is sorted out for examination and repair. The control station was implemented twice – while the employee is still busy checking one panel, the next panel moves into the second station and is lifted. The throughput was therefore almost doubled and the test time shortened significantly.



Visual inspection: The employee compares the information on the control screen with the panel.

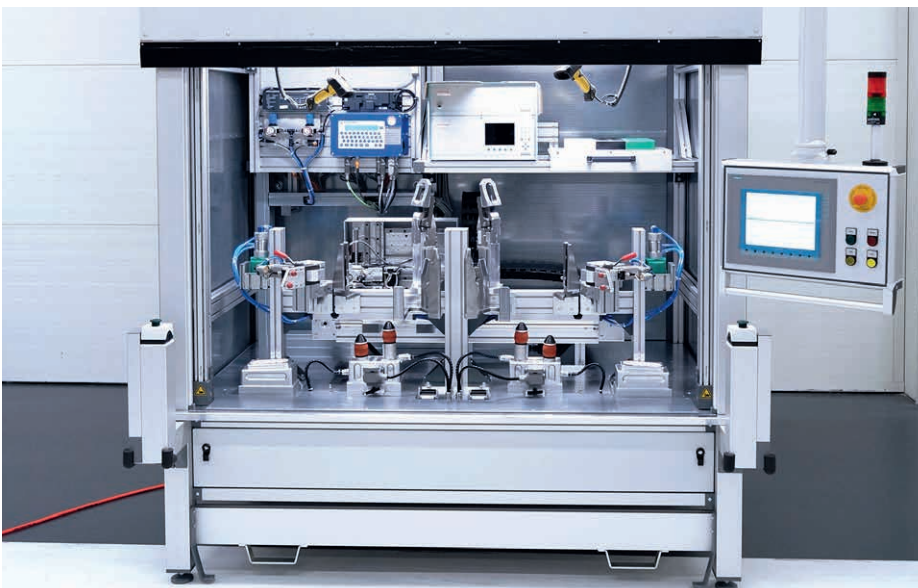
IMAGE PROCESSING SYSTEMS FOR QUALITY ASSURANCE

More productivity and quality in the assembly

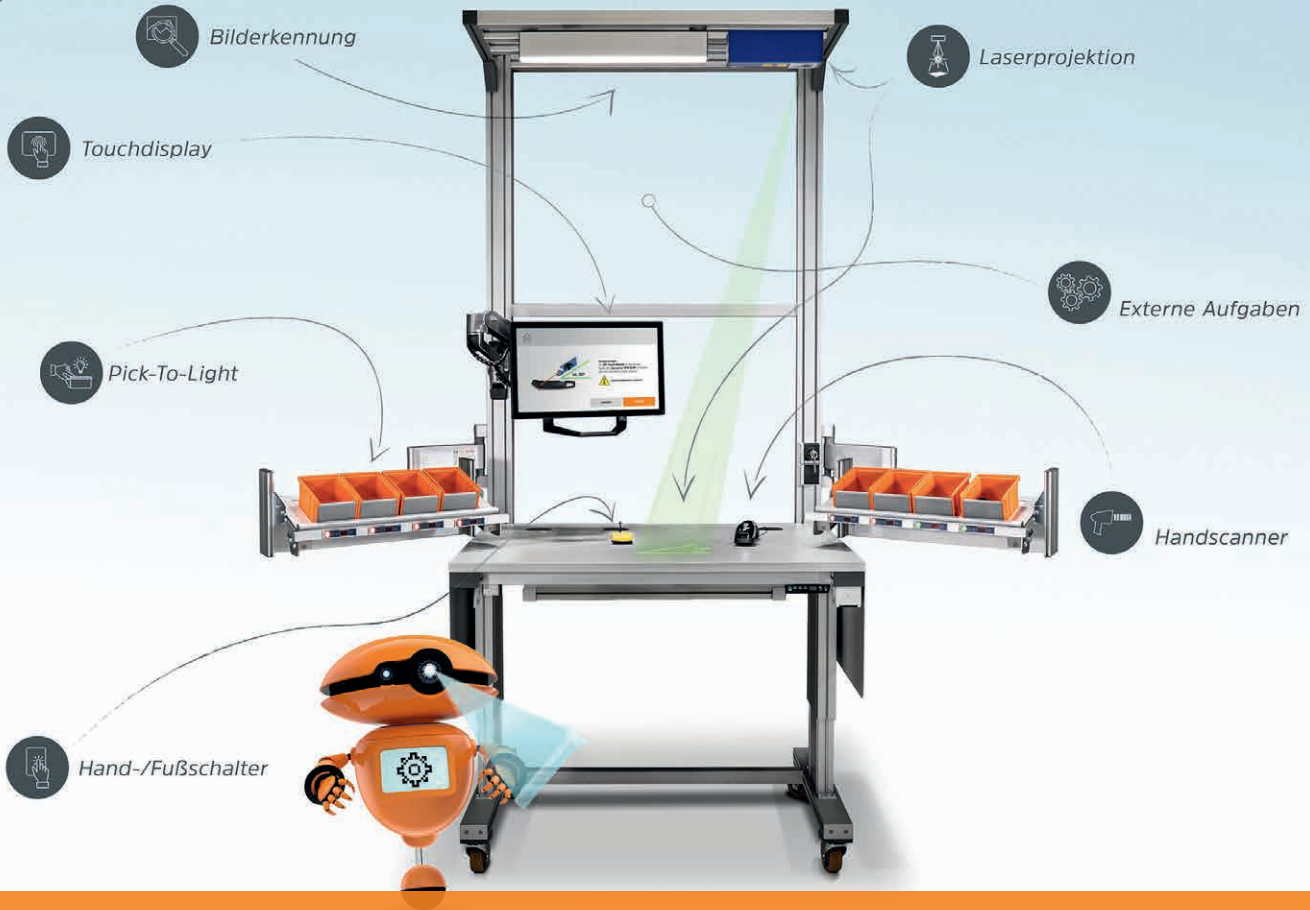
An important field of quality assurance is assembly processes. This is where the worker assistance system MiniTec SmartAssist is used. It not only provides support for the actual assembly processes and their acquisition, but also in the quality improvement. This is because the system's step-by-step guidance of the workers ensures a significant reduction in the error rate. Furthermore, quality control is also possible, for example, with image recognition and camera test systems.

The latest technologies

These are only a few of many application examples. In the past, MiniTec has implemented a large number of requirements on the basis of the latest technologies in quality testing. And there is no end in sight. In future, the use of artificial intelligence (AI) and machine learning will certainly also play an important role.



Leakage test system with marking station and sound insulation.



MINITEC SMARTASSIST WITH NEW FEATURES

To continuously develop and improve what is good is the approach of MiniTec Smart Solutions when it comes to the MiniTec assistance system. Accordingly, the current release 2.12 has numerous innovations that benefit users.

MiniTec SmartAssist opens up completely new possibilities for interactive employee support for industry and workshops for the disabled. The assistance system ensures faster learning of workflows for the assembly and order picking and individual support during the work. It guides the worker through the assembly process step by step by displaying the respective required tasks on the screen with the help of texts, graphics, photos or videos. There are various options available for process support and interaction, as the system

is modular and allows the activation of all kinds of different hardware components. The current release 2.12 offers users numerous innovations.

Image recognition

The "image recognition" module is available as a new standard feature with immediate effect. With the support of a camera system, it can be used to carry out all kinds of different test tasks. The camera technology with suitable lighting comes from the MiniTec partner ISW. It is individually matched and configured with the

customer to their requirements. Based on the ISW algorithms, the required test tasks are then prepared by MiniTec for the assistance system – including evaluation of the result (ok/nok). Display and acknowledgement of the result image are possible as an optional extra. The customer can use the editor to define in which places of the work instruction a test task must be carried out.

Configurator for basic settings

Another new feature relates to the basic settings of customer projects. To reduce the effort required here somewhat, MiniTec Smart Solutions has developed a convenient configurator with which the hardware used (e.g. number and arrangement of the pick to light elements) and software (assistance modules) can be defined and set up. The new tool allows significantly faster commissioning and more flexibility.

With the MiniTec SmartConfigurator, not only can workplaces be set up to your own ideas, they can also be changed at any time. These configurations can then be imported and managed in the editor. When creating a work instruction, this enables easy selection of the workplace.

With immediate effect, the configurator is the central tool when it comes to the settings of a workplace. This not only concerns general parameters of the player, but also module-specific configurations.

Other innovations

The new version of MiniTec SmartAssist has numerous other optimisations in its details. For example, there is a new view for projects and processes in which further settings can be made – such as the background colour or the response of the manual button. Furthermore, when a template is selected, a preview is shown next to the menu entry. This enables intuitive selection – especially if there is a large number of templates. The preview function is also available for the choice of layout.

NEW LEARNING PLATFORM FOR MINITEC SMARTASSIST

Learning platform in preparation

To make it easier for users to handle MiniTec SmartAssist, a learning platform for the assistance system will be provided from January. Users will find easy to understand explanatory

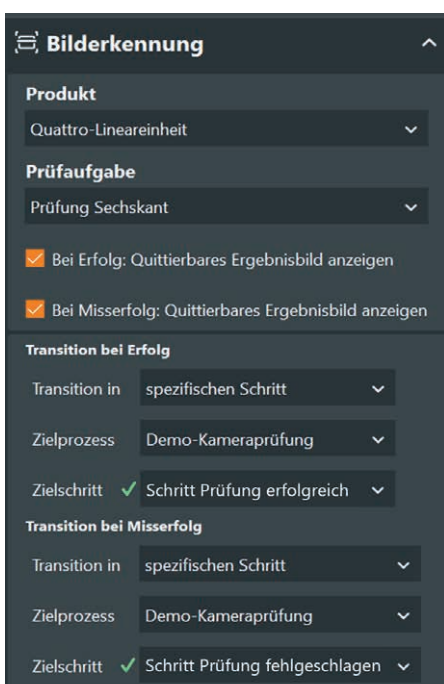
videos there, on numerous topics and for different requirements/knowledge levels. Other features such as exchange within the community complement the range.

Free demo table campaign

A campaign is planned for 2025, in which functional demo workplaces will be made available free of charge for a period of several months so that potential customers can get a better impression of the advantages of MiniTec SmartAssist. Companies will therefore be able to put the assistance system through its paces based on their own requirements and check the extent to which it is of use to them. If they are convinced of the advantages after the test phase, they can purchase the table for a special price and keep it. Further information on the campaign will be provided soon!

Further info:

www.minitec.de/minitec-smartassist



Configuration of image recognition in the editor MiniTec SmartEdi.

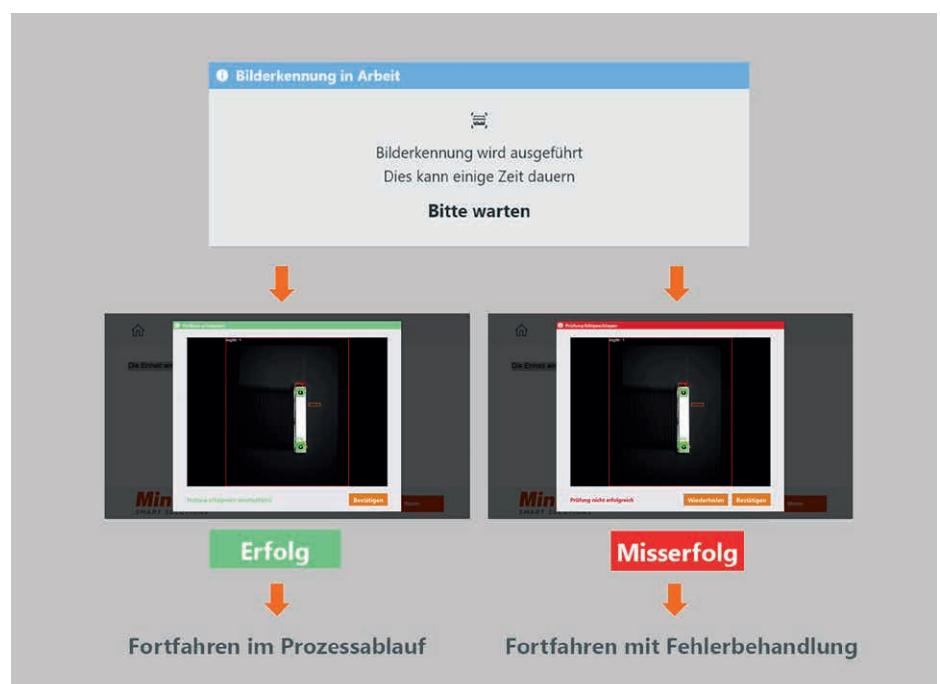


Image recognition sequence in the MiniTec SmartPlayer.

NEW BRACKETS FOR WORKPLACE SYSTEMS

An ergonomically optimised working environment ensures higher performance, efficiency and machining quality. MiniTec workplace systems therefore have extensive options for ergonomic adaptation. Two new bracket options have now been added.

Bracket for thin client computers

A clear trend at the workplace can be found in the area of digitalisation. Whether it is the assistance system MiniTec SmartAssist or another application – the need to attach appropriate computer hardware is generally a direct consequence. MiniTec therefore now also offers a bracket for thin client computers, which can be easily attached to MiniTec monitor supports.



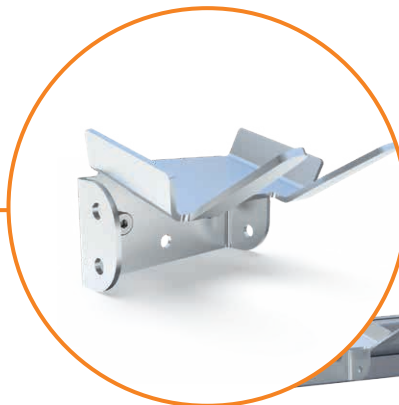
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The thin client holder can be easily fixed on the MiniTec monitor support.



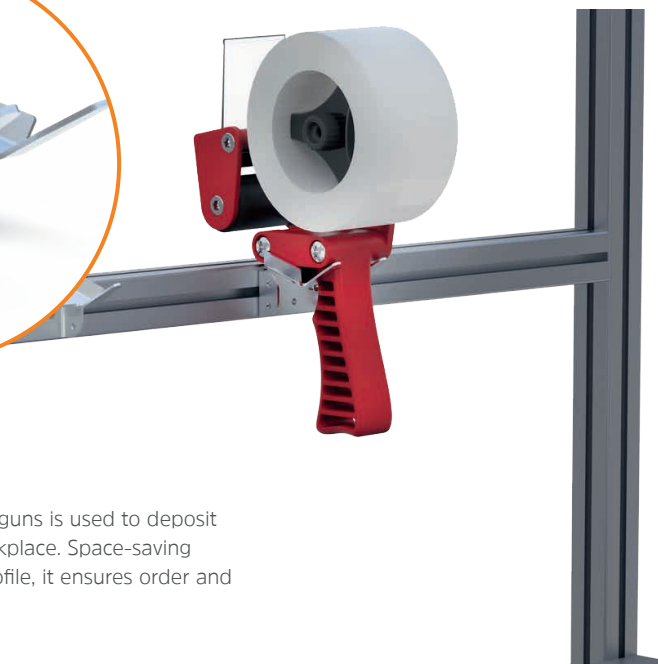
Bracket for packing tape gun

At many workplaces, products or workpieces have to be packed, for which packing tape guns are often used. A practical bracket for them is now available from MiniTec, so that they are always to hand. It can be mounted on the profile system in next to no time and ensures more order and efficiency at the workplace.



Article No. 32.0085/0

The holder for adhesive tape guns is used to deposit packing tape guns at the workplace. Space-saving and handily placed on the profile, it ensures order and cleanliness.



SYSTEMATIC PROTECTION



Safety and occupational protection come first in production environments. MiniTec offers a wide range of protection system products and tailor-made solutions. Regardless of whether it involves machine protection, noise control or hygiene protection.

Hazards lurk in wait in many places. The aim is therefore to design machines and systems so that work accidents are prevented. Guards must prevent access to the source of danger and at the same time protect against ejected parts, moving machine parts or escaping liquids. The protective equipment must also be designed so that it cannot be removed without tools. The possibilities are diverse and depend on different factors, including the individual hazard rating.

MiniTec offers a large number of solutions for optimum protection in modern production facilities. All MiniTec protection systems are based on the tried and tested modular profile system and can therefore be designed to be extremely flexible and individual. The system and machine protection can be exactly adapted to the requirements for high safety standards and visual effect.

Machine enclosures

Machine enclosures enable reliable protection for equipment and personnel. They are used to separate sensitive machines and employees from ambient noise. MiniTec is specialised in all kinds of different machine enclosures. The product portfolio includes safety fences with different size, access controls, lifting doors, office modules and other solutions that protect your employees and expensive machines reliably.

Enclosures can be individually adapted to customers' wishes, regardless of whether a noise-reduced work environment or a workplace with clean room class is needed.

MINITEC MACHINE ENCLOSURES

- *Protects personnel from noise, dust and dirt particles, accident risks, moisture or unpleasant temperatures*
- *Protects expensive equipment from wear and damage*
- *Quick to assemble and flexibly adaptable*
- *Numerous solutions for different requirements*



www.minitec.de/loesungen/schutzeinrichtungen

WHEN THINGS NEED TO BE SOMEWHAT SMALLER

nano|sec is specialised in individual laser technology solutions. The machines are for micro machining of materials or workpieces for defined tasks. MiniTec is always involved.

Micromachining with lasers is a matter of dimensions rarely found in everyday life. nano|sec in Darmstadt has focussed on systems in precisely this environment. With a hand full of specialists, the company develops individual solutions in which laser technology is used. It is a matter of machining material in the form of holes and structures that are beyond human perception. And it is done using lasers across all wavelengths, from short pulse lasers within the nanosecond

range (ns lasers) to picosecond lasers (ps) through to femtosecond lasers (fs).

ULTRAFINE MACHINING WITHIN THE SINGLE-DIGIT MICROMETRE RANGE

The customers are in the automotive sector as well as in the advertising graphics and design environment. For example, nano|sec produced a unit for a merchandising product manufacturer, which enables personalised photo engraving on tumblers. Another significant area is the pharmaceutical and medical industry, where particular requirements exist concerning quality and precision.

From individual production to small series

The machines are mostly one-offs in special purpose machinery construction. Occasionally, small series are also built, Managing Director Rüdiger Kreuter said: "We are always pleased when the order is for two or three units of the same type. This was the case, say, for the system for personalising tumblers. In the meantime, we have built seven units for the customer." As with all nano|sec projects, particular know-how was also required here. Because very high accuracy requirements had to be met for the glass machining – and this in view of the fact that glass can have large production-related tolerances. For example, it was a complex task to enter in measurement terms, where



Image engraving on tumblers and bottles with high resolution using a laser unit from nano|sec.

and how the laser must work, for example, in order to correctly reproduce greyscale values. As usual, MiniTec was brought on board as the partner for this machine.

Large MiniTec share of projects

Rüdiger Kreuter said: “Our units are always built together with MiniTec. The basic objective, the specification and the process know-how come from us. We then discuss them with MiniTec and its experts then develop the concept – from the design through to the electrical engineering and mechanics. When everything fits, it is then implemented. This is mostly done at MiniTec. Only very sensitive components such as lasers, optics or sophisticated electronics are assembled first in Darmstadt, also to avoid transport damage. But MiniTec undertakes the mechanical and electrical part, so that the integration of the processes and commissioning are then done by us.”

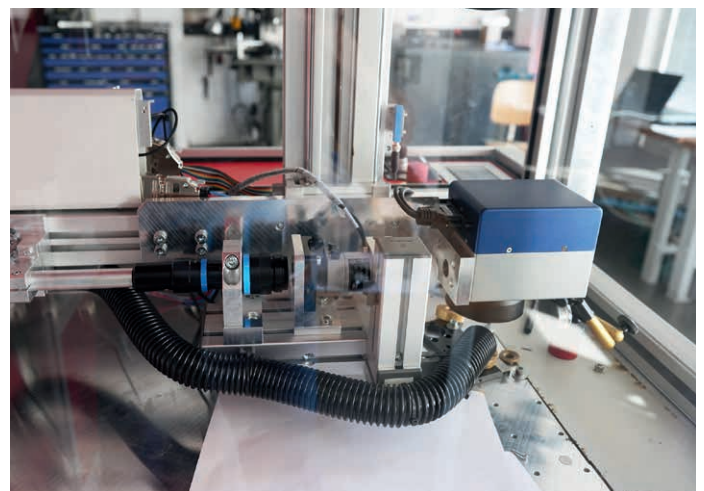
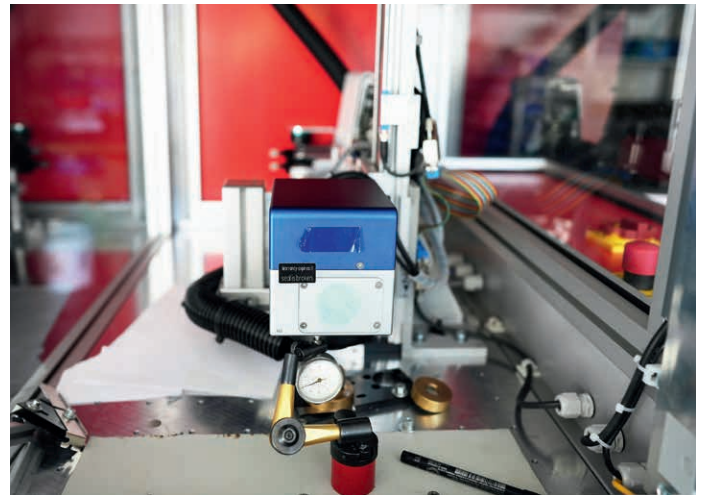
Depending on the task, the components used by MiniTec in the units can be very different and range from linear axes to conveyor sections through to robots. nanolsec in turn provides the lasers, optics, electronics and the software. Safety glasses filter the harmful laser radiation so that the machine can be installed in a normal production environment.

Ultrafine machining as a new strategy

The requirements in this high-tech environment are subject to permanent change, which nanolsec responds to with appropriate innovations, says Managing Director Kreuter: “For some time now we have seen that in medical engineering, as well as in the chemical and pharmaceutical sector and in molecular biology an increasing number of tasks require ultrafine machining. Therefore, a year and a half ago, we declared it a strategic goal to offer solutions in this area.”

The outcome is a new line of units named NDX1. It allows ultrafine machining within the single-digit micrometre range. The laser equipment is based on ultrashort pulse technology. The laser wavelength of 355 nm is suitable for machining virtually all materials such as plastics and metals. The NDX system provides multiple machine operating modes. It includes machining rotatory as well as nonrotatory workpieces (freeform surfaces) in the form of lettering, drilling cutting, structuring and ablation.

MINITEC DESIGNS AND REALISES ALMOST THE COMPLETE BASIC MACHINES



Lasers in use: Machining room with optical bench.

Fully-automatic machine calibration for the laser's axis systems and the measurement technology are included in the functional scope.

1,000 holes in an area of 5 mm diameter

The applications are found wherever extremely fine structures or tiny holes are needed in glass, steel, aluminium or ceramics. This is the case, for example, in inhaler technology used in pulmonology for the treatment of asthma. A stainless steel screen is needed here, which has around

1,000 holes in a circle with 5 mm diameter. The medication is nebulised via the holes and inhaled by the patient so that it then directly enters the blood.



The new NDX1 (left) allows ultrafine machining within the single-digit micrometre range.

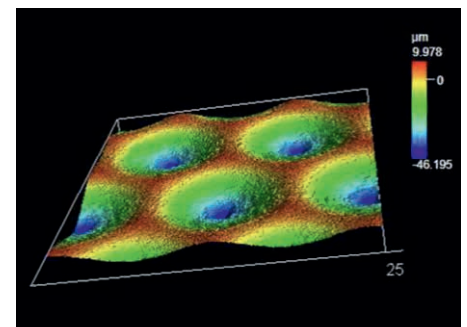
THOR X4 enables the machining of virtually any material, for example, the engraving of glass, with maximum provision and works two to three times as fast as a conventional laser.

"If something is injected into your arm, such as a vaccination, the first question is how the medicine gets from the arm into the lungs. But if you can inhale it, it passes directly into the lungs and this is much more effective and better", is how Rüdiger Kreuter explained the advantages. He added: "Another application of the NDX1 are filter technologies. When you fill a syringe, this fluid must be strained beforehand to filter out contaminations. This again needs tiny holes in the cannulas. The whole area of osmosis is also significant in the wastewater engineering or wastewater treatment environment, where extremely fine membranes are used. On the other hand, microbiology needs thin channels in the material that fluids can flow along. These are all tasks that we can solve with the unit."

**"MY CONTACTS
AT MINITEC HAVE
HIGH TECHNICAL
UNDERSTANDING,
THE CHEMISTRY IS
ALSO RIGHT"**

Advantages of working with MiniTec
nano|sec clearly focuses on the engineering; the company does not have its own parts production facility. MiniTec therefore has a large role in the units, because the basic machines are almost completely designed and realised by it. According to Managing Director Kreuter, there are good reasons for the cooperation that has already lasted for years: "My contacts

at MiniTec have high technical understanding, the chemistry is also right. That's why we have had a very successful cooperation for a long time, it simply suits us! Furthermore, the MiniTec profile technology offers further advantages thanks to its well thought-through system and innovative connection technology."



The laser wavelength of 355 nm is very suitable for machining plastics and metals.



NEW CAMPER FIT OUT PARTNERSHIP

Frankana Freiko, one of the most important wholesalers for camping and leisure supplies in Europe, is now a MiniTec partner in the camper fit out environment and will sell the components of the modular profile system through its network of specialist retailers.

An increasing number of camping enthusiasts use the modular aluminium profile system of MiniTec for the individual fitout of their vehicles. Whether kitchen unit, heavy-duty shelving, shower cubicle, wall and ceiling construction, swivelling table, bed or other components – there are no limits to creativity. To meet the increasing demand and to place the sales and distribution network on a broader base, with Frankana Freiko, MiniTec has acquired an effective distribution partner in the camper fit out sector. Together with its sister company Freiko, Frankana Caravan und Freizeit GmbH based in Gollhofen is the leading wholesaler for camping and leisure supplies in Europe. Since it was founded in 1982, the company has continued to grow and now supplies

more than 3,000 specialist retailers worldwide.

MiniTec sales manager Benjamin Renno: “We are pleased that, with Frankana Freiko, we now have an effective partner in the camping vehicle fit out sector at our side, who will sell our products to consumers through their wide network of retailers. Frankana Freiko has many years of experience, is well-known and has excellent market penetration. The course is therefore set for MiniTec to continue to grow in the camper sector. We look forward to the cooperation and are already convinced of its success!”

Jens Wilke, responsible for OEM customers at Frankana Freiko, agrees: “In the DIY segment and for our



Benjamin Renno with the Frankana Freiko colleagues Michael Müller, Jens Wilke and Bodo Neumeister (from the left).

industrial partners, the MiniTec profile system is a great construction basis, which can be used extremely flexibly. The modular ideally complements our portfolio for camper fit out in an ideal way. We are very much looking forward to the cooperation!”



WELL CONNECTED FOR 30 YEARS

Around 30 years ago, the Gebrüder Wörner company in the Baden region opted for the MiniTec aluminium profile system. During this time, a large number of different constructions have been created by the special purpose machinery builder and manufacturing service provider. The flexibility of the modular system convinces the technicians again and again.

The Gebrüder Wörner company is a classic SME for machine building, special purpose machinery building and manufacturing services. Founded around 70 years ago, the company supplies individual parts, assemblies, tools, jigs and special machinery to renowned customers, including automotive suppliers and the packaging and

machine engineering industry. The company has around 20 employees. Special purpose machinery building is now run as a separate profit centre. Daniel Bentz is responsible for it. The industrial master electrician is responsible for control technology, assembly and marking technology and is also involved in product development.



Head of Department Daniel Bentz is responsible for special purpose machinery construction.

The company's portfolio also includes lettering cabins with lasers, which can be adapted to the respective purposes. They are available as a basic version and as an advanced version. As standard, they are equipped with a manual or electric lifting door and lifting table and 3-axis hybrid laser with autofocus and a marking field of 125x125 mm. They show in an exemplary way, just how advantageous the MiniTec modular system is for the mechanical engineering company in order to build flexible frames and enclosures for units.

Active partnership

Gebrüder Wörner opted for MiniTec as its supplier around 30 years ago. "At the time, it looked around for the right machine builder and partner and came across MiniTec. Not only the offer with the modular system, but also the spatial proximity

were decisive advantages", said Daniel Bentz. How a partnership really works does not become clear until it is put into practice. "Over the years, we really have had good experiences. The cooperation functions smoothly. If necessary, we receive fast and reliable information from both the sales representatives and the technicians, the delivery periods are short and the quality is right", he added.

The basis for almost all machines and equipment built by the company based in the Baden region is the MiniTec profile system and the associated modular system. This has proven itself in many areas of industry for decades and contains all important parts and components: From the ergonomic workstation to stable protective enclosures or machine frames through to the construction of complex conveyor systems, there are no limits to what is possible.

Everything fits together

Among other things, the compatibility of the different profile sizes, which can be combined with each other, is decisive for the flexible use. In general, the user has the choice between the lightweight version for attractive design or high hygiene requirements or the heavy-duty version for maximum loading. This plays an important role, for example, for the machine builder Wörner, as it also supplies food producers with their corresponding production hygiene requirements.

Other important points include the possible integrated compressed air supply or protection against electrostatic discharge through ESD-compatible components in the modular system. "We also build many jigs, conveyor sections or workplaces for our own CNC production or the manufacturing services – always using MiniTec products. Here it is important that we don't have to fall back on other suppliers", said Bentz.

Firmly and flexibly connected

The MiniTec power-lock fastener plays an important role in the constructions: This is simply screwed into the profile cross-section of one profile with a self-tapping screw and is pushed into the groove of the other profile. A setscrew M8 then makes a friction lock and ESD-compatible connection between both profiles, drilling is superfluous. "That is really practical, because it means a construction can still be changed or extended later without leaving behind

"THE PARTNERSHIP WITH MINITEC IS VERY CONSTRUCTIVE AND UNCOMPLICATED"

any marks and we can also reuse the profiles", underscored Bentz. Overall, thanks to all these features, the drawing, measuring and machining work is also reduced to a minimum.

Yet it is not only the real, tangible products that make our work easier: "We design all machines and equipment with a professional 3D CAD system. There it is important for our supplier to also provide the relevant data", emphasised Bentz. MiniTec offers an electronic catalogue for this, which contains all components of the profile system as 2D and 3D data. These can be imported into all popular CAD systems via standard interfaces. A parts list with the relevant order information can therefore also be created.

Webshop with added value

"The new MiniTec webshop is also interesting for us. We registered straight away and are convinced that the order processes will therefore become even easier for us", said Bentz.



A well-coordinated team contributes expertise in many areas.

Ordering through the shop couldn't be easier: The customer simply selects the required products, defines specifications and quantity and place them in the trolley, one after the other. They then receive automatic confirmation of the incoming order. After MiniTec has processed the order, it sends an order confirmation with all further details.

"All in all, a pretty good experience", thinks Daniel Bentz. The webshop is a further service element, which facilitates cooperation with MiniTec and saves time for the machine builder company Wörner.



Smaller standard equipment such as a marking system is also created on the basis of the MiniTec modular system.

OPTIMISED BREATHING APPARATUS WORKSHOP RANGE

Fire services use the MiniTec modular system to equip buildings and workshops and to fit out vehicles. The offer for breathing apparatus workshops has now been revised.



Many innovations in the product range: From doors and covers to front elements through to shelves in different variants.

For the design of breathing apparatus workshops, MiniTec draws on its decades of experience in the development and production of ergonomic workplace systems for industry and production. The individual needs of breathing apparatus attendants benefit from this know-how. Individual work steps such as dismantling, cleaning, testing, assembly and documentation are brought into an ideal flow by standardised workplace modules in the breathing apparatus workshop and adapted to the existing room dimensions.

Many innovations and improvements

The product range for fire services is permanently developed, including the modular system for breathing apparatus workshops. Material 1.4301

with a very fine polished finish K400 is used for the work areas made of stainless steel. This is optimally suitable for the black zone in which cleaning and disinfection of the surface have the highest priority. Individual panels up to a length of four metres can be freely configured with different types of basins, drainboards, splashproof edges, drip edges and many other elements and thus be adapted to the customer's specific situation.

Ergonomic shower sets are also new: Thanks to the long hose, which is routed in a long metal spiral, the water-saving shower can reach every corner. The swivel outlet can be conveniently operated with the elbow, thereby preventing contamination by contact transmission.

The new drawer generation is characterised by its high degree of convenience while at the same time being durable. The telescopic runners – with very gentle closing – have a load capacity of 70 kg. Thanks to carefully selected materials, the drawers are water resistant and are therefore optimally suitable for damp rooms.

Proven quality

Top quality components are used to ensure maximum quality, durability and longevity, regardless of whether in the black zone or in the white zone. All carcasses are made of aluminium profiles, with closed grooves for optimum hygiene. By using hinged feet, unevenness in the floor can be levelled out.



SLOVENIA: DIGITAL TRANSFORMATION

As part of the EU's "Next Generation" project, MiniTec Slovenia advanced digital transformation in training and supplied technical schools with state-of-the-art robot cells.

MiniTec is proud of its successful collaboration in an important project for the digitalisation of education in Slovenia, which was implemented as part of the EU-funded "Next Generation" project. Together with partners such as ABB, MiniTec played a key role in the fit out of 30 technically orientated education facilities with state-of-the-art robot cells and thus gave the Slovenian education system important impetus and opened up important training possibilities.

As a specialist for the development and implementation of technological solutions, during the project, MiniTec

contributed its technical knowledge to the development and delivery of robot cells with collaborative robots of the type ABB CRB 15000. The robot cells are equipped with adaptive grippers and computer vision systems, which enable flexible and safe operation in cooperation with humans. In this way, Slovenian schools were enabled access to state-of-the-art industrial technology and the students were given the opportunity to acquire important practical skills for the future.

Innovative solutions for the future of education

This underscores the philosophy in MiniTec Slovenia, which defines modernisation of the education system as a fundamental element for shaping the future. The cooperation with ABB in this project also enabled solutions to be delivered, which will improve the education processes in Slovenian technical schools. MiniTec Slovenia is proud to have made a contribution to improving the education system with its solutions. At the same time, the partnership with ABB was strengthened and therefore the commitment to the introduction of innovative and high-quality solutions in various areas of industry and education was further advanced.

"With this project, together with ABB, we have demonstrated that, with the right partnership and technology, significant changes can be achieved. We at MiniTec will continue our support for Slovenian education facilities and push ahead with our mission to introduce technologies that not only improve learning processes, but also prepare young people for the challenges of the future world", the persons responsible emphasised.



Dr. Darjo Felda, Minister of Education (left.) and Robert Logar, Director of ABB

FRANCE: ASSEMBLY OF WALKING AIDS



High-quality and easily movable: The rollable assembly helpers make the adjustment of walking aids significantly easier.



and is used in rehabilitation and neurological clinics and in clinical research institutes in Europe and the United States of America. They enable the exoskeleton, a support corset, to be better adapted to the respective user and thus optimise the mobility and autonomy of people without ambulatory ability. In this way, wheelchairs can be replaced.

MiniTec France developed and built rollable stations which can be used as mobile units for a Parisian company. With the Atalante products, patients with severely impaired mobility are enabled to stand up and walk without holding on. The first apparatus was placed on the market in 2019,

The rollable assembly helpers from MiniTec France are simultaneously used as containers for the assembly components and seating during the work, which can take a relatively long time. "We feel honoured to accompany this innovation and to contribute our part to changing lives for the better", said Managing Director Patrick Jaeck.

USA: PROTECTION SYSTEMS FOR SAFE WORKPLACES



Protection systems from MiniTec ensure optimum protection in modern production facilities and industrial plants.

In the world of production and industrial operation, safeguarding machines is not only a requirement to comply with regulations, but also an obligation to protect our most valuable asset: our employees.

The MiniTec protection system is perfectly suitable for the designing, building and implementation of guards for all kinds of different areas of our customers. Our American subsidiary MiniTec Automation also uses this modular system to build high-quality protective devices for its customers. By implementing effective machine protection solutions, risks are reduced,

productivity improved and safety in the workplace is increased significantly.



“STRONG TOGETHER”

At the beginning of the year, MiniTec took over Schulz Fördertechnik GmbH in Waldmohr/Palatinate and with it will not only expand its portfolio but also increase its range with new target markets. MiniTec Managing Director Tobias Doll, who is driving forward the integration, explains what this looks like in practice.



What experiences do the Waldmohrer employees bring with them?

For almost 30 years, Schulz Fördertechnik GmbH has been operating in the conveying components and systems segment. The company's focus has always been on the supply and installation of conveyor belts and the design of individual conveyor systems with steel and stainless steel frames. Especially for conveyor belts, the company has acquired a good reputation with its very good service. This area needs know-how and speed, as a defective conveyor belt always means that a system is at a standstill. Schulz Fördertechnik therefore also has a large warehouse and has a regional advantage if a conveyor system fails.

What does MiniTec contribute?

Until now, the offer of Schulz Fördertechnik in conveyor system projects has been limited to the

hardware. It has always had to fall back on partners for the automation of the systems. This is where MiniTec can contribute its expertise. System controls or rather the overall automation is one

COMBINED EXPERTISE FOR CONVEYING TECHNOLOGY

of our core competencies. The complete MiniTec modular system with numerous parts and components and bought-in parts within our supplier network are naturally also available.

The expertise and very good connections in the food and pharmaceutical industry based on this are in turn a plus for us. These are areas in which we have hardly been present to date. Together we are considerably stronger on the market.

Will the company be renamed?

For the time being, within the MiniTec Group, Schulz Fördertechnik will continue to operate independently on the market under its familiar name.

What is currently happening?

As part of the integration in our group of companies, the business processes are currently being adjusted, i.e. harmonised. This is also accompanied by the introduction of our ERP system, business management software.

Within this framework, for example, the customer and supplier databases can then also be adjusted. In future, the portfolio of both companies will naturally be available to the customers of MiniTec and Schulz Fördertechnik and we will work hand in hand on projects, or rather one of us will be the general contractor.

In future, the Schulz Fördertechnik portfolio will also be available beyond regional borders. Here we provide support with our nationwide sales and distribution. We will be setting the course for this at the next sales representative conference at the beginning of the year.

Exchange between the companies and teams will naturally also be intensified. In this case, this is very easy thanks to our spatial proximity.

Thank you for talking to us, Mr Doll.

DOERS WITH PROFILE



Benjamin Müller of MiniTec at work.

We at MiniTec are not only creative for our customers and repeatedly find a suitable solution their requirements. Many of our employees are also inventive in their private lives. Over the years, they have created astonishing constructions on the basis of our modular profile system. Many of them show what creative people work at MiniTec.

The project of Benjamin Müller shows that technicians not only have good ideas but also an appreciation for design. The longstanding employee has already created many MiniTec constructions in his private environment. An enclosure for bins was now needed. He realised this without further ado and clad it with

a similar structure to a brick wall. The result is an attractive enclosure that defies the elements.



Elegantly clad enclosure for waste bins.

BALCONY POWER PLANT EASILY ASSEMBLED WITH MINITEC PROFILE

Balcony power plants have experienced a real boom in recent years. Generating electricity from solar cells on your own balcony and therefore saving cash is an attractive option for an increasing number of home owners and tenants. Yet, as easy as the assembly and

installation appear at first glance, hurdles also sometimes occur in the practical implementation. For example, the installation material supplied does not always fit the situation on site. Michael Konrad in the Saarland town of Neunkirchen also found this, as the

brackets for attaching the baseframe were too short and simply did not fit on the balcony posts.

An acquaintance gave him the tip to take a look around MiniTec – which led to the solution of the problem: Home owner Konrad ordered a size 30 profile with the required length and thus found the perfect solution for connecting the four solar module brackets to the three railing posts – with a continuous profile. The size 8 stainless steel screws delivered with the power station could be easily pushed into the MiniTec profile groove.



A continuous MiniTec profile replaces delivered fastenings that are too short.

A REASON TO CELEBRATE – LONG-SERVICE EMPLOYEES AT MINITEC



"For 20 years, MiniTec has given me the opportunity to continue to develop both professionally and personally in an innovative technical environment with new interesting challenges. I am proud to be a part of this team."

Nina Huber



"The past five years have flown by. Thanks to its broad range of products and solutions and its dynamism and innovative power, MiniTec offers a large field of work in marketing – it's never boring!"

Stefan Wache

Top: As always, at the end of November, the MiniTec management invited all this year's long-service employees to a joint celebration with a tasty meal. An extremely pleasant experience for all participants, which once again confirmed the group identity.

Strong company loyalty is not rare at MiniTec, as the long-service employees in the Connect demonstrate time and again. This year, around 50 employees were able to celebrate a round anniversary, about half of whom looked back on 20 years and more of service with the company. In addition to many "goodies" such as flexible flexitime arrangement, single shift working, allowances for fitness studio & job bike, the familial, appreciative work climate plays a particularly important role in this. This ensures high motivation and a positive team feeling with many likeable colleagues.

In the final quarter of the year there were again several long-service employees who we thank for their longstanding support and company loyalty:

- Georg Oborovski (Shaft machining): 30 years
- Nina Huber (Head of systems engineering): 20 years
- Mario Schlotthauer (Dispatch): 20 years
- Mario Muck (Assembly): 15 years
- Stefan Erich Beller (Assembly): 10 years
- Waldemar Rein (Caretaker): 5 years
- Stefan Wache (Marketing manager): 5 years

DEAR READERS,

2024 passed by at rapid speed and it is already again that time of year to look back and look forward. For the economy, politics and for us too, it was an interesting and challenging year. It demanded plenty of flexibility and courage from us, but it was also a year with positive experiences.

It started in January with the award of the Bundesverdienstkreuz, Germany's Order of Merit, to Bernhard Bauer, founder and longstanding Managing Director of MiniTec, by the Rhineland-Palatinate Minister for Economic Affairs Daniela Schmitt. A tribute to his life's work.

We took over Schulz Fördertechnik, a company that enriches our portfolio and sales options. By doing so, we remain true to ourselves, since even in the past decades, we have always viewed difficult times and crises as being opportunities and invested in our future.

Our "InHouse" trade fair was yet again a very encouraging success. It was very popular, which verifies interest in our products and our company. The "Future Day" day for junior employees and trainees was held for the first time and was also very popular. Training is not only a matter close to our heart, but is also an important component of our company's success. Both events will also be held again in 2025.

We also look forward with our "Mission Future" project. It started in 2024 and will be continued next year. With the support of external consultants, we consider future topics, examine our processes and activities. We also shift our focus on our values and skills. We create the basis on which we can be an efficient and innovative partner for our customers and suppliers, in the long-term too – and be a

future-orientated employer for our employees. We have already achieved several positive results, which encourage us to continue.

The digital transformation at MiniTec also continues to progress: In our subsidiaries, processes have been optimised and the ERP system for business management control has been updated. Websites have been further developed and those of our foreign subsidiaries have been adjusted. We have installed a webshop that has already been well received by our customers. No surprise, since the advantages for both sides are obvious.

We also have several things planned for the coming year, even though the political and economic development continues to be uncertain. Nevertheless, we will meet 2025 with optimism.

We wish you and your family a happy Christmas and a good start in the new year.

Yours



Sandra Geyer-Altenkirch
Managing Director



The Rhineland Palatinate Minister of Economic Affairs, Daniela Schmitt, presented the Cross of the Order of Merit of the Federal Republic of Germany to Bernhard Bauer.



In April, the first MiniTec Future Day was very popular.



Schulz Fördertechnik is now part of the MiniTec group of companies with Wolfgang Wasemann and Managing Director Sandra Geyer-Altenkirch.



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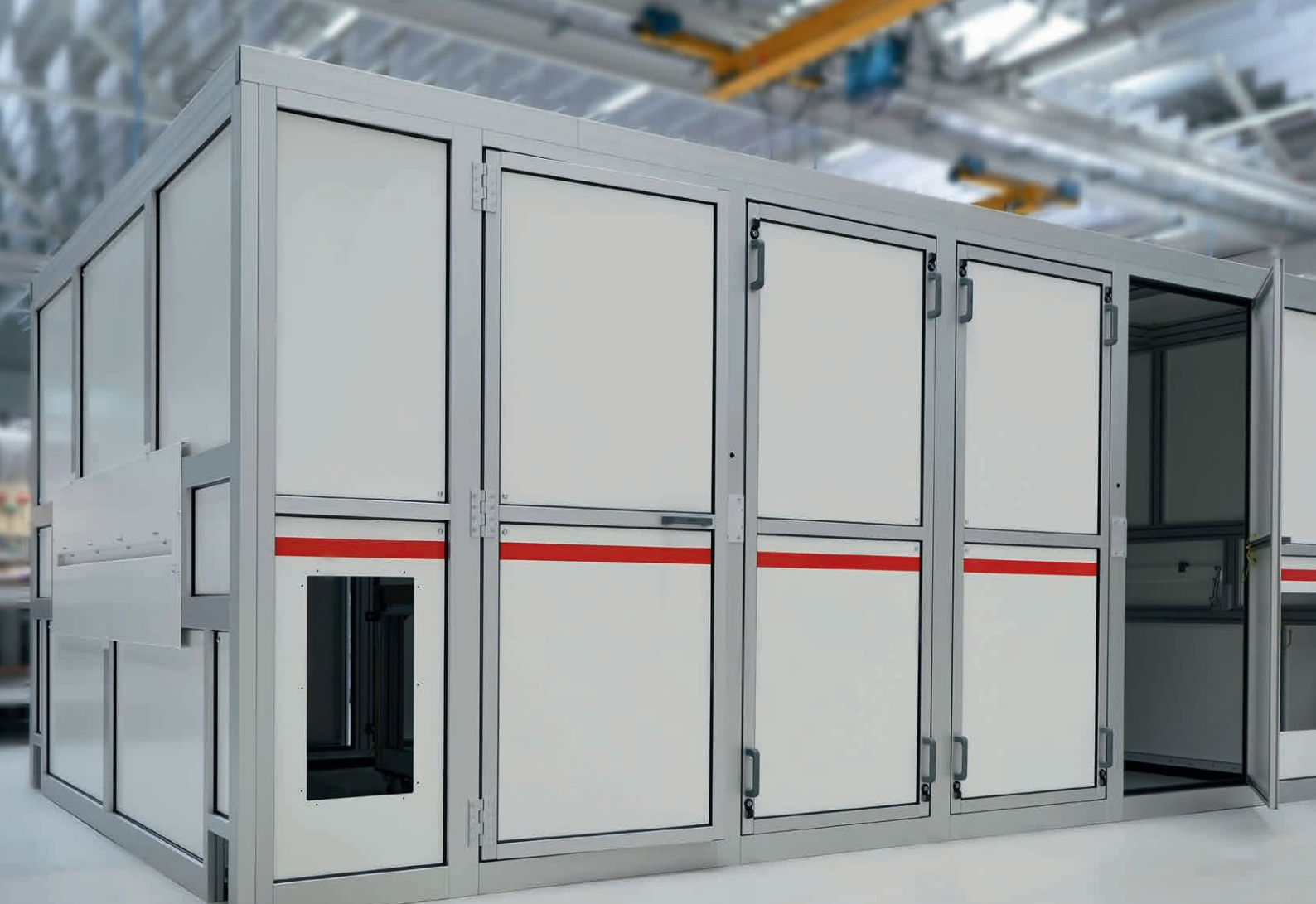
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Simply safer: **MiniTec protection systems**

Safety and occupational health are top priorities in production environments. MiniTec offers customized solutions based on its modular system. Regardless of whether it's about machine, noise or hygiene protection. Whether about individual components or complete solutions. This includes:

- Safety fences
- Access controls
- Active noise protection with enclosures
- Lifting doors and vertically movable protective hoods
- Office modules
- Hygiene protection walls and much more

All MiniTec protection systems are based on our modular profile system and can therefore be designed extremely flexibly and individually. The machine protection can be adapted exactly to the customer's requirements, with high consideration of safety standards and visual impact.

Discover the Art of Simplicity!



<https://www.minitec.de/en/protection-systems>

